



de villiers & moore
CONSULTING ENGINEERS
Electrical, Mechanical, Fire

Our Ref: R5095Q/L005
Date: 2022-10-31

Your Ref:

The Directors
Urban Country Estate

Attention: **Mr S Gomez**

Sir

GEORGE: URBAN ESTATE: SUB-DIVISION OF ERF 19743
77 GROUP HOUSING ERVEN AND 40 APARTMENTS
ELECTRICAL BULK SERVICES REPORT: REV 001

This report has been compiled by de Villiers & Moore Consulting Engineers, having been instructed our Client, Messrs Urban Country Estate, with purpose of informing the team of the extent of the electrical bulk services required to be put into place to provide the electrical supply to the Development.

LOCATION

The Development is situated in Heather Park in the administrative district of George Municipality.

SUPPLY AUTHORITY

The Development is situated in the electrical supply area of George Municipality.

DRAWINGS

Attached to this report is drawing R5094Q/MV1_Rev B which details the electrical points of supply and the point of supply to the Development as well as the existing 11kV cables to the area.

EXISTING ELECTRICAL DISTRIBUTION NETWORK

In order to ascertain the extent of the existing electrical infrastructure in the area, we visited the site on 2022-05-12 and met with the electrical department of George Municipality.

The existing 11kV network is indicated on the attached extract as well as the municipal single line diagram.



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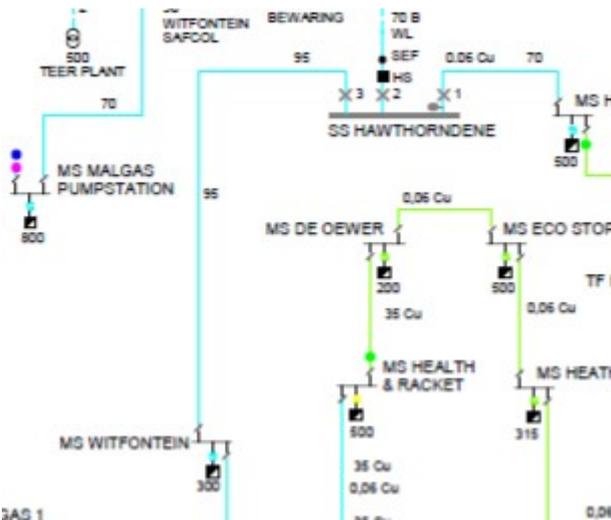
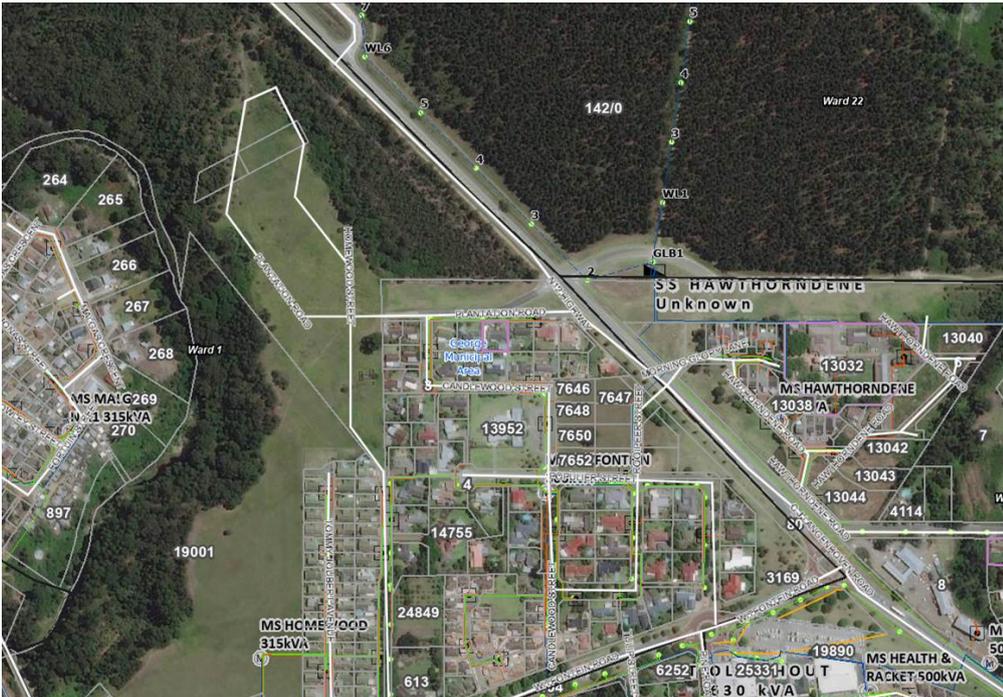
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Directors: R.G HALL Pr Eng B.Sc Eng, C.H. KOCH Pr Eng B.Eng, T.H. HEYNS Pr Tech Eng, W.J. BADENHORST Pr Tech Eng
Associate: G.F. ARENDSE Pr Tech Eng

There is an existing 95mm² x 3c (Al) 11kV PILC cable in the area which feeds between SS-Hawthorndene and MS-Witfontein.



DEMAND REQUIREMENTS

Based on the SDP provided by A.i.A Architecture the maximum demand of the development, once fully developed, is calculated at 280kVA.

ELECTRICAL MAIN SUPPLY LOAD SCHEDULE

REV 001

| Type | m ² | Number | ADMD | TOTAL |
|-----------------------|---------------------|--------|------|------------|
| Group Housing | 300m ² | 33 | 2,20 | 73 |
| Group Housing | 400m ² | 28 | 2,50 | 70 |
| Group Housing | > 400m ² | 16 | 3,00 | 48 |
| Apartments | | 40 | 2,20 | 88 |
| Street Lighting/Other | | 30 | 0,03 | 1 |
| TOTAL ADMD | | | | 280 |

NOTE that this maximum demand does not take into account the effect the possibility of installing a photo voltaic system to supplement the energy usage.

PROPOSED ELECTRICAL MV DISTRIBUTION NETWORK

The medium voltage network currently in place will be sufficient to supply the intended development and confirmation of this was obtained from George Municipality in a written email dated 2022-05-19 in response to our capacity request, reference R5094Q-L002 dated 2022-04-27.

An extract from the email confirming the capacity availability

1. *Capacity available:*

- a. *The capacity will be made available on the 95/3 Ring near Hawthorndene SS to MS Witfontein*

Point of Supply

A new double 95mm² x 3c (Al) 11kV PILC cable will be cut into the existing 95mm² x 3c (Al) 11kV PILC cable between SS-Hawthorndene and MS-Witfontein and extended to the entrance gate of the Development where a 500kVA min-substation will be installed along with the required low voltage switchgear required to supply a new bulk low voltage metering kiosk.

The bulk low voltage metering kiosk will be installed alongside the mini-substation.

This will act as the Point of Supply and the position of the equipment is indicated on the attached drawing R5094Q/MV1_Rev A.

METERING AND RESPONSIBILITY

The LV Bulk Meter Unit will be the point of separation between the responsibilities of the Developer and George Municipality.

The Developer will be responsible for the maintenance of all electrical equipment on the downstream side of the meter which will include the maintenance of the mini-substation and low voltage network including street and area lighting.

The George Municipality will be responsible for the maintenance of the mini-substation and the LV Bulk Meter Unit .

The metering unit will be fitted with a Landys and Gyr kWh/kVA meter which meets the Municipal specification.

The mini-substation and LV bulk metering unit will be taken over by the George Municipality once the Completion Certificate has been signed by all relevant parties.

ENERGY SAVING MEASURES

The use of the following equipment will be made mandatory

Water and sewage pumps to be supplied with energy efficient motors and motor control.

Water heating to be done using heat pumps, solar units and/or gas.

Lighting to make use of LED lamps only.

Use of motion sensor lighting control.

The use of the following may be considered in due course
Photovoltaic systems.

COST ESTIMATE

The Developer will be responsible for all costs associated with the supply and installation of the electrical infrastructure required to service the Development.

A detailed design of the proposed medium voltage, low voltage and earthing will be submitted for approval prior to construction commencing on site.

The estimated Electrical Development Contributions for the current financial year are in the order of

R1 300 000-00 + Vat.

It should be noted that this amount is adjusted each year at the end of June 2022.

IMPACT

1. Impact on Existing Electricity Consumers
The development will have no detrimental effect on the quality of supply to the existing consumers due to the fact that the development will be supplied by its own substation which in turn will be supplied from the 11kV system.
- 2) Impact on Distribution Authority Operating Costs
The development will have no negative effect on the electrical costs of the distribution authority, due to the fact that the complete electrical infrastructure required for the development will be supplied and installed by the Developer.
- 3) Impact on the Environment
Services will be located within the road reserves to prevent additional disturbances of vegetation.
The internal electrical infrastructure design will take into account energy saving technologies which may include load control, the use of energy efficient lighting, the use of alternative means of water heating and inverter type HVAC equipment

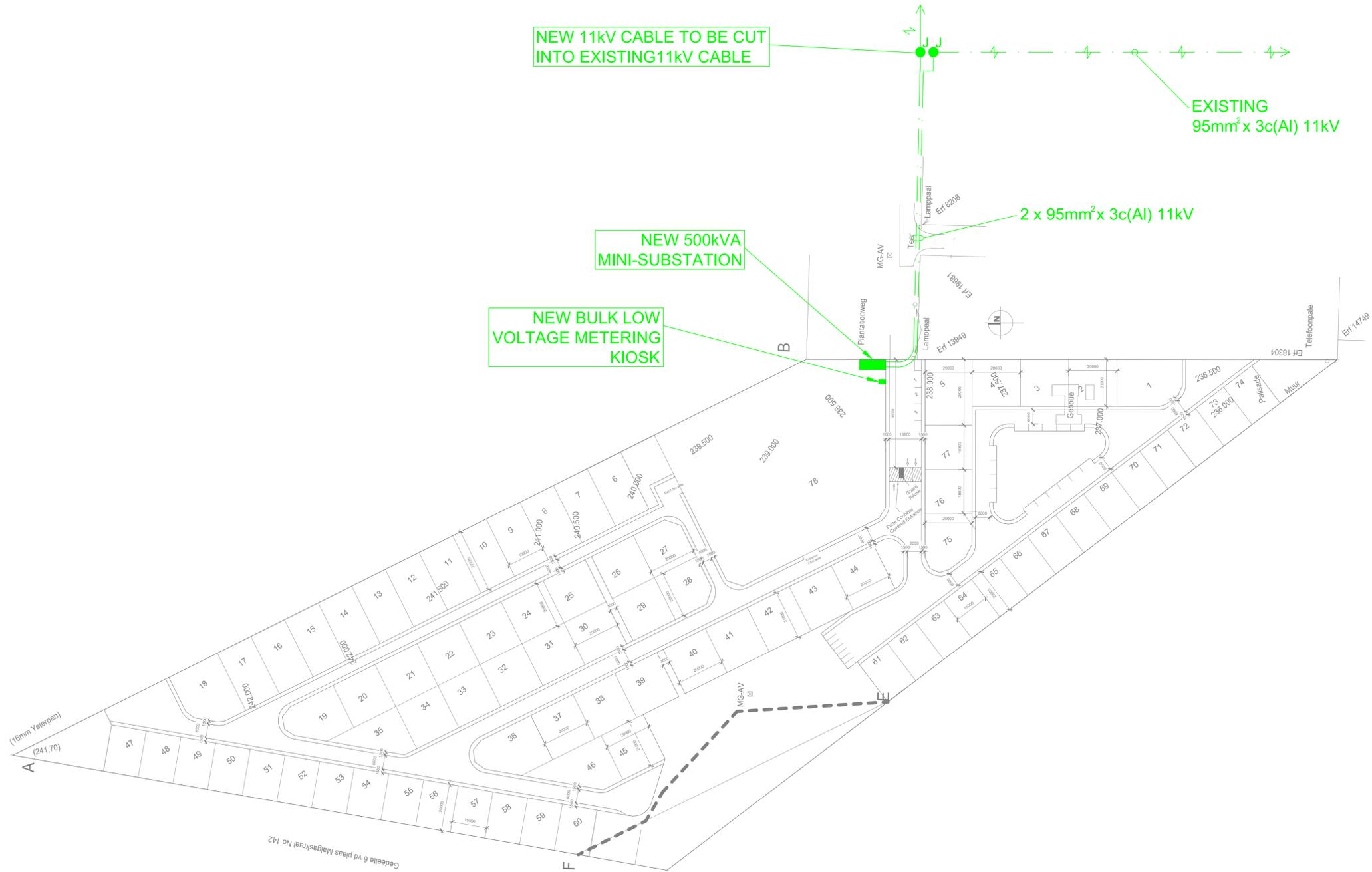
CONCLUSION

We trust the information provided is of sufficient detail to allow for an informed decision to be made. Please do not hesitate to contact the undersigned should additional information be required.

Yours faithfully



R G HALL Pr Eng
DE VILLIERS & MOORE (PTY) LTD



NEW 11kV CABLE TO BE CUT INTO EXISTING 11kV CABLE

EXISTING 95mm² x 3c(AI) 11kV

2 x 95mm² x 3c(AI) 11kV

NEW 500kVA MINI-SUBSTATION

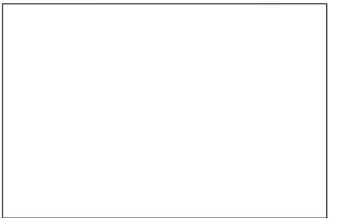
NEW BULK LOW VOLTAGE METERING KIOSK

FOR INFORMATION

- GENERAL SPECIFICATIONS**
- POSITION OF ELECTRICAL EQUIPMENT ON DRAWINGS IS TO BE CONFIRMED WITH THE ARCHITECT BEFORE INSTALLATION.
 - ALL MATERIAL SHALL BE SUITABLE FOR THE CONDITIONS ON SITE AND WHERE REQUIRED SHALL BEAR THE APPROPRIATE SABS MARK OF APPROVAL.
 - THE CONTRACTOR IS TO MAKE ARRANGEMENTS WITH LOCAL SUPPLY AUTHORITY FOR THE MAIN SUPPLY.
 - CONDUITING SHALL COMPLY WITH SABS 550 AND INSTALLED IN ACCORDANCE WITH SABS 10142-1:2003.
 - PVC INSULATED COPPER CONDUCTORS SHALL BE USED EXCLUSIVELY AND IN ACCORDANCE WITH THE DISTRIBUTION BOARD SCHEMATIC DIAGRAMS.
 - WIRING SHALL BE EXECUTED ACCORDING TO THE LOOP-IN SYSTEM UTILISING CONDUIT.
 - ALL SWITCHES AND SOCKET OUTLETS SHALL COMPLY WITH SABS 104 AND SHALL BEAR THE SABS MARK.
 - THE DISTRIBUTION BOARD SHALL BE MOUNTED ACCORDING TO REGULATIONS WITH BAKED ENAMEL WITH COOKERS. EQUIPMENT SHALL BE IN ACCORDANCE WITH THE DB SCHEMATIC DIAGRAM.
 - THE CIRCUIT BREAKERS SHALL COMPLY WITH SABS 155 AND BEAR THE SABS MARK.

- THE CIRCUIT BREAKERS SHALL COMPLY WITH SABS 156 AND BEAR THE SABS MARK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR BALANCING THE LOAD ACROSS THE THREE PHASES (WHERE APPLICABLE).
- THE COMPLETE INSTALLATION SHALL BE EFFECTIVELY EARTHED IN ACCORDANCE WITH SABS 10142-1:2003 AND THE SPECIFIC REQUIREMENTS OF THE LOCAL SUPPLY AUTHORITY.
- ON COMPLETION OF THE INSTALLATION A CERTIFICATE OF COMPLIANCE SHALL BE ISSUED TO THE RELEVANT PARTIES.
- ALL QUERIES REGARDING THE DRAWINGS AND INSTALLATION SHALL BE ADDRESSED TO THE ELECTRICAL ENGINEER IN WRITING/FACSIMIL.
- THE CONTRACTOR WILL BE REQUIRED TO FAMILIARIZE HIM/HERSELF WITH THE ELECTRICAL AND ARCHITECTURAL DRAWINGS (E.G. CEILING HEIGHTS, WALL STRUCTURES, EXPANSION JOINTS, NEW OR EXISTING SERVICES, BUILDING FINISHES ETC.).

| REVISIONS/HERSIENINGS | | |
|-----------------------|------------------------|------------|
| REV | DETAIL | DATE |
| B | REVISED LAYOUT ADDED | 2022-11-07 |
| A | ISSUED FOR INFORMATION | 2022-05-24 |



Client
Klient
URBAN COUNTRY ESTATE

Project Title
Projek Titel
**ELECTRICAL RETICULATION
GEORGE: SUB-DIVISION OF
ERF 19734
GROUP HOUSING
DEVELOPMENT**

Scale
Skaal
1:1000

Date
Datum
2022-01-25

Drawn
Geteken
R.R.

Designed
Ontwerp
R.H.

Drawing Title
Tekeningtitel
**ELECTRICAL INSTALLATION
ELECTRICAL BULK SERVICES**

Client Drawing Number
Klient Tekeningnommer

Drawing Number
Tekeningnommer
R5095Q/1

Revision No.
Hersiening Nr.
AB