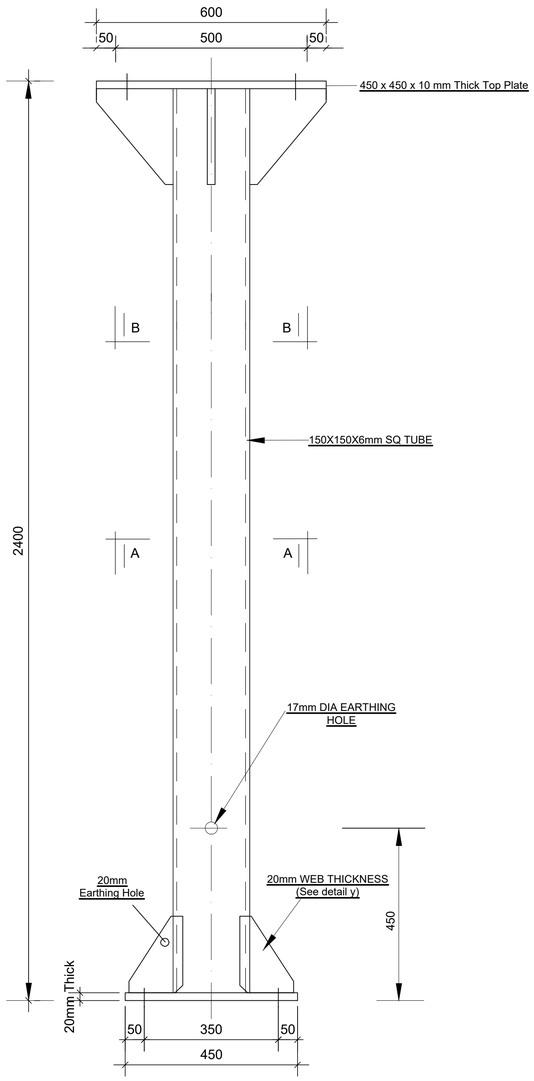
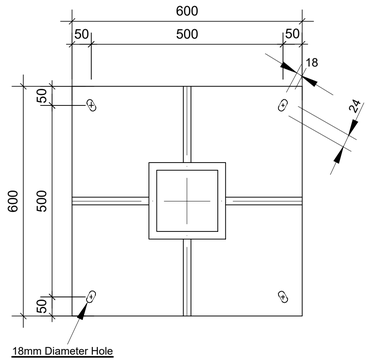
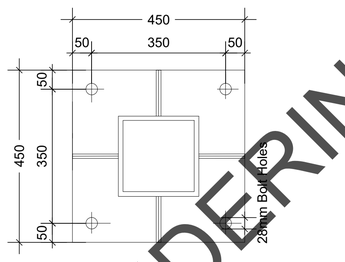


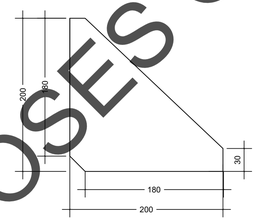
CTs ELEVATION
SCALE 1:10



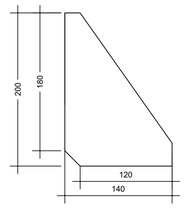
DETAILS OF 10mm THICK TOP PLATE
SECTION B-B
SCALE 1:10



DETAILS OF 20mm THICK BASE PLATE
SECTION A-A
SCALE 1:10



TOP PLATE STIFFENER (10mm Thick)
4NO.
SCALE 1:3



BOTTOM PLATE STIFFENER (20mm Thick)
4NO.
SCALE 1:3

NOTES : -

1. ALL MATERIALS TO BE MILD STEEL TO BSS 4360
2. ALL STEEL WORK TO BE FREE FROM RUST DIRT BURRS E.T.C AND THEN GALVANIZED BY HOT DIP. PROCESS, THICKNESS AND QUALITY OF ZINC COATING TO WITHSTAND TESTS OF BSS 729.
3. EQUIPMENT CONNECTING BOLTS NUTs AND WASHERS TO BE SUPPLIED BY THE MANUFACTURERS.
4. BOLT THREADS TO BE RECUT WITH SLACK DIES AFTER GALVANIZING AND THEN GREASED.
5. SUPPLIED BOLTS,NUTS, AND WASHERS TO INCLUDE 10% SPARE ,AND TO COMFORM TO TO BSS 916
6. FABRICATORS ARE TO DESIGNATE ALL STEEL WORK ITEM AS PER THIS DRAWING AND ARE TO PROVIDE ERECTION MARK.
7. ALL BASE PLATE HOLES TO BE 28 MM DIAMETER

KINANIE
W L W W
Eng. D.M. Wambugu.
12/03/2025.
For Building only.

NOTES

1. All dimensions are in millimeters, unless otherwise stated.
2. This drawing must not be scaled ,only figured dimensions should be used.
3. This drawing must be read in conjunction with relevant Architectural drawings.
4. Reinforced concrete for all structural elements to be grade C20/25 to BS EN 206-1:2002, except for the ground floor slab (grade C16/20), and roof slab (C25/30).
5. Cover to main reinforcement to be as follows:
   (a) Foundation = 50mm
   (b) Columns = 40mm
   (c) Beams = 30mm
   (d) Slabs = 25mm
6. "H" Denotes ribbed high yield bars to BS 4461 with a yield strength of 500N/mm2 to BS 4449-2005.
7. Reinforcement in walls and columns must be inspected by the Engineer before being enclosed in formwork.
8. All masonry walls must be reinforced with 25mm hoop iron after every two alternate courses. The hoop iron must be extended through the column sections.
9. To ensure enhanced bonding between the masonry and the R.C. columns, the masonry walling must be raised first before the columns are cast.
10. All mortar used to be of cement sand mix 1:3, with all the stone walling being laid in 200mm courses with 12mm mortar joints.
11. A minimum of 7.0N/mm2 average compressive strength of masonry in accordance with BS EN 771 and BS 5268 should be used for all wall sections.
12. Mass concrete to be grade 12/15 to BS EN 206-1:2002.
13. Double masonry walls to be built one at a time. Waterproofing plaster shall be applied to the inside of the first wall to Engineer's approval before the second is built .

REVISIONS

Date	Suffix	Descriptions	Issue

CLIENT

KENYA POWER & LIGHTING COMPANY

PROJECT

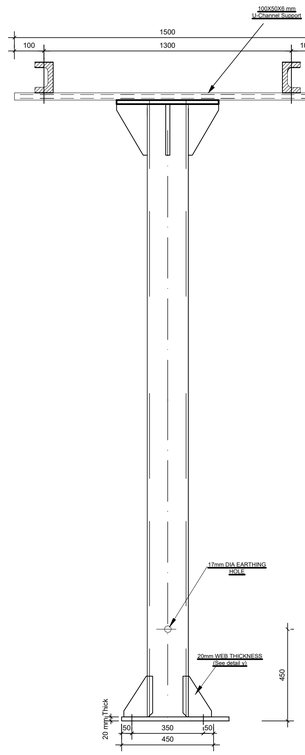
PROPOSED CIVIL WORKS & STRUCTURES FOR KINANIE 66/11KV, 1X23MVA TX

CONSTRUCTION DRAWINGS

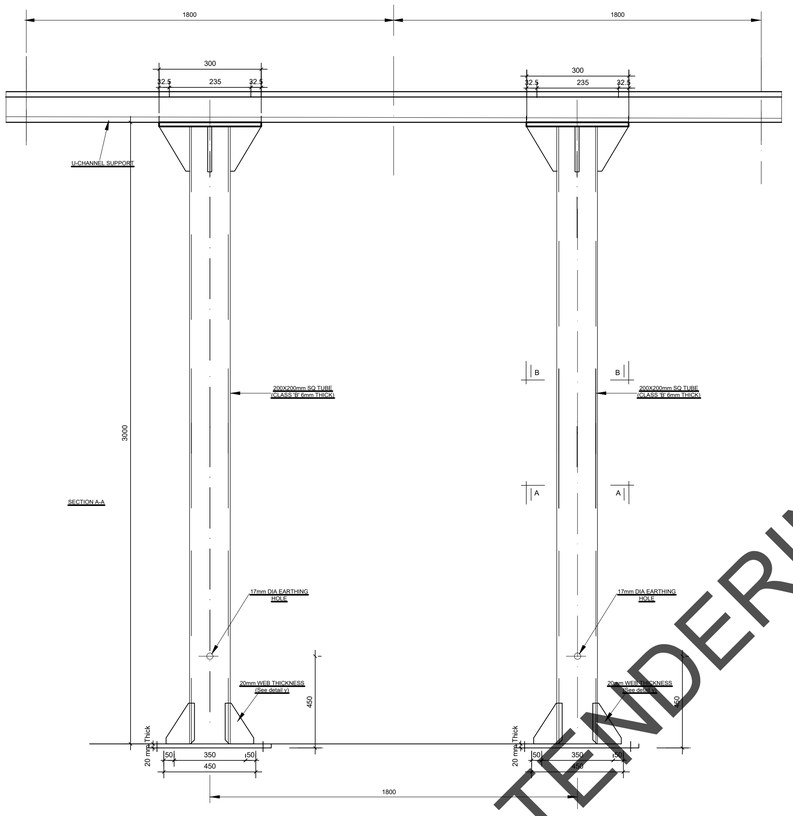
CIRCUIT TRANSFORMER/ VOLTAGE TRANSFORMER

66 KV STEEL STRUCTURES SHEET 001

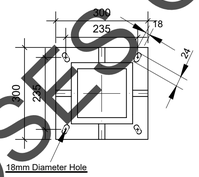
Drawn	D.WAITHERA	Scale(s)	AS INDICATED
Designed	D.WAITHERA	Date	MARCH, 2025
Checked	ENG. D.M.WAMBUGU	Date	MARCH, 2025
Approved	ENG. D.M.WAMBUGU	Date	MARCH, 2025
ISSUE DATE	MARCH, 2025		
JOB No.			



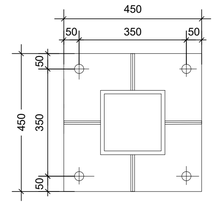
ISOLATOR STRUCTURE
SIDE ELEVATION
SCALE 1:10



ISOLATOR STRUCTURE
FRONT ELEVATION
SCALE 1:10

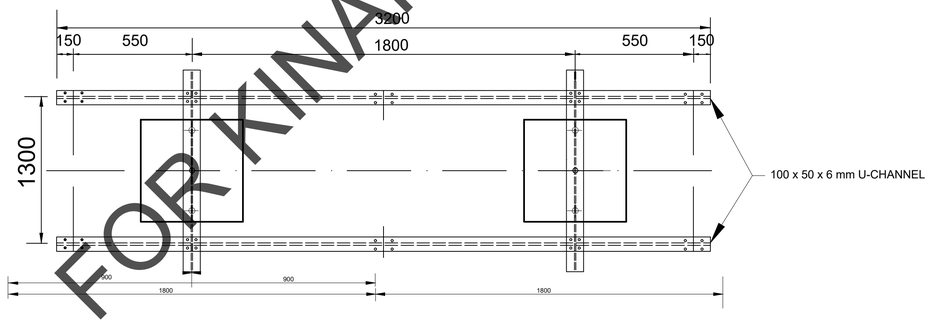


DETAILS OF 10mm THICK TOP PLATE
SECTION B-B
SCALE 1:10

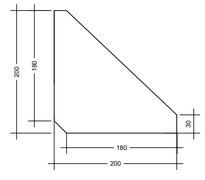


DETAILS OF 20mm THICK BASE PLATE
SECTION A-A
SCALE 1:10

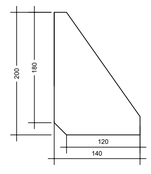
ALL BASE PL



ISOLATOR STRUCTURE
PLAN VIEW
SCALE 1:10



TOP PLATE STIFFENER (10mm Thick)
4NO.
SCALE 1:5



BOTTOM PLATE STIFFENER (20mm Thick)
4NO.
SCALE 1:4

ALL BASE PLATE HOLES TO BE 28 MM DIAMETER

KINANIE
Eng. D.M. Wambugu.
12/03/2025.
For Bidding only.

NOTES

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2. This drawing must not be scaled ,only figured dimensions should be used.

3.This drawing must be read in conjunction with relevant Architectural drawings.

4.Reinforced concrete for all structural elements to be grade C20/25 to BS EN 206-1:2002, except for the ground floor slab (grade C16/20), and roof slab (C25/30).

5. Cover to main reinforcement to be as follows:
(a) Foundation = 50mm
(b) Columns = 40mm
(c) Beams = 30mm
(d) Slabs = 25mm

6."H" Denotes ribbed high yield bars to BS 4461 with a yield strength of 500N/mm2 to BS 4449-2005.

7. Reinforcement in walls and columns must be inspected by the Engineer before being enclosed in formwork.

8. All masonry walls must be reinforced with 25mm hoop iron after every two alternate courses. The hoop iron must be extended through the column sections.

9. To ensure enhanced bonding between the masonry and the R.C. columns, the masonry walling must be raised first before the columns are cast.

10. All mortar used to be of cement sand mix 1:3, with all the stone walling being laid in 200mm courses with 12mm mortar joints.

11. A minimum of 7.0N/mm2 average compressive strength of masonry in accordance with BS EN 771 and BS 5268 should be used for all wall sections.

12. Mass concrete to be grade 12/15 to BS EN 206-1:2002.

13. Double masonry walls to be built one at a time. Waterproofing plaster shall be applied to the inside of the first wall to Engineer's approval before the second is built .

REVISIONS

Date	Suffix	Descriptions	Issue

CLIENT

KENYA POWER & LIGHTING COMPANY

PROJECT

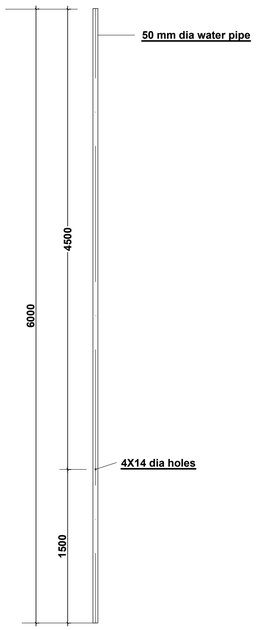
PROPOSED CIVIL WORKS & STRUCTURES FOR KINANIE 66/11KV, 1X23MVA TX

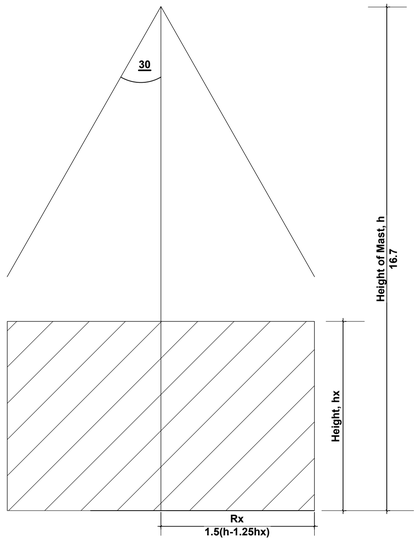
CONSTRUCTION DRAWINGS

ISOLATOR

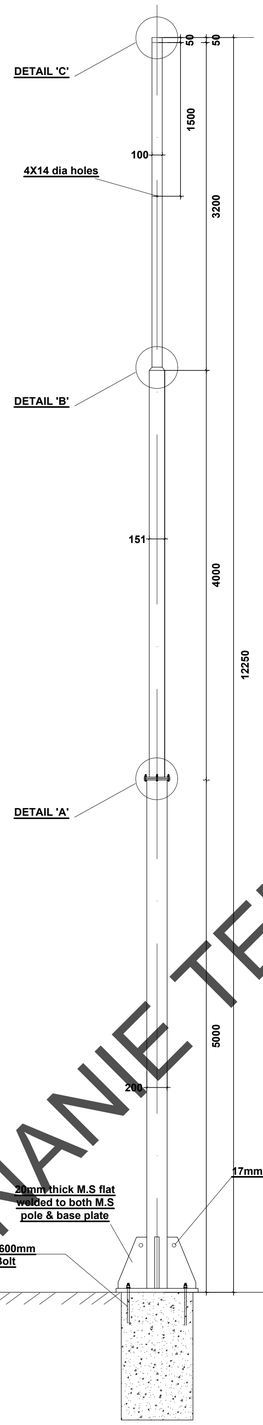
66 KV STEEL STRUCTURES SHEET 002

Drawn	D.WAITHERA	Scale(s)	AS INDICATED
Designed	D.WAITHERA	Date	MARCH, 2025
Checked	ENG. D.M.WAMBUGU	Date	MARCH, 2025
Approved	ENG. D.M.WAMBUGU	Date	MARCH, 2025
ISSUE DATE	MARCH, 2025		
JOB No.			

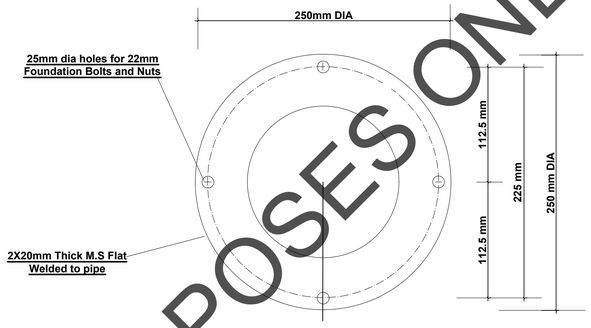




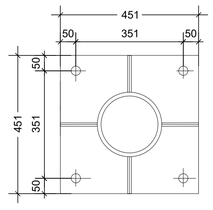
RADIUS OF COVERAGE
SCALE 1:30



DETAILS OF 16.7m
HIGH LIGHTING MAST
SCALE 1:30



DITTO FOR DETAIL A, B,C AS PER RESPECTIVE DIAMETERS
SCALE 1:30



DETAILS OF 20mm THICK BASE PLATE
SECTION A-A
SCALE 1:10

NOTES
1. ALL DIMESIONS ARE IN MM
2. 25X3mm COPPER STRIP TO BE CONNECTED TO THE HOLES OF INDICATED ITEMS AND BURIED ON THE GROUND ACCORDINGLY
3. 12MM BOLT AND WASHER TO BE USED ON THE INDICATED HOLES
4. 50MM DIAMETER WATER PIPE CLASS 'B'
5. ALL BASE PLATE HOLES TO BE 28 MM DIAMETER

Eng. D.M. Wambugu.
12/03/2025.
For Building only.

NOTES

1. All dimensions are in millimeters, unless otherwise stated.

2. This drawing must not be scaled ,only figured dimensions should be used.

3.This drawing must be read in conjunction with relevant Architectural drawings.

4.Reinforced concrete for all structural elements to be grade C20/25 to BS EN 206-1:2002, except for the ground floor slab (grade C16/20), and roof slab (C25/30).

5. Cover to main reinforcement to be as follows:
(a) Foundation = 50mm
(b) Columns = 40mm
(c) Beams = 30mm
(d) Slabs = 25mm

6."H" Denotes ribbed high yield bars to BS 4461 with a yield strength of 500N/mm2 to BS 4449-2005.

7. Reinforcement in walls and columns must be inspected by the Engineer before being enclosed in formwork.

8. All masonry walls must be reinforced with 25mm hoop iron after every two alternate courses. The hoop iron must be extended through the column sections.

9. To ensure enhanced bonding between the masonry and the R.C. columns, the masonry walling must be raised first before the columns are cast.

10. All mortar used to be of cement sand mix 1:3, with all the stone walling being laid in 200mm courses with 12mm mortar joints.

11. A minimum of 7.0N/mm2 average compressive strength of masonry in accordance with BS EN 771 and BS 5268 should be used for all wall sections.

12. Mass concrete to be grade 12/15 to BS EN 206-1:2002.

13. Double masonry walls to be built one at a time. Waterproofing plaster shall be applied to the inside of the first wall to Engineer's approval before the second is built .

REVISIONS

Date	Suffix	Descriptions	Issue

CLIENT

KENYA POWER & LIGHTING COMPANY

PROJECT

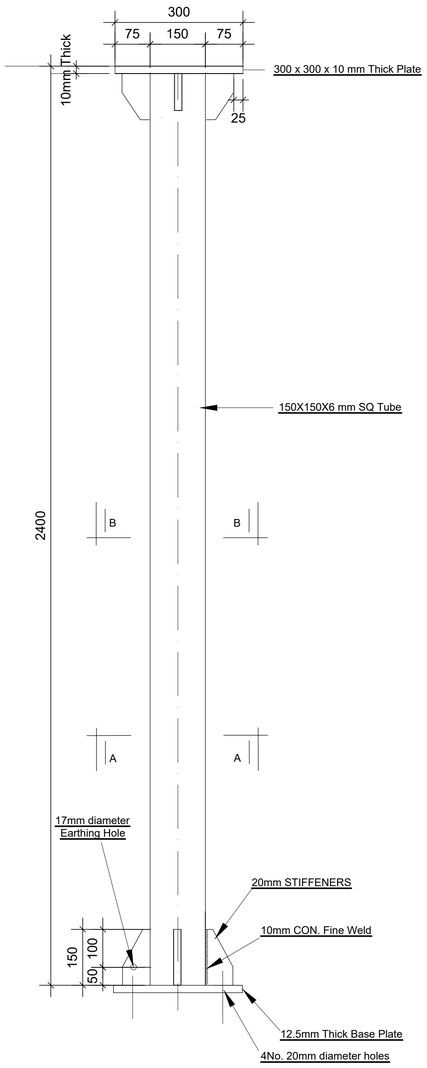
PROPOSED CIVIL WORKS & STRUCTURES FOR KINANIE 66/11KV, 1X23MVA TX

CONSTRUCTION DRAWINGS

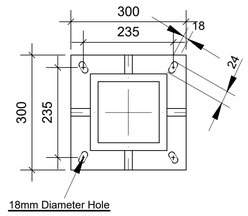
LIGHTENING MAST

66 KV STEEL STRUCTURES
SHEET 003

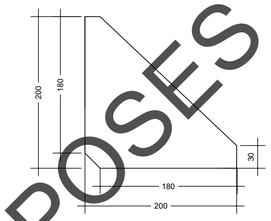
Drawn	D.WAITHERA	**Scale(s)**	**AS INDICATED**
Designed	D.WAITHERA	**Date**	MARCH, 2025
Checked	ENG. D.M.WAMBUGU	**Date**	MARCH, 2025
Approved	ENG. D.M.WAMBUGU	**Date**	MARCH, 2025
ISSUE DATE	MARCH, 2025		
JOB No.			



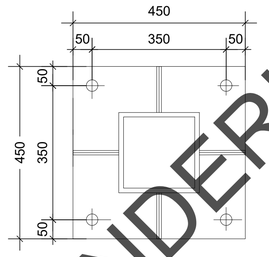
SURGE DIVERTER
ELEVATION
SCALE 1:10



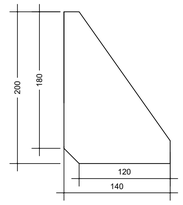
DETAILS OF 10mm THICK TOP PLATE
SECTION B-B
SCALE 1:10



TOP PLATE STIFFENER (10mm Thick)
4NO.
SCALE 1:3



DETAILS OF 20mm THICK BASE PLATE
SECTION A-A
SCALE 1:10



BOTTOM PLATE STIFFENER (20mm Thick)
4NO.
SCALE 1:3

NOTES:

1. ALL MATERIALS TO BE MILD STEEL TO BSS 4360
2. ALL STEEL WORK TO BE FREE FROM RUST DIRT BURRS AND GALVANIZED BY HOT DIP. PROCESS, THICKNESS AND QUALITY OF ZINC COATING TO WITHSTAND TEST OF BSS 729.
3. EQUIPMENT CONNECTING BOLT NUTS AND WASHERS TO BE SUPPLIED BY THE MANUFACTURERS.
4. BOLT THREADS TO BE RECUT WITH SLACK DIES AFTER GALVANIZING AND THEN GREASED.
5. SUPPLIED BOLTS, NUTS AND WASHERS TO INCLUDE 10% SPARE AND TO CONFORM TO BSS 916
6. FABRICATORS ARE TO DESIGNATE ALL STEEL WORK ITEM AS PER THIS DRAWING AND ARE TO PROVIDE ERECTION MARK.
7. ALL BASE PLATE HOLES TO BE 28 MM DIAMETER.

KINANIE
Eng. D.M. Wambugu.
12/03/2025.
For Bidding only.

NOTES

1. All dimensions are in millimeters, unless otherwise stated.
2. This drawing must not be scaled ,only figured dimensions should be used.
3. This drawing must be read in conjunction with relevant Architectural drawings.
4. Reinforced concrete for all structural elements to be grade C20/25 to BS EN 206-1:2002, except for the ground floor slab (grade C16/20), and roof slab (C25/30).
5. Cover to main reinforcement to be as follows:
   (a) Foundation = 50mm
   (b) Columns = 40mm
   (c) Beams = 30mm
   (d) Slabs = 25mm
6. "H" Denotes ribbed high yield bars to BS 4461 with a yield strength of 500N/mm2 to BS 4449-2005.
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10. All mortar used to be of cement sand mix 1:3, with all the stone walling being laid in 200mm courses with 12mm mortar joints.
11. A minimum of 7.0N/mm2 average compressive strength of masonry in accordance with BS EN 771 and BS 5268 should be used for all wall sections.
12. Mass concrete to be grade 12/15 to BS EN 206-1:2002.
13. Double masonry walls to be built one at a time. Waterproofing plaster shall be applied to the inside of the first wall to Engineer's approval before the second is built .

REVISIONS

Date	Suffix	Descriptions	Issue

CLIENT

KENYA POWER & LIGHTING COMPANY

PROJECT

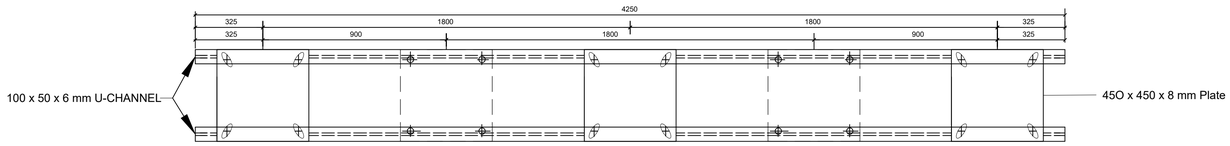
PROPOSED CIVIL WORKS & STRUCTURES FOR KINANIE 66/11KV, 1X23MVA TX

CONSTRUCTION DRAWINGS

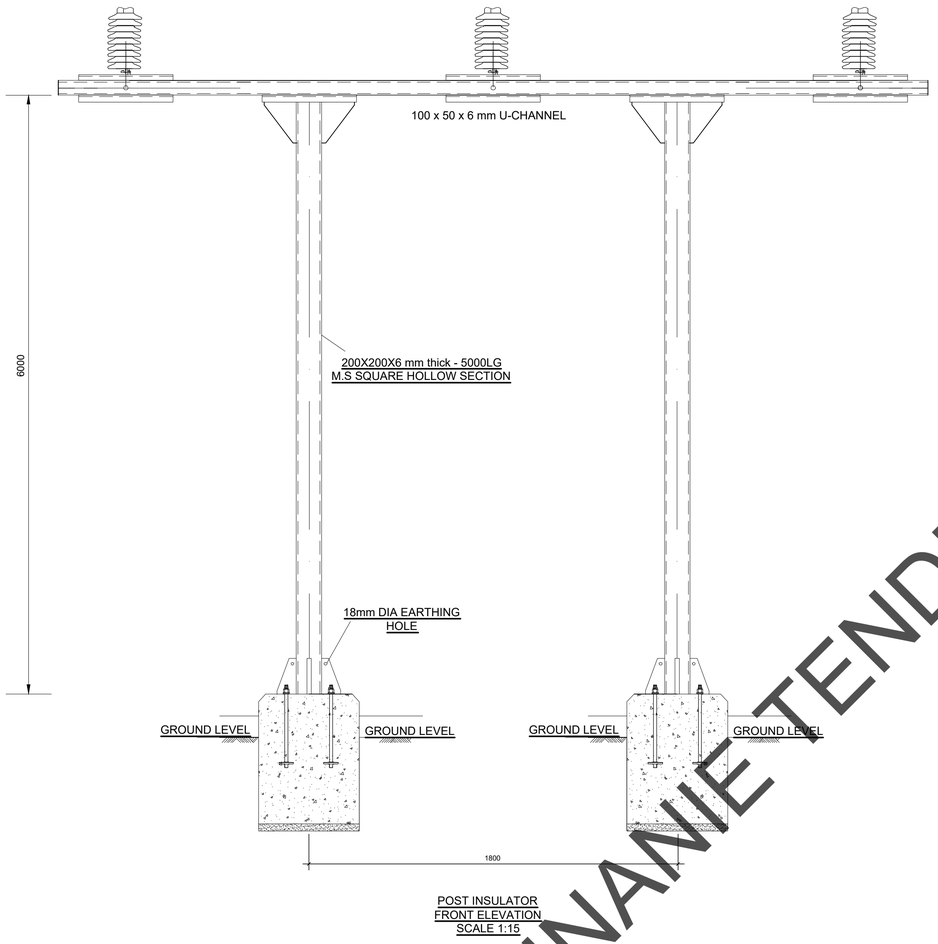
SURGE DIVERTER

66 KV STEEL STRUCTURES
SHEET 004

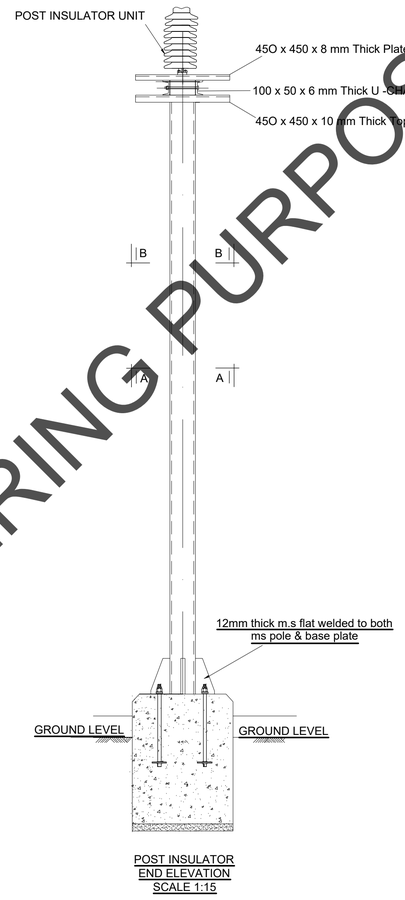
Drawn	D.WAITHERA	**Scale(s)**	**AS INDICATED**
Designed	D.WAITHERA	**Date**	MARCH, 2025
Checked	ENG. D.M.WAMBUGU	**Date**	MARCH, 2025
Approved	ENG. D.M.WAMBUGU	**Date**	MARCH, 2025
ISSUE DATE	MARCH, 2025		
JOB No.			



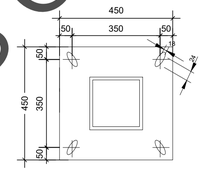
POST INSULATOR STRUCTURE
PLAN VIEW
SCALE 1:10



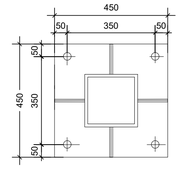
POST INSULATOR
FRONT ELEVATION
SCALE 1:15



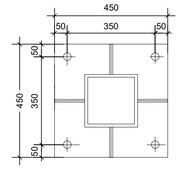
POST INSULATOR
END ELEVATION
SCALE 1:15



DETAILS OF 8 mm THICK PLATE
SCALE 1:10



DETAILS OF 10 mm THICK TOP PLATE
SECTION B-B
SCALE 1:10



DETAILS OF 20mm THICK BASE PLATE
SECTION A-A
SCALE 1:10

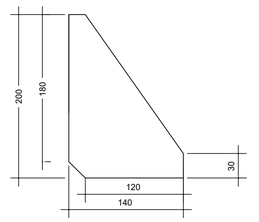


PLATE STIFFENER (20mm Thick)
8NO.
SCALE 1:5

NOTES

1. ALL HOLES TO BE 18MM FOR M16 BOLTS UNLESS OTHERWISE STATED.
2. ALL STEELWORK TO BE FREE FROM RUST, DUST BURRS E.T.C THEN GALVANISED BY HOT DIP. PROCESS, THICKNESS AND QUALITY OF ZINC COATING TO WITHSTAND TEST OF 729.
3. ALL BOLTS & NUTS CONNECTING EQUIPMENT TO BE SUPPLIED SUPPLIED BY EQUIPMENT MANUFACTURERS.
4. BOLTS AND NUTS YO CONFORM TO BSS 916 AND THE QUANTITY SUPPLIED TO INCLUDE 10% SPARE ALLOWANCE
5. FABRICATORS ARE TO DESIGNATE ALL STEELWORK ITEMS AND PROVIDE ERECTION MARK PLANS
6. ALL BASE PLATE HOLES TO BE 28 MM DIAMETER

KINANIE
W U W W
Eng. D.M. Wambugu.
12/03/2025.
For Bidding only.

NOTES

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3. This drawing must be read in conjunction with relevant Architectural drawings.
4. Reinforced concrete for all structural elements to be grade C20/25 to BS EN 206-1:2002, except for the ground floor slab (grade C16/20), and roof slab (C25/30).
5. Cover to main reinforcement to be as follows:
   (a) Foundation = 50mm
   (b) Columns = 40mm
   (c) Beams = 30mm
   (d) Slabs = 25mm
6. "H" Denotes ribbed high yield bars to BS 4461 with a yield strength of 500N/mm2 to BS 4449-2005.
7. Reinforcement in walls and columns must be inspected by the Engineer before being enclosed in formwork.
8. All masonry walls must be reinforced with 25mm hoop iron after every two alternate courses. The hoop iron must be extended through the column sections.
9. To ensure enhanced bonding between the masonry and the R.C. columns, the masonry walling must be raised first before the columns are cast.
10. All mortar used to be of cement sand mix 1:3, with all the stone walling being laid in 200mm courses with 12mm mortar joints.
11. A minimum of 7.0N/mm2 average compressive strength of masonry in accordance with BS EN 771 and BS 5268 should be used for all wall sections.
12. Mass concrete to be grade 12/15 to BS EN 206-1:2002.
13. Double masonry walls to be built one at a time. Waterproofing plaster shall be applied to the inside of the first wall to Engineer's approval before the second is built .

REVISIONS

Date	Suffix	Descriptions	Issue

CLIENT

KENYA POWER & LIGHTING COMPANY

PROJECT

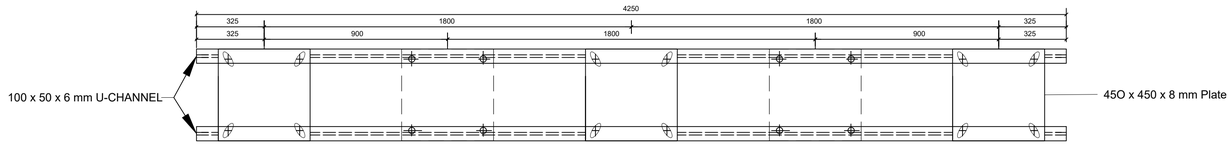
PROPOSED CIVIL WORKS & STRUCTURES FOR KINANIE 66/11KV, 1X23MVA TX

CONSTRUCTION DRAWINGS

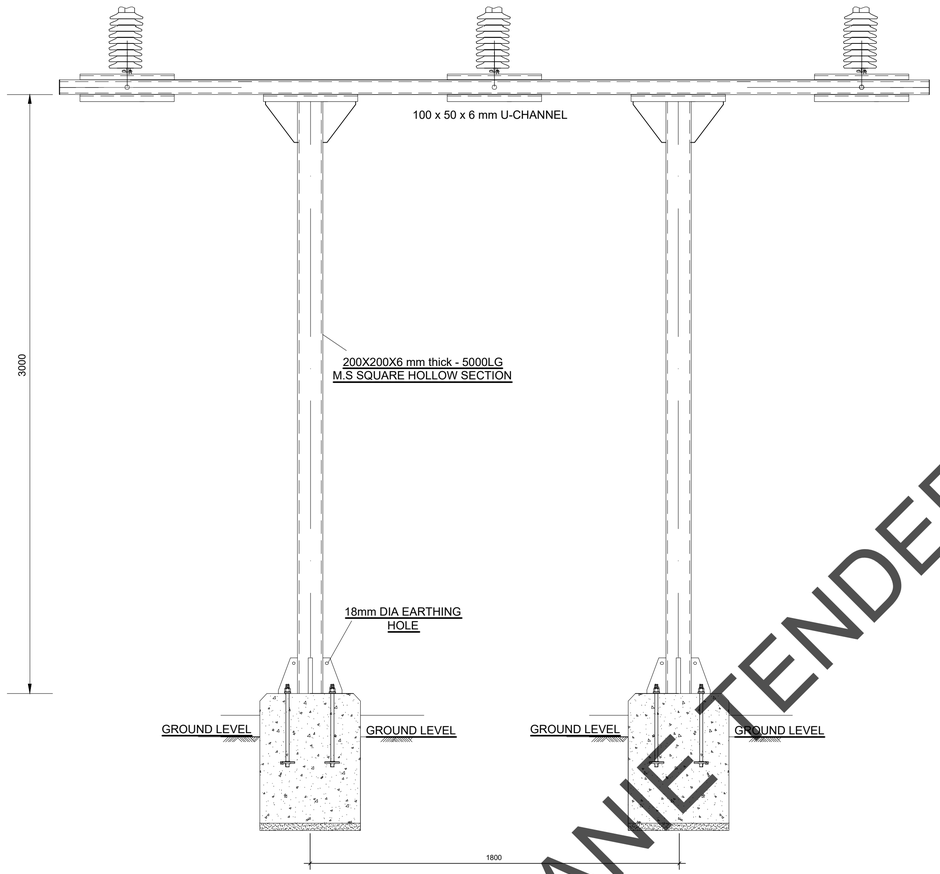
POST INSULATOR (HIGH-LEVEL)

66 KV STEEL STRUCTURES SHEET 005

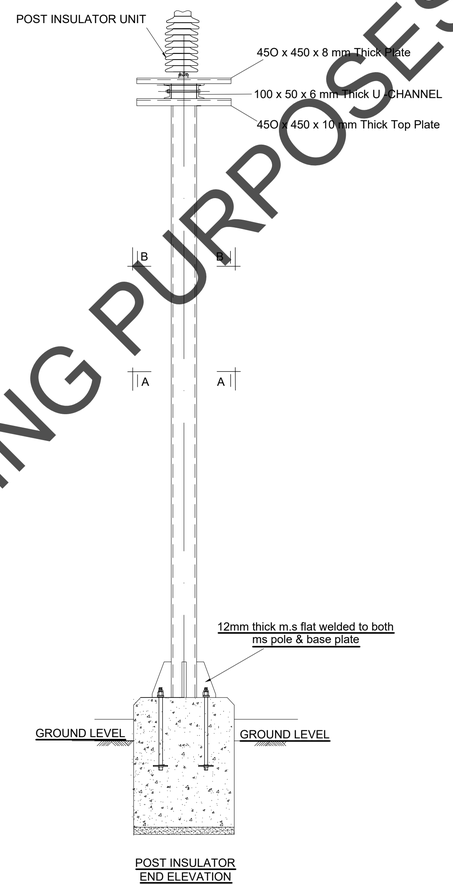
Drawn	D.WAITHERA	**Scale(s)**	**AS INDICATED**
Designed	D.WAITHERA	**Date**	MARCH, 2025
Checked	ENG. D.M.WAMBUGU	**Date**	MARCH, 2025
Approved	ENG. D.M.WAMBUGU	**Date**	MARCH, 2025
ISSUE DATE	MARCH, 2025		
JOB No.			



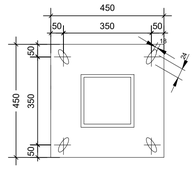
POST INSULATOR STRUCTURE
PLAN VIEW
SCALE 1:10



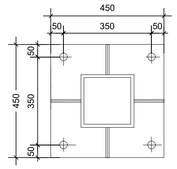
POST INSULATOR
FRONT ELEVATION
SCALE 1:15



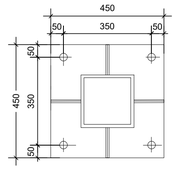
POST INSULATOR
END ELEVATION
SCALE 1:15



DETAILS OF 8 mm THICK PLATE
SCALE 1:10



DETAILS OF 10 mm THICK TOP PLATE
SECTION B-B
SCALE 1:10



DETAILS OF 20mm THICK BASE PLATE
SECTION A-A
SCALE 1:10

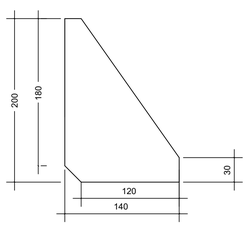


PLATE STIFFENER (20mm Thick)
8NO.
SCALE 1:5

NOTES

1. ALL HOLES TO BE 18MM FOR M16 BOLTS UNLESS OTHERWISE STATED.
2. ALL STEELWORK TO BE FREE FROM RUST, DUST BURRS E.T.C THEN GALVANISED BY HOT DIP. PROCESS, THICKNESS AND QUALITY OF ZINC COATING TO WITHSTAND TEST OF 729.
3. ALL BOLTS & NUTS CONNECTING EQUIPMENT TO BE SUPPLIED SUPPLIED BY EQUIPMENT MANUFACTURERS.
4. BOLTS AND NUTS YO CONFORM TO BSS 916 AND THE QUANTITY SUPPLIED TO INCLUDE 10% SPARE ALLOWANCE
5. FABRICATORS ARE TO DESIGNATE ALL STEELWORK ITEMS AND PROVIDE ERECTION MARK PLANS
6. ALL BASE PLATE HOLES TO BE 28 MM DIAMETER

KINANIE
W U W W
Eng. D.M. Wambugu.
12/03/2025.
For Building only.

NOTES

1. All dimensions are in millimeters, unless otherwise stated.
2. This drawing must not be scaled ,only figured dimensions should be used.
3. This drawing must be read in conjunction with relevant Architectural drawings.
4. Reinforced concrete for all structural elements to be grade C20/25 to BS EN 206-1:2002, except for the ground floor slab (grade C16/20), and roof slab (C25/30).
5. Cover to main reinforcement to be as follows:
   (a) Foundation = 50mm
   (b) Columns = 40mm
   (c) Beams = 30mm
   (d) Slabs = 25mm
6. "H" Denotes ribbed high yield bars to BS 4461 with a yield strength of 500N/mm2 to BS 4449-2005.
7. Reinforcement in walls and columns must be inspected by the Engineer before being enclosed in formwork.
8. All masonry walls must be reinforced with 25mm hoop iron after every two alternate courses. The hoop iron must be extended through the column sections.
9. To ensure enhanced bonding between the masonry and the R.C. columns, the masonry walling must be raised first before the columns are cast.
10. All mortar used to be of cement sand mix 1:3, with all the stone walling being laid in 200mm courses with 12mm mortar joints.
11. A minimum of 7.0N/mm2 average compressive strength of masonry in accordance with BS EN 771 and BS 5268 should be used for all wall sections.
12. Mass concrete to be grade 12/15 to BS EN 206-1:2002.
13. Double masonry walls to be built one at a time. Waterproofing plaster shall be applied to the inside of the first wall to Engineer's approval before the second is built .

REVISIONS

Date	Suffix	Descriptions	Issue

CLIENT

KENYA POWER & LIGHTING COMPANY

PROJECT

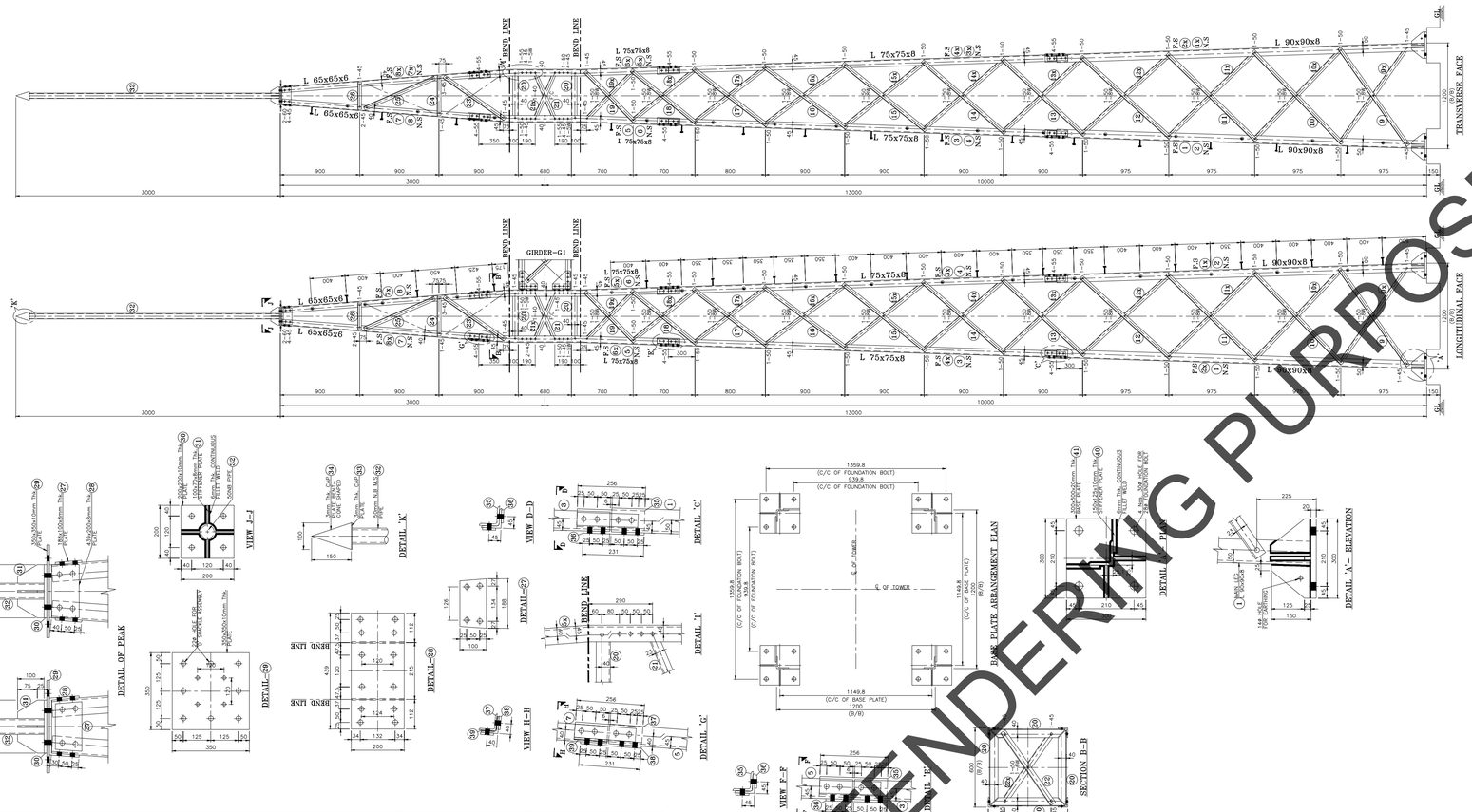
PROPOSED CIVIL WORKS & STRUCTURES FOR KINANIE 66/11KV, 1X23MVA TX

CONSTRUCTION DRAWINGS

POST INSULATOR (LOW LEVEL)

66 KV STEEL STRUCTURES SHEET 006

Drawn	D.WAITHERA	**Scale(s)**	**AS INDICATED**
Designed	D.WAITHERA	**Date**	MARCH, 2025
Checked	ENG. D.M.WAMBUGU	**Date**	MARCH, 2025
Approved	ENG. D.M.WAMBUGU	**Date**	MARCH, 2025
ISSUE DATE	MARCH, 2025		
JOB No.			



ITEM Nos.	SECTION / SIZE	DESCRIPTION WIDTH (mm)	LENGTH (mm)	UNIT WT (Kg.)	REQD. QTY.	PCS / M.T. (Kg.)	TOTAL WT. (Kg.)
1	1x	SA 90x90x8	4179	10.80	1+1	45.13	90.27
2	2x	SA 90x90x8	4179	10.80	1+1	45.13	90.27
3	3x	SA 75x75x8	4396	8.80	1+1	39.12	78.25
4	4x	SA 75x75x8	4396	8.80	1+1	39.12	78.25
5	5x	SA 75x75x8	2145	8.80	1+1	19.09	38.18
6	6x	SA 75x75x8	2145	8.80	1+1	19.09	38.18
7	7x	SA 65x65x6	2236	5.80	1+1	12.97	25.94
8	8x	SA 65x65x6	2236	5.80	1+1	12.97	25.94
9	9x	SA 50x50x4	1352	3.40	4+4	4.60	36.77
10	10x	SA 50x50x4	1464	3.40	4+4	4.98	39.84
11	11x	SA 50x50x4	1410	3.40	4+4	4.79	38.35
12	12x	SA 50x50x4	1368	3.40	4+4	4.65	37.21
13	13x	SA 50x50x4	1277	3.40	4+4	4.34	34.73
14	14x	SA 50x50x4	1243	3.40	4+4	4.23	33.81
15	15x	SA 50x50x4	1206	3.40	4+4	4.10	32.80
16	16x	SA 50x50x4	1170	3.40	4+4	3.98	31.82
17	17x	SA 50x50x4	1060	3.40	4+4	3.60	28.83
18	18x	SA 50x50x4	952	3.40	4+4	3.24	25.89
19	19x	SA 50x50x4	797	3.40	4+4	2.71	21.68
20		SA 65x65x6	560	5.80	8	3.25	25.98
21	21x	SA 50x50x4	615	3.40	4+4	2.09	16.73
22	22x	SA 65x65x6	1464	5.80	2+2	2.46	19.70
23		SA 50x50x4	842	3.40	4	2.86	11.45
24		SA 50x50x4	446	3.40	4	1.52	6.07
25		SA 50x50x4	868	3.40	4	2.95	11.80
26		SA 50x50x4	306	3.40	4	1.04	4.16
27		PL.8THK.	100	188	62.80	2	1.18	2.36
28		PL.8THK.	200	439	62.80	1	3.51	3.51
29		PL.10THK.	200	569	78.50	1	4.47	4.47
30		PL.10THK.	200	200	78.50	1	1.57	1.57
31		PL.8THK.	70	100	62.80	4	0.44	1.76
32		SO NB(M) PIPE		2900	6.19	1	17.95	17.95
33		PL.3THK.	100	100	23.55	1	0.24	0.24
34		PL.3THK.	150	375	23.55	1	1.11	1.11
35		PL.8THK.		394	62.80	4	2.28	11.61
36		PL.8THK.	50	231	62.80	16	0.73	11.61
37		SA 65x65x6		256	5.80	4	1.48	5.94
38		PL.8THK.	50	231	62.80	8	0.73	5.80
39		PL.3THK.	50	125	15.70	8	0.10	0.79
40		PL.10THK.	125	150	78.50	16	1.47	23.55
41		PL.10THK.	300	300	78.50	4	7.07	28.65
					TOTAL WEIGHT (Kg.)	=		1074.13

ITEM Nos.	SECTION / SIZE		QTY.	QTY. + 10%	REQD. QTY.	UNIT WT (Kg.)	TOTAL WT. (Kg.)
1	M16x60mm Lg.	BOLTS & NUTS	4	1	5	0.107	0.85
2	M16x50mm Lg.	BOLTS & NUTS	106	11	117	0.149	17.37
3	M16x50mm Lg.	BOLTS & NUTS	134	13	147	0.141	20.78
4	M16x45mm Lg.	BOLTS & NUTS	98	10	108	0.133	14.34
5	M16x40mm Lg.	BOLTS & NUTS	4	1	5	0.125	0.68
6	M16x125mm Lg.	STEP BOLTS	30	3	33	0.410	13.53
7	M16mm	PACK WASHER	44	4	48	0.045	2.18
8	M16mm	PACK WASHER	2	1	3	0.034	0.11
9	M16mm	PACK WASHER	8	1	9	0.029	0.26
	M16mm	SPRING WASHER	376	38	414	0.009	3.72
		TOTAL WEIGHT (Kg.)				=	73.61

ESTIMATE		
SECTION / SIZE	TOTAL (Kg.)	
SA 90x90x8	180.53	
SA 75x75x8	250.86	
SA 65x65x6	56.37	
SA 50x50x4	476.78	
PL.20THK.	54.52	
PL.10THK.	36.37	
PL.8THK.	27.04	
PL.3THK.	1.35	
PL.2THK.	0.79	
TADITAL (Kg.)	=	1074.13
HARDWARE (Kg.)	=	73.61
TOTAL WEIGHT (Kg.)	=	1149.94

NO. OF LA. STR. = 2

Engineer
Eng. D.M. Wambugu.
12/03/2025.
For Bidding only.

1. All dimensions are in mm unless noted otherwise.
2. All structural steel shall conform to BS: 4380 'Grade 43 A' with Yield strength of 250 N/Sq. mm and minimum Tensile strength of 410N/Sq. mm.
3. All fastening bolts shall conform to BS: 4190 and property class 8.8 (minimum yield strength of 300 N/Sq.mm and minimum tensile strength of 50 N/sq.mm) in accordance with ISO 898-1.
4. All nuts used with fastening bolts shall conform to equivalent to BS:4190 equivalent to BS:4320.
5. All structural steel members shall be hot-dip galvanized according to ISO: 1461. The minimum weight of Zinc coating shall be 610gm/Sq.m
6. All bolts, nuts and washers shall be hot-dip galvanized to ISO: 1461. The minimum weigh of Zinc coating shall be 400gm/Sq.m
7. Each bolt shall be provided with a plain washer and spring washer under the nut.
8. All holes are 17.5mm diameter for all 16mm diameter holes unless otherwise specified.
9. All welds are 6mm fillet continuous weld unless otherwise specified.
10. All erection mark shall be prefixed with 'UMO-G1'.

NOTES

1. All dimensions are in millimeters, unless otherwise stated.

2. This drawing must not be scaled ,only figured dimensions should be used.

3.This drawing must be read in conjunction with relevant Architectural drawings.

4.Reinforced concrete for all structural elements to be grade C20/25 to BS EN 206-1:2002, except for the ground floor slab (grade C16/20), and roof slab (C25/30).

5. Cover to main reinforcement to be as follows:
(a) Foundation = 50mm
(b) Columns = 40mm
(c) Beams = 30mm
(d) Slabs = 25mm

6."H" Denotes ribbed high yield bars to BS 4461 with a yield strength of 500N/mm2 to BS 4449-2005.

7. Reinforcement in walls and columns must be inspected by the Engineer before being enclosed in formwork.

8. All masonry walls must be reinforced with 25mm hoop iron after every two alternate courses. The hoop iron must be extended through the column sections.

9. To ensure enhanced bonding between the masonry and the R.C. columns, the masonry walling must be raised first before the columns are cast.

10. All mortar used to be of cement sand mix 1:3, with all the stone walling being laid in 200mm courses with 12mm mortar joints.

11. A minimum of 7.0N/mm2 average compressive strength of masonry in accordance with BS EN 771 and BS 5268 should be used for all wall sections.

12. Mass concrete to be grade 12/15 to BS EN 206-1:2002.

13. Double masonry walls to be built one at a time. Waterproofing plaster shall be applied to the inside of the first wall to Engineer's approval before the second is built .

REVISIONS

Date	Suffix	Descriptions	Issue

CLIENT

KENYA POWER & LIGHTING COMPANY

PROJECT

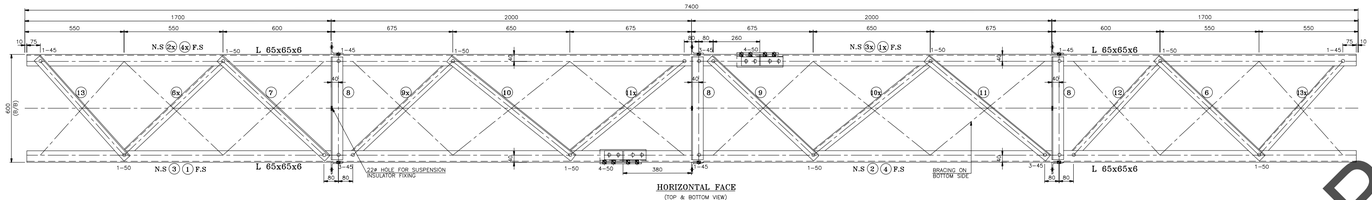
PROPOSED CIVIL WORKS & STRUCTURES FOR KINANIE 66/11KV, 1X23MVA TX

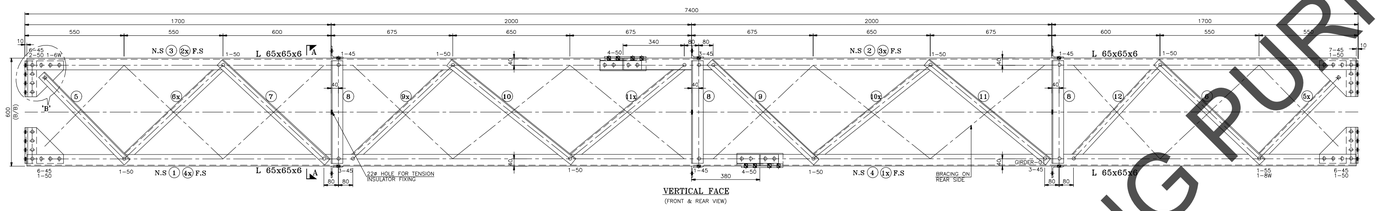
CONSTRUCTION DRAWINGS

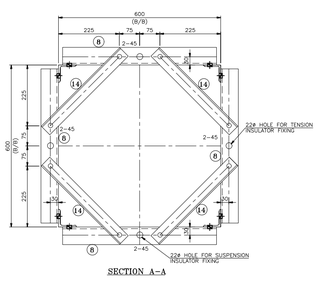
GANTRY/BUS-BAR (TOWER)

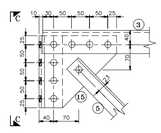
66 KV STEEL STRUCTURES SHEET 007

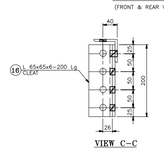
Drawn	D.WAITHERA	**Scale(s)**	**AS INDICATED**
Designed	D.WAITHERA	**Date**	MARCH, 2025
Checked	ENG. D.M.WAMBUGU	**Date**	MARCH, 2025
Approved	ENG. D.M.WAMBUGU	**Date**	MARCH, 2025
ISSUE DATE	MARCH, 2025		
JOB No.			

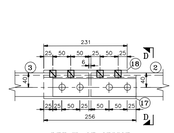


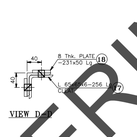


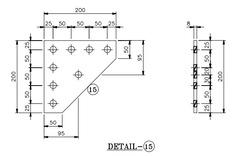


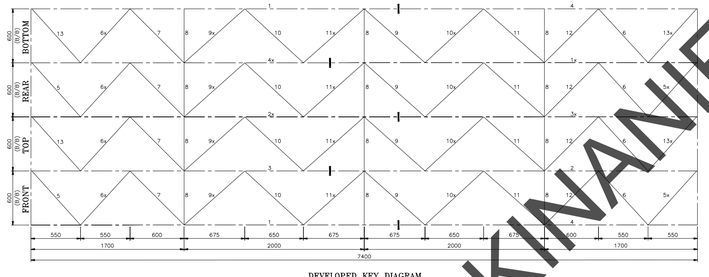












BILL OF MATERIAL – PART IV GIRDER – G1

ITEM Nos.	SECTION / SIZE	L (mm)	UNIT WT. (Kg)	REQD. QTY.	PIECE WT. (Kg)	TOTAL WT. (Kg)
1	ISA 65X65X6	4597	5.89	1+1	54.18	43.16
2, 2a	ISA 65X65X6	4597	5.89	1+1	54.18	43.16
3,3a	ISA 65X65X6	3997	5.89	1+1	47.10	39.39
4,4a	ISA 65X65X6	3997	5.89	1+1	47.10	39.39
5	ISA 65X65X6	609	5.89	2+2	3.61	19.89
6, 6a	ISA 65X65X6	697	5.89	4+4	8.24	97.55
7	ISA 65X65X6	1214	5.89	4	9.09	17.87
8	ISA 65X65X6	535	5.89	12	3.37	39.67
9, 9a	ISA 65X65X6	977	5.89	4+4	5.95	39.65
10, 10a	ISA 65X65X6	1629	5.89	4+4	9.69	19.89
11, 11a	ISA 65X65X6	1971	5.89	4+4	2.89	39.89
12	ISA 65X65X6	805	5.89	4	5.65	19.97
13, 13a	ISA 65X65X6	918	5.89	2+2	5.84	19.13
14	ISA 65X65X6	477	5.89	12	1.49	19.97
15	PLATE-IC	200	62.83	8	3.67	29.19
16	ISA 65X65X6	329	5.89	8	1.76	19.95
17	ISA 65X65X6	255	5.89	4	1.49	5.95
18	PLATE-IC	231	62.83	8	6.25	5.89
				TOTAL WEIGHT (Kg) =		497.11

[HARDWARE] REQUIREMENT OF BOLT, NUT & WASHER

ITEM Nos.	SECTION / SIZE	*QTY.	*QTY. * 10%	REQD. QTY.	UNIT WT.(Kg)	TOTAL WT. (Kg)
1	M16x45mm Lg. 8G.1S-8 NUTS	2	1	3	0.149	0.49
2	M16x50mm Lg. 8G.1S-8 NUTS	69	9	89	0.141	11.19
3	M16x45mm Lg. 8G.1S-8 NUTS	105	13	139	0.133	18.43
4	M16x50, PACK WASHER	2	1	3	0.045	0.14
5	M16x50, PACK WASHER	2	1	3	0.054	0.17
6	M16x50, PACK WASHER	6	1	9	0.059	0.55
7	M16x50, SPRING WASHER	269	39	359	0.035	7.55
				TOTAL WEIGHT (Kg) =		38.57

ABSTRACT

SECTION/SIZE	TOTAL WT. (Kg)
ISA 65X65X6	399.97
ISA 45X45X6	19.05
PLATE-IC	35.09
TOTAL (Kg)	497.11
HARDWARE (Kg)	38.57
TOTAL WEIGHT (Kg)	535.68

NO. OF GIRDER STR. = 2

KINANIE
W L W W
Engr. D.M. Wambugu.
12/03/2025.
For Building only.

1. All dimensions are in mm noted otherwise stated.
2. All structural steel shall conform to BS: 4380 'Grade 43 A' with yield strength of 250 N/Sq. mm and minimum tensile strength of 410N/Sq. mm.
3. All fastening bolts shall conform to BS: 4190 and property class 8.8 (minimum yield strength of 300 N/Sq.mm and minimum tensile strength of 50 N/sq.mm) in accordance with ISO 898-1.
4. All nuts used with fastening bolts shall conform to equivalent to BS:4190 equivalent to BS:4320.
5. All structural steel members shall be hot-dip galvanized according to ISO: 1461. The minimum weight of Zinc coating shall be 610gm/Sq.m
6. All bolts, nuts and washers shall be hot-dip galvanized to ISO: 1461. The minimum weigh of Zinc coating shall be 400gm/Sq.m
7. Each bolt shall be provided with a plain washer and spring washer under the nut.
8. All holes are 17.5mm diameter for all 16mm diameter holes unless otherwise specified.
9. All welds are 6mm fillet continuous weld unless otherwise specified.
10. All erection mark shall be prefixed with 'UMO-G1'.

NOTES

1. All dimensions are in millimeters, unless otherwise stated.

2. This drawing must not be scaled ,only figured dimensions should be used.

3.This drawing must be read in conjunction with relevant Architectural drawings.

4.Reinforced concrete for all structural elements to be grade C20/25 to BS EN 206-1:2002, except for the ground floor slab (grade C16/20), and roof slab (C25/30).

5. Cover to main reinforcement to be as follows:
(a) Foundation = 50mm
(b) Columns = 40mm
(c) Beams = 30mm
(d) Slabs = 25mm

6."H" Denotes ribbed high yield bars to BS 4461 with a yield strength of 500N/mm2 to BS 4449-2005.

7. Reinforcement in walls and columns must be inspected by the Engineer before being enclosed in formwork.

8. All masonry walls must be reinforced with 25mm hoop iron after every two alternate courses. The hoop iron must be extended through the column sections.

9. To ensure enhanced bonding between the masonry and the R.C. columns, the masonry walling must be raised first before the columns are cast.

10. All mortar used to be of cement sand mix 1:3, with all the stone walling being laid in 200mm courses with 12mm mortar joints.

11. A minimum of 7.0N/mm2 average compressive strength of masonry in accordance with BS EN 771 and BS 5268 should be used for all wall sections.

12. Mass concrete to be grade 12/15 to BS EN 206-1:2002.

13. Double masonry walls to be built one at a time. Waterproofing plaster shall be applied to the inside of the first wall to Engineer's approval before the second is built .

REVISIONS

Date	Suffix	Descriptions	Issue

CLIENT

KENYA POWER & LIGHTING COMPANY

PROJECT

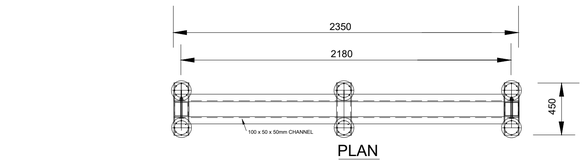
PROPOSED CIVIL WORKS & STRUCTURES FOR KINANIE 66/11KV, 1X23MVA TX

CONSTRUCTION DRAWINGS

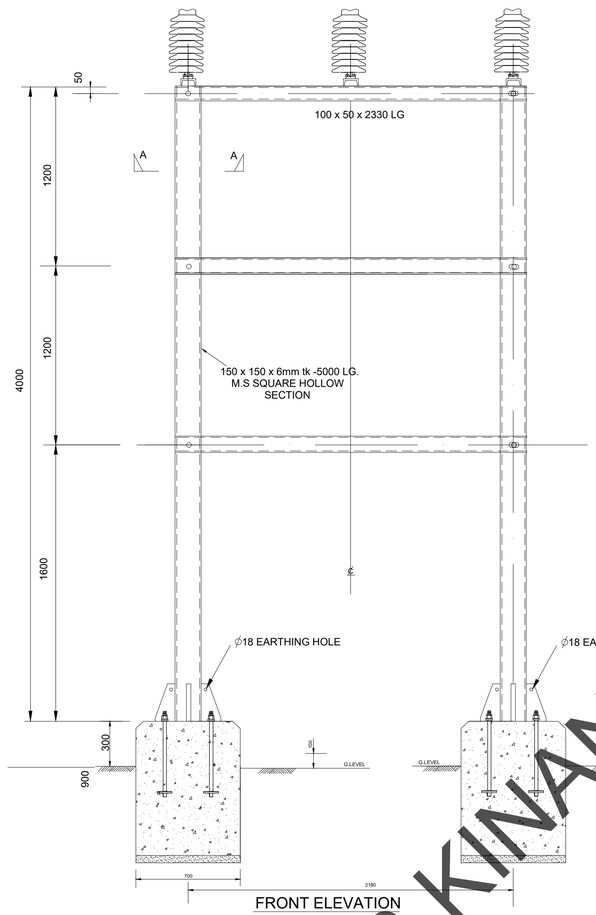
GANTRY (BOOM)

66 KV STEEL STRUCTURES SHEET 008

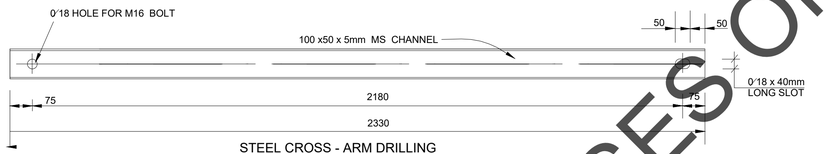
Drawn	D.WAITHERA	**Scale(s)**	**AS INDICATED**
Designed	D.WAITHERA	**Date**	MARCH, 2025
Checked	ENG. D.M.WAMBUGU	**Date**	MARCH, 2025
Approved	ENG. D.M.WAMBUGU	**Date**	MARCH, 2025
ISSUE DATE	MARCH, 2025		
JOB No.			



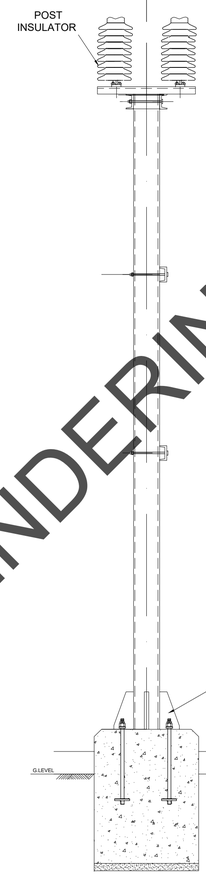
PLAN



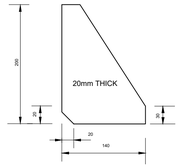
FRONT ELEVATION



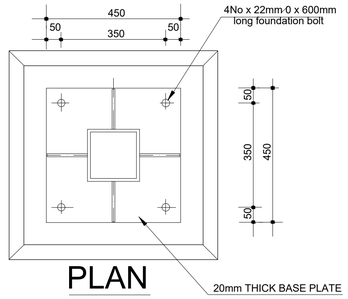
STEEL CROSS - ARM DRILLING
DETAILS (4No REQD)



END ELEVATION



DETAIL Y
8No. OFF
SCALE 1:25



PLAN

KINANIE
W U W U
Eng. D.M. Wambugu.
12/03/2025.
For Bidding only.

NOTES

1. All dimensions are in millimeters, unless otherwise stated.

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3.This drawing must be read in conjunction with relevant Architectural drawings.

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REVISIONS

Date	Suffix	Descriptions	Issue

CLIENT

KENYA POWER & LIGHTING COMPANY

PROJECT

PROPOSED CIVIL WORKS & STRUCTURES FOR KINANIE 66/11KV, 1X23MVA TX

CONSTRUCTION DRAWINGS

CABLE SUPPORT

66 KV STEEL STRUCTURES SHEET 009

Drawn	D.WAITHERA	**Scale(s)**	**AS INDICATED**
Designed	D.WAITHERA	**Date**	MARCH, 2025
Checked	ENG. D.M.WAMBUGU	**Date**	MARCH, 2025
Approved	ENG. D.M.WAMBUGU	**Date**	MARCH, 2025
ISSUE DATE	MARCH, 2025		
JOB No.			