



**CLIENT: JOHANNESBURG DEVELOPMENT AGENCY**

**PROJECT: IMPLEMENTATION OF NGONYAMA ROAD – PHASE 1**

**REPORT: STREET LIGHT DESIGN SUBMISSION REPORT**

**DATE: 30 APRIL 2013**

**DISTRIBUTION LIST**

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# 1. INTRODUCTION

The JDA has developed an Urban Development Framework (UDF) and Business Plan which are aligned to the overarching Upgrading and Marginalised Area Programme, and the township Regeneration Strategy. The UDF will serve as the basis for the Ngonyama Road project.

The Diepsloot Development addresses the service delivery and urban development challenges in Diepsloot. The project's overall objectives are to:

- Support the development of a formal economy in Diepsloot;
- Create a safe and secure urban settlement which will attract investment and encourage sustainable development;
- Create quality public spaces to enhance the sense of community and to conserve environmental and cultural places of interest;
- Ensure the legibility and identity of the area;
- Identify and investigate opportunities for community interaction such as informal trading;
- Provide guidelines to ensure effective transport and land use integration and to assess multi-modal transport opportunities and existing infrastructure.

The Diepsloot Development will link directly with the JDA's strategic objectives namely:

- a) To promote economic growth through the development or promotion of efficient business environments in Johannesburg;
- b) To generate decaying areas of Johannesburg so as to enhance its ability to contribute to the economic development of the greater city and the quality of life of its residence;
- c) To promote economic empowerment through the structuring and procurement of JDA projects, their management, etc.;
- d) To promote productive partnerships and cooperation between all relevant stakeholders on area based initiatives;
- e) To make Johannesburg safe, clean, attractive and user-friendly by providing a range of enhanced management services;
- f) To facilitate public and private investment;
- g) To promote and market the businesses, assets and opportunities of the area;
- h) To aggressively address negative perceptions of the area and increase the positive factors which will encourage investment and business.

# 2. SCOPE OF WORK

The following initiatives have been implemented:

- In 2009/10, the Public Environment Upgrade of Ngonyama Road;
- In 2010/11, the Public Environment Upgrading along Ngonyama Road, construction of two pedestrian bridges and upgrade of the taxi rank and construction of pedestrian links between the bridges and Ngonyama Road;
- In 2011/12, completion of the public environment upgrade along Ngonyama Road.

Despite these developments, there is still a long list of interventions required to achieve the development objectives.

The priority interventions to be implemented in the medium term (which is the current scope) include:

- Delivery of road and pedestrian infrastructure to improve mobility within Diepsloot;

- Investments in public spaces in the Government Precinct in Diepsloot West, activity street traversing Diepsloot extension 1 and Tanganani and a proposed regional node at the intersection of the R511 and the proposed K54;
- Improve delivery of affordable housing;
- Formalisation of existing small business nodes in extension 1 and 3;
- Proposed regional node at the intersection of the R511 and the proposed K54;
- Facilitation of an African Market along the R511.

Over the three financial years from July 2012 to June 2015, the implementation will focus on the construction of a complete road and provision of a river crossing to complete the missing link on Nkonyama Road which will improve efficiency of movement and enhance opportunities for economic development.

The street lighting forms an integral part in the design to meet the above objectives. The previously upgraded sections of Nkonyama Road are used as a baseline and the street lighting theme is being carried out through the rest of the upgrade. The entire project will entail the construction of a road, as well as a vehicular bridge across the existing river where the new extension will link up with the already upgraded section of Nkonyama Road.

This report provides detailed information with regards to the design criteria, selection of poles and light fittings and associated design calculations for the roadway upgrade. Figure 1 below shows the entire scope of work to be undertaken in 2 Phases.

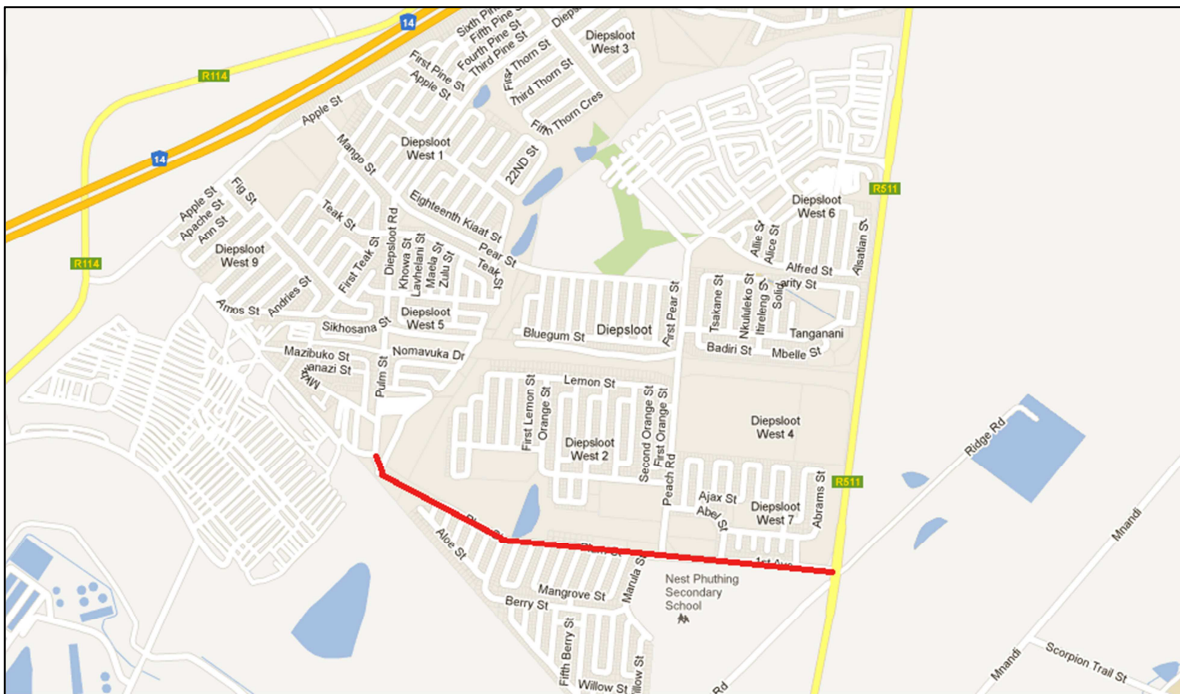


Figure 1: Full scope of upgrade work

### 3. PHASE 1 SCOPE

The scope of work for Phase 1 of the project includes only the construction of a road from the R511 up to a point before the vehicular bridge at the river. The bridge and link up with the existing section of road will take place in Phase 2.

The scope of this report covers Phase 1 of the work. The following locality plan in Figure 2 shows the section to be included in Phase 1.

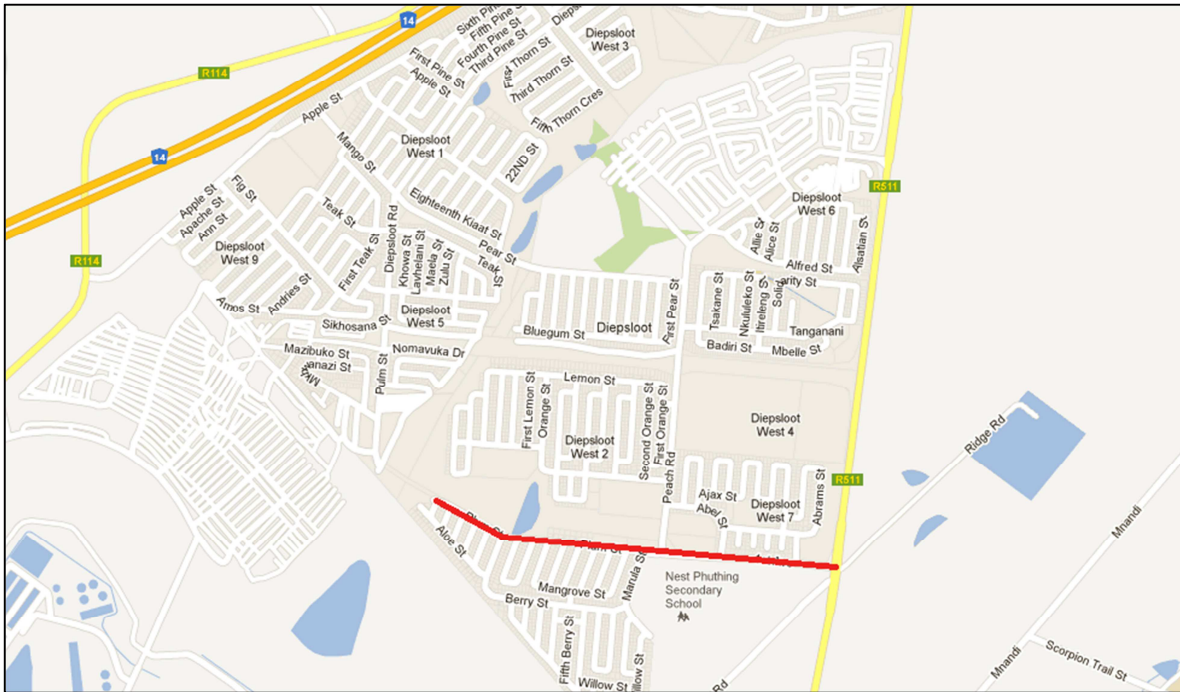


Figure 2: Scope of work for Phase 1

### 4. DESIGN CRITERIA

The following standards are applicable to this design:

SANS 10098-1: 2007	Public Lighting Part 1: The lighting of public thoroughfares
CP_TSSTAN_030: 2003	Numbering of Street Light Poles
CP_TSSTAN_035: 2004	Standard for the Planning of Public Lighting
CP_TSSTAN_036: 2004	Standard for the Installation of Public Lighting Infrastructure
CP_TSSPEC_032: 2006	Steel Lighting Masts
CP_TSSPEC_080: 2008	Pole Fittings for use with LV ABC & ASC
CP_TSSPEC_085: 2008	Stays and Associated Components
CP_TSSPEC_011: 2004	Specification for Discharge Lamps
CP_TSSPEC_014: 2004	Specification for Street Light Luminaires
CP_TSSPEC_024: 2004	Specification for Fittings for use with LV ABC
CP_TSSPEC_072: 2006	Specification for Pole Mounted Service Distribution Boxes for Public lighting
CP_TSSPEC_080: 2005	Specification for Pole Fittings for use with LV ABC & ASC

The lighting design is based on recommended levels for Group A3 Roads: Important urban traffic routes, for speed limits not exceeding 60km/h, without median and for traffic volumes during darkness of 600 vehicles per hour.

The lights will be fed from existing pole-mounted transformer which are feeding existing street lights on the gravel roadway where Ngonyama Road is to be constructed. A visit to the site has been carried out and the transformer and pole mounted control boxes were identified. The design of the street lighting circuits originate from those control boxes. The old lighting circuits and fittings will be decommissioned and removed as they are not meet the requirements of the new road layout and classification. The decommissioned streetlights will be returned to City Power Maintenance department during construction.



Figure 3: Existing lighting control box



Figure 4: Existing transformer

The photos above show one of the existing lighting control boxes and transformers at the site.

The type of street lighting that has been proposed is as follows:

Beka Strada with 250W HPS at 10 mounting height (street light)

Beka Lane with 57W CFL at 4m mounting height (pedestrian light)

Pole type galvanised steel A6 as per City Power CP\_TSSPEC\_032: 2006



Figure 5: Beka Strada

Figure 4: Beka Lane

The above streetlights are the same as what is currently at the upgraded sections of Ngonyama Road.

The spacing of the lights on the proposed design is 35m. The design information is presented as follows:

Appendix A: Streetlight design and levels

Appendix B: Reticmaster results for volt drop

Appendix C: Drawings: Streetlight plan (Sheets 1 to 4)  
Pole and luminaire detail  
Cross-section of road and sidewalk showing lighting mounting

Appendix D: Bill of Quantities

## **APPENDIX A: RELUX LIGHTING DESIGN**

## **APPENDIX B: RETICMASTER VOLT-DROP RESULTS**



## **APPENDIX C: DRAWINGS**

## **APPENDIX D: BILL OF QUANTITIES**