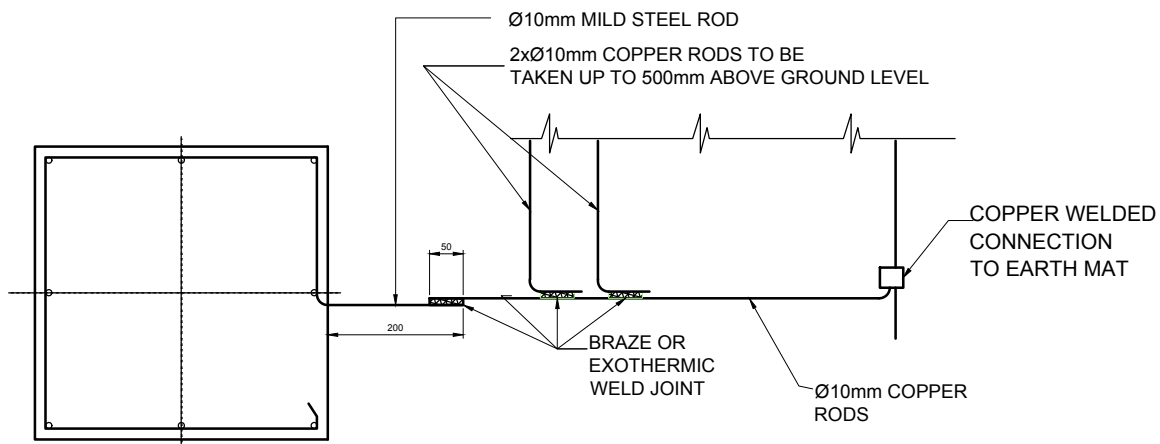
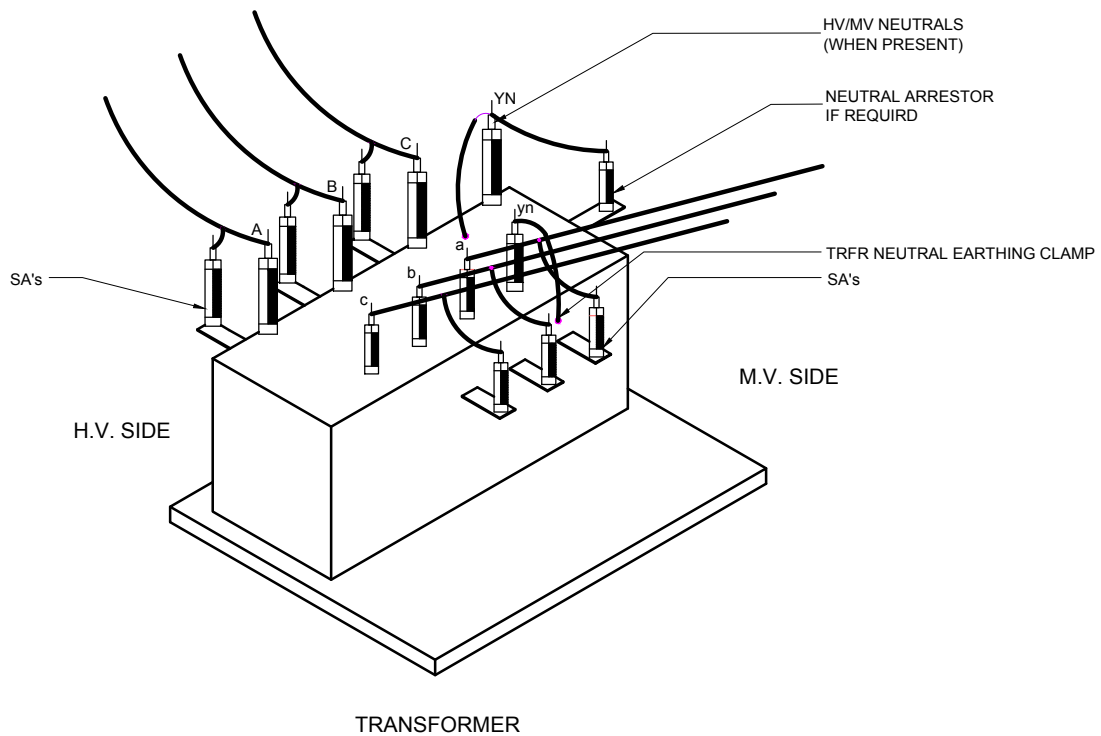


TYPICAL EARTH MAT CONNECTION TO COLUMN AND TAIL FOR EQUIPMENT EARTHING



NOTE

1. ONE Ø10mm REINFORCING ROD TO BE CONNECTED TO MAJOR VERTICAL REINFORCING RODS BY MEANS OF BINDING WIRE AND TO SERVE AS EARTH CONNECTION
2. THE FREE LENGTH OF THE MILD STEEL ROD TO BE 200mm OUTSIDE THE CONCRETE. THIS TAIL MUST BE WRAPPED WITH DENSOMASTIC TAPE, OVERLAPPING BY HALF IT'S WIDTH, TO AT LEAST 50mm ON EITHER SIDE OF ITS PENETRATION POINT INTO THE CONCRETE.
3. BRAZE JOINT, OR EXOTHERMIC WELD.



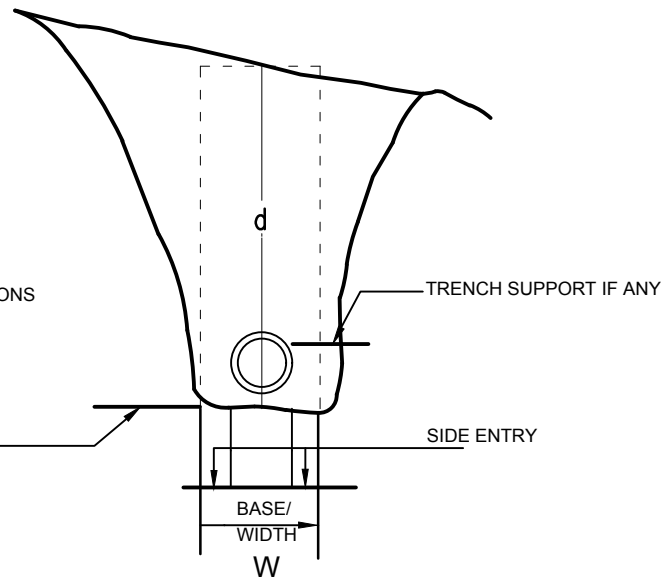
NOTES

1. SA AND TRFR NEUTRAL EARTHING:
S.ARR. BRACKETS AND TRFR TANK TO BE USED FOR EARTHING PATH.(i.e. NO COPPER EARTH TAILS FOR SA's)
2. TRFR NEUTRAL EARTHING (DIRECT)
WHEN REQUIRED. TRFR NEUTRAL(S) MUST BE EARTHED INDIVIDUALLY VIA OWN EARTHING PAD USING 2 X 50mm X 3mm COPPER EARTHING STRAPS LAID ONE UPON THE OTHER

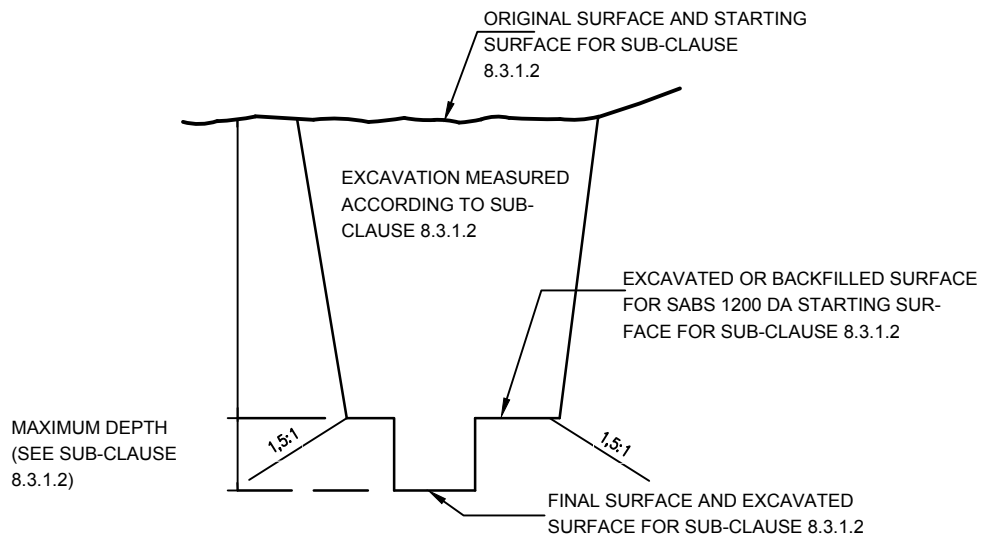
W = BASE WIDTH OF THE
TRENCH
(SUB-CLAUSE 8.2.3)

W = AND d IS THE MEASURE-
METNS USED FOR CALCULATIONS
OF VOLUMETRIC QUANTITIES

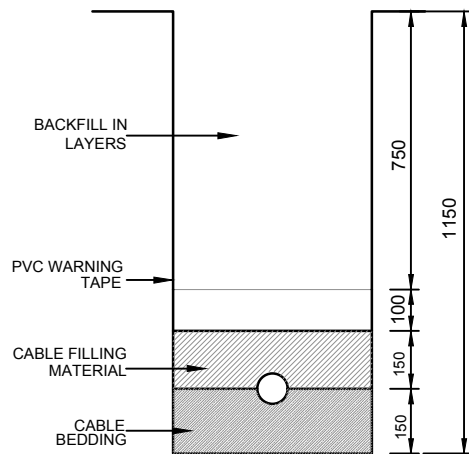
LEVEL NEEDED TO PROVIDE
THE MINIMUM THICKNESS OF
THE BEDDING



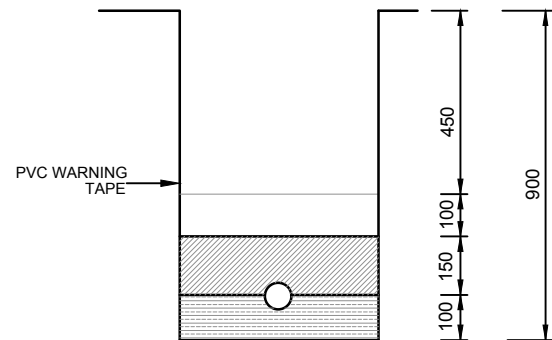
VOLUMETRIC MEASUREMENT OF TRENCH



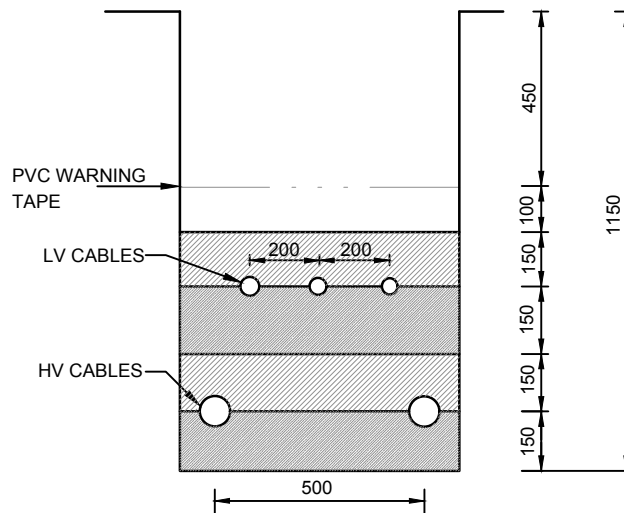
MEASUREMENT OF MASS AND TRENCH EXCAVATIONS



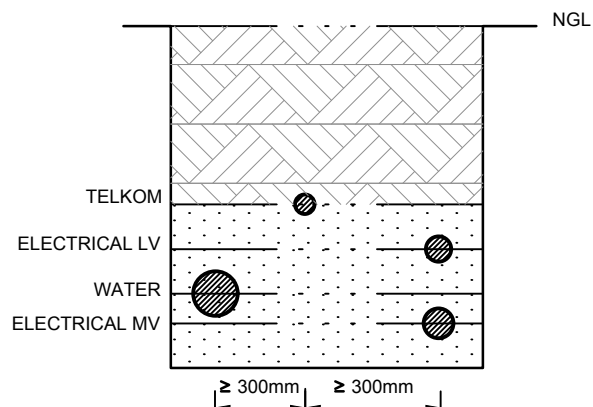
MEDIUM VOLTAGE CABLES ONLY



LOW VOLTAGE CABLES ONLY



MEDIUM AND LOW VOLTAGE CABLES

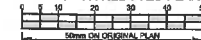


COMBINED TRENCHES : ELECTRICAL
OTHER SERVICES

ROBERTSON MAIN
SUBSTATION

TO MCGREGOR

SCALE FOR REDUCED PLAN



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NOTES

No	DATE	DESCRIPTION	DRW	CHK
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REVISION SCHEDULE

CONSULTING ENGINEER		
SIGNATURE	20050166 PR No	05/04/19 DATE
CLIENT		
SIGNATURE		DATE
DESIGNED	DRAWN	CHECKED
WHK	SCS	WMS

FOR TENDER

CONSULTANT

IXengineers
Infrastructure Excellence

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Tel: +27 (0) 21 912 3000 | Fax: +27 (0) 21 912 322
www.ixengineers.co.za

CLIENT

LANGBERG
MUNISIPALITEIT MUNICIPALITY MASIPALA

PROJECT

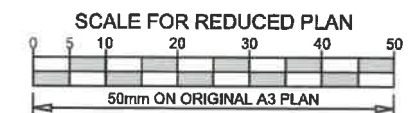
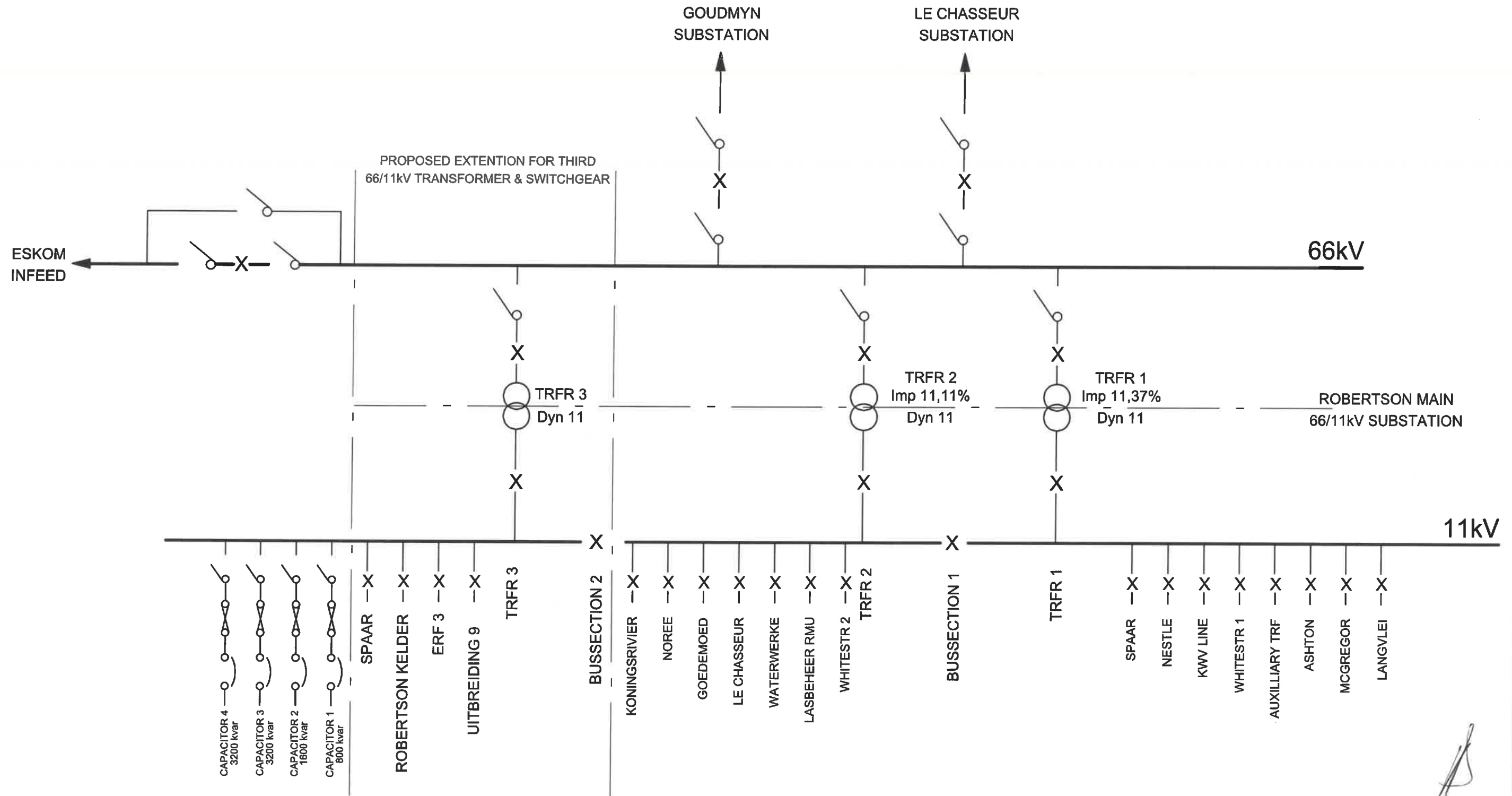
**ROBERTSON MAIN
SUBSTATION
REPLACEMENT OF 15MVA
66/11KV TRANSFORMER**

DRAWING DESCRIPTION

**LOCALITY PLAN
ROBERTSON MAIN
SUBSTATION**

DATE	SCALE	ORIGINAL SIZE
MARCH 2019	1 : 1000	A1
DRAWING NUMBER		REV
301268-EL-DLP-0001-001		0

P:\IX Projects\301268 - Robertson Transformer Replacement of 15MVA Transformer\08 Drawings\01 Active\301268-EL-DSL-0001 Rev 0 SLD OF Existing Substation.dwg



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No	DATE	DESCRIPTION

CONSULTING ENGINEER

	20050166	05/04/19
SIGNATURE	PR No	DATE
	CLIENT	
SIGNATURE		DATE

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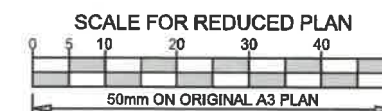
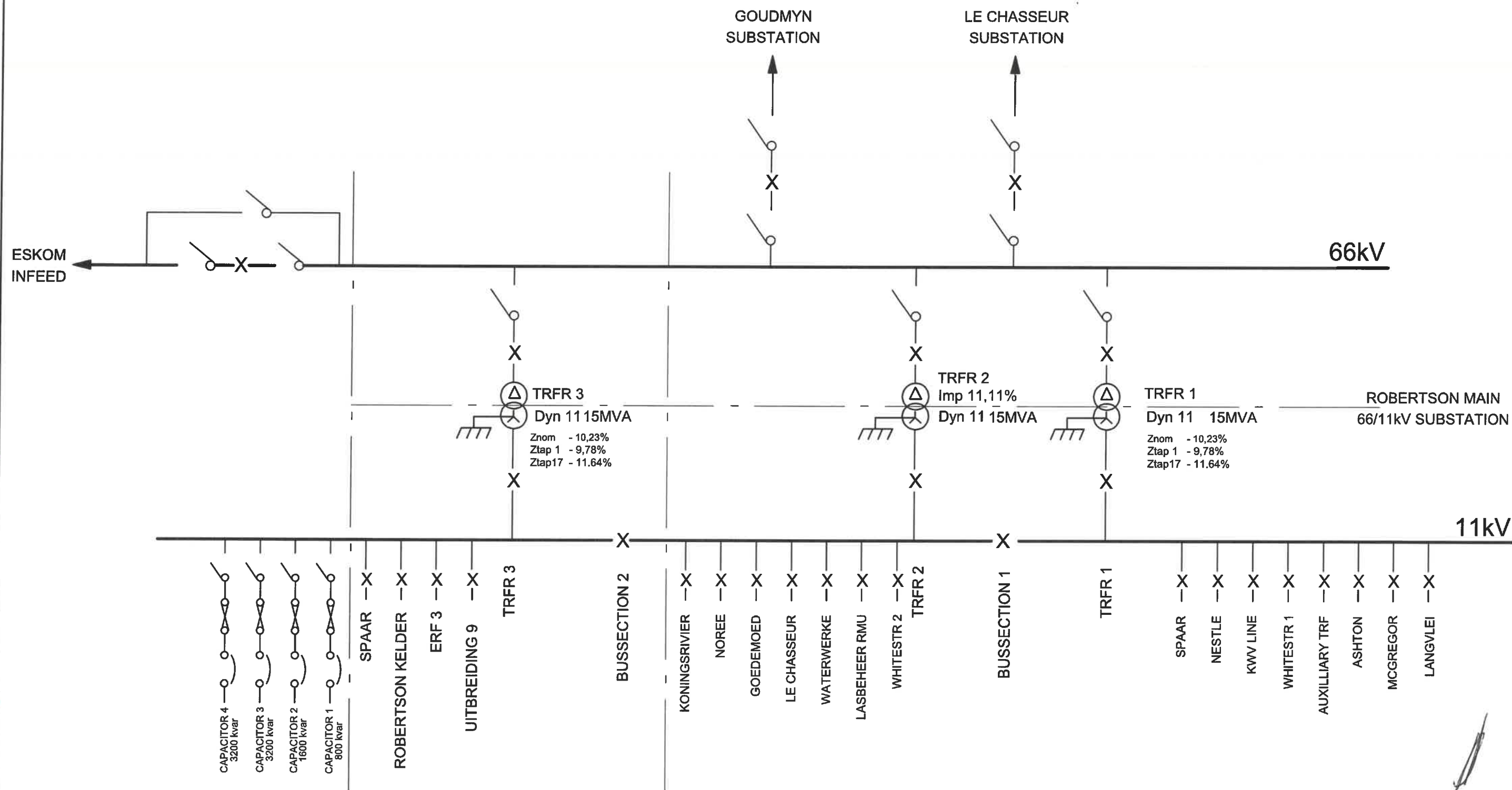
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PROJECT
ROBERTSON MAIN SUBSTATION
REPLACEMENT OF 15MVA
66/11kV TRANSFORMER

DRAWING DESCRIPTION
SINGLE LINE DIAGRAM OF
EXISTING SUBSTATION

DESIGNED WHK	DRAWN SCS	CHECKED WMS
DATE MARCH 2019	SCALE NTS	
DRAWING NUMBER 301268-EL-DSL-0001-001	REV 0	



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REVISION SCHEDULE

No	DATE	DESCRIPTION

CONSULTING ENGINEER

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SIGNATURE	PR No	DATE
CLIENT		
SIGNATURE		DATE

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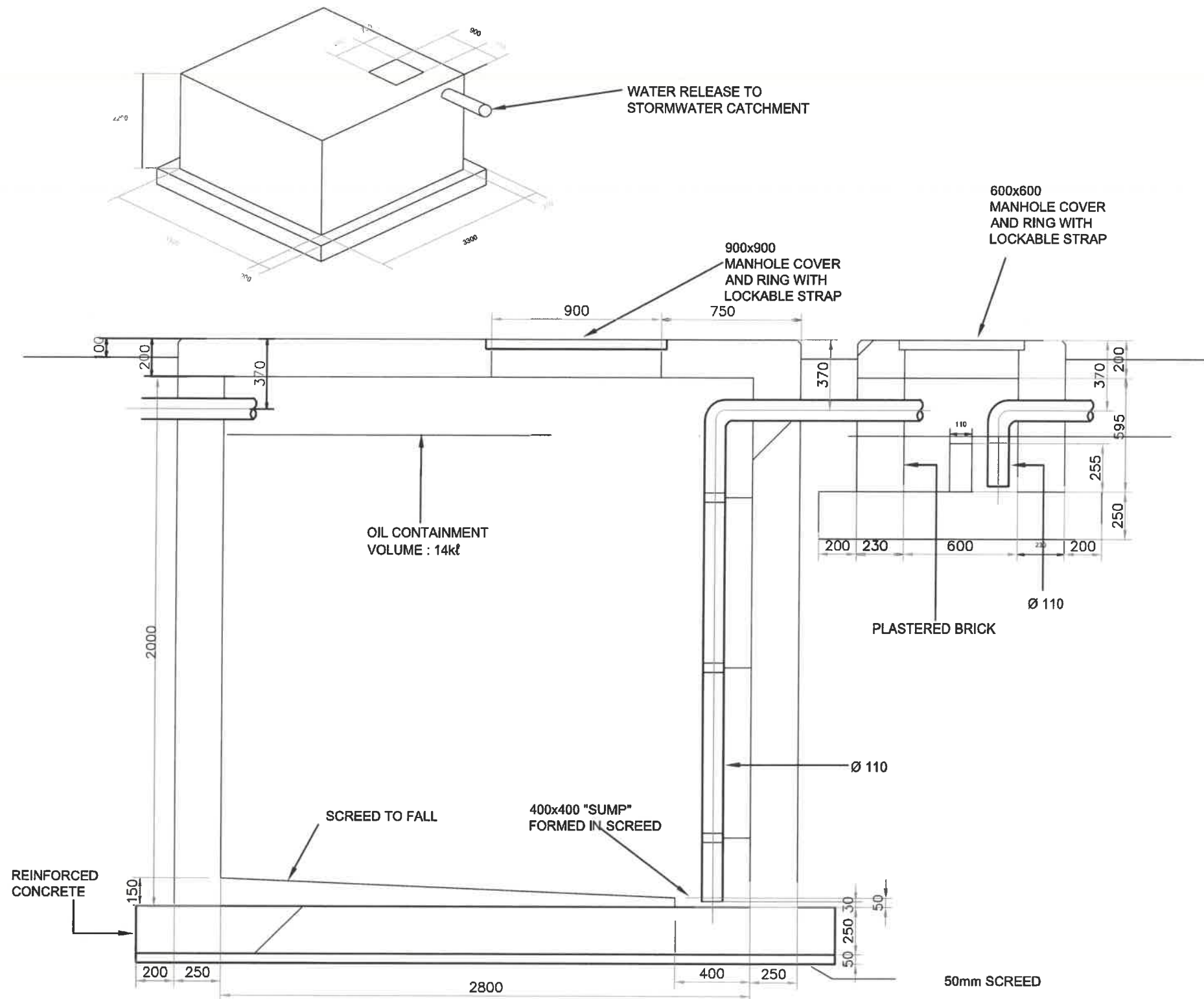
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PROJECT
ROBERTSON MAIN SUBSTATION
REPLACEMENT OF 15MVA
66/11kV TRANSFORMER

DRAWING DESCRIPTION
SINGLE LINE DIAGRAM OF
NEW TRANSFORMER

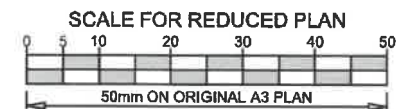
DESIGNED	DRAWN	CHECKED
WHK	SCS	WMS
DATE	SCALE	
MARCH 2019	NTS	
DRAWING NUMBER	REV	
301268-EL-DSL-0002-001	0	

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STRUCTURAL NOTES:

1. CONCRETE: 30MPa/19mm
2. REBAR: ALLOW 120kg/m
3. MASONRY: 14MPa
4. MORTAR: CLASS II



FOR DISCUSSION

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No	DATE	DESCRIPTION

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	CLIENT	
SIGNATURE		DATE

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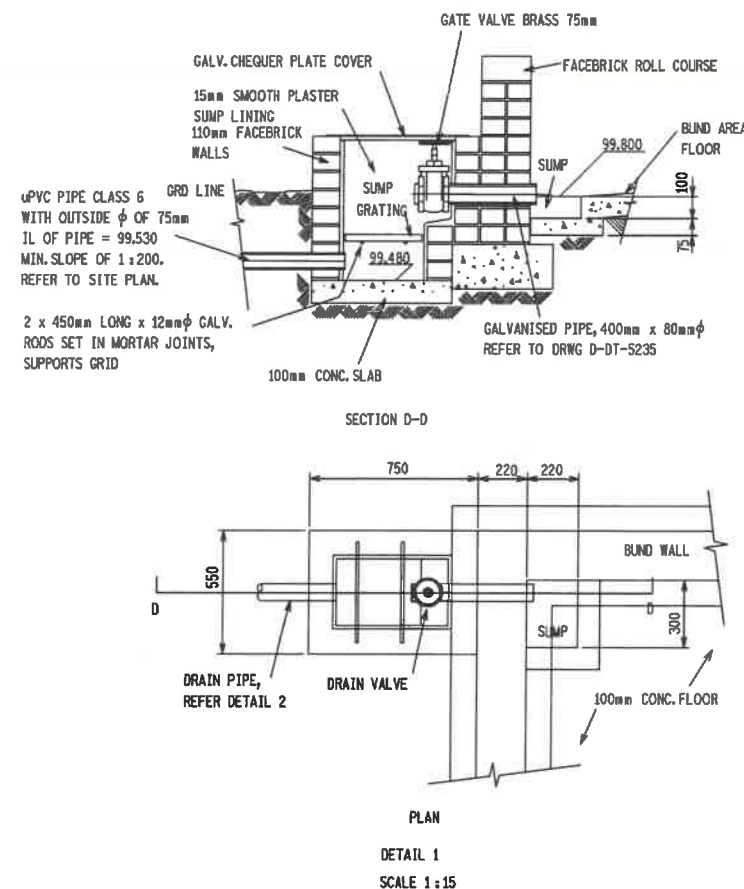
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PROJECT
ROBERTSON MAIN SUBSTATION
REPLACEMENT OF 15MVA
66/11kV TRANSFORMER

DRAWING DESCRIPTION

OIL DAM DETAILS

DESIGNED WHK	DRAWN SCS	CHECKED WMS
DATE MARCH 2019	SCALE NTS	REV 0
DRAWING NUMBER 301268-EL-DRD-0001-001		



ALL CONCRETE WORK SHALL COMPLY WITH SANS 1200 GA.
MINIMUM 28 DAYS COMPRESSION STRENGTH SHALL BE 20MPa.
NOMINAL AGGREGATE SIZE SHALL BE 19mm.

THE REINFORCING MESH SHALL BE PLACED IN THE TOP AND BOTTOM OF THE PLINTH AND RUNWAY SLABS WITH A COVER OF 40mm.

WHERE THE GROUND CONDITIONS ARE POOR, A 50mm THICK MASS CONCRETE BLINDING LAYER SHALL BE CAST PRIOR TO THE MESH BEING PLACED.

ALL REINFORCING OVERLAPS SHALL HAVE A LAP OF 350mm.

THE SUBGRADE MATERIAL UNDER THE TRFR PLANT AND SLIPWAY SHALL BE COMPACTED TO 90% OF MOD AASHTO MAXIMUM DENSITY.

ALL CONSTRUCTION (C/J) EXPANSION JOINTS AND CABLE ENTRY POINTS SHALL BE SEALED USING EXPANDABLE INSERTS OR COMPOUND SYSTEMS. THESE SEALING SHALL HAVE A MINIMUM 2 HOUR FIRE RATING IN ACCORDANCE WITH SANS 10177. RECOMMENDED SYSTEMS ARE CSD SEALING SYSTEMS FROM MERIDIAN TECHNOLOGIES AND INTUMEX FROM P & H PROTECTIVE PLASTER SYSTEMS.

BUND WALLS TO BE CONSTRUCTED FROM FACE BRICKS COMPLYING WITH SANS 227 AND APPROVED BY ENGINEER. ALL JOINTS SHALL CONSTRUCTED WITH 10mm THICK MORTAR (1:4) CEMENT : SAND, RAKED FINISH. ALL JOINTS TO BE IN STRAIGHT HORIZONTAL AND VERTICAL LINES. WALLS TO BE CAPPED WITH A ROLL COURSE.

PLASTER TO BE 1:4 (CEMENT : SAND), MIN. 15mm THICK, SMOOTH FINISH, INCLUDING BENCHING.

STAIR TREADS TO BE RIBBED FOR GRIP.

SUMP COVER TO BE 650 x 450 x 3mm GALVANISED CHEQUER PLATE WITH 25mm DIA. LIFTING HOLE AT THE CENTRE.

LEVEL OF TOP OF THE PLINTH TO RELATE TO THE CENTRE OF ADJACENT ROAD LEVEL FOR EACH SITE.

| | 160mm ϕ PVC SLEEVE FOR CABLES. SLEEVE TO BE CORKED AFTER
* CABLES ARE LAID. FINAL POSITIONS TO BE DETERMINED ON SITE.

GRATING IN SUMP TO BE 370 x 290 GALV. B60 30mm x 4.5mm GRIPWELD OR SIMILAR APPROVED.

NB. TRFR MASS TO BE CHECKED FOR EACH INSTALLATION AS EXCEPTIONS TO THE ABOVE MAY OCCUR.

BUND WALL DIMENSIONS:

BUND WALL DIMENSIONS A, A1, B AND B1 ARE TO SUIT.

OUTLINE DRWG AND SHALL BE AS FOLLOWS:

DIMENSION TO INSIDE LINE OF BUND WALL TO ANY PART OF THE TRANSFORMER CONTAINING OIL SHALL BE 1500mm.

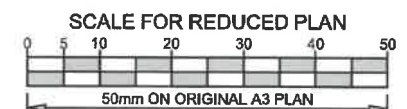
SLIPWAY DIMENSIONS:

SLIPWAY DIMENSION E TO BE DETERMINED BY THE SITE LAYOUT, REFER TO SUBSTATION LAYOUT DRAWINGS.

OIL ABSORBANT CUSHIONS:

LINE SUMP, ABOVE GRATING, WITH NO. 2 x 300 x 300 x 50mm NATURAL FIBRE OIL ABSORBANT CUSHIONS AS SUPPLIED BY DRIZIT WESTERN CAPE (021) 531-5335 OR SIMILAR APPROVED CUSHIONS.

ENSURE THAT THE CUSHIONS FIT TIGHT AGAINST THE PERIMETER WALLS.



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