Rezoning & Subdivision
Erf 1388, Kuilsrivier

Electrical Distribution
&
Infrastructure

ebrahim engineering consultants

JANUARY 2025

CONTENTS

1. INTRODUCTION

Hamilton Estate is a private development located in Kuilsrivier.
The Electrical supply authority is City of cape Town.

Erf 22180
Phase 1- Hamilton Estate Development was started in 2015 and all electrical designs, supervision & contract administration was undertaken by Ifindo Engineers.
Phase 1A – Hamilton Estate was completed in 2021 with E2C Engineers responsible for the design, supervision, Test / Commission and contract administration.

Phase 2 A - Hamilton Estate is currently in Construction stage with E2C Engineers responsible for the design, supervision, Test / Commission and contract administration.

Phase 2B to 2F – are Future Hamilton Estate Phases. Note the CoCT substation will be built under Phase 2B.

Erf 1388
Rezoning & sub-division of erf 1388.
The purpose of this report is to present the proposed Electrical distribution and power supply infrastructure, street furniture, equipment and domestic demand.
proposals applicable to erf 1388, Remainder Farm.

2. EXISTING DISTRIBUTION NETWORK

The existing CoCT 11kV MV Distribution network consists of two feeders A & B.
Feeder A is tapped off the existing Kalkfpontein 11kV network which feeds the existing Phase 1 and Phase 1A.

Feeder B – currently at design stage.
This proposal is for a new CoCT substation building which will supply two 11kV Ring feeders.
One being Hamilton Estate phase 2B to Phase 2F

The other 11kV Ring feed is earmarked for erf 1388.

CoCT correspondence:

- Letter Eng 24 1084
  Confirmation of Electrical capacity to Hamilton Estate Phase 2 - 1.95MVA

- We requested a CoCT letter of Confirmation of Electrical supply to erf 1388, but as the erf is not legally registered to the proposed buyer, City is unable to issue a similar letter.

3. SUBSTATION BUILDING

Per CoCT correspondence Eng 24 – 1084
The developer shall provide a 20m x 14m substation building site.
This site shall have a public road access and shall be constructed per CoCT specifications.
Erf allocation and final construction details shall be confirmed at preliminary design stage.

The earmarked site shall be a portion of erf 468 (P.O.S)

The substation shall have two outgoing feeders, as listed in item 2 above.

Ref Diagram – Substation distribution diagram.

4. LV DISTRIBUTION

Estimated Design load-	
Mixed use	Residential and mixed business use
Estimate no. of Erven	482 units, comprising of 440 single plots and 44 duplex units
Estimated Electrical demand	1900kVA or 1.9mVA + 120-150kVA for general business / commercial use.

Residential ADMD demand is 4.0kVA per unit – ref CoCT Electrical reticulation guide CTEF 100.

An 11kV underground cable shall feed all Electrical Minisubs.

Minisubs – typically 500kVA and 800kVA in size.
All minisubs shall be mounted on an allocated 6m x 4m site.

Electrical distribution Kiosks – 9Way 3CR12 per CEE 30

Preliminary and final LV distribution designs shall be signed and approved by CoCT Electrical Planning department

The MV & LV design specifications shall be per CoCT Specification CEE 30,

All Electrical Equipment, cabling etc shall meet relevant SANS, SABS and CoCT Municipal specifications.

Underground LV distribution cables (aluminium) PVC SWA per SANS 1507

Underground House-feeder cables (copper) PVC WSA + pilot cable per SANS 1507

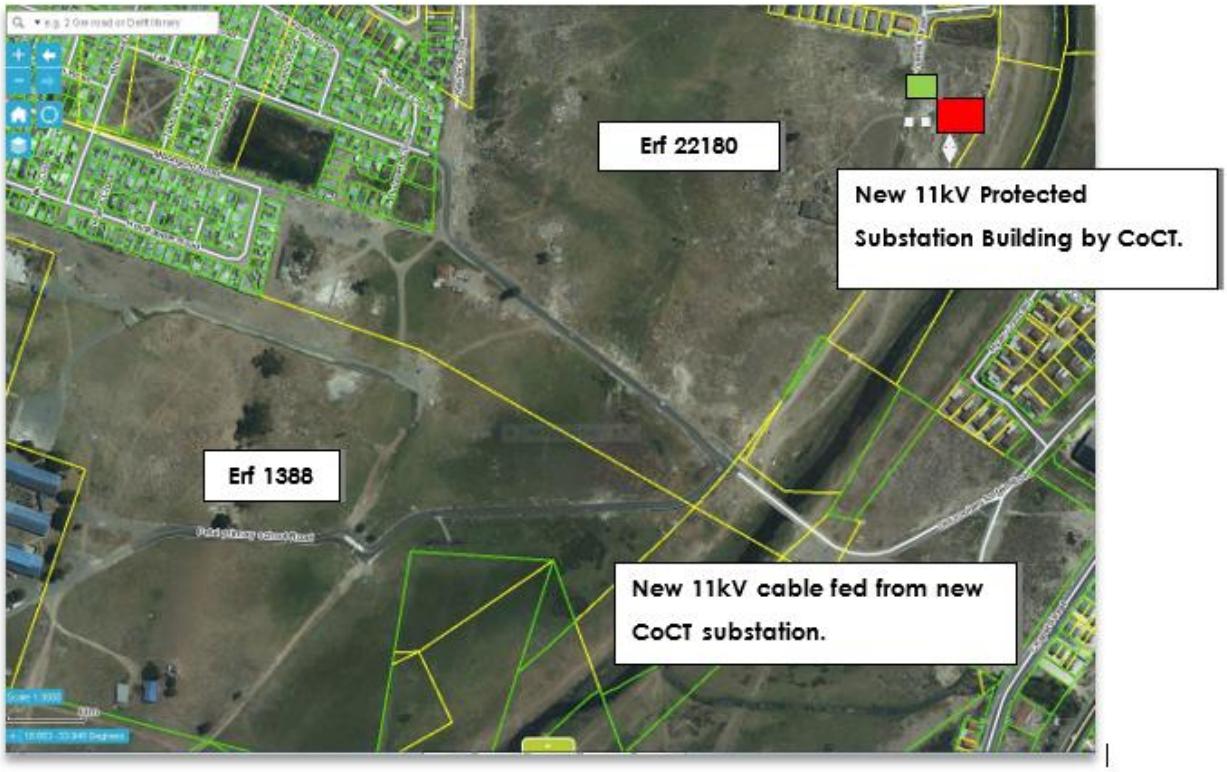
5. STREETLIGHTING

The Streetlighting shall be based on CoCT “Public & Streetlighting guideline”
Preliminary and final designs shall be signed and approved by CoCT Public Lighting department.

Streetlighting components:
6m high galvanised pole
37W LED streetlight
Streetlighting distribution kiosks.
Streetlighting cable – 25mm x 4Core PVC SWA aluminium.

6. SITE LAYOUTS

Erf 1388 Site Layout
Note substation in RED



Overall Hamilton Estate diagram

- A new substation at the proposed 16m x 14m plot, temporarily named "S-STN-1". This substation will have two 120mm^2 PILC cables feeding the minisubs of the two developments; Erf 22180 and Erf 1388. *(See "Figure A")*

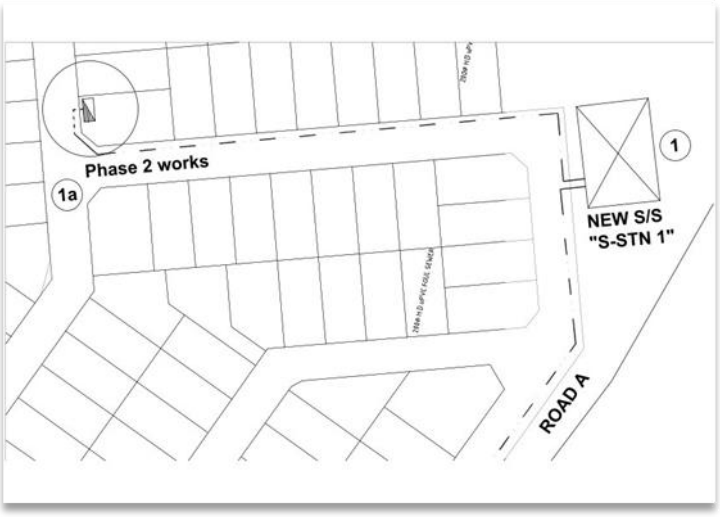


Figure A

- Aforementioned PILC cables are routed down "Road A" (part of Hamilton Phase 2 Development) and terminate at "MS-NH-1" in "Road B".

- New Minisub ("MS-NH-1") located on Erf 443, will be fed from the substation and feed approx. 140 residential erven @ 4kVA per erf for a 560kVA load. Minisub MS-NH-1 will therefore need to carry a 800kVA capacity. *(See Figure B)*

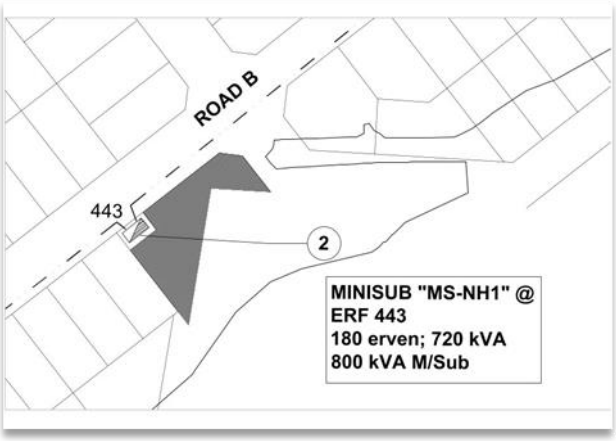


Figure B

- New Minisub ("MS-NH-2") located on Erf 442, will be fed from "MS-NH-1" and feed approx. 180 residential erven @ 4kVA per erf for a 720kVA load. Minisub MS-NH-2 will therefore need to carry a 800kVA capacity. *(See Figure C)*

Figure C

- New Minisub ("MS-NH-3") located on Erf 444, will be fed from "MS-NH-2" and feed approx. 120 residential erven @ 4kVA per erf and provide power for general business (estimated use: 120-150kVA)for an estimated 600kVA load. Minisub MS-NH-2 will therefore need to carry a 800kVA capacity. *(See Figure D)*

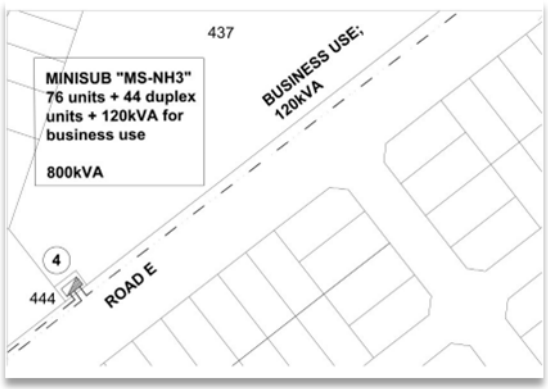


Figure D

- New Minisub ("MS-NH-4") located on Erf 445, will be fed from "MS-NH-3" and feed approx. 123 residential erven @ 4kVA per erf for an estimated 492kVA load. Minisub MS-NH-3 will therefore need to carry a 500kVA capacity. *(See Figure E)*

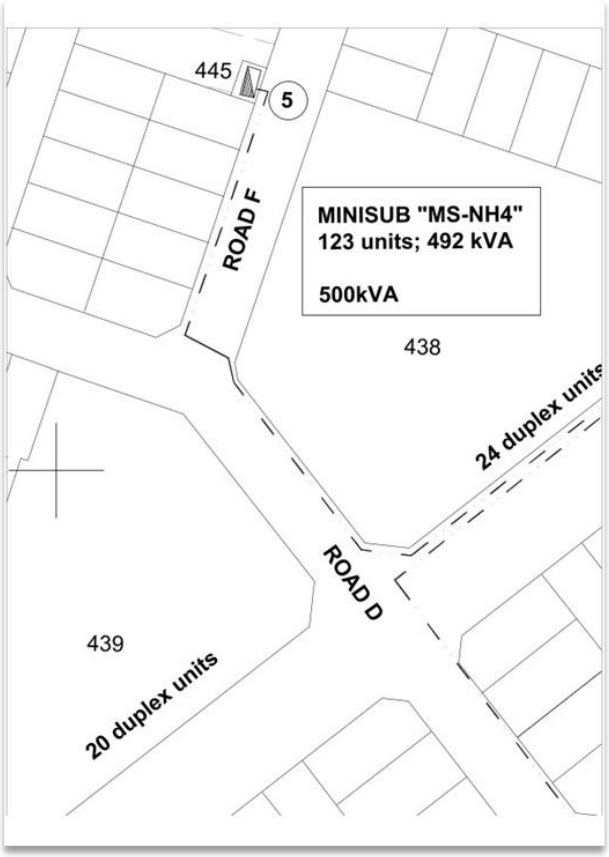
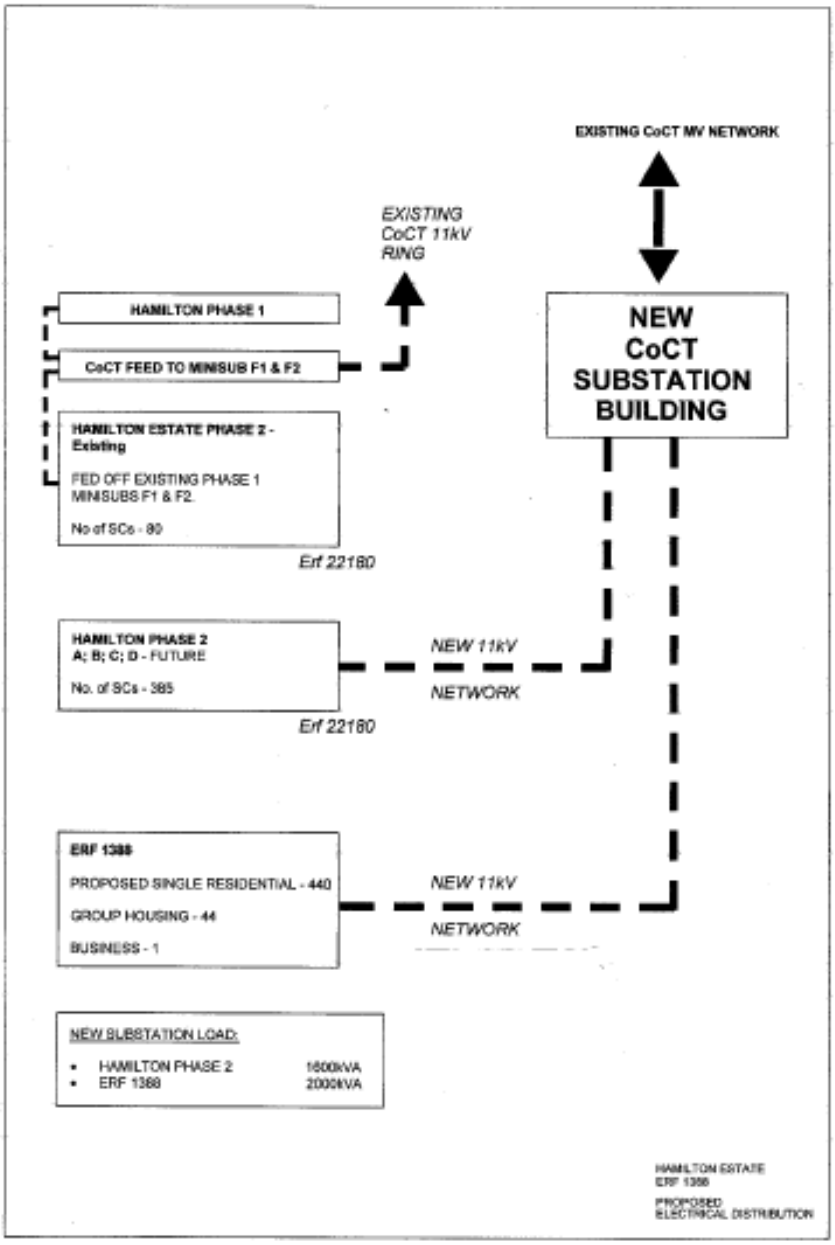


Figure E

7. APPENDIX

- Erf 1388 MV Distribution diagram.



- CoCT letter Eng 24 1084

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19 April 2024

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* Substation Bldg will also supply 11kV Ring To ERF 1868

Dear Sir

CONFIRMATION OF ELECTRICITY CAPACITY: HAMILTON ESTATE PHASE 2, ERF 22180, KUILSRIVER

The capacity required for this development, as indicated by you, is 1.95 MVA. + ERF

The City's 11 kV electricity network does have sufficient capacity to cater for the full power requirements for this development. However, this capacity will not be reserved and is available on a first-come first-served basis. The developer to provide the City with a 20 m x 14 m substation building site and 6 m x 4 m mini-substation sites on the erf boundary adjacent to a public road for direct vehicular access. The substation sites must be subdivided, registered, and transferred to the City's Electricity Generation and Distribution Department by the developer at their cost. The lead-time to make the supply available is to be negotiated.

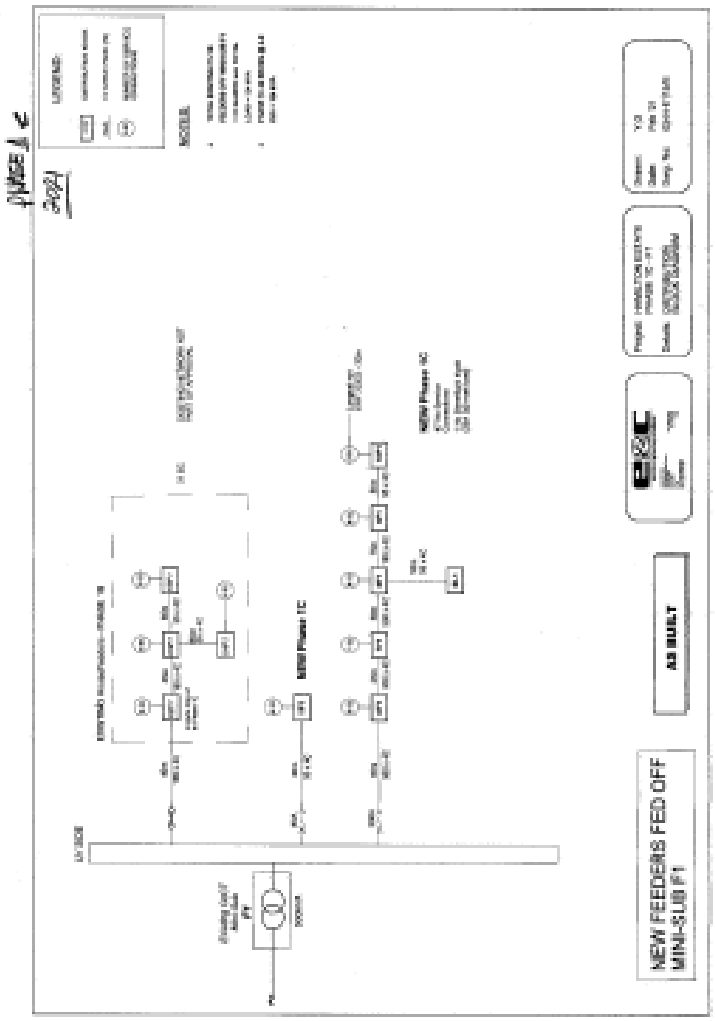
In view of the current national electricity shortage, measures have been implemented to restrict growth in electricity demand and the use of electrical energy. The following must be noted in this regard:

- The property owner is required to include in the development measures to improve energy efficiency to reduce the consumption of electricity. Applicable requirements will be made available as part of the quotation process.
- Energy efficiency requirements will depend on the authorised capacity applied for, as detailed in the document "Energy Efficiency Requirements". The latest copy is available found at www.capetown.gov.za/ElecServiceForms.
- Owners shall conform to any conservation or rationing programme implemented by a sphere of government or relevant regulating body by reducing their electricity consumption as required in terms of such a programme.

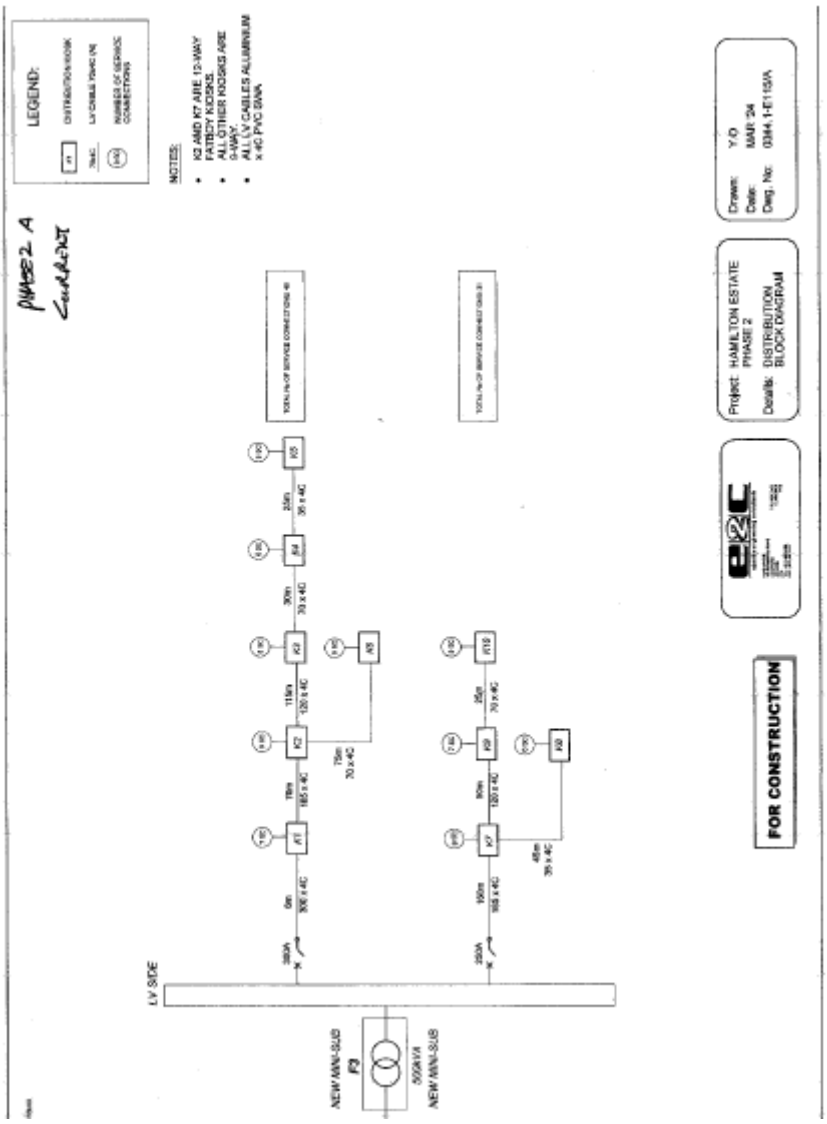
These restrictions may be adapted as restrictions placed on the electricity supply to the City are modified. Applications for a connection to the City's electricity network will be subject to the conditions applicable at the time.

The property owner will be required to submit an electricity reticulation design report to the Director: Electricity Generation and Distribution for approval. Such a report shall set out the necessary detail of the proposed infrastructure to be handed over to the City in terms of the

- Hamilton Estate – Phase 1C diagram



- Hamilton Estate – Phase 2A diagram



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3 February 2025