


DAN SPARES CC

PROJECT NUMBER 11159

Preliminary Services Report For The Proposed Cluster Housing Development Kingsburgh Extension 9 (Erf 2954 And 2956)

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**PRELIMINARY SERVICES REPORT FOR THE PROPOSED CLUSTER
HOUSING DEVELOPMENT KINGSBURGH EXTENSION 9 (ERF 2954,
2955 AND 2956)**

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PRELIMINARY SERVICE REPORT FOR THE PROPOSED CLUSTER HOUSING DEVELOPMENT KINGSBURGH EXTENSION 9 (ERF 2954, 2955 AND 2956)

1. INTRODUCTION

SiVEST Civil Engineering was appointed as Civil Engineers for the proposed Cluster Residential Development by Dan Spares cc. The properties that will accommodate these developments are in close proximity of each other. However cannot be consolidated due to existing boundary constraints. The sites are erf 2954, 2955 and 2956.

Over the past 10 years this project has had various submissions to the Municipality and due to its topography and the fact that a large portion of it falls within DMOSS a large portion of it was questionable for development.

During 2019/20 a compromise was reached where only a portion of erf 2954 and 2956 would be considered for development and 2955 would be donated to the Municipality as a offset, as part of the DMOSS system.

The proposed layout for erf 2954 and 2956 is greatly reduced to what was originally proposed taking into account all the various reports submitted and responses received.

2. RELEVANT SERVICES AUTHORITY

The responsible service Authority for the various infrastructural elements is listed below.

Water Supply:	eThekwini Water and Sanitation (Potable and Fire)
Sanitation:	eThekwini Water and Sanitation
Roads:	
Provincial:	Kwa Zulu Natal Department of Transport (KZN DoT)
Local:	eThekwini Roads Department
Local:	eThekwini Traffic Authority
Electricity: -	eThekwini Electricity Department
Storm water: -	eThekwini Coastal and Drainage
Solid Waste: -	Durban Solid Waste

3. BULK INFRASTRUCTURE

3.1 Roads

Current access to the site is obtained via an existing premix roads

erf 2954 Kingsburgh also known as 4 Vaughan Goodwin road, Shulton Park

erf 2956 also known as 61 Karridale drive, Shulton park

A Traffic Impact Assessment (TIA) has been prepared by NSA Consulting Engineers. This TIA takes cognisance of the traffic generated from the 2 land parcels as well as the natural growth of the existing surrounding traffic. This report is part of the Environmental annexure

A geotechnical report was done by Drennan Maude and partners and is attached in art as annexure A (The full report is part of the EIA submission)

3.2 Sanitation

The eThekweni Municipality is the responsible authority for the provision of bulk sewage disposal. The eThekweni Water and Sanitation Unit has confirmed that at present there is presently no bulk capacity available at the Kingsburgh treatment Works.

However, the Municipality has advised that the developer will need to install an onsite treatment facility in terms of their guidelines "WATER AND SANITATION UNIT OF ETHEKWINI MUNICIPALITY: GUIDELINES FOR THE DESIGN AND APPROVAL OF ON SITE (SUB SURFACE) DISPOSAL OF DOMESTIC SEWAGE" (July 2005 revision E Guideline 6)

Once the house typography is defined a formal application will be made along with a WULA application in this regard in compliance with the EtheKwini guidelines and the WULA requirements.

The expected sewer demand flows will be calculated once the house typography is done and submitted with our detailed design report.

3.3 Water Supply

The eThekweni Municipality is the responsible authority for the provision of bulk water supply. The eThekweni Water and Sanitation Unit have confirmed that at present there is bulk capacity available for the development.

The expected water demand will be calculated once the house typography is done and submitted with or detailed design report.

3.4 Electricity

Acting Chief Engineer from EtheKwini electricity has confirmed that the supply of electricity to within the normal connection distance to the boundaries can be made available provided that:

- a) Additional costs (if any) according to the standard schedule of connection charges as appropriate to the applicant required electricity capacity, are paid prior to the actual connection of each submission.
- b) The electricity capacity requirements for each subdivision are within the norms catered for in the electrical infrastructure design
- c) Any costs that is occurred in rerouting or lowering the electricity cables in the proposed site will be to the developer's costs.
- d) Comment on requirements can only be made after formal applications and passed plans have been submitted to customer services department using reference E0288420 and E0288417

3.5 Solid Waste

Solid waste generated from the development will fall within the residential categories.

The solid waste will be stored in suitably designed bin areas on each individual site from where it will be collected at agreed fixed time intervals by the eThekweni Municipality. Volumes are expected to be low.

All waste will be disposed of at a registered licenced municipal waste site.

3.6 Storm water

Storm water runoff on site must be controlled in such a manner that it does not lead to erosion and the removal of soil off the site or have a detrimental effect on downstream infrastructure.

An overall Storm Water Management Plan will be drawn up to assist in the control and management of any rainfall runoff on site for both the "during" and "post" construction phases. The control of erosion and siltation during the construction process will also form part of and be addressed in the Environmental Management Plan (EMP) for the project.

The 1:100- year flood lines is shown on the drawings as supplied by EtheKwini Municipality.

S&D Servitudes may be required where applicable for the bulk storm water outfall/outfalls.

The site will undergo a limited remodelling with bulk earthwork operations taking place to reshape the area to establish developable "level" sites. With a portion of the site being developed for residential, the increase in hardened surfaces will be greatly reduced in relation to the total site area. This will reduce natural rainfall infiltration and increase storm water runoff. The potential for downstream erosion will therefore increase unless adequate attenuation measures are provided and protection against erosion at headwalls are taken.

Attenuation will be covered in the detail in the Storm Water Management Report when it is done but in summary, it is a requirement that all run-off from individual sites must be attenuated on each site prior to release into the piped reticulation network. Furthermore, each site will be required to attenuate a pro rata (based on site area) portion of the additional peak discharge from the road network. A full range of storms will be attenuated – 5, 10 and 20 year.

The various aspects of the storm water systems must be designed to comply with the Environmental Management Plans and the Storm Water Management Plan.

3.7 Emergency Services (Firefighting)

The potable water supply reticulation will be designed to cater for the firefighting water requirements and hydrants and will be suitably positioned.

4. PROPOSED INTERNAL INFRASTRUCTURE

General

The civil infrastructure will be designed in accordance with the Guidelines for Human Settlement Planning and Design (Red Book) and Local Authority requirements.

It is intended, that all infrastructure services within the residential node will be handed over to and maintained by the municipality

4.1 Roads

The internal road system will be designed to adequately provide for the nature of a residential area.

The design of the road structural layers will be based on a 20year design life and a detailed Pavement Design Report will be produced for Municipal approval during the detailed design stage.

4.2 Sanitation

The proposed development will be serviced with a piped waterborne reticulation network. All sewage will be gravity fed to various low points where it will be connected to the proposed-on site treatment facility.

General reticulation parameters are listed below:

Pipe cover

Roads –	1200mm
Verges –	1000mm
Midblock –	800mm

Pipes

Gravity mains – minimum 160mm diameter class 34 heavy duty uPVC

Manholes

Spacing –	maximum of 80m or at changes of direction and grade
Material –	Precast concrete rings, with covers and lids to suit their location: Heavy duty Type 2A polymer concrete for roads Heavy duty concrete for verges Light duty concrete for midblock

4.3 Water Supply

The water demand will be calculated using supply figures from the “Red Book” together with SABS 0400 and the expected land use as depicted on the relevant planning layout drawings.

General reticulation parameters are listed below:

Pipe cover

Roads –	1200mm
Verges –	1000mm
Midblock –	800mm

Pipes

Pressure –	uPVC, mPVC or HDPE class 9 up to Class 16
Sizes –	50mm-110mm diameter for reticulation 32mm diameter connections

<u>Hydrants</u> –	Durban type Hydrants
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<u>Water Meters</u> –	Kent Meters or as approved.
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4.4 Potable Water

The reticulation to the individual sites will be via buried underground piping laid within road reserves and suitably designed to account for flows and pressure. Each site will have its own individual municipal water meter.

The potable water and firefighting water will utilize the same lines and thus the reticulation system will be sized to cater for a combination of both peak demand and firefighting requirements.

Fire Fighting

The fire risk for a development of this nature is classified as “low” (Red Book).

As discussed, the firefighting water will be drawn off the domestic line.

4.5 Electricity

The internal reticulation infrastructure will include street lighting along the roads. The street lighting and reticulation will be designed and installed in compliance with eThekweni Electricity standards.

The individual electrical site connection is located in each individual erf.

Provision for the electrical cable crossings will be made in the road prism.

The erven will be individually metered.

All internal electrical services will be provided by eThekweni Electricity. The owner/tenant of each site will apply to and pay eThekweni Electricity for their connection. eThekweni Electricity will be responsible for revenue collection, maintenance and repairs.

All electrical services (medium voltage, low voltage, street lighting etc.) will be underground.

Street Lighting

eThekweni Electricity will install their standard streetlights along all public roads of the development. Spacing and choice of lamp will be based on their standards and design.

Electricity Metering

Electricity metering will be installed by eThekweni Electricity for each site when the owner/tenant applies for service. Revenue collection will be by eThekweni Electricity.

Road Crossings

Provision for the electrical cable crossings will be made in the road prism.

4.6 Solid Waste

The eThekweni Municipality will provide a door-to-door collection service.

The frequency of collection, once a week.

The geometry and structural design of all roads will be more than adequate to cater for the waste collection vehicles.

4.7 Storm water

Control of storm water runoff and its associated erosion problems during the construction phases will be dealt with via the EMP and Storm Water Management Plan. The guidelines as

set out in the eThekweni Design Manual: Guidelines and Policy for the Design of Storm water Drainage Systems must be adhered to.

Road Drainage

Storm water on the roads will be controlled by kerb and channels with the runoff being picked up in catchpit inlet structures and piped to suitable discharge points.

Each individual site will be required to attenuate a pro rata (based on site area) portion of the additional peak discharge from the road network.

The anticipated run off for the reticulation systems will be calculated using the following parameters:

Calculation of runoff	: Rational Method
Storm Frequency	: General reticulation
	: 1 in 5 years return period
	: Critical Areas - 1 in 20 years return period (50 years for major areas)
	: Minimum of 10 minutes time of concentration
	: Rainfall intensity in mm/hr will vary
	: Rainfall intensity in mm/hr
Pipe Material	: Concrete spigot and socket with rubber rings
Pipe Size	: Minimum pipe size 375mm diameter
Pipe Class	: Class 75D and 100D
Manholes	: Brick work
Headwalls	: Combination of concrete, brick and gabions.
Pipe cover	
	: Roads – 1200mm
	: Verges – 1000mm
	: Midblock – 800mm

Allowance will be made for the inclusion of sub soil drainage alongside the roads where required.

Roof Water

All runoff from roofs and hardstand areas must be attenuated on each individual site before discharge into the reticulation network and as mentioned, each site will be required to attenuate a pro rata (based on site area) portion of the additional peak discharge from the road network.

It is encouraged that there will be rainwater harvesting on the individual sites

4.8 Service Maintenance

It is the intention that the infrastructural services within the development will be handed over to the municipality and the maintenance of roads, storm water, sewer and water reticulation will be the responsibility of the relevant municipal departments.

The electrical reticulation normally remains a municipal service and will be maintained by the municipality.

All designs and installation thereof will be done in accordance with municipal requirements and standards.

4.9 Environmental Considerations

The construction of new infrastructure services will have an impact on the environment and every effort will be made to reduce the negative impacts. An Environmental Management Plan (EMP) will be produced, and construction practices will be monitored for conformity with the requirements of the EMP.

A Storm Water Management Plan will be prepared, and a Wetland Report has been prepared to provide a guideline to ensure that the design and installation of the infrastructure and top structures is done in a controlled manner whereby potential erosion and other storm water damage is kept to a minimum.

Every effort will be made during the design process to accommodate and mitigate any negative environmental impacts identified through the EIA scoping and approval process.

5. CONCLUSION

All information relating to the availability of bulk services indicates that there are adequate bulk services to supply the required demands generated by the development except for the on site treatment of the sewerage.

All aspects of the proposed designs for the various bulk and internal services will be designed in accordance with the various eThekweni Design Guidelines and the "Red Book" *Guidelines for the Provision of Engineering Services and Amenities in Residential Township Developments*. All services will be constructed in accordance with the provisions and specifications of the SABS 1200 Series specifications.

The ongoing approval process and the relevant environmental and rezoning processes will identify all issues that will have to be dealt with during the detailed design stage.



Appendix A

GEOTECHNICAL REPORT



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