DIEPSLOOT EXT 8 PROJECT

PRELIMINARY BULK SERVICES REPORT

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DIEPSLOOT EXT 8 PROJECT

PRELIMINARY SERVICES REPORT

1. INTRODUCTION

1.1. Purpose of this report

Bigen Africa Services (Pty) Ltd was appointed by Valumax to investigate the existing and required external engineering services for the proposed the Northern Farms Development also known as Diepsloot x8.

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The purpose of this report is the following:

- To establish the status of the existing infrastructure available to the development; and
- To determine the upgrading and new infrastructure needed for the development.

The Engineering Services addressed in this report are:

- Water Supply;
- Sanitation;
- Roads Infrastructure; and
- Stormwater.

1.2. Project Brief

The Diepsloot Ext 8 project is a large scale mixed income, mixed typology and mixed tenure housing development, in accordance with the Breaking New Ground Policy of national government.

The development will consist of approximately 3 850 units. The units is made up of approximately 35% Residential 1 single residential GAP units (1 350 units), 12% multi-storey Social/Rental Housing (450 units) and 53% (2 050) semi-detached RDP units. The development will also make provision for community and business stands.

2. SITE DESCRIPTION

2.1. Locality

The site of approximately 197 hectares is located to the North of the Johannesburg Municipal boundary. The area to be developed is currently uninhabited greenfield with a number of services transecting the land.

The proposed development is on a portion of the remaining extent of Portion 5 of the farm Diepsloot 388-JR.

A locality plan is attached to this report as Annexure A.

2.2. Flood Lines

Two flood lines have been determined and are shown on 1536.00.ZA.01.A001, included as Annexure A. The flood areas have relatively deep embankments and will be accommodated into the layout plan as open space and stormwater runoff.

3. WATER SUPPLY

3.1 Authority and Service provider

The Joburg Water is the Water Service Authorities for the Diepsloot development in terms of the Water Services Act (Act No. 108 of 1997).

3.2 Regional Supply

The project area is sited within the Joburg Water jurisdiction area. Johannesburg's water entity, Johannesburg Water (Pty) Ltd, implements the stipulations of the Water Master plan for this area as compiled in 2008. The project area falls within the Dainfern/Steyn City supply zone

The supply to the development will be from the future Dainfern reservoir to be constructed on the Steyn City development adjacent to the Diepsloot development. The supply to the reservoir will be via a future water bulk pipe line from the future Diepsloot reservoir. The construction of the bulk water infrastructure is planned to start in 2013 and will be completed early in 2014.

The normal engineering criteria will be allowed for in the design of the water networks.

The locality of the abovementioned infrastructure is indicated on Drawing No. 1536.00.ZA.01.A001, attached as Annexure C.

4 SEWERAGE

4.1 Authority and Service Provider

The Joburg Water is the Water Service Authority for the Diepsloot Extension 8 development in terms of the Water Services Act (Act No. 108 of 1997).

4.2 Regional Bulk Services

Johannesburg's water entity, Johannesburg Water (Pty) Ltd, implements the stipulations of the Water Master plan for this area as compiled in 2008.

The site is transected by two outfall sewers namely the Bruma outfall sewer from the east and the Northern outfall aqueduct that terminates in the Northern WWTW. This development will be serviced by the Northern WTWW.

4.3 Required Upgrade

The natural topography of the site falls towards the Jukskei River that borders on the northern perimeter of the site. Because of the level of the existing outfall sewers no connection can be facilitated from this development to these sewers.

It is proposed that a new 600ND outfall sewer along the Jukskei River be constructed to drain towards the newly constructed Steyn City pump station. This pump station has been designed to accommodate all future flow from the Jukskei outfall sewer.

The sewerage will be treated at the Northern WWTW which has capacity to treat this additional inflow.

5 ROADS

5.1 Design Norms and Standard

Standard details will be based on the standards of Johannesburg Roads Agency (JRA). Where specific details are not available, these details will be prepared and submitted to JRA for their approval.

5.2 Access

The development will gain access from the K46 also known as William Nicol Drive. The basic planning as received from Gautrans shows an intersection on the K46 with a 16m road reserve going over the adjoining properties into the development. The 16m road reserve was planned to mainly give access to the adjacent small holdings cut off from the main road by the proposed upgrading of the K46. This access will be the main entrance to the proposed township and it is proposed that the road reserve be widened to 32m.

5.3 External Roads

The existing K46 (William Nicol Drive) runs to the east of the proposed development and plans are underway to upgrade this road to a double carriageway in the near future. (Refer to Drawing No. 1536.00.ZA.01.A001, attached as Annexure A).

5.4 Required upgrade

The proposed development will put pressure on the existing road systems. It is envisaged that the majority of traffic will be added to the K46 Road.

Stormwater Attenuation Dams need to be constructed at positions indicated on 1536.00.ZA.01.A001, attached as Annexure A.

6 STORMWATER

6.1 Design Norms and Standards

Permissible stormwater flow on roadways within the development will be based on guidelines of the JRA.

All streets in the township will be asphalt surfaced and will be designed to act as stormwater collectors and conveyors. The streets will be placed below natural ground level so that stormwater from adjacent erven can be drained onto the streets. The layout and vertical alignment of the streets will be designed so that stormwater can be conveyed to the Jukskei River on the northern perimeter of the site.

A piped underground stormwater drainage system will be installed to handle the minor floods (1:5 year) so that the traffic will not be disrupted by the minor floods. Allowance will be made for major floods that cannot be accommodated in the minor stormwater drainage system to drain towards the water courses.

6.2 Natural River System and Flood Lines

A number of water courses run through the area which will facilitate stormwater drainage. The Jukskei River runs over the northern boundary of the property.

The naturally occurring flood lines affecting the project site has been designated a wetland and will be retained for drainage, detention and ecological purposes.

6.3 Stormwater Attenuation

It is a requirement of the JRA that provision is made for stormwater attenuation to reduce the increased stormwater run-off resulting from the development to pre-development volumes. This will be attained by the incorporation of stormwater attenuation ponds in the stormwater system. A number of smaller attenuation dams will be constructed at strategic points over the development to receive the storm water.

6.4 Bridge Structure

A bridge structure is planned to cross a minor water course and wetland to preserve the natural habitat. The natural habitat will be disturbed during construction of this structure. No connection is planned between the proposed southern and the northern developments thus no bridge will be required to cross the Jukskei River.

Annexure A

Layout Drawing