

**BASIC ASSESSMENT REPORT:**

**THE DEVELOPMENT OF A NEW  
SCHOOL SITE FOR MIDDELBURG PREPARATORY  
SCHOOL ON PORTION 362  
(A PORTION OF PORTION 27)  
OF THE FARM MIDDELBURG  
TOWN AND TOWNLANDS 287 JS,  
MIDDELBURG**

Report prepared for: Middelburg Preparatory School

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## PROJECT INFORMATION SUMMARY

<b>PROJECT TITLE</b>	The development of a new school site for Middelburg Preparatory School on Portion 362 (a portion of Portion 27) of the farm Middelburg Town and Townlands 287 JS, Middelburg.
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<b>CLIENT</b>	Middelburg Preparatory School
<b>CONTACT DETAILS</b>	81 West Street Middelburg 1035

<b>CONSULTANT</b>	Clean Stream Environmental Services
<b>CONTACT DETAILS</b>	P.O. Box 647 Witbank 1035 013-697 5021

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### COMPILED BY:

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*Managing Member*

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## 1. INTRODUCTION

Middelburg Preparatory School is in need of new school premises as their current premises in West Street, Middelburg, is too small. The Steve Tshwete Local Municipality donated Portion 362 (a portion of Portion 27) of the farm Middelburg Town and Townlands 287 JS to the school for the purpose of developing the said primary school catering for Grade RR to Grade 7.

The said property is located in Springbok Avenue adjacent to Steelcrest High School, Middelburg x4. The site is 2 hectares in extent and currently vacant. The property will be rezoned from 'Agricultural' to 'Educational' in order to develop the said primary school.

The Minister of Environmental and Water Affairs listed in terms of Sections 24(2), 24(5), 24D and 44, read with section 47A(1)(b) of the National Environmental Management Act, 1998 (Act No. 107 of 1998), a number of activities that require an environmental impact assessment (either a Basic Assessment or a full Environmental Impact Assessment) before undertaking these activities.

The proposed activity would involve the following listed activity as identified in terms of Section 24(2) and 24D of the National Environmental Management Act, 1998:

Listing	Description
<i>Listing Notice 1 (GN R983), Listed Activity 27</i>	<i>The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.</i>
<i>Listing Notice 3 (GN R984), Listed Activity 12</i>	<i>The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</i>

In order to obtain environmental authorisation, a Basic Assessment must be conducted as described in Regulations 19 and 20 of the Environmental Impact Assessment Regulations 2014 as promulgated in terms of Section 24(5) and 44 of the National Environmental Management Act, 1998 (Act 107 of 1998).

The objective of the Basic Assessment process is, through a consultative process:

- a) Determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responds to the policy and legislative context;
- b) Identify the alternatives considered, including the activity, location, and technology alternatives;
- c) Describe the need and desirability of the proposed alternatives;
- d) Through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focussed on determining the geographical, physical, biological, social, economic, heritage and cultural sensitivity of the sites and locations and the risk of impact of the proposed

activity and technology alternatives on these aspects to determine: (i) the nature, significance, consequence, extent, duration and probability of the impacts occurring; and (ii) degree to which these impacts (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated.

- e) Through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to: (i) identify and motivate a preferred site, activity and technology alternative; (ii) identify suitable measures to avoid, manage or mitigate identified impacts; and (iii) identify residual risks that need to be managed and monitored.

Clean Stream Environmental Services was appointed as independent environmental consultant to conduct the required Basic Assessment and compile the necessary documentation. This Basic Assessment Report (BAR) is compiled in accordance with Appendix 1 of the Environmental Impact Assessment Regulations, 2014 and indicates the environmental outcomes, impacts and residual risks of the proposed activity.

## 2. DETAILS OF THE PROJECT APPLICANT AND ENVIRONMENTAL CONSULTANT

<b>Name and address of applicant:</b> Middelburg Preparatory School Suite MW13 Private Bag X1838 Middelburg 1050	
Contact Person:	Dr. A. Marais
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Fax number:	013 – 243 5263
Cell number:	082 256 1742
E-mail:	<a href="mailto:midprepschool23013@gmail.com">midprepschool23013@gmail.com</a>

<b>Name and address of environmental consultant:</b> Clean Stream Environmental Services P.O. Box 647 Witbank 1035	
Contact persons:	Mrs. A. Erasmus <i>Pr. Sci. Nat.</i> Ms. R. Janse van Rensburg
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A copy of the application form and the declaration of independence by the applicant and environmental consultant are provided in Appendix 1.

A copy of the Curriculum Vitae of both Mrs. A. Erasmus and Ms. R. Janse van Rensburg are provided in Appendix 2 together with a list of projects completed to date.

### **3. DESCRIPTION OF THE ACTIVITY**

#### **3.1 Description of the site, design, size and scale of the development**

The new site for Middelburg Preparatory School is located on Portion 362 (a portion of Portion 27) of the farm Middelburg Town and Townlands 287 JS, Middelburg. The said property was donated to the Middelburg Preparatory School by the Steve Tshwete Local Municipality. A letter (dated: 3 October 2014) in this regard is provided in Appendix 1.

The said property is located in Springbok Avenue adjacent to Steelcrest High School, Middelburg x4 (Figure 3.1). The site is 2 hectares in extent and currently vacant.

An area of 5000 m<sup>2</sup> between Middelburg Preparatory School and Steelcrest High School will be used as parking space (Figure 3.1).

It should be noted that the property was subdivided and the registration of the new portion with the deeds office still needs to be finalised.

##### **3.1.1 Zoning of site**

The property will be rezoned from 'Agricultural' to 'Educational' in order to develop the said primary school. The aim of this zoning in terms of the Steve Tshwete Town Planning Scheme (2004) is as follows:

*'To provide an adequate range and provision of all educational facilities in appropriate and accessible locations, which are convenient to all users. To provide adequate educational facilities to address the special needs of the physical or mentally challenged children and adults'.*

##### **3.1.2 Site development plan**

Figure 3.2 provides the proposed site development plan that consists of the parking area in front of the school and then the actual school building.

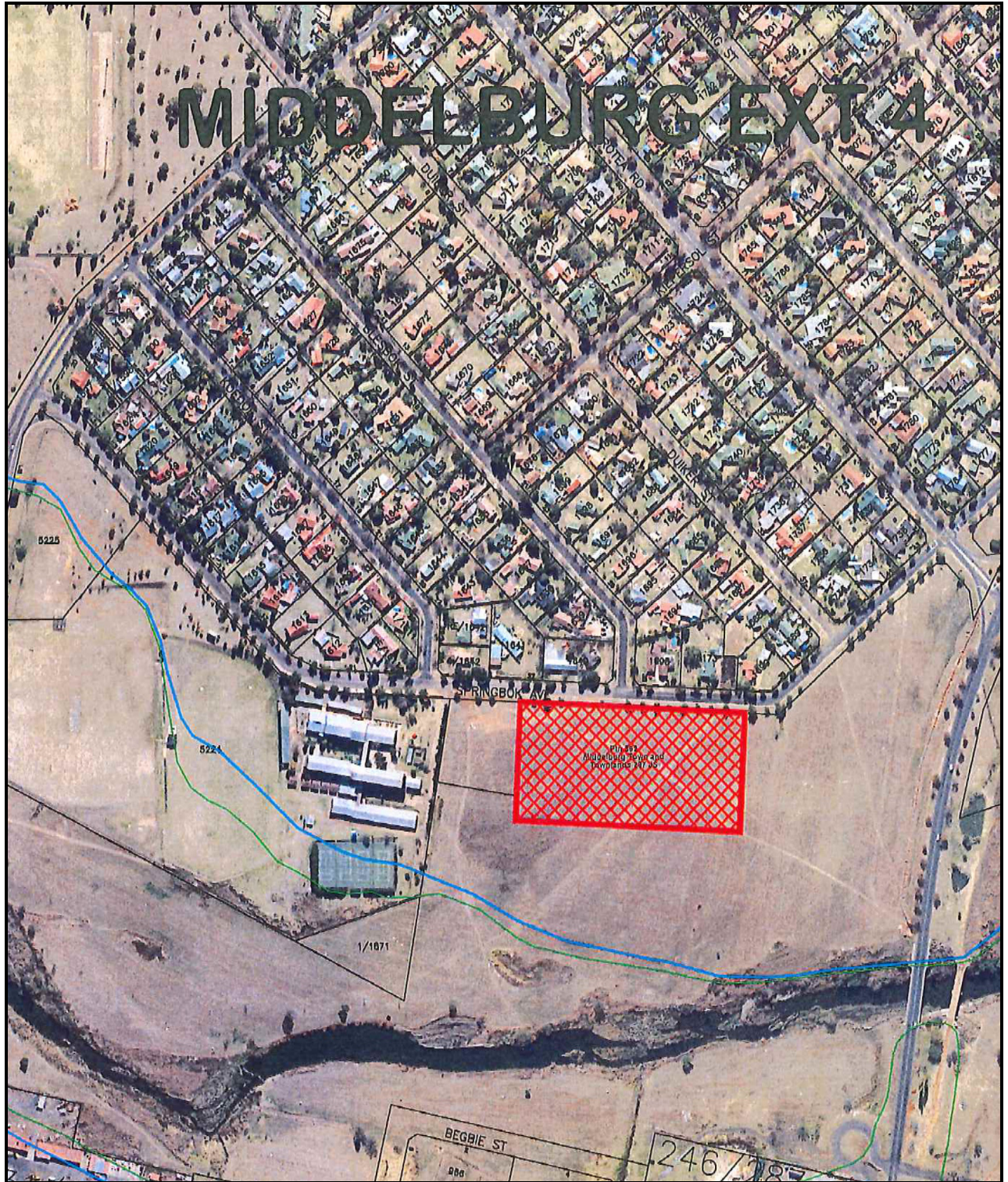
Figure 3.3 provides the ground floor plan of the school building while Figure 3.4 provides the lower ground floor plan.

According to Urban Dynamics (2015), the height of all the buildings will be restricted to 3 storeys. The height may however be increased or decreased with written consent from the municipality.

The Floor Area Ratio (FAR) and the total coverage of the buildings will be in accordance with the approved Site Development Plan (Urban Dynamics, 2015).

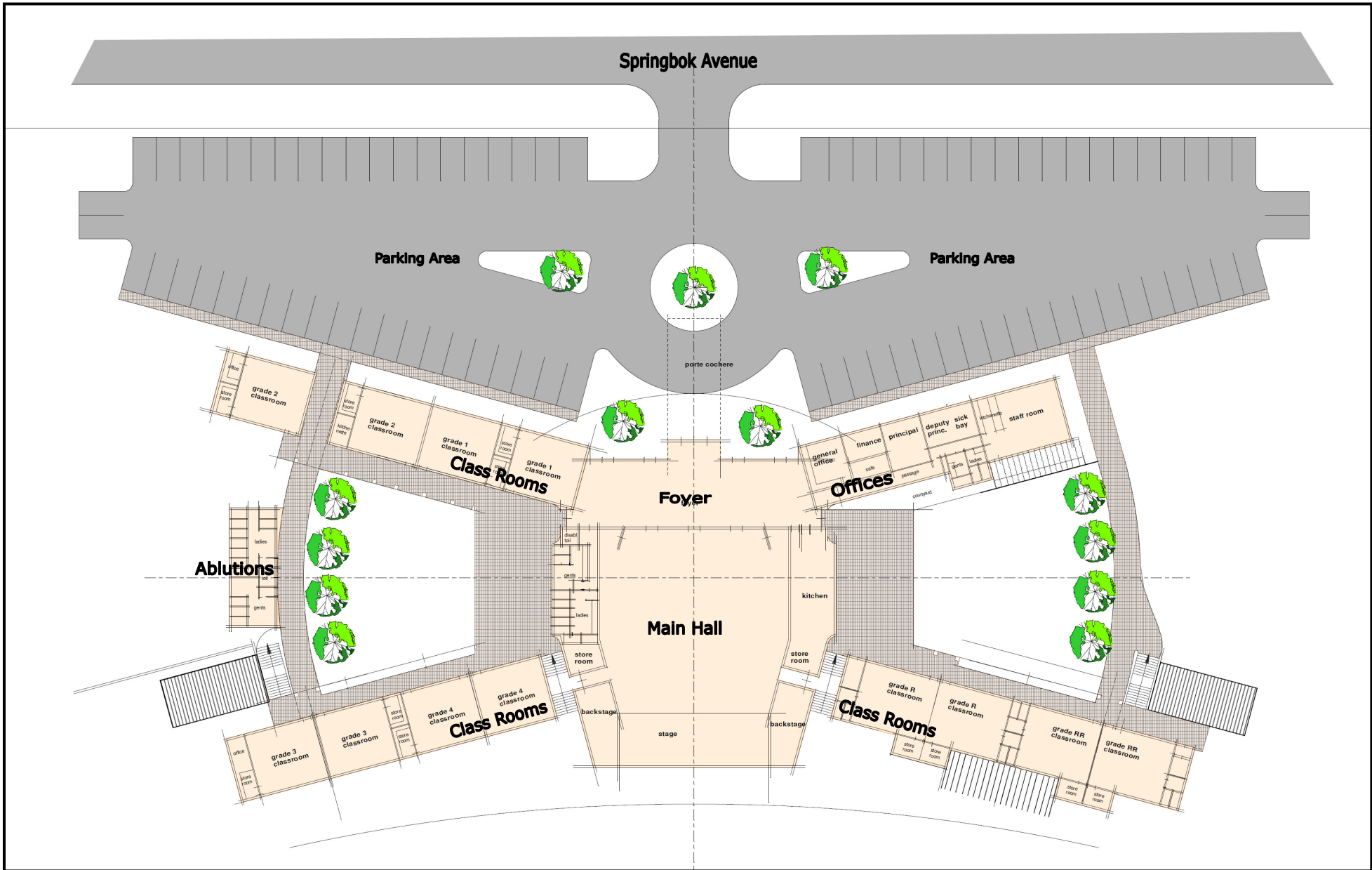
The school grounds will be fenced in order to provide the necessary security.





**Figure 3.1: Aerial view of the proposed site, parking area and Steelcrest High School**





**Figure 3.2: Site development plan (designed by LAD Architects)**





### **Parking area (Figure 3.2 and 3.3)**

As indicated in Figure 3.2 and Figure 3.3, a parking area with approximately 82 parking bays will be provided in front of the school building. The parking area will be accessed from Springbok Avenue right opposite Blesbok Street.

### **Entrance to school (Figure 3.2 and 3.3)**

A circle will be provided in front of the school building with a Porte Cochere (covered entrance/passage way) as indicated in Figure 3.2 and 3.3.

A separate entrance for the children will be provided linking to the internal walkways providing access to the various classrooms and the school playground as indicated in Figure 3.2 and 3.3.

### **Main school building (ground floor level; Figure 3.3)**

The main school building will consist of the foyer and school hall as indicated in Figure 3.3.

Adjacent to the school hall, ablution facilities (gents and ladies), a kitchen and two store rooms will be provided (Figure 3.3).

### **Administration section (ground floor level; Figure 3.3)**

Access to the administration section will be obtained from the foyer as indicated in Figure 3.3. The following offices/rooms will be provided:

- General office/reception;
- Finance office;
- Principal's office;
- Deputy principal's office;
- Sickbay;
- Staff room;
- Ablution facilities (gents and ladies)

Access to the internal school gardens will be provided via the staff room (Figure 3.3).

### **Classrooms (ground floor level; Figure 3.3)**

From the foyer, the classrooms and the school playground will be accessed.

As indicated in Figure 3.3, four (4) classrooms will be provided in the front ground floor section and a total of eight (8) classrooms in the back ground floor section.

Ablution facilities (gents, ladies, disabled) will be provided to the one side in the middle of the school playground area as indicated in Figure 3.3.

### **Classrooms (lower ground floor level; Figure 3.4)**

Another six (6) classrooms with ablution facilities (gents, ladies, disabled) will be provided on the lower ground floor as indicated in Figure 3.4.

A science laboratory, library, computer centre, offices (2), store room (2) together with ablution facilities (gents, ladies, disabled) will be provided on the lower ground floor as indicated in Figure 3.4.

## **3.2 Services required**

According to Urban Dynamics (2015), the proposed site is already serviced by the Steve Tshwete Local Municipality and services are available for the proposed development.

### **3.2.1 Water**

The existing residential area (Middelburg x4) and Steelcrest High School are currently provided with water by the Steve Tshwete Local Municipality. Water will thus be provided by the Steve Tshwete Local Municipality.

### **3.2.2 Electricity**

The existing residential area (Middelburg x4) and Steelcrest High School are currently provided with electricity by the Steve Tshwete Local Municipality. Steve Tshwete Local Municipality will thus provide Middelburg Preparatory School with electricity.

### **3.2.3 Sewage**

A water borne sewer system, which will connect to the existing Steve Tshwete Local Municipality sewer system, will be installed for the operational phase of the development. Steelcrest High School is already connected to this system.

### **3.2.4 Waste management**

Rubbish bins will be provided for any domestic waste produced by the learners and teachers. The refuse will be collected by the Steve Tshwete Local Municipality's refuse removal unit and will be disposed of at the Rietfontein Waste Disposal Site.

### **3.2.5 Storm water control measures**

The existing storm water system of Middelburg x4 will need to be incorporated as part of the overall storm water management plan for the development. A storm water culvert is present near the north eastern corner of the site, diverting storm water from Springbok Avenue onto the vacant field (Figures 5.2b and 5.3).

In general, storm water will be managed by means of berms, kerb inlets, open channels and concrete pipes and will drain towards the nearby Klein Olifants River.

### **3.2.6 Access road**

Access to the school will be obtained from Springbok Avenue as indicated in Figure 3.2 and 3.3 right opposite Blesbok Street.

## **3.3 Need and desirability of proposed development**

The following section is taken from Urban Dynamics (2015) with regards to the need and desirability of the said project:

*'There is a great need for the development of the school as the current locality of the school only allows classes from Grade RR to Grade 5 due to the size of the property. The new proposed school site will allow the school to accommodate learners up to Grade 7. The school is currently situated in Wes Street. The new proposed school site is situated approximately 2 kilometres from the existing school'.*

'The school will be relocated to a more suitable site in terms of space and surrounding land uses. The proposed site is currently vacant'.

'A primary school is classified as a Public Facility in the Guidelines for Human Settlement Planning and Design. According to chapter 5.5 p. 3 of the Guidelines for Human Settlement Planning and Design there are relationships between public facilities which have an effect on the locality of these facilities. The Compatibility Matrix (Table 5.5.2) indicates the compatibility between various public facilities when related to one another'.

**Table 5.5.2: Compatibility matrix**

FACILITIES	Educational facilities	Creche/Nursery school	Primary school	Secondary school	Tertiary facilities	Adult learning centres	Health facilities	Mobile clinics	Clinics	Hospitals	Recreation facilities	Playgrounds	Sports fields	Sports clubs	Sports stadiums	Cultural facilities	Libraries	Community centres	Religious centres	Cemeteries	Administrative facilities	Magistrates court	Municipal offices	Post offices	Police stations	Fire stations	Old age home	Children's home	Information centres	
Educational facilities																														
Creche/Nursery school	●																													
Primary school	●	●																												
Secondary school	●	●	●																											
Tertiary facilities	○	○	○	○																										
Adult learning centres	○	○	○	○	○																									
Health facilities	○	○	○	○	○	○																								
Mobile clinics	○	○	○	○	○	○	○																							
Clinics	○	○	○	○	○	○	○	○																						
Hospitals	○	○	○	○	○	○	○	○	○																					
Recreational facilities	○	○	○	○	○	○	○	○	○	○																				
Playgrounds	○	○	○	○	○	○	○	○	○	○	○																			
Sports fields	○	○	○	○	○	○	○	○	○	○	○	○																		
Sports clubs	○	○	○	○	○	○	○	○	○	○	○	○	○																	
Sports stadiums	○	○	○	○	○	○	○	○	○	○	○	○	○	○																
Cultural facilities	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○															
Libraries	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○														
Community centres	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○													
Religious centres	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○												
Cemeteries	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○											
Administrative facilities	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○										
Magistrates court	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○									
Municipal offices	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○								
Post offices	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○							
Police stations	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○						
Fire stations	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○					
Old age home	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○				
Children's home	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
Information centres	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		

(Guidelines for Human Settlement Planning and Design: Chapter 5.5 p.4)

'The proposed new site for the school is located adjacent to Steelcrest High School and in close proximity to the Municipal Sports Fields. As can be seen from the table above a primary school is compatible with a Secondary School as well as sports fields'.



*'According to the Steve Tshwete Local Municipality website the estimated population of the Steve Tshwete Local Municipality is 146 776 people with the majority of people residing in Middelburg and Mhluzi (based on estimations of 2004 statistics). According to the Guidelines for Human Settlements Planning and Design a primary school can be provided for an estimated minimum population of 3000 – 4000 (Chapter 5.5 p. 10). A total number of 36 – 48 primary schools can thus be provided in the Steve Tshwete Local Municipal Area based on the information above. The number of primary schools listed on the Steve Tshwete Local Municipality website only amounts to 28 there is thus a definite need for schools in the Steve Tshwete Municipal area based on the information available to us.'*

*'The relocation of the school is further more desirable as the learners will benefit from the size as well as the locality of the proposed new school site. In terms of size the learners will benefit as the larger stand will provide opportunity for the development of recreational facilities such as sports fields and playgrounds as well as other ancillary facilities such as a school library etc.'*

*'The learners will benefit in terms of the locality as the new proposed site is situated within a residential area which will provide for a quieter learning experience as well as less traffic. The existing school is situated in the CBD of Middelburg on a busy road'*

*'The provision of a primary school is not only needed within the area but also desirable and supported by the fact that the proposed development is in line with the general principles of Chapter I of the Development Facilitation Act, 1995 (Act 67 of 1995):*

- Promotion of the integration of various land uses – A primary school component will be provided within a residential area, which will provide opportunity for employment in the construction period as well as other employment opportunities.*
- By granting a rezoning to the subject property, the tax base of the local authority is expanded which means an optimal utilization of existing infrastructure and a larger tax base to maintain the said infrastructure'*

*'The proposed development is furthermore, compatible with the area due to the fact that it will be located next to Steelcrest High School. The proposed development is perfectly in line with the trend of development of the town and is furthermore, compatible with the area due to the fact that it will be in line with the proposed Spatial Development Framework of Middelburg'*

### **3.4 Phasing of project**

According to Urban Dynamics (2015), the construction of the school will take place in phases as finances become available. According to the applicant, Phase 1 will consist of constructing 3 classrooms and 1 ablution block.

### **3.5 Nature of the activity**

The development of the Middelburg Preparatory School as indicated in Section 3.2 would involve the following listed activity as identified in terms of Section 24(2) and 24D of the National Environmental Management Act, 1998:

Description	Applicability
<b>Listing Notice 1 (GN R983), Listed Activity 27:</b>	
<i>The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.</i>	An area of approximately 2 hectares if indigenous vegetation will be impacted upon in terms of the development of a primary school (Middelburg Preparatory School) on Portion 362 (a portion of Portion 27) of the farm Middelburg Town and Townlands 287 JS, Middelburg.
<b>Listing Notice 3 (GN R984), Listed Activity 12:</b>	
<i>The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</i>	An area of approximately 2 hectares if indigenous vegetation will be impacted upon in terms of the development of a primary school (Middelburg Preparatory School) on Portion 362 (a portion of Portion 27) of the farm Middelburg Town and Townlands 287 JS, Middelburg.

In order to obtain environmental authorisation, a Basic Assessment must be conducted as described in Regulations 19 and 20 of the Environmental Impact Assessment Regulations 2014 as promulgated in terms of Section 24(5) and 44 of the National Environmental Management Act, 1998 (Act 107 of 1998).

### 3.6 Applicable legislation, policies and/or guidelines

Table 3.1 provides an indication of legislation, policies and/or guidelines applicable to the said project. The list below merely serves to highlight key legislation and obligations and is thus not definitive or exhaustive.

**Table 3.1: Applicable legislation, policies and/or guidelines**

Title of legislation, policy or guideline:	Administering authority:	Aim of legislation, policy or guideline
The Constitution of the Republic of South Africa, 1996 (Act 108 of 1996)	Department of Justice and Constitutional Development	To establish a Constitution with a Bill of Rights for the RSA. It sets out of a number of fundamental environmental rights (Section 24).
Development Facilitation Act, 1995 (Act 67 of 1995) and amendments	Department of Rural Development and Land Reform	To provide for planning and development.
Environment Conservation Act, 1989 (Act 73 of 1989) and amendments	Department of Environmental Affairs	To control environmental conservation.
National Environmental Management Act, 1998 (Act 107 Of 1998) and amendments	Department of Environmental Affairs	To provide for the integrated management of the environment.
National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004) and amendments	Nkangala District Municipality	To reform the law regulating air quality in order to protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social development; to provide for national norms and standards regulating air quality monitoring, management and

Title of legislation, policy or guideline:	Administering authority:	Aim of legislation, policy or guideline
		control by all spheres of government; for specific air quality measures; and for matters incidental thereto.
National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004) and amendments	Department of Environmental Affairs	To provide for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998; the protection of species and ecosystems that warrant national protection; the sustainable use of indigenous biological resources; the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resources; the establishment and functions of a South African Biodiversity Institute; and for matters connected therewith.
Alien and Invasive Species Regulations, 1 August 2014	Department of Environmental Affairs	Regulations regarding alien and invasive species.
List of Protected Tree Species under the National Forests Act, 1998 (Act No. 84 of 1998)	Department of Agriculture, Forestry and Fisheries	Provides a list of protected tree species.
National Environmental Management: Waste Act, 2008 (Act 59 of 2008) and amendments	Department of Environmental Affairs	To reform the law regulating waste management in order to protect health and the environment by providing for the prevention of pollution and ecological degradation and for securing ecologically sustainable development.
National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004): National List of Ecosystems that are threatened and in need of protection (9 December 2011).	Department of Environmental Affairs	The purpose of listing threatened ecosystems is primarily to reduce the rate of ecosystem and species extinction. This includes preventing further degradation and loss of structure, function and composition of threatened ecosystems. The purpose of listing protected ecosystems is primarily to preserve witness sites of exceptionally high conservation value.
National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) and amendments	Department of Environmental Affairs	To provide for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes; for the establishment of a national register of all national, provincial and local protected areas; for the management of those areas in accordance with national norms and standards; for intergovernmental co-operation and public consultation in matters concerning protected areas; and for matters in connection therewith.
Environmental Impact Assessment Regulations, 2014 (Government Gazette No. 38282 of 4 December 2014) and amendments	Department of Agriculture, Rural Development, Land and Environmental Affairs (DARDLEA)	Regulations pertaining to environmental impact assessments.
National Water Act, 1998 (Act 36 of 1998) and amendments	Department of Water and Sanitation	To control water management aspects.
National Veld and Forest Fire Act, 1998 (Act 101 of 1998) and amendments	Department of Agriculture, Forestry and Fisheries	To prevent and combat veld, forest and mountain fires throughout South Africa.
National Heritage Resources Act, 1999 (Act 25 of 1999) and amendments	South African Heritage Resources Agency	This legislation aims to promote good management of the national estate, and to enable and encourage communities to nurture and conserve their legacy so that it may be bequeathed to future generations.
Protection of Personal Information Act, 2013 (Act 4 of 2013)	Department of Justice and Constitutional	The purpose of this act is to give effect to the constitutional right to privacy by

Title of legislation, policy or guideline:	Administering authority:	Aim of legislation, policy or guideline
	Development	safeguarding personal information and to regulate the manner in which personal information may be processed.
Promotion of Access to Information Act, 2000 (Act 2 of 2000) and amendments	Department of Justice and Constitutional Development	To give effect to the constitutional right of access to any information held by the State and any information that is held by another person and that is required for the exercise or protection of any rights; and to provide for matters connected therewith.
Promotion of Administrative Justice Act, 2000 (Act 3 of 2000) and amendments	Department of Justice and Constitutional Development	The Act aims to make the administration (e.g. Government and Parastatals) effective and accountable to people for its actions.
Conservation of the Agricultural Resources Act, 1983 (Act 43 of 1989) and amendments	Department of Agriculture, Forestry and Fisheries	To provide control over the utilization of the natural resources of the Republic in order to promote the conservation of soil, the water sources and the vegetation and the combating of weeds and invader plants; and for matters connected therewith.
Occupational Health and Safety Act, 1993 (Act 85 of 1993) and amendments	Department of Labour	To provide for the health and safety of persons at work and for the health and safety of persons in connection with the activities of persons at work and to establish an advisory council for occupational health and safety.
Health Act, 1977 (Act 63 of 1977) and amendments	Department of Health	To promote public health.
National Building Regulations and Standards Act, 1977 (Act 103 of 1977) and amendments	Department of Trade and Industry	To provide for the promotion of uniformity in the law relating to the erection of buildings in the areas of jurisdiction of local authorities; for the prescribing of building standards; and for matters connected therewith.
Integrated Environmental Management Guideline Series (Guideline 5 – 10 October 2012) – Companion to the Environmental Impact Assessment Regulations, 2010	Department of Environmental Affairs	To provide clarity on the processes to be followed when applying for an environmental authorisation in terms of the EIA Regulations and gives a comprehensive interpretation of the listed activities.
Various by-laws of the Steve Tshwete Local Municipality, e.g.: <ul style="list-style-type: none"> <li>o Integrated waste management;</li> <li>o Noise and control;</li> <li>o Petroleum products;</li> <li>o Standard drainage;</li> <li>o Water services, etc.</li> </ul>	Steve Tshwete Local Municipality	To regulate land use with the Steve Tshwete Local Municipal area.
Integrated Development Plan for the Steve Tshwete Local Municipality	Steve Tshwete Local Municipality	Broad spatial framework guidelines for the Steve Tshwete Local Municipality.
Spatial Development Framework for the Steve Tshwete Local Municipality	Steve Tshwete Local Municipality	Spatially based policy guidelines whereby changes, needs and growth in the region can be managed to benefit the whole community.
Nkangala District Municipality Climate Change Response Strategy	Nkangala District Municipality	
Nkangala District Municipality Integrated Waste Management Strategy	Nkangala District Municipality	



## 4. DESCRIPTION OF ALTERNATIVES

### 4.1 Current school premises

The school is currently renting premises from the Graceland Christian Family Church Bible School (Photo 4.1) with limited space available for classrooms. The school would like to expand and provide schooling from Grade RR to Grade 7. This is not possible at the current rented premises.



**Photo 4.1: View of entrance to the current school building in Wes Street with parking area in front**

Two temporary 'wendy house' classrooms were erected behind the current premises to accommodate the senior learners. This however, impacts on the available playground area.

Limited parking is available in front of the school building resulting in traffic congestion in the mornings and afternoons when children are dropped off or collected from school.



**Photo 4.2 and 4.3: Limited parking in front of school with separate entrance and exit to regulate traffic**

In order to reduce potential traffic congestion, an entrance and exit to the parking area in front of the school have been clearly indicated (see Photo 4.2 and 4.3). In addition, school times are staggered so that children of different grades are collected at different times.

Middelburg Preparatory School is currently located adjacent to a funeral parlour, which is not ideal. In addition, noise as a result of the activities at the school (e.g. children playing, etc.) impacts on the other nearby businesses (e.g. next door legal practise) making the school's current location not ideal.

## **4.2 Alternative development sites**

Over the past four years, a number of alternatives were explored in terms of suitable land/premises for Middelburg Preparatory School.

In an attempt to find a new home for the school, frequent consultations took place with the Steve Tshwete Local Municipality, community organisations (such as the CMR (Christelike Maatskaplike Raad)) as well as several estate agents in Middelburg.

### **4.2.1 The Little Elephant Ndlovu Encane Arts and Crafts Market**

Middelburg Preparatory School approached the Little Elephant Ndlovu Encane Arts and Craft Market located adjacent to the Midway Inn Hotel with regards to the possibility of using a part of the premises for the school.

The Little Elephant Ndlovu Encane Arts and Crafts Market is a job creation project that gives entrepreneurs the opportunity to make and sell their products at the market. Different cultures are showcased at the market. Beadwork, baskets, leather, glassware, ethnic clothes, pottery and paintings are sold here.

During a meeting of the Board (headed by the CMR), a representative from Samancor (the company that originally sponsored the Little Elephant Ndlovu Encane Arts and Crafts Market) indicated that the purpose of the project was employment creation and that the premises should not be used for any other purpose (e.g. a school). This meeting was attended by several of the renters of shops in the market.

**The use of premises at the Little Elephant Ndlovu Encane Arts and Crafts Market by the Middelburg Preparatory School was therefore rejected.**

### **4.2.2 Aerorand**

Two pieces of land in Aerorand, Middelburg, were identified as possible sites for the school as both properties were zoned 'Educational'.

The one property belongs to the Department of Education and is earmarked for the development of a departmental school.

The other property was found to be too large and too expensive (had to purchase from a private seller) for the school.

**In view of the above-mentioned, the said properties for the development of Middelburg Preparatory School were thus excluded.**

### **4.2.3 Aerorand South**

Application was made to the Steve Tshwete Local Municipality to make land available in Aerorand South for the school. It was proposed that Erven 270 and 271 (both zoned 'Institutional' for the purpose of building churches) be combined for the purposes of the said school.

**However, the application was refused by the STLM due to the lack of municipal services in the said area.**

#### **4.2.4 Offices in Wes Street**

Recently, application was made to use the offices across the road from the current school premises in Wes Street as a temporary measure in order to accommodate some of the older grades. **However, the offices were sold by the owner and are no longer available.**

#### **4.2.5 Temporary classrooms on the existing property**

In view of the office across the road not being available, two temporary 'wendy house' classrooms were erected on the existing premises to accommodate the senior learners. **This however, is not suitable as a long term measures. It also impacts on the available playground area.**

#### **4.2.6 Proposed site**

The new site for Middelburg Preparatory School is located on Portion 362 (a portion of Portion 27) of the farm Middelburg Town and Townlands 287 JS, Middelburg. The said property was donated to the Middelburg Preparatory School by the Steve Tshwete Local Municipality. A letter (dated: 3 October 2014) in this regard is provided in Appendix 1.

The said property is located in Springbok Avenue adjacent to Steelcrest High School, Middelburg x4 (Figure 3.1). The site is 2 hectares in extent and currently vacant.

An area of 5000 m<sup>2</sup> between Middelburg Preparatory School and Steelcrest High School will be used as parking space (Figure 3.1).

**This is the preferred site as it will provide ample space for the envisaged expansion of Middelburg Preparatory School.**

#### **4.2.7 No Project Option**

More information with regards to the implication of the 'No Project Option' is provided in Section 4.5.

### **4.3 Alternative layout plans**

#### **4.3.1 Layout Plan No. 1 (Figure 3.2)**

Only one layout plan (Figure 3.2) was provided as indicated in Section 3.2.

#### **4.3.2 No Project Option**

More information with regards to the implication of the 'No Project Option' is provided in Section 4.5.

### **4.4 The 'No Project Option'**

The 'No Project Option' is the alternative of not going ahead with the proposed development. The 'No Project Option' is only considered if it is found that the development will have significant negative impacts on the environment, which cannot be mitigated or managed.

If the 'No Project Option' in terms of the proposed project was exercised, it would mean that Middelburg Preparatory School would:

- have to continue utilising the existing rented premises in Wes Street located adjacent to a funeral parlour and other businesses which is not ideal;

- not be able to provide additional classes until Grade 7 and children in the higher grades would have to move to other primary schools in Middelburg in order to complete their primary school education;
- have to continue using the temporary classrooms which would continue impacting on the available playground space;
- have to continue managing traffic congestion in the parking area and adjacent Wes Street by staggering school times;
- would not be able to expand as envisaged.



## 5. BIOPHYSICAL DESCRIPTION OF THE SITE

### 5.1 Location of the site

The proposed site (Portion 362 (a portion of Portion 27) of the farm Middelburg Town and Townlands 287 JS) is located in Springbok Avenue adjacent to Steelcrest High School, Middelburg x4 (Figure 5.1). The site is 2 hectares in extent and currently vacant.

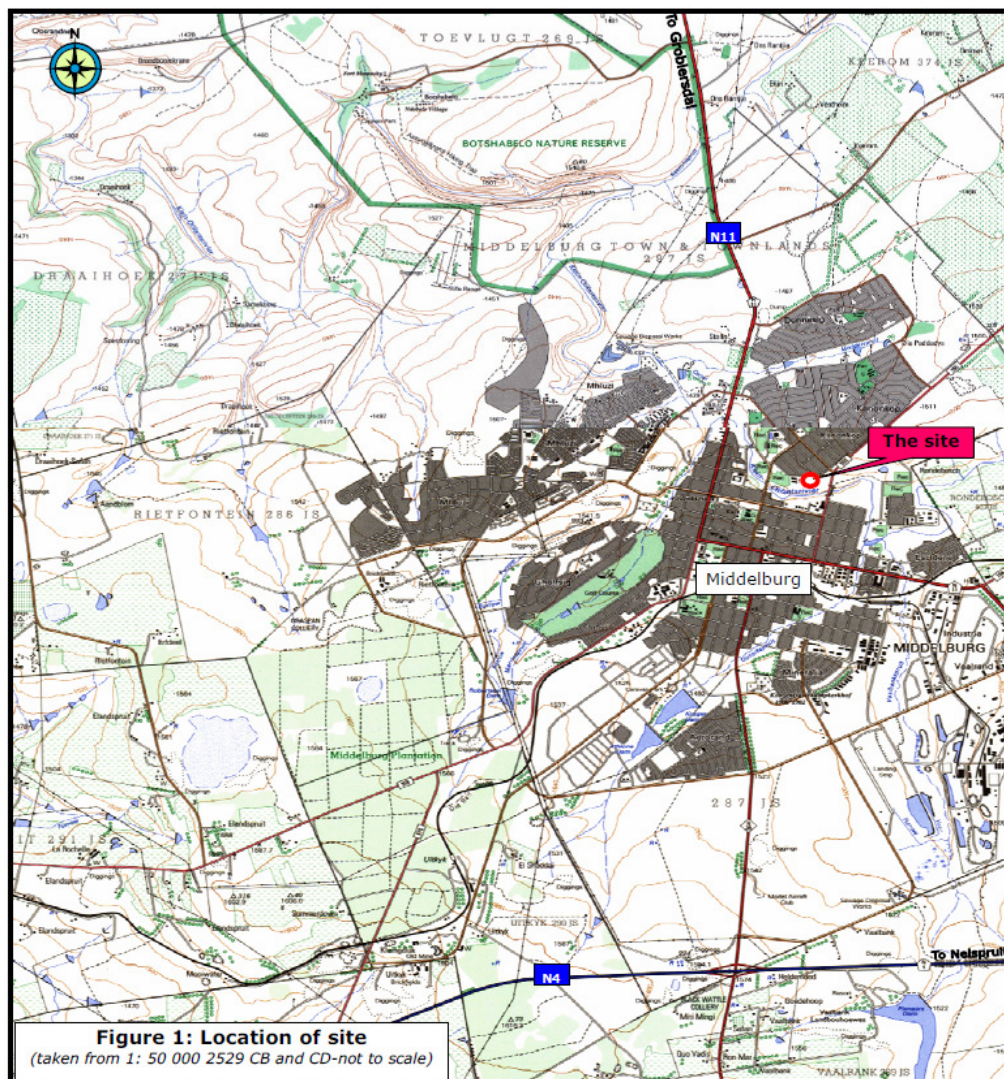
Co-ordinates for the centre of the site are:

- 25°45'35.50"S
- 29°28'13.24"E

The Surveyor-General 21 digit site reference number for the proposed project is:

T	O	J	R	0	0	0	0	0	0	0	0	2	8	7	0	0	3	6	2
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

The said property falls under the jurisdiction of the Steve Tshwete Local Municipality (MP313) and the Nkangala District Municipality.



**Figure 5.1: Location of site** (taken from 1: 50 000 2529 CB and CD)

## 5.2 Climate

The South African Weather Bureau has partitioned the country into 15 climatic regions. This division is based on:

- geographic considerations, more specifically the prominent mountain ranges (great escarpment) which constitute the main climatic divides (in addition to other features such as rivers and political boundaries);
- the interior plateau – use has been made of the change from BW (desert climate) to BS (steppe climate) and from BS (steppe climate) to C (temperate/mesothermal climates) climates according to the Köppen classification.

The proposed site falls within Climatic Region H – The Highveld.

### 5.2.1 Temperature

The climate is typically “Highveld”, with summer temperatures ranging from 9°C to 32°C and winter temperatures from -6°C to 22°C. The mean monthly maximum and minimum temperatures recorded are given in Table 5.1.

**Table 5.1: Mean, maximum and minimum temperature**

Mean Monthly Maximum and Minimum Temperatures (°C)				
Month	Daily Maximum	Daily Minimum	Highest Temp.	Lowest Temp
January	27,2	13,7	32,0	9,1
February	26,8	13,4	30,8	9,0
March	26,8	11,4	30,2	6,4
April	23,9	7,4	27,9	1,4
May	21,3	2,2	26,1	-2,9
June	18,5	-1,8	22,4	-6,0
July	18,4	-1,7	23,0	-5,8
August	21,4	0,8	26,0	-4,1
September	24,0	5,3	29,2	-1,3
October	26,0	10,1	31,2	4,4
November	26,2	11,8	31,8	5,9
December	27,1	13,2	31,2	7,8
<b>Yearly Average</b>	<b>23.9</b>	<b>7.2</b>	<b>28.4</b>	<b>2.0</b>

### 5.2.2 Rainfall

The site occurs in Mpumalanga and falls in the summer rainfall region, which is characterized by thunderstorm activity and relatively low average rainfall. The mean annual rainfall is 735mm compared to the mean annual potential evaporation of 1500mm. Pertinent climate data was obtained from the Middelburg (No. 0515/826) and Belfast (No. 0517/0109) weather stations.

The average number of days per month having rainfall depths in excess of 0.1mm, together with the maximum and minimum number of rainfall days, is given in Table 5.2 while the 24 hour rainfall depths for different recurrence intervals are given in Table 5.3.

**Table 5.2: Monthly rainfall data**

Average Monthly Rainfall Depths (mm) and Days Having a Rainfall of >0,1mm		
Month	Ave Depths	Ave Days
January	132	13,8
February	103	11,2
March	88	9,5
April	42	6,5
May	19	2,9
June	7	1,5
July	9	1,7
August	8	0,9
September	22	3,7
October	63	8,3
November	124	13,0
December	118	13,1
<b>Total</b>	<b>735</b>	<b>86.1</b>

**Table 5.3: Rainfall intensities**

24 Hour Rainfall Depths (mm)			
Maximum Depth	50 Year Storm Event	100 Year Storm Event	200 Year Storm Event
117	104	118	134

### 5.2.3 Prevailing wind direction

The prevailing wind direction data for the Middelburg station is provided in Table 5.4.

**Table 5.4: Mean monthly wind speed and direction**

Month	N		NE		E		SE		S		SW		W		NW	
	n	V	n	V	n	V	n	V	n	V	n	v	n	v	N	V
January	161	3.0	287	3.2	44	3.1	92	3.3	122	3.6	96	3.3	109	3.7	48	4.5
February	142	2.9	295	3.2	44	3.1	74	3.4	112	3.4	101	2.9	141	3.9	60	4.2
March	152	2.8	304	3.3	36	3.1	54	3.1	100	3.4	104	2.9	139	3.4	63	3.5
April	170	2.7	211	3.3	47	3.2	95	3.4	149	3.6	146	2.8	87	3.4	39	3.0
May	172	2.6	166	2.9	59	3.4	89	3.7	162	3.9	167	2.9	67	3.0	51	3.3
June	146	2.5	149	3.0	54	3.6	117	3.0	157	3.8	166	2.7	86	3.2	43	3.2
July	162	2.5	184	2.9	51	3.9	99	3.9	142	3.6	143	2.8	79	3.4	53	4.2
August	174	5.4	180	3.4	40	3.5	86	4.1	141	4.1	182	3.0	83	3.2	40	4.4
September	197	3.2	223	3.8	27	3.5	70	3.9	131	4.3	171	3.3	84	4.0	41	3.9
October	190	3.4	243	3.7	33	3.6	71	3.6	142	4.0	160	3.8	83	4.3	42	3.6
November	174	3.2	225	3.6	28	3.1	68	3.1	185	3.8	154	3.5	92	4.1	40	3.9
December	180	3.1	254	3.4	34	3.0	69	3.3	154	3.5	135	3.3	95	4.0	40	4.0
<b>Average</b>	<b>188</b>	<b>2.0</b>	<b>227</b>	<b>3.3</b>	<b>41</b>	<b>3.3</b>	<b>82</b>	<b>3.8</b>	<b>141</b>	<b>3.8</b>	<b>146</b>	<b>3.1</b>	<b>95</b>	<b>3.7</b>	<b>47</b>	<b>3.8</b>

n = average direction frequency per 1000 readings; v = velocity (m/s)

### 5.2.4 Evaporation

The mean monthly evaporation data recorded at the relevant weather station are given in Table 5.5. The data in the table was obtained using an 'A' Pan.

**Table 5.5: Mean monthly evaporation**

<b>Month</b>	<b>Evaporation (mm)</b>	<b>Rainfall (mm)</b>	<b>Monthly deficit (mm)</b>
January	160	132	28
February	140	103	37
March	110	88	22
April	110	42	68
May	85	19	66
June	70	7	63
July	75	9	66
August	110	8	102
September	140	22	118
October	160	63	97
November	160	124	36
December	180	118	62
<b>Total</b>	<b>1500</b>	<b>735</b>	<b>765</b>

### 5.2.5 The incidence of extreme weather conditions

Being located on the Highveld, the area is prone to extreme weather conditions on a regular basis. These weather conditions include droughts, floods and strong gusty winds prior to and during thunderstorms. Frost also occurs on an average of 120 to 150 days between April and September.

## 5.3 Land use

Figure 5.2a can be consulted for an aerial view (@ 2014) of the site and surrounding area. Figure 5.2b provides an indication of the existing infrastructure/features identified on and adjacent to the site. Figure 5.3 provides a photographic view of features located on and adjacent to the site.

### 5.3.1 Land ownership

Portion 362 (a portion of Portion 27) of the farm Middelburg Town and Townlands 287 JS was donated to the Middelburg Preparatory School by the Steve Tshwete Local Municipality. A letter (dated: 3 October 2014) in this regard is provided in Appendix 1.

### 5.3.2 Zoning of the site

The property is zoned 'Agricultural'.

### 5.3.3 Size of the site

The site is 2 ha in extent.

### 5.3.4 Servitudes

No servitudes are known.

### 5.3.5 Land use and existing infrastructure

The site is currently vacant with no infrastructure present as indicated in Figure 5.2a. A storm water culvert is present near the north eastern corner of the site, diverting storm water from Springbok Avenue onto the vacant field (Figures 5.2b and 5.3).





**Figure 5.2a: Aerial view of the site and surrounding area**

### **5.3.6 Surrounding land uses**

The residential area, Middelburg x4, is located to the north of the proposed site (Figure 5.2a), consisting of Residential 1 stands. Two stands opposite the proposed site are used for purposes other than residential namely Stand 1640 (corner of Blesbok Street and Springbok Avenue; Figure 5.2b) is used as a gym (Broers Gym) while Stand 1641 (adjacent to Stand 1640 and located in Springbok Avenue) is used as a boarding house (Mrs. E's Boarding House).

Steelcrest High School, with its associated sports fields, is located west of the site (Figure 5.2a).

The Klein Olifants River is located south of the site (Figure 5.2a). The area adjacent to the Klein Olifants River has been impacted in terms of old and new excavations (Figure 5.2b) used by off-road motor cycles and for the dumping of waste. A small trench (approximately 60cm deep) is also present (Figure 5.2b). A security hut was noted south east of the site (Figure 5.2b).

The land east and south of the proposed site is currently vacant (Figure 5.2a).

The tarred road (Meyer Street) extending across the Klein Olifants River and providing access to the residential areas of Middelburg x4 and Kanonkop is located southwest of the proposed site (Figure 5.2a).



**Figure 5.2b: Aerial view of features identified on and adjacent to the site.**



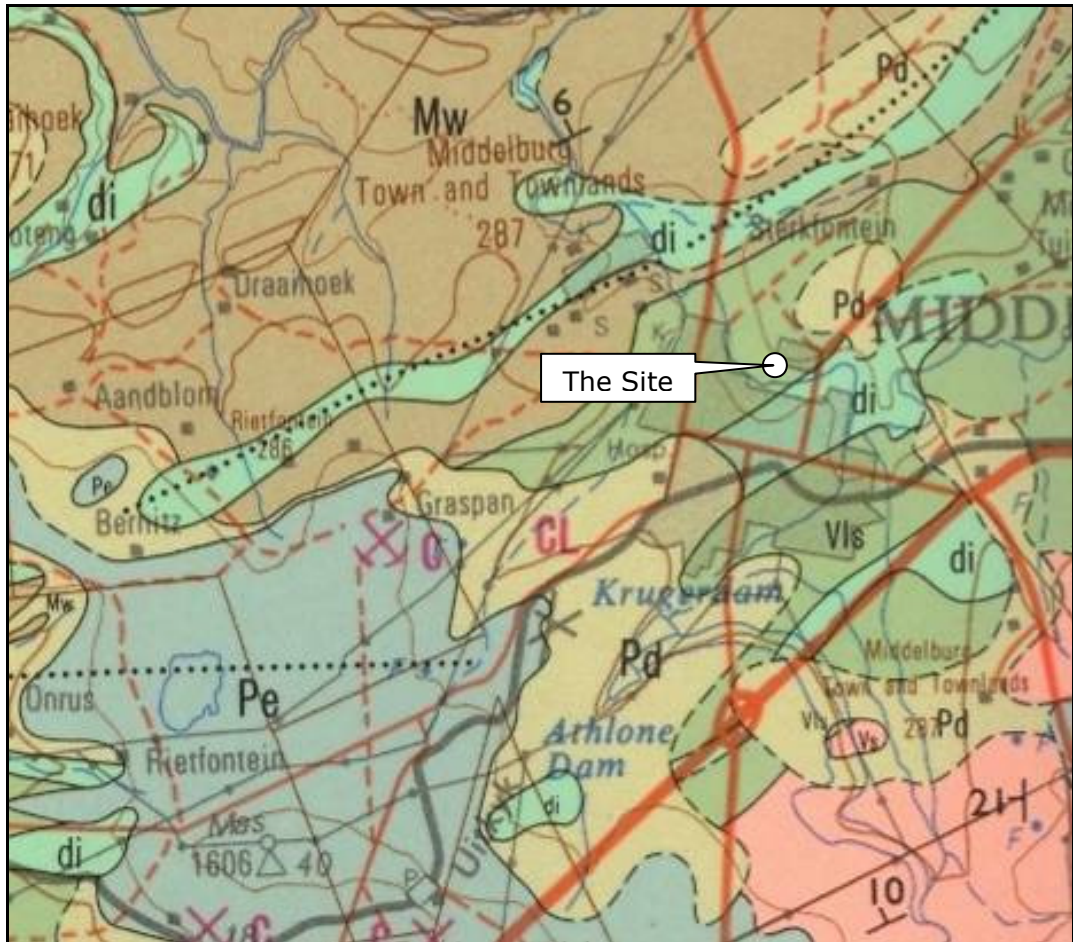


**Figure 5.3: Photographic view of features on and adjacent to the site.**

#### **5.4 Geology**

The site is underlain by shales of the Loskop Formation, Rooiberg Group of the Transvaal Sequence (Vls; Figure 5.4) according to the 1:250 000 geological map (Pretoria 2528). This was confirmed during the geotechnical investigation conducted as shale was encountered in all the test pits. A copy of the geotechnical investigation is provided in Appendix 4.





**Figure 5.4: Geology of the site (1:250 000 geological map Pretoria 2528)**

A rocky outcrop (see photo below and Figure 5.2b) is present near the south western corner and western boundary of the site.



The rocky outcrop near the south western corner of the site.

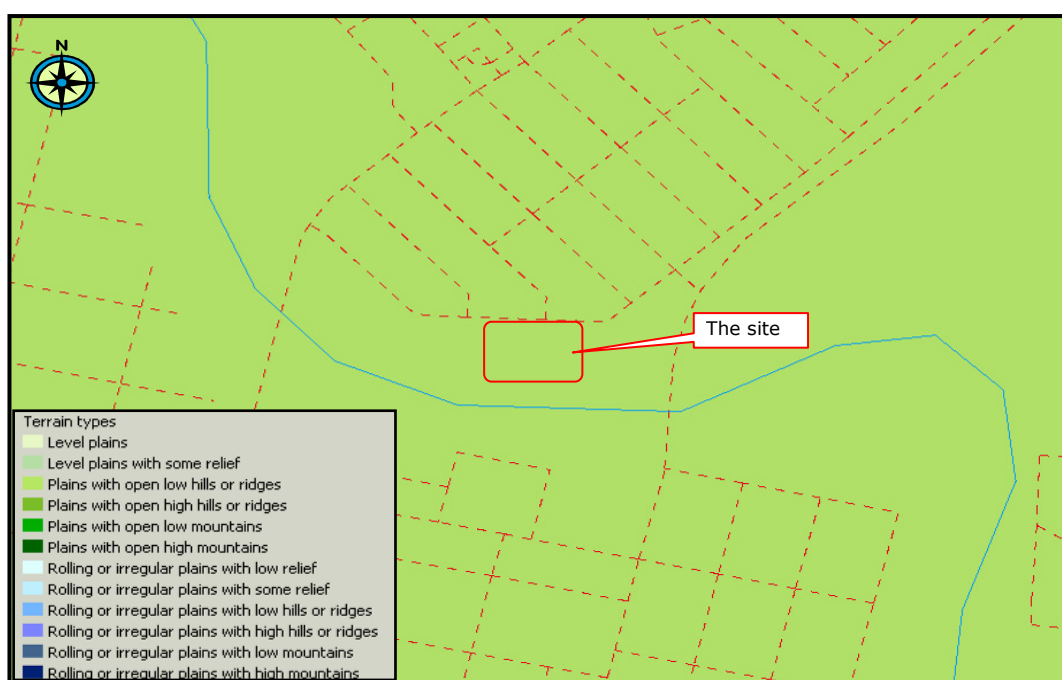
## 5.5 Topography

The terrain type of the proposed site is indicated as plains with open low hills or ridges as indicated in Figure 5.5.

The proposed site lies between 1460 – 1440 meters above mean sea level (mamsl) and slopes towards the south i.e. towards the Klein Olifants River (Figure 5.2b).

The site is fairly flat in the northern portion of the site while the slope increases towards the south western corner of the site (i.e. where the rocky outcrop is present; Figure 5.2b).

The geotechnical investigation indicated that the slope of the site is between 2 and 6 degrees, which is favourable for development purposes.



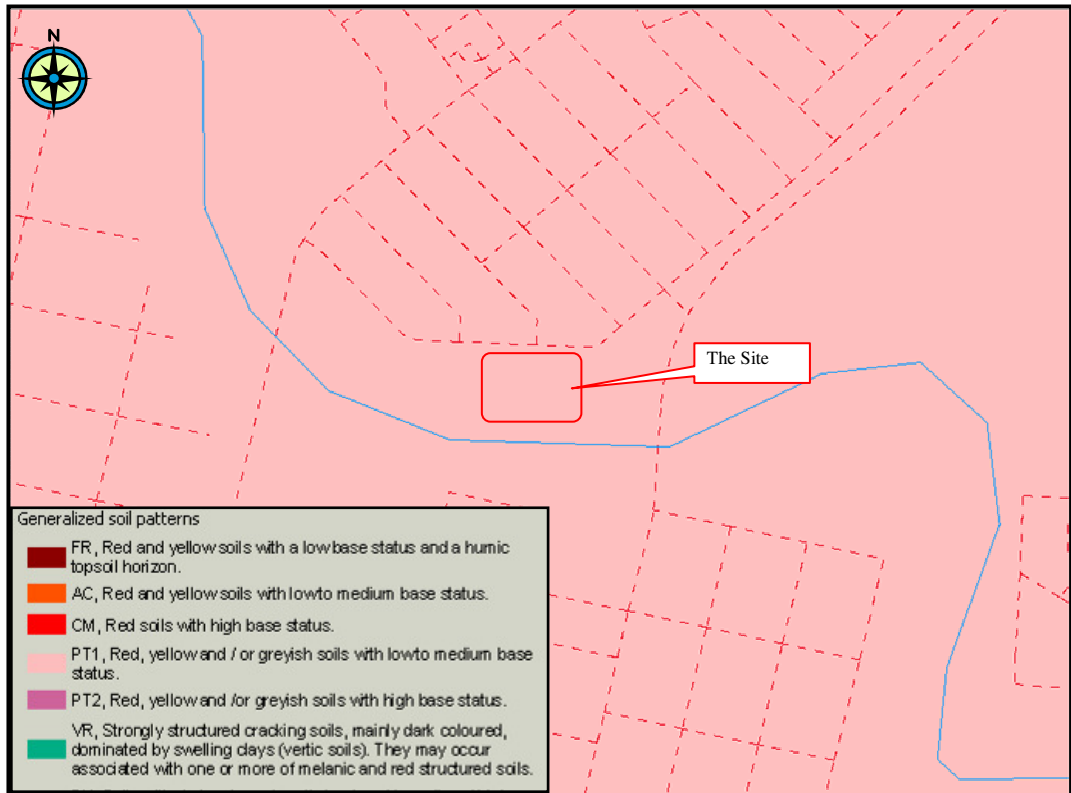
**Figure 5.5: Terrain type of the proposed site (taken from Department of Agriculture, Forestry and Fisheries)**

## 5.6 Soil

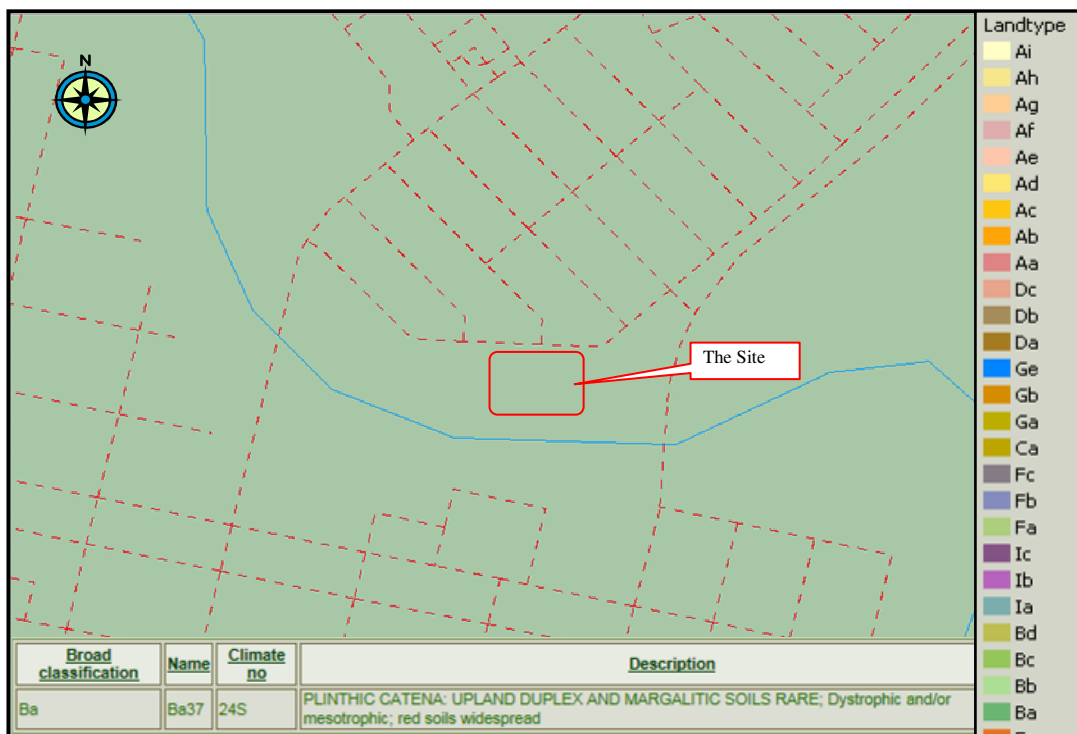
### 5.6.1 Soil type

According to the AGIS Comprehensive Atlas of the Department of Agriculture, Forestry and Fisheries, the said site falls within the Ba37 land type, which is characterised by red, yellow and/or greyish plinthic soils with low to medium base status (Figures 5.6 and 5.7). Red soils are widespread and upland duplex and margalitic soils are rare.

During the site visit, it was noted that the soil colour on site varies from light brown to pinkish in colour. It was also noted that the said site is rocky especially in the western portion of the site where rocky outcrops were noted (Figure 5.2b). Rocks on site vary from small stones to large boulders.



**Figure 5.6: Generalized soil patterns (taken from Department of Agriculture, Forestry and Fisheries)**

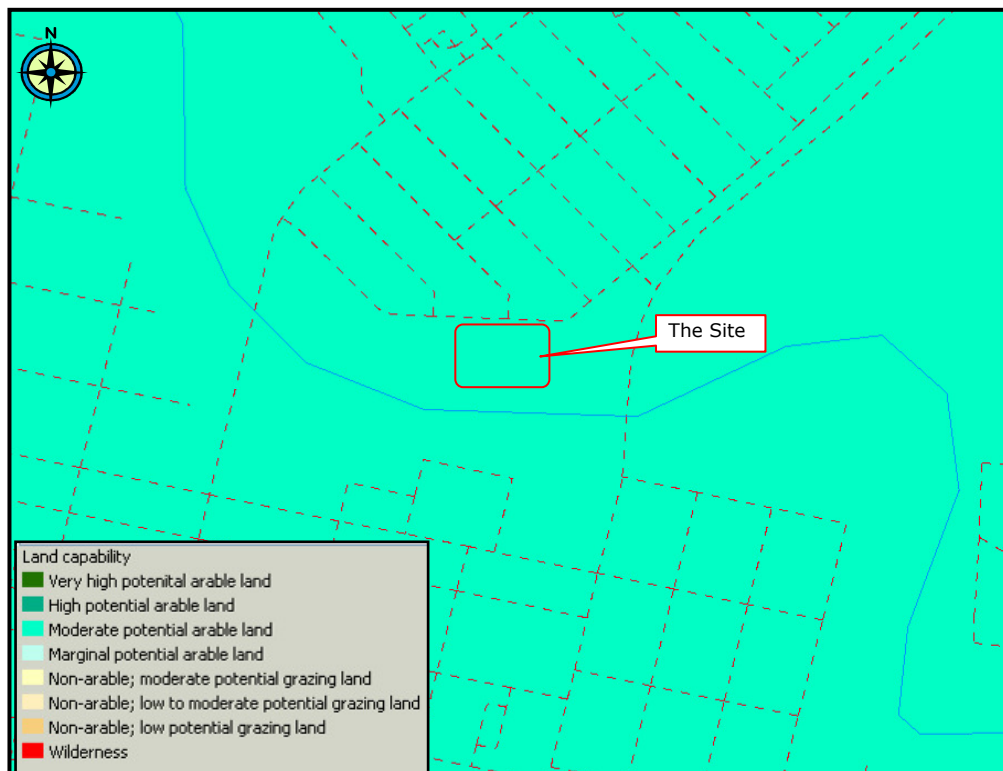


**Figure 5.7: Land type of the proposed site (taken from Department of Agriculture, Forestry and Fisheries)**



## 5.6.2 Land capability/agricultural potential

In terms of land capability, the proposed site is indicated according to the Department of Agriculture, Fisheries and Forestry as moderate potential arable land (Figure 5.8).



**Figure 5.8: Land capability of the proposed site (taken from Department of Agriculture, Forestry and Fisheries)**

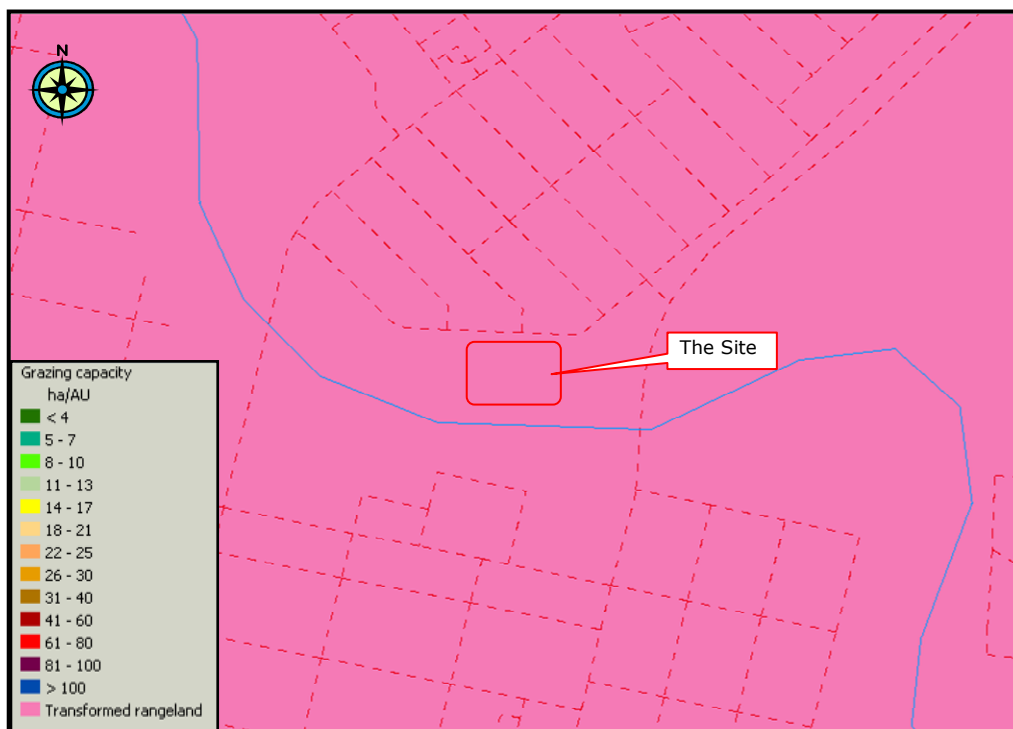
Looking at grazing capacity, Figure 5.9 (Department of Agriculture, Forestry and Fisheries) indicates the area as transformed rangeland.

The proposed site has not been cultivated and is not used for grazing purposes being located adjacent to a residential area in an urban area. The site is regularly mowed by the local municipality.

No erosion was noted on site. The soil of the site has been impacted in terms of the dumping of waste (domestic and garden) as well as numerous footpaths and vehicle tracks extending across the site.

A storm water culvert is present on the north eastern corner of the site (Figure 5.2b) that drains storm water from the Middelburg x4 residential area onto the said area. This could impact on the soil of the site.

On the eastern boundary of the site, a round cemented hole (approximately 40cm in depth) was noted (Figure 5.2b). It is not clear what the purpose of this hole is.



**Figure 5.9: Grazing capacity of the proposed site (taken from Department of Agriculture, Forestry and Fisheries)**

The area adjacent to the Klein Olifants River has been impacted in terms of old and new excavations (Figure 5.2b) used by off-road motor cycles and for the dumping of waste. A small trench (approximately 60cm deep) is also present (Figure 5.2b). A security hut was noted south east of the site (Figure 5.2b).

A large trench (possibly for a new sewer line) was noted on the southern side of the Klein Olifants River.

### 5.6.3 Geotechnical classification

A geotechnical study (Appendix 4) was undertaken by Louis Kruger Geotechnics cc. (2015) to determine the suitability of the site for development purposes. This report should be consulted with regards to the methodology used.

According to the geotechnical study, two types of hillwash are present on site namely:

- Greyish, brown hillwash;
- Brown hillwash.

The difference between the two is the higher gravel and lower sand content of the brown hillwash and the variation in the composition of the material as indicated below.

In test pits 1, 2, 3, 4 and 5 (Figure 5.10), greyish, brown hillwash was encountered from surface up to an average depth of 1.0 metres. This hillwash is characterised by slightly moist, loose, gravelly sand with abundant ferricrete nodules, small, soft- and medium hardrock sandstone cobbles and plant roots.



The above-mentioned greyish, brown hillwash was encountered below the brown hillwash (i.e. from an average depth of 0.4 metres up to an average depth of 1.0 metres) in test pits 6, 7, 8 and 9 (Figure 5.10).

Brown hillwash was encountered from surface up to an average depth of 1.0 metres in test pits 6, 7, 8 and 9 (Figure 5.10). This hillwash is characterised by slightly moist, brown, soft, micro-shattered, silty sand with small- and medium sized, soft- and medium hard rock sandstone cobbles and plant roots.

In all the test pits, from an average depth of 1.0 metres up to an average depth of 1.5 metres, slightly moist, shattered, very soft rock shale with patches of purple grey, soft, clay was encountered. The back actor refused on soft- to medium hard rock shale in all test pits at an average depth of 1.6 metres.

Both types of hillwash were classified as 'Low' in terms of expansiveness and therefore considered to be non-expansive.

According to the geotechnical study, the site was demarcated into two (2) geotechnical zones as indicated in Figure 5.10:

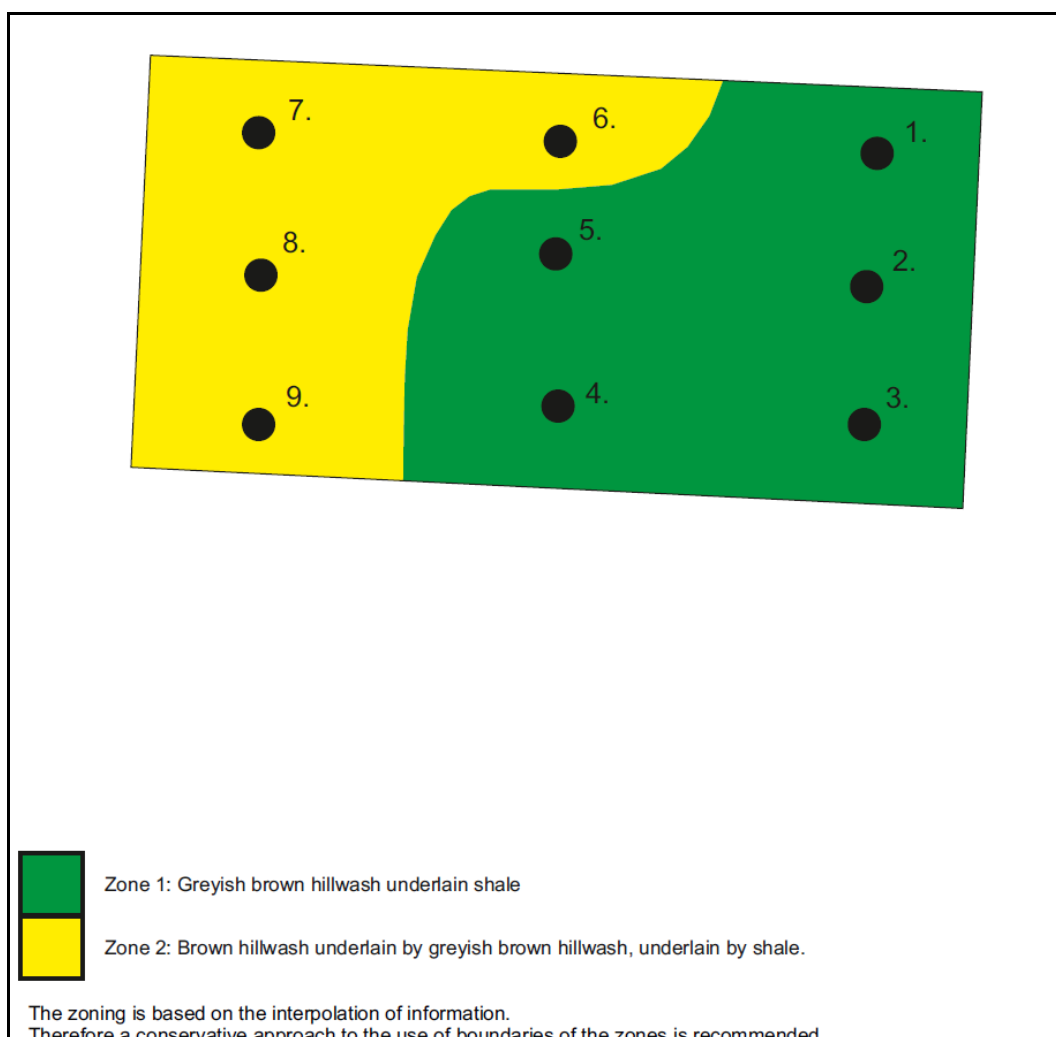
- Zone 1 (Figure 5.10) – Greyish brown hillwash underlain shale;
- Zone 2 (Figure 5.10) – Brown hillwash underlain by greyish brown hillwash, underlain by shale.

The geotechnical classification for urban development (after Partridge, Wood and Brink, 1993) of both these Zones is as follows:

	<b>CONSTRAINT</b>	<b>INTERMEDIATE</b>
2A	Collapsible soil	Any collapsible horizon or consecutive horizons totalling a depth of more than 750mm in thickness.
2B	Seepage	Permanent or perched water table less than 1.5 metres below surface.
1C	Active soil	Low soil heave predicted
2D	Highly compressible soil	Moderate soil compressibility expected
2E	Erodibility of soil	Intermediate
2/3 F	Difficulty of excavation to 1.5m depth	Rock or hardpan pedocretes between 10 and 40% of the total volume. Rock or hardpan pedocretes more than 40% of total volume.
1I	Steep slopes	Between 2 and 6 degrees (all regions)

The NHBC zoning for both Zones is as follows:

<b>ZONE</b>	<b>NHBC ZONE</b>	<b>MOTIVATION</b>
Zone 1 and Zone 2: Geotechnical classification: 2A, SB, 1C, 2D, 2E, 2/3F, 1I	P (perched water table) – C2 – S2	The hillwash and the very soft rock are expected to be potentially collapsible. The average thickness of the collapsible/compressible material exceeds one metre (minimum 1.2m; maximum 1.8m); therefore the site is zoned as C2-S2. The presence of the shallow perched water table is accommodated by adding a zoning of P (Perched water table).



**Figure 5.10: Geotechnical zones (taken from Louis Kruger Geotechnics cc, 2015)**

For Zone 1 and Zone 2 geotechnical zone (Figure 5.10), the following was indicated:

- The consistency and composition of the hillwash varies considerably and sandstone cobbles are present, therefore it is not considered suitable founding material.
- Although the overall consistency of the very soft rock shale is firm to stiff, patches of soft grey clay are present. Therefore it is not considered suitable founding material.

If unadapted structures are founded on this material, and the moisture condition of the in-situ material should vary, unacceptable differential movements, with resultant cracking, may occur in the structures.

The back actor refused on soft- to medium hard rock shale in all the test pits at an average depth of 1.6 metres. It should be noted that limited instability occurred in the sidewalls of the test pits.

In terms of construction material, the hillwash classifies as follows:

- Greyish, brown hillwash: A-2-6 and A6;
- Brown hillwash: A-2-4 and A-1-b.

## 5.7 Natural vegetation

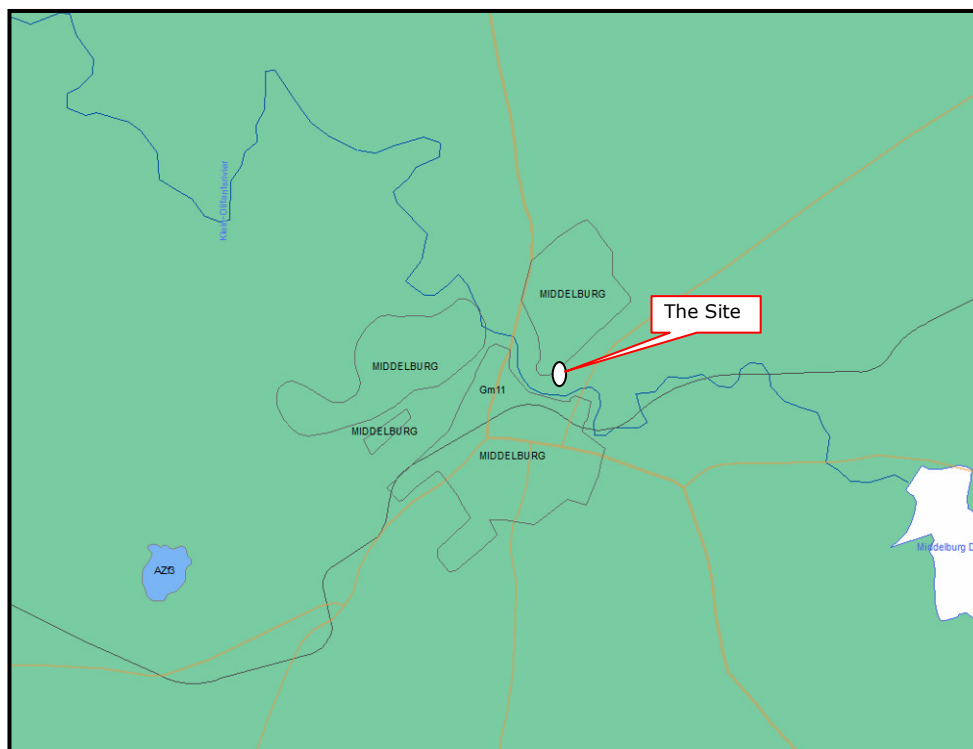
### 5.7.1 General vegetation description

According to 'The vegetation of South Africa, Lesotho and Swaziland', the study area falls within the Mesic Highveld Grassland Bioregion, specifically the Rand Highveld Grassland (veld type Gm11; Figure 5.11) (Mucina & Rutherford, 2006). The vegetation type was previously referred to by Low and Rebelo (1998) as Moist Sandy Highveld Grassland (38) and Rocky Highveld Grassland (34) and by Acocks (1953) as Bankenveld (61).

This grassland is found at an altitude of 1 300 metres above mean sea level (mamsl) to 1 635 mamsl in areas between rocky ridges from Pretoria to eMalahleni (Witbank). It also extends onto ridges in the Stoffberg and Roosenekal regions as well as west of Krugersdorp.

This vegetation type is species-rich and comprises wiry, sour grassland alternating with low, sour shrubland on rocky outcrops and steeper slopes. The most common grasses on the plains belong to the genera *Themeda*, *Eragrostis*, *Heteropogon* and *Elionurus*. A high diversity of herbs, many of which belong to the *Asteraceae* family, is also a typical feature. Rocky hills and ridges carry sparse woodlands with *Protea caffra* subsp. *caffra*, *Acacia caffra* and *Celtis africana*, accompanied by a rich suite of shrubs among which the genus *Rhus* is most prominent.

Almost half of the Rand Highveld Grassland has already been transformed by cultivation, urbanisation, plantations and dams. This vegetation type has been afforded the status of **Endangered** with a conservation target of 24%. Only approximately 1% of this vegetation type is currently conserved.



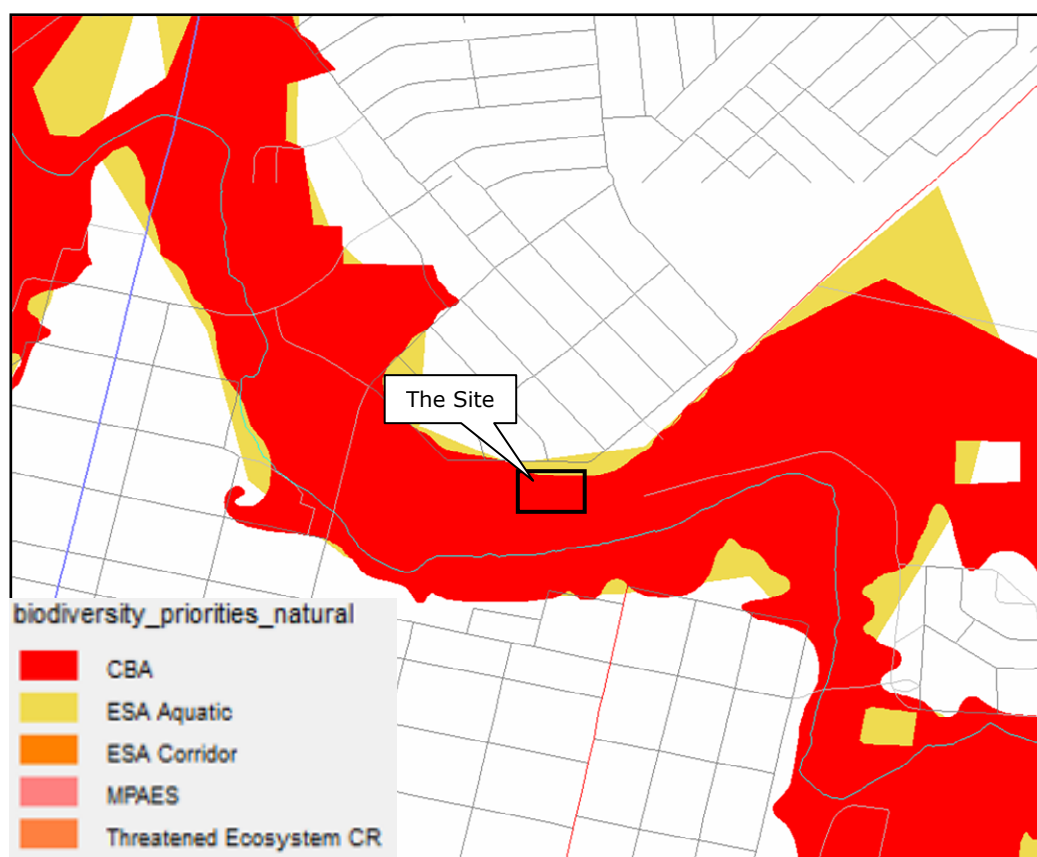
**Figure 5.11: Vegetation type of the site (taken from Mucina and Rutherford, 2006)**

The National List of Ecosystems that are Threatened and in need of protection (GN1002 of 2011), published under the National Environmental Management: Biodiversity Act (Act No. 10, 2004), lists this vegetation type as **Vulnerable**.

**Vulnerable (VU) ecosystems** - being ecosystems that have a high risk of undergoing significant degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems or endangered ecosystems.

The study area is not situated within any of the South African centres of endemism recognised by Van Wyk and Smith (2001).

The site and surrounding area are indicated as a **Critical Biodiversity Area (CBA) and an Aquatic Ecological Support Area (ESA)** (Figure 5.12a) in terms of the terrestrial biodiversity assessment of the Mpumalanga Biodiversity Conservation Plan (2006). The provincial assessment therefore attributes relatively high conservation value to the vegetation on site. In view of this, it triggers Listing Notice No.3 of the EIA Regulations, 2014.



**Figure 5.12a: Terrestrial biodiversity assessment (taken from the Mpumalanga Biodiversity Conservation Plan, 2006)**

Over the last few years (2007 – 2013), the Mpumalanga Tourism and Parks Agency reviewed and updated the Mpumalanga Biodiversity Conservation Plan (2006) in order to align the spatial data with the bioregional plan requirements of the South African National Biodiversity Institute (SANBI) and surrounding provinces.

According to the updated plan (now referred to as the Mpumalanga Biodiversity Sector Plan (MBSP, 2013)), the site falls within the category



'Other Natural Areas' (Figure 5.12b). The adjacent residential area is indicated as 'Heavily Modified' (Figure 5.12b).



**Figure 5.12b: Terrestrial biodiversity assessment (taken from the Mpumalanga Biodiversity Sector Plan, 2013)**

### 5.7.2 Vegetation found on site and surrounds

The proposed site has not been cultivated and is not used for grazing purposes being located adjacent to a residential area in an urban area. The site is regularly mowed by the local municipality.

During the site visit in May 2015, the vegetation was mowed as indicated in Photo 5.1 and 5.2 while in July 2015, the vegetation was burnt as indicated in Photo 5.3 and 5.4. It was therefore very difficult to identify plant species present on site.



**Photo 5.1 and 5.2: View of mowed vegetation on site (@7 May 2015) – looking east and looking south towards the Klein Olifants River.**



**Photo 5.3 and 5.4: View of burnt vegetation on site (@13 July 2015) – looking south towards the Klein Olifants River.**

However, from the site visits it was evident that the vegetation on site is representative of Rocky Highveld vegetation as indicated in Section 5.7.1. It is anticipated that the following grasses would be present on site: namely *Eragrostis spp.*, *Digitaria monodactyla*, *Loudetia simplex*, *Michrochloa caffra*, *Heteropogon contortus* and *Themeda triandra*.

Rocky outcrops were noted near the western and south western portion of the site (Figure 5.2b) where rocks vary from small stones to large boulders as indicated in Photo 5.5.



**Photo 5.5: View of the rocky outcrop**

*Rhus lancea* trees have been planted on the northern boundary of the site adjacent to Springbok Avenue (Photo 5.6). Two small *Rhus* trees are present on the eastern boundary of the site.





**Photo 5.6: *Rhus lancea* trees planted adjacent to Springbok Avenue**

The vegetation of the site has also been impacted in terms of the dumping of waste (domestic and garden) as well as numerous footpaths and vehicle tracks extending across the site.

A storm water culvert is present on the north eastern corner of the site (Figure 5.2b) that drains storm water from the Middelburg x4 residential area onto the vacant land. Here, kikuyu grass is present (Photo 5.7).



**Photo 5.7: Kikuyu grass growing in the vicinity of the storm water culvert**

The Klein Olifants River located to the south of the proposed site (Figure 5.2b) is indicated as an Aquatic Ecological Support Area (Figure 5.12a) in terms of the Mpumalanga Biodiversity Conservation Plan (2006). A riparian habitat is associated with the Klein Olifants River and consists of a narrow band of vegetation (David Hoare Consulting cc, 2012). According to David Hoare Consulting cc (2012), this vegetation is dominated by tall tussock grasslands, sedges and small shrubs. A number of larger shrubs and trees are also present as indicated in Photo 5.8 and 5.9. Dominant grass species include *Miscanthus junceus*, *Searsia* species, *Conyza scabrida*, *Hyparrhenia hirta* and *Hyparrhenia dregeana*.



**Photo 5.8 and 5.9: A view of the Klein Olifants River and associated vegetation (@ 13 July 2015)**

According to David Hoare Consulting cc (2012), footslope grassland occurs adjacent to the riparian zone of the Klein Olifants River in an area that possibly forms part of the floodplain. Species richness is lower than that of terrestrial grassland, which is typical for areas that are seasonally flooded. Dominant species include *Berkheya radula*, *Eragrostis plana*, *Hyparrhenia hirta*, *Themeda triandra*, *Heteropogon contortus* and *Eragrostis chloromelas*.

During the site visit, it was noted that the vegetation adjacent to the Klein Olifants River has been impacted in terms of old and new excavations (Figure 5.2b) used by off-road motor cycles and for the dumping of waste. A small trench (approximately 60cm deep) is also present (Figure 5.2b). A security hut was noted south east of the site (Figure 5.2b). Where disturbance has taken place, alien plant species (blue gum, bugweed, khaki bush) were noted.

### 5.7.3 Species of Conservation Concern

The term 'Species of Conservation Concern' refers to the IUCN threatened and Near Threatened categories as well as the South African Red List categories (i.e. Critically Rare, Rare and Declining).

De Castro & Brits (2014) obtained a list of Species of Conservation Concern, which historically occurred in the area (quarter degree squares 2529CD and 2529DC) from the PRECIS Database (South African National Biodiversity Institute) and PlantDat database (Mpumalanga Tourism & Parks Agency). The list contains 12 species together with their conservation status categories, distribution and habitat requirements (Table 5.6).

**Table 5.6: Species of Conservation Concern for quarter degree squares (2529CD and 2529DC) (taken from De Castro & Brits, 2014).**

Species	Latest (IUCN version 3.1) Conservation Status Category	Habitat	Flowering Time	Probability of occurrence within the study area
<i>Boophone disticha</i> (AMARYLIDACEAE)	Least Concern - Declining	Dry grassland and rocky areas. Widespread in South Africa (known from 9 provinces) and extends up to the eastern half of southern Africa to Uganda.	October to January.	Possible
<i>Nerine gracilis</i> (AMARYLLIDACEAE)	Vulnerable [VU B1ab (ii, iii, v)]	Undulating grasslands in damp, moist areas, the plants grow in full sun in damp depressions, near	February and March	Negligible – no wetlands on site



Species	Latest (IUCN version 3.1) Conservation Status Category	Habitat	Flowering Time	Probability of occurrence within the study area
		pans or on the edges of streams, grassland, riverbanks, and vleis.		
<b><i>Pachycarpus sauveolens</i></b> (APOCYNACEAE)	Vulnerable [VU B1ab (iii)]	Short or annually burnt grasslands, 1400 - 2000m. Recorded in Gauteng, Mpumalanga and Swaziland, but known from only eight historical localities.	December to January	Possible
<b><i>Callilepis leptophylla</i></b> (ASTERACEAE)	Least Concern - Declining	Grassland or open woodland, often on rocky outcrops or rocky hill slopes. Widespread in eastern half of South Africa and in Swaziland.	August to January	Possible
<b><i>Elephantorrhiza oblique</i> var. <i>oblique</i></b> (FABACEAE)	Data Deficient (DDT)	Grassland and edges of vleis.	November	Possible
<b><i>Eucomis autumnalis</i></b> subsp. <i>clavata</i> (HYACINTHACEAE)	Least Concern - Declining	In the authors experience this species occurs on hillslope seeps in open grassland, and also along the margins of marshes in the Witbank region. Raimondo <i>et al.</i> (2009) describe the habitat of this widespread species as damp, open grassland and sheltered places from sea level to 2450m. Widespread in the eastern half of southern Africa, where its distribution extends from the Western Cape to Malawi.	November to April	Negligible
<b><i>Brachycorithis conica</i></b> (ORCHIDACEAE)	Endangered [EN A 2c]	In open, sunny grassland, on hillsides often in sandy gravel overlying dolomite, sometimes on quartzite. Has occasionally been collected in open woodland. Occurs in areas with rainfall varying between 750mm and 900mm per annum, and at altitudes of between 1000m and 1705m. Historically recorded in Gauteng, Limpopo, North West and Mpumalanga provinces, where only nine historical localities are known. Despite repeated searches by various botanists over the last 5 years, the only confirmed extant locality is in Krugersdorp.	January to March	Negligible
<b><i>Habenaria bicolor</i></b> (ORCHIDACEAE)	Near Threatened (NT)	Occurs in open, sunny grassland in which the grasses often grow taller than this species, but it seems well-adapted to moribund conditions (McMurty <i>et al.</i> , 2008). According to Raimondo <i>et al.</i> (2009), occurs in 'well-drained grasslands at around 1600m in South Africa'. Recorded from 10 to 20 localities, all in Gauteng and near Middelburg in Mpumalanga (Raimondo <i>et al.</i> , 2009).	Mostly March and April, but occasionally in January and February.	Possible
<b><i>Anacampseros subnuda</i></b> subsp. <i>lubbersii</i> (PORTULACEAE)	Vulnerable [VU D2]	Retief & Herman (1997) describe the habitat simply as 'between rocks'. According to Raimondo <i>et al.</i> (2009) occurs in 'grassland on rhyolite boulders'. Has a narrow distribution restricted to a few localities around Witbank and Middelburg.	December	Negligible - rhyolite boulders not present on site.

Species	Latest (IUCN version 3.1) Conservation Status Category	Habitat	Flowering Time	Probability of occurrence within the study area
<b><i>Encephalartos lanatus</i></b> <b>(ZAMIACEAE)</b>	Vulnerable [VU B1ab(iii) + 2ab(iii)]	Sheltered wooded ravines in sandstone ridges, at an altitude of between 1200m and 1500m.	Produces cones that remain on the plants for ca. 3 years.	Negligible – no wooded ravines present on site.

#### 5.7.4 Protected plant species

In addition to the IUCN categories, the following legislation affords protected status to selected indigenous plant species:

- National Forests Act (Act 84 of 1998),
- NEMA Biodiversity Act (Act 10 of 2004, as amended in 2007), and
- Mpumalanga Nature Conservation Act (No.10 of 1998).

#### **National Forests Act (Act 84 of 1998)**

The National Forests Act lists 47 tree species that may not be removed or damaged without a license from the National Department of Agriculture.

None of the 47 tree species listed in Schedule A of this Act occurs within the study area or its immediate surroundings.

#### **NEMA Biodiversity Act (Act 10 of 2004, as amended in 2007)**

The intention of the Biodiversity Act is to protect plant and animal species that are directly threatened in terms of their utilisation. The destruction, collection or trading of any species listed in this Act requires a permit.

No plant species listed in the NEMA Biodiversity Act are known to occur on site.

#### **Mpumalanga Nature Conservation Act (No.10 of 1998)**

A number of plant species are protected in the Mpumalanga Province under the Mpumalanga Nature Conservation Act, whether they are considered to be threatened or not. This includes, but is not limited to, the following common names: ferns, flame lilies, christmas bells, pineapple flowers, clivia, nerine, crinum, ground lily, fire lily, irises, all orchids. A permit has to be obtained prior to their removal. No plant species listed in Mpumalanga Nature Conservation Act are known to occur on site.

#### 5.7.5 Invader or exotic species

Declared Weeds and Invaders are subject to the Conservation of Agricultural Resources Act (Act 43 of 1983) as amended in 2001. In terms of this Act, landowners are legally responsible for the control of alien plant species on their properties.

In addition, a number of plant species are listed as alien invasive species in terms of the Alien Invasive Species (AIS) Regulations, as defined in the National Environmental Management Biodiversity Act (Act no. 10 of 2014). The AIS regulations place each declared alien invasive plant species into one of four categories and stipulate measures for the eradication of plants in each of the four categories.

Only kikuyu grass, a proposed declared invader, was noted in the vicinity of the storm water culvert (Photo 5.7).

## 5.8 Animal life

According to the Mpumalanga Biodiversity Sector Plan (MBSP, 2013), the majority of the site falls within the category '**Other Natural Areas**' in terms of the freshwater assessment (Figure 5.13). It should be noted that the MBSP freshwater assessment includes information obtained from the National Freshwater Ecosystem Priority Areas (NFEPA) and threatened freshwater ecosystems databases (National Biodiversity Assessment 2011).

The grassland vegetation on site might provide habitat for a number of smaller species (e.g. rodents, scrub hare, mongoose) and birds. However, this vegetation is mowed on a regular basis by the local municipality and also burnt. The mowing and burning activities would definitely impact on available habitat.

Mole activity was noted in the north western portion of the site. Termite mounds were also noted on site (Photo 5.10). Droppings from hare (Photo 5.11) were also recorded.



**Figure 5.13: Mpumalanga Biodiversity Sector Plan freshwater assessment (taken from MBSP, 2013)**



**Photo 5.10 and Photo 5.11: Termite mound and droppings of a hare noted on site.**

The rocky nature of the western portion of the site could provide suitable habitat for reptiles.

In terms of birds, laughing dove, Blacksmith plover and crowned plover were recorded on site.

The nearby Klein Olifants River (Figure 5.2a) and associated riparian habitat would provide good habitat for small mammals, birds, reptiles, insects and aquatic species (e.g. frogs). In addition, the Klein Olifants River would provide a migration corridor for any animal species frequenting the area.

Although no endangered or rare species were noted, it does not exclude the possibility that Red Data species may occur in the area. This is however, unlikely.

## **5.9 Surface water**

### **5.9.1 Catchment**

The said site is situated within the Olifants River Catchment, more specifically the B12D quaternary catchment (Figure 5.14).

Table 5.7 provides more details regarding the B12D quaternary catchment.

**Table 5.7: Quaternary catchment characteristics (Middleton, B.J., Midgley, D.C and Pitman, W.V., 1990)**

<b>Area (Ha)</b>	<b>Mean Annual Precipitation (mm)</b>	<b>Mean Annual Runoff (mm)</b>	<b>MAR as a % of MAP</b>	<b>Study area as % of the catchment</b>
32 610	702.68	38.1	5.42	0.29

### **5.9.2 Flood line**

No streams, rivers or dams are located on or adjacent to the site. The Klein Olifants River is located approximately 150 m to the south of the proposed site (Figure 5.2a).



The proposed development will not be affected by the 1: 100 year flood line as indicated in Figure 3.1. It is a requirement in terms of Section 144 of the National Water Act, 1998 (Act 36 of 1998) that all townships must be located outside of the 1 in 100 year flood line.

### **5.9.3 Surface water runoff**

Surface water runoff takes place in a southerly direction towards the Klein Olifants River (Figure 5.2a).

A storm water culvert is present on the north eastern corner of the site (Figure 5.2b) that drains storm water from the Middelburg x4 residential area onto the said area and then towards to Klein Olifants River.

### **5.9.4 Wetlands**

According to the Mpumalanga Biodiversity Sector Plan (MBSP, 2013), the majority of the site falls within the category '**Other Natural Areas**' in terms of the freshwater assessment (Figure 5.21). It should be noted that the MBSP freshwater assessment includes information obtained from the National Freshwater Ecosystem Priority Areas (NFEPA) and threatened freshwater ecosystems databases (National Biodiversity Assessment 2011).

No wetlands were noted on site. However, the Klein Olifants River is located approximately 150 metres from the proposed site. A riparian area is associated with the Klein Olifants River.

### **5.10 Groundwater**

The groundwater level is anticipated to emulate the surface topography and would be near the surface adjacent to the Klein Olifants River located approximately 150 m to the south of the site (Figure 5.2a).

During the geotechnical investigation, no groundwater was encountered in any of the test pits. However, the presence of pedogenic materials indicated that a shallow, perched water table can be expected during and after periods of high rainfall. No signs of wetlands were noted on site.

### **5.11 Air quality**

The proposed development site is located in the Steve Tshwete air quality hot spot, which extends across the Steve Tshwete Local Municipality from its border with eMalahleni to Arnot in the east. This is an area where measured or modelled concentrations exceed, or are predicted to exceed, ambient air quality standards as identified in the Air Quality Management Plan for the Highveld Priority Area (HPA; Republic of South Africa, 2011).

Exceedances do not occur throughout the hotspot, but in three nodes. In the Middelburg node the modelled and monitored PM<sub>10</sub> concentrations, as well as modelled SO<sub>2</sub> concentrations, exceed the ambient standard. Exceedances of the SO<sub>2</sub> standard occur in the Arnot node, but are few.

The air quality of the site is predominately governed by the various industrial and opencast mining activities in the Middelburg area. Activities in the surrounding area that could potentially impact on the air quality of the site include the following:

- Emissions from vehicles travelling along the various tarred roads in close proximity to the site;
- Dust from off-road motorcycles using the old excavations on site;
- Dust from vehicles and motorcycles travelling across the site;
- Smoke emitted from veld fires.

### 5.12 Noise

The major contributing factor to the ambient noise level of the site would be as a result of:

- Traffic utilizing the various tarred roads in close proximity to the site;
- Off-road motorcycles and vehicles using the old excavations on site and travelling across the site;
- Activities associated with the nearby Steelcrest High School;
- Activities associated with nearby residential area (Middelburg x4).

### 5.13 Sites of archaeological and cultural interest

As indicated, the said site is vacant and no infrastructure is present on site. No historical structures are therefore present on site. In addition, no signs of graves were noted.

According to the palaeontological map supplied by the South African Heritage Resources Agency (SAHRA, 2014) a desktop palaeontological study is required for the said site (Figure 5.14).



**Figure 5.14: Requirement for palaeontological study (taken from SAHRA, 2014)**

#### **5.14 Sensitive landscapes**

No sensitive landscapes (wetlands, rivers, etc.) are located on the proposed site. The Klein Olifants River and associated riparian/aquatic environment is located approximately 150 m to the south of the site (Figure 5.2a).

#### **5.15 Visual aspects**

As indicated, the proposed site is located directly adjacent to the Middelburg x4 residential area and Steelcrest High School (Figure 5.2a). The said site is therefore highly visible from the residential properties located in Springbok Avenue. It is also visible from a section of the adjacent school property.

The site is also highly visible from the nearby tarred road (Meyer Street/R555 provincial road to Stoffberg) located to the east of the site and providing access to the residential areas of Middelburg x4, Kanonkop, etc.

In addition, the said site is visible from the Klein Olifants River (located south of the site) and some of the businesses/residents located south of the Klein Olifants River (Figure 5.2a).

#### **5.16 Traffic**

The proposed site is located adjacent to Springbok Avenue, Middelburg x4 (Figure 5.2a).

The residential area, Middelburg x4, is located to the north of the proposed site (Figure 5.2a). Steelcrest High School is located west of the site (Figure 5.2a).

During peak hours, heavy traffic can be expected along Springbok Avenue in view of children being taken to school and being collected from school.

The tarred road (Meyer Street; R555 provincial road to Stoffberg) extending across the Klein Olifants River and providing access to the residential areas of Middelburg x4 and Kanonkop is located east of the proposed site (Figure 5.2a).

#### **5.17 Sense of place**

The proposed site (Portion 362 (a portion of Portion 27)) of the farm Middelburg Town and Townlands 287 JS) is located in Springbok Avenue adjacent to Steelcrest High School, Middelburg x4 (Figure 5.1).

The residential area, Middelburg x4, is located to the north of the proposed site (Figure 5.2a), consisting of Residential 1 stands.

The Klein Olifants River is located south of the site (Figure 5.2a) and forms part of the Public Open Space system of Middelburg (Figure 5.15).

According to the Steve Tshwete Spatial Development Framework (2010), the proposed site is earmarked for infill residential development (Figure 5.15).

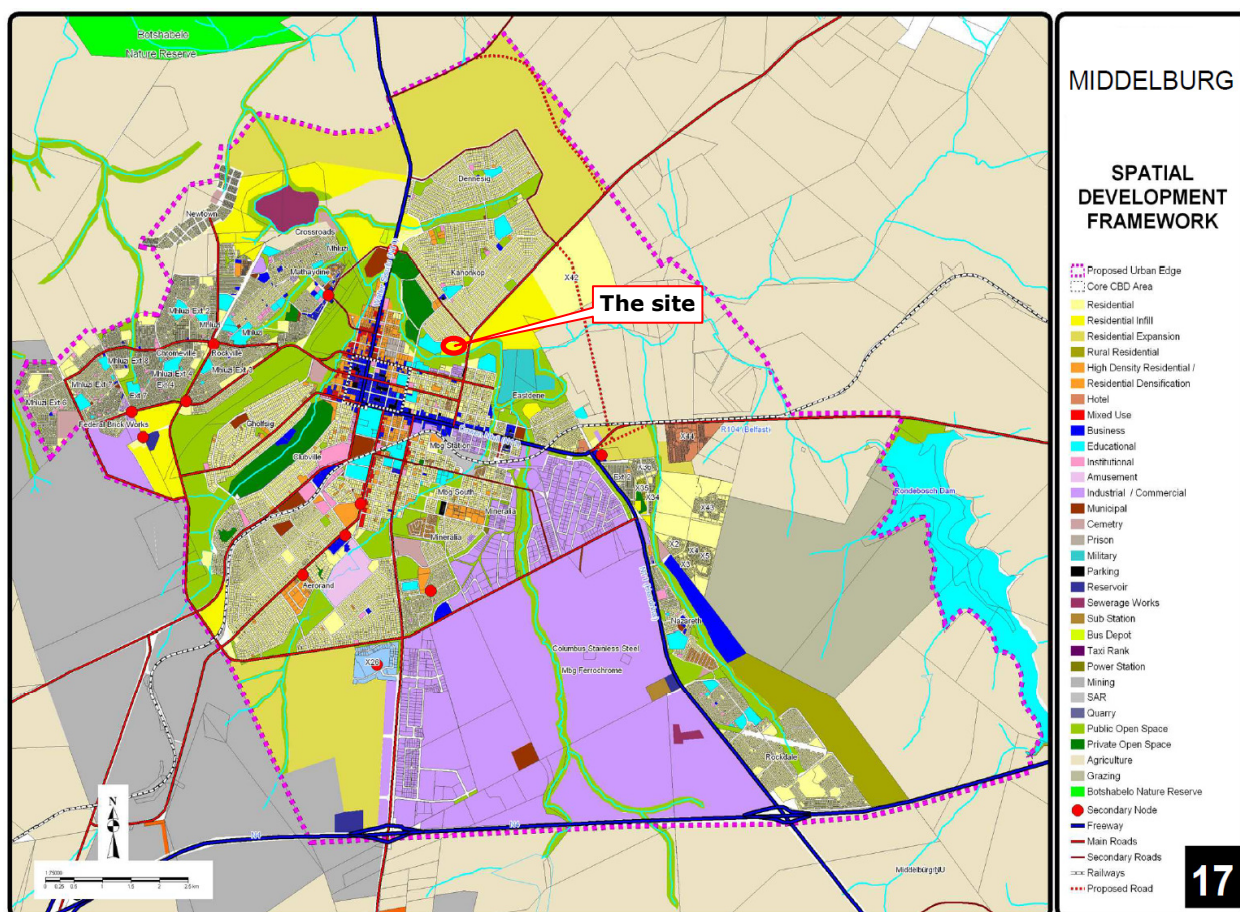
Urban Dynamics (2015) indicated the following in terms of the development of the said site for the purposes of Middelburg Preparatory School:

*'The provision of a primary school is not only needed within the area but also desirable and supported by the fact that the proposed development is in line with the general principles of Chapter I of the Development Facilitation Act, 1995 (Act 67 of 1995):*

- *Promotion of the integration of various land uses – A primary school component will be provided within a residential area, which will provide opportunity for employment in the construction period as well as other employment opportunities.*
- *By granting a rezoning to the subject property, the tax base of the local authority is expanded which means an optimal utilization of existing infrastructure and a larger tax base to maintain the said infrastructure'.*

*'The proposed development is furthermore, compatible with the area due to the fact that it will be located next to Steelcrest High School. The proposed development is perfectly in line with the trend of development of the town and is furthermore, compatible with the area due to the fact that it will be in line with the proposed Spatial Development Framework of Middelburg'.*

In view of the above-mentioned, the development of the proposed site for the purposes of the Middelburg Preparatory School should not impact on the sense of place of the area.



**Figure 5.15: Steve Tshwete Spatial Development Framework (2010)**



## **6. DESCRIPTION OF THE PUBLIC PARTICIPATION PROCESS**

### **6.1 Advertising of the project**

#### **6.1.1 Press advertising**

A block advert (150mm x 95mm), according to the Environmental Impact Assessment Regulations, 2014, was placed in the regional newspaper, the Middelburg Observer, on Friday, 8 May 2015. A copy of the advert is provided in Appendix 5.

#### **6.1.2 On-site advertising**

Notices according to the Environmental Impact Assessment Regulations, 2015, were displayed at the following locations:

- On-site adjacent to Springbok Avenue (A1 size; Figure 6.1-Photo 1);
- On the notice board at the existing Middelburg Preparatory School (A3; Figure 6.1 – Photo 2);
- On the noticeboard at the Gerard Sekoto Public Library (A3 size; Figure 6.1 – Photo 3);
- A copy of the notice was also loaded onto the company website: [www.cleanstreams.co.za](http://www.cleanstreams.co.za).

A copy of the notice is provided in Appendix 5.

No alternative sites were identified for the proposed development. No notices were thus placed on an alternative site.

#### **6.1.3 Informing I&APs via the internet**

Interested and affected parties were informed via the above-mentioned adverts and notices that a copy of the following documentation could be downloaded from the Clean Stream Environmental Services website ([www.cleanstreams.co.za](http://www.cleanstreams.co.za)):

- ◆ Copy of the notice;
- ◆ Background Information Document (BID; Appendix 6).

This information was available on the website for the duration of the basic assessment phase.

A copy of the webpage printouts is provided in Appendix 5.

#### **6.1.4 Feedback from the advertising process**

No persons registered as interested and affected parties in terms of the advertising process (site and newspaper advertising) within the 30 day registration period provided.

However, comment was received from the following parties in terms of the Background Information Documents forwarded by email:

- Department of Agriculture, Rural Development, Land and Environmental Affairs (letter dated: 27 May 2015; Appendix 7) – see Section 6.3.1 for further details;
- Commission on Restitution of Land Rights (letter dated: 29 January 2015; Appendix 7) – see Section 6.3.2 for further details;
- Steelcrest High School (letter dated: 25 May 2015; Appendix 7) – see Section 6.3.3 for further details.

#### **6.1.5 Public meeting**

As indicated in Section 6.1.4, no persons registered as interested and affected parties in terms of the advertising process (site and newspaper advertising)

within the 30 day registration period provided. There was thus no need for a public meeting



**Figure 6.1: Notices displayed**

## 6.2 Directly affected landowner/user

The proposed development site is located on Portion 362 (a portion of Portion 27) of the farm Middelburg Town and Townlands 287 JS (Figure 5.1). The said property belonged to the Steve Tshwete Local Municipality, who donated the said property to Middelburg Preparatory School for the purpose of developing the said school on the site. A letter (dated: 3 October 2014) in this regard is provided in Appendix 1.

### 6.3 Identified local authorities/government departments and stakeholders

Table 6.1 provides an indication to which local authorities/government departments and stakeholders Background Information Documents (BIDs; Appendix 6) were forwarded in order to inform them of the proposed project and to obtain their issues of concern.

**Table 6.1: Identified local authorities/government departments and stakeholders who received BIDs**

IDENTIFIED AUTHORITY/DEPARTMENT/STAKEHOLDER	CORRESPONDENCE SENT	COMMENTS
Department of Water and Sanitation (DWS) (Contact person: NS Maliaga)	Email (dated: 15 & 18 May 2015; Appendix 7) with BID forwarded.	None
Department of Mineral Resources (DMR) (Contact person: M. Mokonyane)	Email (dated: 15 & 18 May 2015; Appendix 7) with BID forwarded.	None.
Department of Co-operative Governance and Traditional Affairs (COGTA) (Contact person: M. Loock)	Email (dated: 15 & 18 May 2015; Appendix 7) with BID forwarded.	None.
Department of Agriculture, Rural Development, Land and Environmental Affairs (Contact person: J. Venter)	Email (dated: 15 & 18 May 2015; Appendix 7) with BID forwarded.	Yes – letter (dated: 27 May 2015; Appendix 7) – see Section 6.3.1.
Department of Education (Contact person: K.R. Morena)	Email (dated: 15 & 18 May 2015; Appendix 7) requesting if any land claims registered against property.	None.
Department of Rural Development and Land Reform (Commission on Restitution of Land Rights) (Contact person: N.D. Nkambule; G.N. Mathonsi; T. Mkhabela)	Email (dated: 15 & 18 May 2015; Appendix 7) requesting if any land claims registered against property.	Yes – letter (dated: 29 January 2015; Appendix 7) – see Section 6.3.2.
South African Heritage Resources Agency (SAHRA) (Contact person: J. Lavin (SAHRA website))	Loaded BID onto SAHRA website (print out from SAHRIS website dated: 15 May 2015; Appendix 7)	None.
Mpumalanga Tourism and Parks Agency (MTPA) – Land Advisory Unit (Contact person: K. Narasoo)	Email (dated: 18 May 2015; Appendix 7) with BID forwarded.	Yes – acknowledgement of receipt (dated: 19 May 2015; Appendix 7).
Nkangala District Municipality (Contact person: S. Links (Development and Planning))	Email (dated: 18 May 2015; Appendix 7) with BID forwarded.	None.
Steve Tshwete Local Municipality (Contact person: M. Mahamba)	Email (dated: 18 May 2015; Appendix 7) with BID forwarded.	None.
Ward Councillor (Ward 13) (Contact person: M. Wait)	Email (dated: 18 May 2015; Appendix 7) with BID forwarded.	None.
Steelcrest High School (Ms. Eksteen)	Email (dated: 18 May 2015; Appendix 7) with BID forwarded.	Yes. Letter from Steelcrest High School (dated: 25 May 2015; Appendix 7) and a completed comment sheet (dated: 27 May 2015) – see Section 6.3.3.

In addition, Background Information Documents (Appendix 6) were delivered to the houses (no. 25 to 35) located in Springbok Avenue (i.e. directly adjacent to the said site). To date, no completed comment sheets have been received from these interested and affected parties.

### **6.3.1 Department of Agriculture, Rural Development, Land and Environmental Affairs**

A letter from the Department of Agriculture, Rural Development, Land and Environmental Affairs (dated: 27 May 2015; Appendix 7) was received regarding the proposed development. The following was indicated by the said Department:

*'In conclusion the proposed area of development is regarded as infilling development, with positive outcomes for the proposed area. The proposed development as per information received is recommended:*

- *Precautionary measures must be taken not to develop in the floodplain areas and not below the 1:100 year flood line.*
- *The proposed development must also align to the existing storm water plan for the existing extension'.*

### **6.3.2 Commission on Restitution of Land Rights**

A letter from the Commission on Restitution of Land Rights (dated: 29 January 2015; Appendix 7) was received indicating that no land claims have been lodged against the said property.

### **6.3.3 Steelcrest High School**

A letter from Steelcrest High School (dated: 25 May 2015; Appendix 7) was received indicating the following:

*'We respectfully submit that this will lead to several serious problems, including:*

- *Traffic congestion: As it is, there is no provision for parking, or even stopping motor vehicles on Springbok Avenue. The Town Council has allowed Steelcrest High School to make use of the vacant land adjacent to the school for purposes of parking and off-loading learners. Should the new school be built here, it is obvious that the traffic and safety issues outlined above will become very serious indeed.*
- *It is further not educationally or socially sensible to site a primary and secondary school directly alongside each other.*

*Since the unused ground stretches from the perimeter of Steelcrest High School to Stoffberg road – a very large area indeed – we request that a sizable area be left vacant between the two schools, so as to address the issues outlined above.*

## **6.4 Summary of issues of concern**

Table 6.2 provides a summary of the issues of concern raised by the interested and affected parties as well as in which section of this report the issues are addressed.



**Table 6.2: Summary of issues of concern raised by I&APs**

COMMENTS	ISSUE	ADDRESSED IN SECTION
Department of Agriculture, Rural Development, Land and Environmental Affairs	Precautionary measures must be taken not to develop in the floodplain areas and not below the 1:100 year flood line.	Section 5.9.2; 7
	The proposed development must also align to the existing storm water plan for the existing extension.	Section 3.2.5; 8
Steelcrest High School	Traffic congestion: As it is, there is no provision for parking, or even stopping motor vehicles on Springbok Avenue. The Town Council has allowed Steelcrest High School to make use of the vacant land adjacent to the school for purposes of parking and off-loading learners. Should the new school be built here, it is obvious that the traffic and safety issues outlined above will become very serious indeed.	Section 3.1; 3.1.2; 7; 8
	It is further not educationally or socially sensible to site a primary and secondary school directly alongside each other.	Section 3.3
	Since the unused ground stretches from the perimeter of Steelcrest High School to Stoffberg road – a very large area indeed – we request that a sizable area be left vacant between the two schools, so as to address the issues outlined above.	Section 3.1

### 6.5 List of Interested and Affected Parties

From the above public participation process, the following list of Interested and Affected Parties was compiled:

INTERESTED AND AFFECTED PARTY LIST	
Organisation	Name
<b>Government Departments</b>	
Department of Agriculture, Rural Development, Land and Environmental Affairs	To be determined on registration
Department of Mineral Resources	The Director
Department of Rural Development and Land Reform (Commission on Restitution of Land Rights)	N.D. Nkambule
Department of Water and Sanitation	N.S. Maliaga
Department of Co-operative Governance and Traditional Affairs (COGTA)	M. Look
Department of Education	KR Morena
Department of Agriculture, Rural Development, Land and Environmental Affairs (Natural Resource Investigations)	J. Venter

<b>INTERESTED AND AFFECTED PARTY LIST</b>	
<b>Organisation</b>	<b>Name</b>
<b>Other Organisations</b>	
South African Heritage Resources Agency (SAHRA)	J. Lavin (SAHRA website)
Mpumalanga Tourism and Parks Agency (MTPA) – Land Advisory Unit	K. Narasoo
<b>Local Municipality and Municipal Councillor</b>	
Nkangala District Municipality	S. Links
Steve Tshwete Local Municipality	M. Mahamba
Ward Councillor (Ward 13)	S. Wait
<b>Community</b>	
Steelcrest High School	Ms. Eksteen
Residents living in Springbok Avenue, Middelburg x4	

## 7. ENVIRONMENTAL IMPACT DESCRIPTION AND EVALUATION

### 7.1 Introduction

This section of the report describes and evaluates the potential impact of the proposed development on the environment. The impact of the development has to be assessed in terms of the following development phases:

- **Planning and design phase**
- **Construction phase**
- **Operational phase**
- **Decommissioning phase**

### 7.2 Evaluation of impacts

The evaluation of impacts is conducted in terms of the following criteria:

- **Nature of impact**

- **Extent of impact**

Site	Effect limited to the site and its immediate surroundings
Local	Effect limited to within 3-5 km of the site
Regional	Effect will have an impact on a regional scale

- **Duration of impact**

Short	Effect lasts for a period 0 to 5 years
Medium	Effect continues for a period between 5 and 10 years
Long	Effect will cease after the operational life of the activity either because of natural process or by human intervention
Permanent	Where mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient

- **Probability**

Improbable	Less than 33% chance of occurrence
Probable	Between 33 and 66% chance of occurrence
Highly probable	Greater than 66% chance of occurrence
Definite	Will occur regardless of any prevention measures

- **Significance of impact**

Low	Where the impact will have a relatively small effect on the environment and will not have an influence on the decision
Medium	Where the impact can have an influence on the environment and the decision and should be mitigated
High	Where the impact definitely has an impact on the environment and the decision regardless of any possible mitigation

- **Status**

Positive	Impact will be beneficial to the environment
Negative	Impact will not be beneficial to the environment
Neutral	Positive and negative impact

It must be noted that many of the potential negative consequences can be mitigated successfully. It is however, necessary to make a thorough assessment of all possible impacts in order to ensure that environmental considerations are taken into account, in a balanced way, as far as possible, supporting the aim of creating a healthy and pleasant environment.

### **7.3 Planning and design phase**

The planning and design phase involved office work and site surveys with regards to the development of the new school site for Middelburg Preparatory School and the Basic Assessment Report. It also involves obtaining the necessary authorisations for the said development.

***Apart from the existing activities on site, no actual construction work took place regarding the proposed new school site for Middelburg Preparatory School. Therefore, no impacts.***

### **7.4 Construction phase**

The construction phase would involve the pegging of the stand, installation of services and construction of school buildings and associated infrastructure (including the parking area in front of the school).

This would involve the following:

- ❖ Clearing of vegetation;
- ❖ Levelling of the site;
- ❖ Excavation of trenches;
- ❖ Installation and connection of services;
- ❖ Construction of access road and parking area;
- ❖ Laying of the required foundations;
- ❖ Building of the outer structure;
- ❖ Installation of the required internal fittings;
- ❖ Rehabilitation of the disturbed areas (i.e. landscaping).

Section 7.7 provides further details with regards to potential impacts identified.

### **7.5 Operational phase**

The operational phase would involve the utilisation of the new school site by Middelburg Preparatory School.

Section 7.7 provides further details with regards to potential impacts identified.

### **7.6 Decommissioning phase**

If required, this phase would involve the decommissioning of the facilities constructed as part of this project (see Section 7.4).



The decommissioning phase will not be discussed in detail. It is recommended that at the time of decommissioning, a specific Environmental Management Plan (EMP) be compiled which specifically addresses this phase. This EMP would have to address issues such as the removal of building rubble and the rehabilitation of the site. Soil conservation measures would also have to be implemented.

## **7.7 Identification of potential impacts**

The following tables provide an indication of the environmental features that will be impacted (directly and indirectly) during the construction, operational and decommissioning phases of the proposed project as indicated above.

7.7 DIRECT AND INDIRECT IMPACTS – DEVELOPMENT OF NEW SCHOOL SITE FOR MIDDELBURG PREPARATORY SCHOOL																		
ENVIRONMENTAL FEATURE(S)	PREDICTED IMPACT CONSTRUCTION PHASE TIME PERIOD: 12 MONTHS AREA: 2 ha	EXTENT	DURATION	PROBABILITY	SIGNIFICANCE (PRE-MITIGATION)	SIGNIFICANCE (POST MITIGATION)	PREDICTED IMPACT OPERATIONAL PHASE TIME PERIOD: LIFE OF SCHOOL AREA: 2 ha	EXTENT	DURATION	PROBABILITY	SIGNIFICANCE (PRE-MITIGATION)	SIGNIFICANCE (POST MITIGATION)	PREDICTED IMPACT PHASE: DECOMMISSIONING PHASE TIME PERIOD: UNKNOWN AREA: 2 ha	EXTENT	DURATION	PROBABILITY	SIGNIFICANCE (PRE-MITIGATION)	SIGNIFICANCE (POST MITIGATION)
TOPOGRAPHY	The site is fairly flat in the northern portion of the site while the slope increases towards the south western corner of the site (i.e. where the rocky outcrop is present). In general, the site slopes in a southerly direction towards the Klein Olifants River. The geotechnical investigation indicated that the slope of the site is between 2 and 6 degrees, which is favourable for development purposes. However, a cut to fill excavation for the platform was recommended. In general, the construction activities (e.g. removal of vegetation, sloping of the site, paving of the area, construction of buildings, surfacing of roads/parking area, etc.) would have a direct impact on the topography and would result in changed runoff patterns and an increased risk of soil erosion if mitigation measures are not implemented. This could indirectly impact on the nearby Klein Olifants River (approximately 150m from site).	SITE	LONG	DEFINITE	MEDIUM NEGATIVE	LOW NEGATIVE	Direct impact on topography will continue, which in turn will impact upon the runoff from the site and indirectly impact on the nearby Klein Olifants River (approximately 150m from site).	SITE	LONG	DEFINITE	MEDIUM NEGATIVE	LOW NEGATIVE	During decommissioning, the buildings and associated infrastructure will be demolished and removed from site. The site will be top soiled and shaped to conform to the original slope of the area, which will have a positive impact on the runoff from the site.	SITE	LONG	DEFINITE	LOW POSITIVE	LOW POSITIVE
GEOLOGY	The site is underlain by shales of the Loskop Formation. Rocky outcrops are apparent in the south western section of the site. The direct impact on geology will depend on the depth of the excavations required for the construction of the buildings and installation of infrastructure. The possible impact on the underlying geology cannot be mitigated.	SITE	PERMANENT	HIGHLY PROBABLE	LOW NEGATIVE	LOW NEGATIVE	NONE. No further impact since no further construction would take place.						NONE. No further impact since no further construction would take place.					
SOILS/ GEOTECHNICAL	The development of the new school site would impact on both the Zone 1 and Zone 2 geotechnical zones. Within both these zones, the hillwash and the very soft rock are expected to be potentially collapsible. The average thickness of the collapsible/compressible material exceeds one metre (minimum 1.2m; maximum 1.8m). According to the geotechnical study, a shallow perched water table is present. The structures could be impacted if the geotechnical mitigation measures with regards to the above-mentioned are not implemented as part of the construction phase.	SITE	LONG	HIGHLY PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE	The structures will continue to be impacted upon through the operational phase if the geotechnical mitigation measures were not implemented.	SITE	LONG	PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE	NONE. No further impact since no further construction would take place.					
	The soil on site varies from light brown to pinkish in colour. In the western portion of the site, limited soil cover is present due to the rocky nature of this area. During the construction of the new buildings and associated infrastructure, the soil of an area of approximately 2 ha will be directly impacted in terms of soil structure, nutritional and chemical values when the vegetation and topsoil are removed, the site is sloped and the infrastructure is constructed.	SITE	LONG	HIGHLY PROBABLE	LOW NEGATIVE	LOW NEGATIVE	Direct impact on soil will continue i.t.o. soil structure, nutritional and chemical values and soil compaction.	SITE	LONG	PROBABLE	LOW NEGATIVE	LOW NEGATIVE	The decommissioning of the buildings and associated infrastructure will have an initial negative impact on the soil of the site in terms of disturbance (physical and biological properties).	SITE	SHORT	PROBABLE	LOW NEGATIVE	LOW NEGATIVE
	Sediment transport and erosion may occur following the clearing of the site in preparation of construction. This may indirectly impact on the adjacent vacant properties located to the west, east and south of the site. It could also indirectly impact on the nearby Klein Olifants River (approximately 150m from site) which is located to the south of the site.	SITE	SHORT	PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE	Soil erosion could occur if proper storm water control measures are not implemented or measures provided are not maintained. This could impact on the vacant adjacent properties and the nearby Klein Olifants River (approximately 150m to the south of the site).	SITE	LONG	PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE	Soil erosion could occur if the site is not revegetated properly after decommissioning. This could impact on the nearby Klein Olifants River (approximately 150m to the south of the site) in terms of sediment transport.	SITE	SHORT	PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE
	The stockpiling of topsoil, subsoil, overburden and rocks could impact directly on the soil of the site (area of approximately 2ha) and adjacent vacant properties depending on where the stockpiling takes place. In addition, sediment transport and erosion from the stockpiles could impact indirectly on the nearby Klein Olifants River (approximately 150m from site) which is located south of the site.	SITE	SHORT	HIGHLY PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE	The various stockpiles will be removed and the stockpiling areas top soiled, levelled and rehabilitated/grassed on completion of the construction phase. This should have a positive impact on the soils during the operational phase of the project.	SITE	LONG	HIGHLY PROBABLE	MEDIUM POSITIVE	MEDIUM POSITIVE	Soil pollution may occur if: <ul style="list-style-type: none"> <li>The vehicles are not maintained/repaired resulting in oil leaks and fuel spills;</li> <li>Waste management measures are not implemented;</li> </ul>	SITE	SHORT	PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE

7.7 DIRECT AND INDIRECT IMPACTS – DEVELOPMENT OF NEW SCHOOL SITE FOR MIDDELBURG PREPARATORY SCHOOL																				
ENVIRONMENTAL FEATURE(S)	PREDICTED IMPACT CONSTRUCTION PHASE TIME PERIOD: 12 MONTHS AREA: 2 ha	EXTENT	DURATION	PROBABILITY	SIGNIFICANCE (PRE-MITIGATION)	SIGNIFICANCE (POST MITIGATION)	PREDICTED IMPACT OPERATIONAL PHASE TIME PERIOD: LIFE OF SCHOOL AREA: 2 ha	EXTENT	DURATION	PROBABILITY	SIGNIFICANCE (PRE-MITIGATION)	SIGNIFICANCE (POST MITIGATION)	PREDICTED IMPACT PHASE: DECOMMISSIONING PHASE TIME PERIOD: UNKNOWN AREA: 2 ha	EXTENT	DURATION	PROBABILITY	SIGNIFICANCE (PRE-MITIGATION)	SIGNIFICANCE (POST MITIGATION)		
																			EXTENT	DURATION
	Soil pollution may occur if: <ul style="list-style-type: none"> <li>the construction vehicles are not maintained/repared resulting in oil leaks and fuel spills;</li> <li>waste management measures are not implemented,</li> <li>proper ablution and sanitation facilities are not provided for the site workers to use on site.</li> </ul>	SITE	SHORT	PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE	Soil pollution could occur if: <ul style="list-style-type: none"> <li>waste management measures are not implemented;</li> <li>the sewer infrastructure is not properly installed and maintained.</li> </ul>	SITE	LONG	PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE	<ul style="list-style-type: none"> <li>Proper sanitation and ablution facilities are not provided for use by site workers.</li> </ul> The removal of any polluted soil and proper rehabilitation of the site after decommissioning will however, have a positive impact on the soil.	SITE	LONG	HIGHLY PROBABLE	MEDIUM POSITIVE	MEDIUM POSITIVE		
LAND USE/ AGRICULTURAL POTENTIAL/SENSE OF PLACE	The property is zoned for agriculture and is indicated as moderate potential arable land. However, the site has not been used for agricultural purposes due to the rocky nature thereof and the location of the site in an urban area with the residential area of Middelburg x4 located north of the site and Steelcrest High School west of the site.	LOCAL	LONG	DEFINITE	MEDIUM POSITIVE	MEDIUM POSITIVE	The land use will change from agriculture to 'Educational'. The new land use will be compatible with that of the surrounding area and will be in line with the Steve Tshwete Spatial Development Framework. Middelburg Preparatory School will continue to have a positive impact in terms of being a potential feeder school for the adjacent Steelcrest High School to be used by residents of Middelburg x4 and the rest of Middelburg. The site will also be managed, reducing the dumping of waste and the possible use of off road motorcycles.	SITE	LONG	DEFINITE	LOW POSITIVE	LOW POSITIVE	The decommissioning of the buildings and associated infrastructure and rehabilitation of the site would allow for a different land use on site. The impact will depend on the existing land use in the area.	SITE	LONG	HIGHLY PROBABLE	MEDIUM NEUTRAL	MEDIUM NEUTRAL		
	The change of land use from 'Agricultural' to 'Educational' zoning will therefore not impact directly on agriculture. It will have a positive impact in terms of providing a potential feeder school for the adjacent Steelcrest High School to be used by residents of Middelburg x4 and the rest of Middelburg.																			
	According to the Steve Tshwete Spatial Development Framework (2010), the proposed site is earmarked for infill residential development. According to Urban Dynamics (2015), the proposed development is: <ul style="list-style-type: none"> <li>compatible with the area due to the fact that it will be located next to Steelcrest High School;</li> <li>perfectly in line with the trend of development of the town;</li> <li>compatible with the area due to the fact that it will be in line with the Steve Tshwete Spatial Development Framework.</li> </ul> It will therefore not impact on the sense of place of the site and immediate surroundings.	SITE	LONG	DEFINITE	MEDIUM POSITIVE	MEDIUM POSITIVE														
	Being located adjacent to a residential area (Middelburg x4), it is used for informal recreational activities (e.g. off road motorcycles using the site). The development of Middelburg Preparatory School on the site would result in an area of 2 hectares no longer being available for informal recreational activities (e.g. off road motor cycles) and could result in a reduced impact on the adjacent properties and the nearby Klein Olifants River in terms of the use of the said site by off road motorcycles.	SITE	LONG	DEFINITE	LOW NEUTRAL	LOW NEUTRAL														
	The development of Middelburg Preparatory School will not impact on the area used for parking by the adjacent Steelcrest High School (west of the site). An area of 5000m <sup>2</sup> has been left vacant between the two schools in order to provide the parking required.																			

7.7 DIRECT AND INDIRECT IMPACTS – DEVELOPMENT OF NEW SCHOOL SITE FOR MIDDELBURG PREPARATORY SCHOOL																				
ENVIRONMENTAL FEATURE(S)	PREDICTED IMPACT CONSTRUCTION PHASE TIME PERIOD: 12 MONTHS AREA: 2 ha	EXTENT	DURATION	PROBABILITY	SIGNIFICANCE (PRE-MITIGATION)	SIGNIFICANCE (POST MITIGATION)	PREDICTED IMPACT OPERATIONAL PHASE TIME PERIOD: LIFE OF SCHOOL AREA: 2 ha	EXTENT	DURATION	PROBABILITY	SIGNIFICANCE (PRE-MITIGATION)	SIGNIFICANCE (POST MITIGATION)	PREDICTED IMPACT PHASE: DECOMMISSIONING PHASE TIME PERIOD: UNKNOWN AREA: 2 ha	EXTENT	DURATION	PROBABILITY	SIGNIFICANCE (PRE-MITIGATION)	SIGNIFICANCE (POST MITIGATION)		
																			EXTENT	DURATION
NATURAL VEGETATION/ ANIMAL LIFE	<p>The site is located in the Rand Highveld Grassland, which has been classified as Endangered in Mucina et. al. (2006) and Vulnerable in the National List of Ecosystems that are threatened and in need of protection (GN 1002 of 2011).</p> <p>In terms of the Mpumalanga Biodiversity Sector Plan (MBSP, 2013)), the site falls within the category 'Other Natural Areas' with the adjacent residential area is indicated as 'Heavily Modified'.</p> <p>The development of the site will impact directly on 2 ha of the Rand Highveld Grassland that is regularly mowed (was mowed during May 2015) and burnt (was burnt during July 2015). It has therefore been transformed from its original state. The vegetation is also impacted as a result of informal recreational activities (e.g. use of off road motor cycles) and parking taking place on site.</p> <p>The vegetation of the said area is regularly mowed and burnt by the Steve Tshwete Local Municipality as per the general management of Public Open Spaces.</p>	SITE	PERMANENT	DEFINITE	LOW NEGATIVE	LOW NEGATIVE	<p>No further direct impact on vegetation or animal life since no further construction activities will take place.</p> <p>However, the vegetation and animal life associated with the nearby Klein Olifants River could be indirectly impacted upon during the operational phase in terms of surface/storm water runoff, sediment transport or soil erosion if proper erosion control measures are not implemented.</p> <p>In addition, alien plants could be introduced into areas disturbed by construction, which are not rehabilitated. If alien plants are utilized in the gardens, they could spread and impact on the surrounding vegetation.</p>	SITE	LONG	PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE	<p>During the decommissioning phase, building rubble and any polluted soil will be removed from the site and disposed of accordingly. The said area will then be rehabilitated in order to establish a vegetation cover and prevent soil erosion. This could result in the creation of artificial habitats for animal life within the rehabilitated area.</p> <p>Alien plants could be introduced into areas rehabilitated as part of the decommissioning phase. This could impact on the vegetation of the surrounding area and especially the nearby Klein Olifants River.</p>	SITE	LONG	PROBABLE	MEDIUM POSITIVE	MEDIUM POSITIVE		
	<p>The proposed development would not impact directly on the nearby Klein Olifants River, its associated riparian area and aquatic life. It could however, indirectly impact in terms of surface water/storm water runoff, sediment transportation, erosion, etc. as a result of the construction activities taking place on site.</p>	SITE	SHORT	PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE														
	<p>The construction activities may impact on plant species of conservation concern as indicated in Table 5.6. The presence of these plant species have not been confirmed to date.</p>	SITE	PERMANENT	PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE														
	<p>It is not anticipated that the development will have a significant impact on animal life due to the 2 ha of Rand Highveld Grassland being mowed and burnt on a regular basis and informal recreational activities (e.g. off road motor cycles) taking place on site. Domestic animals (cats, dogs, etc.) from the Middelburg x4 residential area could also impact on the animal life of the site. It is however, possible that the rocky outcrop area located in the western portion of the site could provide habitat for reptiles. The construction activities could impact on any animal life (e.g. hare/birds) present on site during construction. It is however, anticipated that the animal species will move away at the first sign of human activity.</p>	SITE	LONG	PROBABLE	LOW NEGATIVE	LOW NEGATIVE														



7.7 DIRECT AND INDIRECT IMPACTS – DEVELOPMENT OF NEW SCHOOL SITE FOR MIDDELBURG PREPARATORY SCHOOL																		
ENVIRONMENTAL FEATURE(S)	PREDICTED IMPACT CONSTRUCTION PHASE TIME PERIOD: 12 MONTHS AREA: 2 ha	EXTENT	DURATION	PROBABILITY	SIGNIFICANCE (PRE-MITIGATION)	SIGNIFICANCE (POST MITIGATION)	PREDICTED IMPACT OPERATIONAL PHASE TIME PERIOD: LIFE OF SCHOOL AREA: 2 ha	EXTENT	DURATION	PROBABILITY	SIGNIFICANCE (PRE-MITIGATION)	SIGNIFICANCE (POST MITIGATION)	PREDICTED IMPACT PHASE: DECOMMISSIONING PHASE TIME PERIOD: UNKNOWN AREA: 2 ha	EXTENT	DURATION	PROBABILITY	SIGNIFICANCE (PRE-MITIGATION)	SIGNIFICANCE (POST MITIGATION)
SURFACE WATER/SENSITIVE LANDSCAPES	The development of the new school site will not impact directly on any surface water environments (wetlands, river, stream).  The development of the new school site would not impact on the 1: 100 year flood line associated with the nearby Klein Olifants River. It would also not impact directly on the Klein Olifants River and associated riparian area.  In general, the removal of the vegetation and the earthworks required during the construction phase would result in changed runoff patterns, which could result in soil erosion if proper storm water control measures are not implemented. This could indirectly impact on the nearby Klein Olifants River and associated riparian area. It could also impact on the adjacent vacant properties.	SITE	SHORT	HIGHLY PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE	No direct impact expected since no surface water environments (e.g. wetlands/stream/streams) present on site.  The buildings and associated infrastructure will continue to impact on the surface water runoff of the site. If not well managed, increased runoff could impact on the nearby Klein Olifants River and associated riparian area in terms of erosion, hydrology changes and changes in vegetation composition (i.e. riparian habitat deterioration).	SITE	LONG	PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE	During the decommissioning phase, building rubble and any polluted soil will be removed from the site and disposed of accordingly. The said area will then be rehabilitated in order to establish a vegetation cover and prevent soil erosion. This would result in clean runoff from the site entering the Klein Olifants River. It would thus have a positive impact on surface water.	LONG	LONG	HIGHLY PROBABLE	MEDIUM POSITIVE	MEDIUM POSITIVE
	Sediment transport and erosion may occur following the clearing of the site in preparation of construction as well as a result of stockpiling activities. This may indirectly impact on the water quality of the nearby Klein Olifants River (approximately 150m from site) which is located to the south of the site.	LOCAL	SHORT	HIGHLY PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE	The water quality of the Klein Olifants River could be impacted upon through sedimentation if storm water control measures are not maintained resulting in soil erosion taking place.	LOCAL	LONG	PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE						
	Soil pollution may occur if: • the construction vehicles are not maintained/repared resulting in oil leaks and fuel spills; • waste management measures are not implemented, • proper ablation and sanitation facilities are not provided for the site workers to use on site. This could impact on the quality of the surface water runoff flowing into the nearby Klein Olifants River (approximately 150m from site) which is located south of the site.	SITE	SHORT	HIGHLY PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE	Indirect pollution of surface water and the nearby Klein Olifants River could take place if the sewage system does not have sufficient capacity and is not maintained on a regular basis and proper waste management measures (littering takes place) are not implemented. Runoff from the parking area (hydrocarbons, etc.) in front of the school could also impact on the quality of the surface water runoff and thus indirectly impact on the Klein Olifants River.	LOCAL	LONG	PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE						
	The existing storm water system associated with Middelburg x4 could result in the flooding of the construction site if the said storm water system is not considered as part of the construction phase. As indicated in the geotechnical study, ponding of water on site must be avoided as this could lead to instability.	SITE	SHORT	HIGHLY PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE	The existing storm water system of Middelburg x4 could continue to impact on the site if the said system was not incorporated as part of the overall storm water management plan for the development. Ponding of water close to any structures must also be avoided as indicated in the geotechnical study as this could lead to instability.	SITE	LONG	PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE						
GROUNDWATER	No signs of wetlands were noted on site.  The groundwater level is anticipated to emulate the surface topography and would be near the surface adjacent to the Klein Olifants River located approximately 150m to the south of the site.  During the geotechnical investigation, no groundwater was encountered in any of the test pits. However, the presence of pedogenic materials indicated that a shallow, perched water table can be expected during and after periods of high rainfall. A fluctuating water table could impact on the construction activities	SITE	SHORT	PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE	It is highly unlikely that the operational activities will have a direct impact on the groundwater. No groundwater will be abstracted for the operational activities. Thus, no direct impact expected in terms of groundwater quantity. Buildings and infrastructure could continue to be impacted if mitigation measures were not implemented during the construction phase to prevent the impact of a possible perched water table.	SITE	LONG	HIGHLY PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE	During the decommissioning phase, building rubble and any polluted soil will be removed from the site and disposed of accordingly. The said area will then be rehabilitated in order to establish a vegetation cover and prevent soil erosion. This would result in clean runoff from the site entering the nearby Klein Olifants River. It would thus have a positive impact on groundwater.	SITE	LONG	PROBABLE	MEDIUM POSITIVE	MEDIUM POSITIVE

7.7 DIRECT AND INDIRECT IMPACTS – DEVELOPMENT OF NEW SCHOOL SITE FOR MIDDELBURG PREPARATORY SCHOOL																		
ENVIRONMENTAL FEATURE(S)	PREDICTED IMPACT CONSTRUCTION PHASE TIME PERIOD: 12 MONTHS AREA: 2 ha	EXTENT	DURATION	PROBABILITY	SIGNIFICANCE (PRE-MITIGATION)	SIGNIFICANCE (POST MITIGATION)	PREDICTED IMPACT OPERATIONAL PHASE TIME PERIOD: LIFE OF SCHOOL AREA: 2 ha	EXTENT	DURATION	PROBABILITY	SIGNIFICANCE (PRE-MITIGATION)	SIGNIFICANCE (POST MITIGATION)	PREDICTED IMPACT PHASE: DECOMMISSIONING PHASE TIME PERIOD: UNKNOWN AREA: 2 ha	EXTENT	DURATION	PROBABILITY	SIGNIFICANCE (PRE-MITIGATION)	SIGNIFICANCE (POST MITIGATION)
	(e.g. ponding of water in trenches, collapsing of trenches, etc.) depending on the depth of the excavations and when construction takes place.						Groundwater could be indirectly impacted upon if proper sanitation facilities and waste management measures are not put in place and maintained.	SITE	LONG	PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE						
SITES OF ARCHAEOLOGICAL/ CULTURAL INTEREST	NONE. As indicated, the said site is vacant and no infrastructure is present on site. No historical structures are therefore present on site. In addition, no signs of graves were noted.						NONE. No further construction will take place.						NONE. No further construction will take place.					
AIR QUALITY	Dust generation and vehicle emissions due to construction activities and use of heavy machinery could impact on site workers, residents of Middelburg x4 (located north of site), learners of Steelcrest High School (located west of site) as well as road users utilising Springbok Avenue (located north of the site). The extent of the impact would depend on the time of year, wind direction and velocity and portion of the property being developed. Mitigation measures would have to be implemented.	SITE	SHORT	HIGHLY PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE	During the operational phase, no direct impact on the air quality is anticipated due to the development being supplied with electricity. The parking area in front of the school would be paved and/or tarred and therefore no dust generation will take place. However, vehicle emissions could impact on the air quality of the site and immediate surroundings due to the increased number of vehicles utilizing Springbok Avenue.  The air quality of the site and surroundings could be impacted in terms of odours if: <ul style="list-style-type: none"> <li>The sewer system does not have capacity and is not maintained;</li> <li>Proper waste management measures are not implemented.</li> </ul>	SITE	LONG	PROBABLE	LOW NEGATIVE	LOW NEGATIVE	Dust generation and vehicle emissions due to decommissioning activities and use of heavy machinery could impact on site workers and the residents of Middelburg x4, learners of Steelcrest High School and the road users of Springbok Avenue. The extent of the impact would depend on the time of year, wind direction and velocity.	SITE	SHORT	PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE
VISUAL	The proposed site is located directly adjacent to the Middelburg x4 residential area and Steelcrest High School. The said site is therefore highly visible from the residential properties located in Springbok Avenue. It is also visible from a section of the adjacent school property.  The site is also highly visible from the nearby tarred road (Meyer Street/R555 provincial road to Stoffberg) located to the east of the site and providing access to the residential areas of Middelburg x4, Kanonkop, etc.  In addition, the said site is visible from the Klein Olifants River (located south of the site) and some of the businesses/residents located south of the Klein Olifants River.  Construction activities will thus be highly visible from the above-mentioned properties. The construction site would have to be kept neat and tidy.	SITE	SHORT	DEFINITE	MEDIUM NEGATIVE	LOW NEGATIVE	The school will be visible from the adjacent residential area, school and streets. It would thus be very important to keep the development neat and tidy at all times and ensure that the school is well maintained.	SITE	LONG	HIGHLY PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE	During the decommissioning phase, building rubble and any polluted soil will be removed from the site and disposed of accordingly. The said area will then be rehabilitated in order to establish a vegetation cover and prevent soil erosion. If the site is rehabilitated properly it could have a positive impact in terms of visual aspects.	SITE	LONG	PROBABLE	LOW POSITIVE	LOW POSITIVE

7.7 DIRECT AND INDIRECT IMPACTS – DEVELOPMENT OF NEW SCHOOL SITE FOR MIDDELBURG PREPARATORY SCHOOL																		
ENVIRONMENTAL FEATURE(S)	PREDICTED IMPACT CONSTRUCTION PHASE TIME PERIOD: 12 MONTHS AREA: 2 ha	EXTENT	DURATION	PROBABILITY	SIGNIFICANCE (PRE-MITIGATION)	SIGNIFICANCE (POST MITIGATION)	PREDICTED IMPACT OPERATIONAL PHASE TIME PERIOD: LIFE OF SCHOOL AREA: 2 ha	EXTENT	DURATION	PROBABILITY	SIGNIFICANCE (PRE-MITIGATION)	SIGNIFICANCE (POST MITIGATION)	PREDICTED IMPACT PHASE: DECOMMISSIONING PHASE TIME PERIOD: UNKNOWN AREA: 2 ha	EXTENT	DURATION	PROBABILITY	SIGNIFICANCE (PRE-MITIGATION)	SIGNIFICANCE (POST MITIGATION)
NOISE	Noise generated due to construction activities and use of heavy machinery could impact on site workers, residents of Middelburg x4 (located north of site), learners of Steelcrest High School (located west of site) as well as road users utilising Springbok Avenue (located north of the site). Construction activities should be limited to daylight hours and noise should be kept as low as possible near the western boundary of the site (i.e. near the school).	SITE	SHORT	HIGHLY PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE	Noise generation would be due to noise associated with the school activities and increased traffic on residents of Middelburg x4. This will mainly take place during the day during the school term and will not be a continual impact. This would be an extension of the activities associated with the existing Steelcrest High School.	SITE	LONG	HIGHLY PROBABLE	LOW NEGATIVE	LOW NEGATIVE	In general, the use of heavy machinery for decommissioning activities would impact on the surrounding area in terms of noise.	SITE	SHORT	PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE
TRAFFIC	All construction activities (except the construction of the access road to the site) will take place on site and will not directly impact on traffic.  The delivery of building material during the construction period could lead to a slight increase in traffic on the road network. The deliveries would however, not occur on a continuous basis.	SITE	SHORT	PROBABLE	LOW NEGATIVE	LOW NEGATIVE	The operational phase will result in an increase in traffic along Springbok Avenue and other streets in the Middelburg x4 residential area.  The additional traffic could impact on the safety of the school children from both Steelcrest High School and Middelburg Preparatory School. Mitigation measures would have to be implemented.	SITE	LONG	HIGHLY PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE	Building rubble and other waste would have to be removed from site. This could lead to a slight increase in traffic on the road network. Impact on traffic after decommissioning will however, depend on the intended end land use.	SITE	SHORT	PROBABLE	LOW NEGATIVE	LOW NEGATIVE
	The construction of the access road to the parking area in front of the school could impact on traffic utilising Springbok Avenue. The impact should however, be of short duration. Mitigation measures in terms of road safety would have to be implemented especially in view of the safety of children from Steelcrest High School.	SITE	SHORT	HIGHLY PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE	The utilisation of the parking area in front of the school as well as the 5000m <sup>2</sup> parking area between Middelburg Preparatory School and Steelcrest High School should assist in alleviating traffic congestion in Springbok Avenue especially during peak hours (e.g. early morning and at lunchtime)	SITE	LONG	DEFINITE	LOW POSITIVE	LOW POSITIVE						
	The upgrading of services and/or installation of new sewer and water pipes within the road reserve could impact on the traffic utilising Springbok Avenue. Mitigation measures in terms of road safety would have to be implemented.	SITE	SHORT	HIGHLY PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE	No further impact during the operational phase.											
INTERESTED AND AFFECTED PARTIES	Possible impacts (e.g. dust, noise, etc.) on the surrounding landowners/users as well as road users are indicated above. In addition, the connection of the services (water, electricity, sewage) to the municipal infrastructure could impact on the residents of Middelburg x4 and Steelcrest High School in terms of service interruptions. The residents could also be impacted upon if the existing services do not have sufficient capacity for the proposed development.	SITE	SHORT	HIGHLY PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE	Possible impacts (e.g. dust, noise, etc.) on the surrounding landowners/users as well as road users are indicated above. The residents could be impacted upon if the existing services do not have sufficient capacity for the proposed development.	SITE	LONG	PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE	The impact of the decommissioning of the development in terms of interested and affected parties will depend on the character of the area at that time as well as the intended end land use.	SITE	LONG	HIGHLY PROBABLE	LOW NEUTRAL	LOW NEUTRAL
	Contractors working on site could be directly impacted upon if the necessary safety and occupational health measures are not adhered to.	SITE	SHORT	HIGHLY PROBABLE	MEDIUM NEGATIVE	LOW NEGATIVE												
	More people in the area during the construction phase could lead to increased theft and burglaries in the area.	SITE	SHORT	PROBABLE	LOW NEGATIVE	LOW NEGATIVE												

7.7 DIRECT AND INDIRECT IMPACTS – DEVELOPMENT OF NEW SCHOOL SITE FOR MIDDELBURG PREPARATORY SCHOOL															
ENVIRONMENTAL FEATURE(S)	PREDICTED IMPACT CONSTRUCTION PHASE TIME PERIOD: 12 MONTHS AREA: 2 ha	EXTENT	DURATION	PROBABILITY	SIGNIFICANCE (PRE-MITIGATION)	SIGNIFICANCE (POST MITIGATION)	PREDICTED IMPACT OPERATIONAL PHASE TIME PERIOD: LIFE OF SCHOOL AREA: 2 ha	EXTENT	DURATION	PROBABILITY	SIGNIFICANCE (PRE-MITIGATION)	SIGNIFICANCE (POST MITIGATION)	PREDICTED IMPACT PHASE: DECOMMISSIONING PHASE TIME PERIOD: UNKNOWN AREA: 2 ha		
													EXTENT	DURATION	PROBABILITY
	The change of land use from 'Agricultural' to 'Educational' zoning will not impact directly on agriculture. It will have a positive impact in terms of providing a potential feeder school for the adjacent Steelcrest High School to be used by residents of Middelburg x4 and the rest of Middelburg.	LOCAL	LONG	HIGHLY PROBABLE	MEDIUM POSITIVE	MEDIUM POSITIVE	The land use will change from agriculture to 'Educational'. The new land use will be compatible with that of the surrounding area and will be in line with the Steve Tshwete Spatial Development Framework. Middelburg Preparatory School will continue to have a positive impact in terms of being a potential feeder school for the adjacent Steelcrest High School to be used by residents of Middelburg x4 and the rest of Middelburg. The site will also be managed, reducing the dumping of waste and the possible use of off road motorcycles.	SITE	LONG	DEFINITE	LOW POSITIVE	LOW POSITIVE			
	Job opportunities would be provided during the construction phase.	SITE	SHORT	DEFINITE	MEDIUM POSITIVE	MEDIUM POSITIVE	Job opportunities would be provided during the operational phase.	SITE	LONG	DEFINITE	MEDIUM POSITIVE	MEDIUM POSITIVE			



## **7.8 Cumulative impacts**

Only 2 hectares of Rand Highveld Grassland and associated biodiversity will be lost as a result of the development. This will lead to an overall loss of this vegetation type, which has been classified as Vulnerable. However, this vegetation is mowed on a regular basis by the local municipality and also burnt. The mowing and burning activities would have definitely impacted on the plant species present. In view of these practises, the said vegetation is not untransformed/pristine.

It is however, possible that plant species of conservation concern as well as other protected plant species could be present on site. Their presence still needs to be confirmed. However, if these plants are identified on site, the said plants will be relocated/rescued before any construction takes place

It is not anticipated that the development will have a significant impact on animal life due to the 2 ha of Rand Highveld Grassland being mowed and burnt on a regular basis and informal recreational activities (e.g. off road motor cycles) taking place on site. Domestic animals (cats, dogs, etc.) from the Middelburg x4 residential area could also impact on the animal life of the site.

The development of the said site will not impact on any surface water environments (e.g. wetlands/ stream/rivers) or the 1: 100 year flood line associated with the nearby Klein Olifants River. It would also not impact directly on the Klein Olifants River and associated riparian area.

If not well managed, increased runoff could impact on the nearby Klein Olifants River and associated riparian area in terms of erosion, hydrology and changes in vegetation composition (i.e. riparian habitat deterioration). The water quality of the Klein Olifants River could be impacted upon through sedimentation if storm water control measures are not maintained resulting in soil erosion taking place. This must be addressed in terms of the overall storm water management plan for the development.

The existing storm water system of Middelburg x4 could impact on the site if the said system was not incorporated as part of the overall storm water management plan for the development. Ponding of water close to any structures must also be avoided as indicated in the geotechnical study as this could lead to instability.

The proposed development would add to the cumulative impact of traffic on the existing Springbok Avenue especially during peak morning (dropping kids of for school) and afternoon (collecting kids from school). A 5000m<sup>2</sup> parking area between Middelburg Preparatory School and Steelcrest High School as well as a parking area in front of Middelburg Preparatory School should assist in alleviating parking problems in Springbok Avenue.

The proposed development together with all other developments in Middelburg would impact on the services (water and sewage) provided by the local municipality. The Steve Tshwete Local Municipality must ensure that the required services can be provided and that there is sufficient capacity at the sewage works to cater for the additional development.

The land use will change from agriculture to 'Educational'. The new land use will be compatible with that of the surrounding area and will be in line with the Steve Tshwete Spatial Development Framework.

It is anticipated that Middelburg Preparatory School will have a positive impact in terms of being a potential feeder school for the adjacent Steelcrest High School to be used by residents of Middelburg x4 and the rest of Middelburg. The site will also be managed, reducing the dumping of waste and the possible use of off road motorcycles thereby possibly reducing the impact on the nearby Klein Olifants River.

## **8. ENVIRONMENTAL MANAGEMENT PROGRAMME**

### **8.1 Definition and objectives**

The Environmental Management Programme (EMPr) was compiled in accordance with Appendix 4 of the Environmental Impact Assessment Regulations, 2014 as well as the Western Cape Guideline for Environmental Management Plans (Lochner, 2005).

According to the Western Cape Guideline, an Environmental Management Programme (EMPr) can be defined as:

*An environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the construction, operation and decommissioning of a project are prevented; and that the positive benefits of the projects are enhanced.*

*An EMPr must include-*  
*A description of the impact management objectives, including management statements, identifying the impacts and risks that need to be avoided, managed or mitigated as identified through the environmental impact assessment process for all phases of the development including -*  
*(i) planning and design;*  
*(ii) pre-construction and construction activities;*  
*(iii) operation or undertaking of the activity;*  
*(iv) rehabilitation of the environment; and*  
*(v) closure, where relevant.*

This section therefore provides an indication of the mitigation measures to be implemented by the site operator (and site workers) in order to reduce the potential impacts identified (see Section 7).

### **8.2 Contact details**

*An EMPr must include details of-*  
*(i) the EAP who prepared the environmental management programme; and*  
*(ii) the expertise of that person to prepare an environmental management programme, including a curriculum vitae;*

The contact details and expertise of the environmental consultant are provided in Section 2 (page 3) of this report.

The applicant will be responsible for the implementation of the EMPr. The contact details are provided in Section 2 (page 3).

### **8.3 Description of the proposed project**

*An EMPr must provide a detailed description of the activity that are covered by the EMPr as identified by the project description.*

A detailed description of the proposed development and aspects covered by the EMPr is provided in Section 3 of this report.

Section 5 provides a description of the biophysical environment of the site.

As indicated in Section 5, no sensitive environments (wetlands, streams, rivers) are present on site.

The Klein Olifants River and associated riparian area is located approximately 150m to the south of the site (Figure 5.2a) and would be seen as a sensitive environment. This system will not be directly impacted in terms of the proposed development but could indirectly be impacted and mitigation measures to reduce this potential impact is required.

#### **8.4 Phases of the development and timeframe**

##### **a) Planning and design phase**

The planning and design phase involved office work and site surveys with regards to the design of the school and the Basic Assessment Report. It also involves obtaining the necessary authorisations for the said development.

***No construction work took place during the planning and design phase. Therefore, no mitigation measures need to be implemented.***

##### **b) Construction phase**

The construction phase would involve the pegging of the stand, installation of services and construction of school buildings and associated infrastructure (including the parking area in front of the school).

This would involve the following:

- ❖ Clearing of vegetation;
- ❖ Levelling of the site;
- ❖ Excavation of trenches;
- ❖ Installation and connection of services;
- ❖ Construction of access road and parking area;
- ❖ Laying of the required foundations;
- ❖ Building of the outer structure;
- ❖ Installation of the required internal fittings;
- ❖ Rehabilitation of the disturbed areas (i.e. landscaping).

Section 7.7 provides further details with regards to potential impacts identified.

##### **Construction timeframe:**

12 months

##### **c) Operational phase**

The operational phase would involve the utilisation of the new school site by Middelburg Preparatory School.

Section 7.7 provides further details with regards to potential impacts identified.

##### **Operational timeframe:**

Unknown.



#### **d) Decommissioning and rehabilitation phase**

This phase would involve the decommissioning of the buildings and infrastructure already constructed on site at that particular date, if ever required. This phase will not be discussed in detail. It is recommended that at the time of decommissioning, a specific Environmental Management Programme (EMPr) be compiled which specifically addresses this phase. This EMPr would have to address issues such as the removal of building rubble, ripping of the soil, the sowing of seed and the maintenance of the vegetation until it is established. Soil conservation measures would also have to be implemented.

### **8.5 Mitigation measures to be implemented**

#### **8.5.1 Construction site office**

The following general management measures should be implemented for the construction site office:

- The construction site office must be located within the delineated/fenced 2 ha development site close to Springbok Avenue in order to provide easy access for deliveries, etc.
- A suitable site must be selected, demarcated and fenced for the construction site office.
- No structure or activity may take place outside of the delineated/fenced 2 ha development site or in close proximity to the Klein Olifants River.
- No overnight accommodation may be provided on site.
- No stockpiling of building material or equipment may take place outside of the delineated/fenced 2 ha development site.
- Chemical toilets must be provided for use by the site workers. These must be serviced on a regular basis. No long drop toilets may be allowed.
- Potable water must be made available to site workers.
- Proper waste management facilities must be provided as part of the construction site office.
- No waste may be burnt, buried or dumped on site or the surrounding area. The contractor will have to provide adequate containers for the collection of waste. The applicant will have to ensure that the contractor removes the domestic waste to a licensed waste disposal site.
- As far as practically possible, vehicles must not be serviced/repaired on site. However, should it not be possible to take the vehicle to a service centre in town for repair, the contractor must ensure that the vehicles are serviced/repaired on a cement slab and that drip trays are utilized. Waste oil, filters, etc. must be properly disposed of.
- The contractor must adhere (at all times) to the requirements of the Occupational Health and Safety Act, 1993 (Act 85 of 1993) and the Construction Regulations, 2003 as well as all applicable legislation.
- The applicant/contractor must appoint a Safety Officer and Environmental Control Officer (ECO) in order to ensure compliance with the legislation.
- The applicant/contractors must ensure that the necessary protective gear (PPE) is worn at all times and that signs are erected to warn workers to use hearing protection as well as any other hazards.

## **8.5.2 Construction activities**

### **8.5.2.1 General principles**

The following mitigation measures must be implemented during the construction phase in order to reduce the potential impact of the construction activities:

- The nearby Klein Olifants River and associated riparian area located approximately 150m south of the development site must be considered NO-GO AREAS.
- The parking area (5000m<sup>2</sup>) between the proposed development site and Steelcrest High School must be delineated and no construction activities (including stockpiling of building material) to be allowed within this area.
- One access road to the site from Springbok Avenue to be demarcated and used. No other roads across the adjacent vacant properties are to be used by construction vehicles.
- All construction activities must be limited to the demarcated construction site within the delineated/fenced 2 ha area. The said site should be properly demarcated and the footprint kept as small as possible.
- No washing of equipment or accidental spills may take place in close proximity to the Klein Olifants River located approximately 150m south of the development site.
- No unnecessary removal of vegetation should take place outside of the demarcated area.
- Prior to clearing any vegetation, a suitably experienced botanist to conduct a brief survey of the immediate footprint to be cleared and search for any plants or species of conservation concern, so that appropriate *in situ* and/or *ex situ* conservation measures can be developed and implemented in conjunction with the Mpumalanga Tourism and Parks Agency (MTPA). Permission for removal of any of these species of conservation concern will need to be obtained from the MTPA.
- An area within the 2 ha delineated/fenced development area must be identified and demarcated for stockpiling (topsoil) and spoiling (subsoil, rocks, etc.). No stockpiling and/or spoiling to take place on the adjacent vacant properties, downstream of the development site in close proximity of the Klein Olifants River or the parking area between the site and Steelcrest High School.
- Topsoil must be removed and stockpiled in a demarcated area for rehabilitation of the area after construction.
- Erosion and sediment must be managed during construction through implementing erosion control measures, sediment trapping devices, flow attenuation mechanisms and/or retention ponds.
- Downstream sedimentation should be restricted by implementing and maintaining a series of silt fences or sand bag barriers so as to avoid impact on the nearby Klein Olifants River.
- If soil erosion is noted, appropriate remediation measures must be implemented.
- Once the construction activities have been completed, the disturbed areas must be top soiled and re-vegetated (i.e. rehabilitated) as soon as possible in order to prevent soil erosion and the establishment of alien vegetation.
- The regulations in terms of Alien Invasive Species, the Conservation of Agricultural Resources Act, 1983 and the Mpumalanga Nature Conservation Act, 1998 (Act 10 of 1998) with regards to declared alien species must be noted and complied with.

- All site workers/contractors will be informed that no poaching/trapping of animals or collection of medicinal or any other plants will be allowed.
- Should any animals (e.g. reptiles or mammals) be found during the construction phase, a specialist should be contacted immediately to ensure the safe removal of the specimen(s).
- All construction activities must be limited to daylight hours (preferably between 7h00 and 17h00) in order to minimize any impact on the nearby residential area.
- All machinery used during the construction phase must be properly muffled and maintained so as to reduce noise generation to a minimum and reduce the potential impact on the nearby Steelcrest High School. During exam times, limited construction using heavy machinery should take place in order to reduce the impact on the learners.
- If blasting is required, the requirements of the Explosives Act, 2003 (Act 15 of 2003) must be put in place in order to prevent any impact on site workers, adjacent residents of Middelburg x4, Steelcrest High School, etc.
- Dust suppression measures must be implemented during dry and windy periods.
- If any archaeological remains are exposed during the construction phase, the construction must be terminated immediately and the South African Heritage Resources Agency (SAHRA) must be notified. In this regard, the applicant must take note of the requirements in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999).
- If any graves are discovered during construction, the discovery must be reported to the SA Police Service and/or SAHRA or an archaeologist must be called in to handle the matter.
- If any palaeontological material is exposed during digging, excavating, drilling, or blasting, SAHRA must be notified. All construction activities must be stopped and a palaeontologist should be called in to determine proper mitigation measures.
- A post-construction audit must be conducted to ensure that any shortcomings are identified and addressed.
- All pollution incidents must be reported to the Department of Agriculture, Rural Development, Land and Environmental Affairs and the Department of Water and Sanitation within 24 hours of occurrence.

#### **Geotechnical recommendations (Louis Kruger Geotechnics cc, 2015; Appendix 4)**

The following recommendations made by Louis Kruger Geotechnics cc (2015) must be implemented:

- Due to the slope of the site, it is envisaged that a level platform for the structure will be created by way of a balanced cut to fill operation. Recommendations in the geotechnical report must be implemented.
- A construction report must be compiled for the development. The purpose of the construction report is to confirm or adapt the zoning of the site, and to provide more accurate information regarding the founding conditions.

- The hillwash and very soft rock shale are considered to be potentially collapsible and therefore this material is considered unsuitable in its natural state to act as a founding medium. Alternatives recommended (e.g. stiffened strip footings, stiffened or cellular raft, compaction of insitu soil below footings, soil raft, piled or pier foundations) in the geotechnical report must be implemented.
- Construction material: It is recommended that the suitability of material to be used, be confirmed by detailed laboratory testing.
- Foundations for large structures: Structure specific investigations should be done for large structures.
- All excavations must be cut back and shored.
- Inspection of foundation excavations and the involvement of a competent engineer familiar with structural founding are important.
- Trenches for services must be profiled.
- Due to the expected corrosivity, it is recommended that all services be protected.
- All excavations must be provided with adequate drainage.
- Structures must be provided with damp proofing and provision must be made to prevent the ingress of water into and below foundations.
- No accumulation of surface water must be allowed around the perimeter of the structures and the entire development must be properly drained.
- Down pipes should discharge into a lined or precast furrow. This furrow should discharge the water 1.5 metres away from the foundations onto a paved or grassed surface sloping away from the building.
- Preferably, no gutters or paving is to be provided around structures as the water must be channelled away from the foundation.
- Leaks in water bearing services should be attended to without undue delay.
- No large shrubs or trees should be placed closer to structures than the distance provided in the following table:

DESCRIPTION	MATURE HEIGHT OF TREE		
	UP TO 8m	8m TO 15m	OVER 15m
Buildings other than single storey buildings of lightweight construction	-	0.5	1.2
Single storey buildings of lightweight construction (e.g. timber framed)	-	0.7	1.5
Free standing masonry walls	-	1.0 <sup>1</sup> 0.5 <sup>2</sup>	2.0 <sup>1</sup> 1.0 <sup>2</sup>
Drains and underground services			
• Less than 1 m deep	0.5	1.5	3.0
• More than 1m deep	-	1.0	2.0

Note:

1) These distances will generally avoid all direct damage

2) These distances assume that some movement and minor damage, which may be tolerated, might occur.

### 8.5.2.2 Waste management measures

#### General/building waste

- Proper waste management measures must be implemented at the site.



- No dumping of any kind of waste (domestic, general, building rubble, etc.) to take place on site or in close proximity to the Klein Olifants River located approximately 150m to the south of the development site.
- Waste skips to be provided for placement of general waste, building rubble, etc.
- Waste and building rubble not to be placed on the soil stockpiles resulting in the contamination of the soil.
- The contractor will have to provide adequate containers for the collection of waste. The applicant will have to ensure that the contractor removes the building rubble and any domestic waste to a licensed waste disposal site.
- Cement/concrete should be mixed in either demarcated areas or on metal sheeting or conveyor belts. If mixed in demarcated areas, these areas will have to be ripped and the cement/concrete removed on completion of construction activities.
- Site workers must be instructed to collect windblown rubbish which may collect in the surrounding area on the said site. This will assist with the overall visual appearance of the site.
- The applicant/contractor must ensure that all site workers receive appropriate training with regards to the overall waste management measures to be implemented for the said site.
- Site workers must be aware of the importance of the implementation of the waste management measures.

#### **Hazardous waste management**

- Proper storage facilities must be provided for the storage of oils, grease, fuels, etc. to be used during the construction phase.
- The storage and handling of fuel, lubricants and other chemicals must be done in specially demarcated impervious and bunded areas.
- Collection containers (e.g. drip trays) must be placed under all dispensing mechanisms for hydrocarbons or hazardous liquid substances to ensure that potential contamination from leaks/spillage is reduced.
- No hazardous substance is to be disposed of on site.
- No bins containing organic solvents, paint tins or bins containing thinning agents may be cleaned on site, unless containers for liquid disposal are provided. The tins must be collected and rinsed at a central waste collection point, where it poses no threat to surface or ground water.
- All spills of chemicals or hydrocarbons (oil, grease, diesel, petrol, etc.) should be cleaned with the use of suitable absorbent materials such as drizit or oclanzorb. Appropriate soil remediation measures should be implemented where soil has been contaminated with oil.
- Contaminated soil generated as a result of fuel, oil, etc. spills will be disposed of in a specially marked drum located at the site office. An approved waste contracting firm (e.g. Enviroserv) will collect the drum and dispose of the contaminated soil at an appropriate waste disposal site.
- Contaminated soil/fuel that cannot be removed will be treated in situ with an appropriate remedial agent. In this instance, the services of an expert may be required.
- Any material impregnated with fuel or oil must be placed in a drum and arrangements made for its safe disposal at an appropriate waste disposal site by an approved waste contracting firm (e.g. Enviroserv).
- Waste oils collected on site should be stored in drums in a designated, bunded area and removed by an approved recycling contractor and disposed of at an appropriate licensed waste disposal facility.
- In all instances where a firm is contracted to collect waste (e.g. Enviroserv, Wastetech, Oilkol, etc.), the site operator will ensure that the correct documentation is completed and filed for future reference.

- Certificates of hazardous waste disposal (waybills) are to be kept for auditing purposes.
- Records of environmental related incidents should be maintained.
- The applicant must ensure that all workers receive relevant training with regards to the handling of hazardous substances and the potential health risks thereof.
- An Emergency Response Plan must be compiled in the event of major spills.

### **8.5.3 Operational activities**

The operational phase would involve the utilisation of the new school site by Middelburg Preparatory School.

#### **8.5.3.1 General principles**

These mitigation measures are applicable to all the operational activities and must be implemented:

- All operational activities must be limited to the said site.
- The fence around the school must be well maintained to prevent unauthorised access.
- Waste management measures:
  - *Proper waste management measures must be implemented for the site.*
  - *The site must be kept clean and tidy at all times and may not be littered with waste lying outside of waste bins.*
  - *No waste may be burnt, buried or dumped on site.*
- Regular maintenance of the sewage infrastructure to reduce the potential for blockages and leaks and thus prevent potential soil and water pollution.
- Storm water management and erosion:
  - *A stormwater management plan must be drafted and implemented for the school site.*
  - *The existing storm water system of Middelburg x4 will need to be incorporated as part of the overall storm water management plan for the development. A storm water culvert is present near the north eastern corner of the site, diverting storm water from Springbok Avenue onto the vacant field (Figures 5.2b and 5.3).*
  - *Storm water must be properly attenuated to minimize the anticipated increase in surface water runoff volume and flow velocity.*
  - *Stormwater management should include flow attenuation structures (e.g. attenuation ponds and grassed swales) to ensure diffuse runoff from the site.*
  - *Surface runoff volumes can be reduced and infiltration encouraged by maximising permeable surfaces.*
  - *Erosion protection structures (e.g. attenuation ponds and grassed swales / vegetated swales, reno or gabion mattresses or small scale baffled aprons) should be placed at all stormwater outlet points. The structure would depend on anticipated flow velocities.*
  - *Monitor for erosion and intervene and/or rehabilitate where necessary.*
  - *The storm water management measures must be inspected on a regular basis in order to ensure that the structures are functional (not blocked) and not causing flooding of the school site and associated infrastructure. This will be of particular importance at the start of the rainy season and during the rainy season.*

- Emergency plans must be developed to deal with fire, interruption of water supply, mechanical/electrical failure, etc.
- All staff to be aware of the emergency plans.
- Sufficient fire extinguishers must be provided as required by legislation.

## 8.6 Implementation of the EMPr

The implementation of the Environmental Management Programme (EMPr) as part of the daily construction and operational activities is crucial and requires commitment from all levels of management and the on-site workers. The successful implementation of an EMPr has the following advantages:

- Meeting legal obligations;
- Contributes to the environmental awareness of the workforce;
- Can facilitate the prevention of environmental degradation;
- Can minimize impacts when they are unavoidable;
- Can ensure good environmental performance and improve community relations.

An approved contractor should be appointed to do the necessary construction on the said site. The contractor and site workers must be aware of their environmental responsibilities. Penalty clauses, in terms of the environment, must be built into the contracts and must be implemented. Monitoring of the construction phase, in terms of the implementation of the environmental management plan, must take place on a regular basis in order to ensure compliance.

The contractor must inform all site workers of their environmental responsibility during the construction phase. Measures to protect the environment and mitigation measures formulated in this Environmental Management Programme (EMPr) must be implemented by the contractor and the site workers. The contractor must thus ensure that the site workers are aware of the Environmental Authorisation and this Environmental Management Programme and understand the contents thereof.

In order to achieve the above-mentioned, the contractor and site workers should undergo basic environmental awareness training with regards to the contents of this Environmental Management Programme. Environmental awareness training is critical for the contractor and site workers to understand how they can play a role in achieving the objectives specified in the Environmental Management Programme (EMPr). The contractor must ensure that the site workers undergo the necessary environmental awareness training before commencing with activities on the site.

### 8.6.1 Environmental Awareness Plan (EAP)

*An environmental awareness plan describing the manner in which-*  
*(i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and*  
*(ii) risks must be dealt with in order to avoid pollution or the degradation of the environment.*

It is recommended that the contractors and their employees receive environmental awareness training. In order to ensure proper environmental awareness training, the applicant/appointed contractor(s) must develop and

implement an Environmental Awareness Plan (EAP). This section provides an overview of what the proposed EAP will contain and how it will be implemented.

The following components would form an essential part of an Environmental Awareness Plan (EAP): -

- ✚ Development of an environmental policy;
- ✚ Identification of environmental impacts/risks and mitigation measures;
- ✚ Environmental training, awareness and competence;
- ✚ Environmental communication and reporting.

### **Development of an environmental policy**

An Environmental Policy will be compiled by the contractors appointed by the Middelburg Preparatory School, which sets out the company's principles in relation to its overall environmental performance and the continual improvement thereof.

The Environmental Policy will be signed by the Manager, indicating management's commitment with regards to environmental management. In addition, the Environmental Policy will be signed by the Employee Representative indicating that the policy was developed and approved in consultation with the employees.

In order to ensure effective environmental management, it is important that the Environmental Policy is known and understood by all employees (including top management, contractors, visitors, etc.).

The Environmental Policy will be displayed at various places in order to make employees aware of the policy. The Environmental Policy will also be available to the public (e.g. visitors, I&APs), if requested.

### **Identification of environmental impacts/risks and mitigation measures**

Environmental impacts/risks in terms of the proposed project have been identified (Section 7 of the Basic Assessment Report) and mitigation measures documented in the EMPr as commitments.

Through this process, activities or work procedures that could have a significant impact on the environment have been identified and mitigation measures proposed in order to avoid pollution or the degradation of the environment.

This information will be communicated to the contractors and thus forms the basis for developing an Environmental Awareness Plan (EAP) in order to ensure effective environmental management.

### **Environmental training, awareness and competence**

The contractors appointed by Middelburg Preparatory School will conduct environmental awareness training in order to ensure effective environmental management on site and to ensure compliance with the Environmental Authorisation and EMPr.

Training is also necessary in order to advance the competency of employees in implementing the Environmental Policy and the Environmental



Management Programme and to ensure effective overall environmental management.

Through training/awareness, the appointed contractor(s) will make its employees at each relevant function and level aware of:

- ✚ the importance of conformance with the environmental policy and the requirements of the EMPr;
- ✚ the significant environmental impacts, actual or potential, of their work activities and the environmental benefits of improved personal performance;
- ✚ their roles and responsibilities in achieving conformance with the environmental policy and the requirements of the EMPr, including emergency preparedness and response requirements; and
- ✚ the potential consequences of departure from the specific operating procedures and/or mitigation measures specified in the EMPr.

### **Environmental communication and reporting**

Environmental communication and reporting form an integral part of an Environmental Awareness Plan. It is important to maintain effective communication internally and to ensure that external communication (with adjacent landowners) is maintained.

In general, environmental communication and reporting will aim to:

- ✚ Ensure that employees understand the environmental policy and objectives;
- ✚ Ensure that information is communicated and readily accessible to the relevant parties;
- ✚ Improve feedback of operational and environmental performance to management;
- ✚ Ensure effective and constructive communication with adjacent landowners;
- ✚ Ensure that records are kept of environmental communication and interaction.

Various signs (including the Environmental Policy) should be displayed on site to remind site workers of the basic environmental principles and inform them of the 'DO'S' and 'DON'TS'.

### **8.6.2 Site documentation and record keeping**

The following documentation must be available (at all times) at the site office:

- A copy of the Basic Assessment Report and Environmental Management Programme;
- A copy of the Environmental Authorisation;
- A copy of site audit reports;
- A copy of any other permits/approvals and/or service agreements from other authorities.

The documents should be kept as hard copies as well as in electronic format.

### **Complaints Register**

A complaints register must be kept at the construction site office. Any complaints received with regards to the construction activities must be recorded in the complaints register. The following information must be recorded:

- Date complaint recorded;
- Nature of complaint;
- Details of complainant (name, address, telephone number, etc.);
- Manner in which complaint was dealt with;
- Date when complaint was reported to the Department of Agriculture, Rural Development, Land and Environmental Affairs and the Department of Water and Sanitation.

### **Supplementary documentation**

The following supplementary documentation should be kept at the site office:

- Site instructions;
- Emergency preparedness and response procedures;
- Incident reports;
- Training records;
- Site inspection, monitoring and auditing reports.

### **Emergency numbers**

Emergency numbers (e.g. Steve Tshwete Local Municipality, police, fire department, ambulance, etc.) must be prominently displayed at the construction site office.

### **Other legislation**

The following should also be displayed at the site office:

- Occupational Health and Safety Act, 1993 (Act 85 of 1993) as amended;
- Basic Conditions of Employment Act, 1997;
- Summary of the Employment Equity Act.

During the course of the development, the applicant and contractor must also comply with all other relevant legislation.

### **8.6.3 Auditing and corrective action**

In order to ensure compliance with the EMPr and to assess the continued appropriateness and adequacy thereof, the EMPr should be monitored on an ongoing basis in order to determine whether it is being implemented and whether the measures proposed are adequate.

The applicant must ensure that the appointed contractor(s) appoint an Environmental Control Officer (ECO) who will have the responsibility of monitoring and reporting on compliance with the conditions of the Environmental Authorisation as well as monitoring and reporting on the implementation of the EMPr. The ECO must be appointed before the commencement of construction and must remain employed until all rehabilitation measures as well as site clean-up are completed.

If the mitigation measures stated in the EMPr are not adequately implemented, the authorities may resort to legal action and/or issue a fine.

The implementation of this EMPr will ensure that any potential negative impacts due to the construction and operational activities taking place on site are prevented and/or mitigated.

## **9. ENVIRONMENTAL IMPACT STATEMENT**

### **9.1 Site location**

As indicated in Section 4.1, the school is currently renting premises from the Graceland Christian Family Church Bible School with limited space available for classrooms. The school would like to expand and provide schooling from Grade RR to Grade 7. This is not possible at the current rented premises.

Over the past four years, a number of alternatives (see Section 4.2) were explored in terms of suitable land/premises for Middelburg Preparatory School. In an attempt to find a new home for the school, frequent consultations took place with the Steve Tshwete Local Municipality, community organisations (such as the CMR (Christelike Maatskaplike Raad)) as well as several estate agents in Middelburg.

As indicated, the new site for Middelburg Preparatory School is located on Portion 362 (a portion of Portion 27) of the farm Middelburg Town and Townlands 287 JS, located in Springok Avenue, Middelburg x4. The said property was donated to the Middelburg Preparatory School by the Steve Tshwete Local Municipality. The site is 2 hectares in extent and currently vacant and will provide ample space for the envisaged expansion of Middelburg Preparatory School.

### **9.2 Potential environmental impacts**

Section 7 of the Basic Assessment Report provides an indication of the potential impacts on the environment while Section 8 provides mitigation measures to be implemented in order to reduce the said impacts.

The development of the site will impact on 2 hectares of Rand Highveld Grassland, which has been classified as Vulnerable. However, this vegetation is mowed on a regular basis by the local municipality and also burnt. The mowing and burning activities would definitely have impacted on the plant species present. In view of these practises, the said vegetation is not untransformed/pristine.

It is however, possible that plant species of conservation concern as well as other protected plant species could be present on site. Their presence still needs to be confirmed. However, if these plants are identified on site, the said plants will be relocated/rescued before any construction takes place.

It is not anticipated that the development will have a significant impact on animal life due to the 2 ha of Rand Highveld Grassland being mowed and burnt on a regular basis and informal recreational activities (e.g. off road motor cycles) taking place on site. Domestic animals (cats, dogs, etc.) from the Middelburg x4 residential area could also impact on the animal life of the site.

In terms of the geotechnical study, the site was found to be favourable for development purposes subject to the implementation of the recommendations contained in the said report.

The development of the said site will not impact on any surface water environments (e.g. wetlands/ stream/rivers) or the 1: 100 year flood line associated with the nearby Klein Olifants River. It would also not impact directly on the Klein Olifants River and associated riparian area.

If not well managed, increased runoff could impact on the nearby Klein Olifants River and associated riparian area in terms of erosion, hydrology and changes in vegetation composition (i.e. riparian habitat deterioration). The water quality of the Klein Olifants River could be impacted upon through sedimentation if storm water control measures are not maintained resulting in soil erosion taking place. This must be addressed in terms of the overall storm water management plan for the development.

The existing storm water system of Middelburg x4 could impact on the site if the said system was not incorporated as part of the overall storm water management plan for the development. Ponding of water close to any structures must also be avoided as indicated in the geotechnical study as this could lead to instability.

The proposed development would add to the cumulative impact of traffic on the existing Springbok Avenue especially during peak morning (dropping kids of for school) and afternoon (collecting kids from school). A 5000m<sup>2</sup> parking area between Middelburg Preparatory School and Steelcrest High School as well as a parking area in front of Middelburg Preparatory School should assist in alleviating parking problems in Springbok Avenue.

The proposed development together with all other developments in Middelburg would impact on the services (water and sewage) provided by the local municipality. The Steve Tshwete Local Municipality must ensure that the required services can be provided and that there is sufficient capacity at the sewage works to cater for the additional development.

### **9.3 Issues of concern**

Issues of concern recorded through the public participation process followed are documented in Section 6.

The Department of Agriculture, Rural Development, Land and Environmental Affairs indicated that no development should take place within the floodplain areas or below the 1:100 year flood line. As indicated, no development will take place within these areas. In addition, the Department indicated that the proposed development must also align to the existing storm water plan of Middelburg x4.

An area of 5000 m<sup>2</sup> between Middelburg Preparatory School and Steelcrest High School will be used as parking space. In addition, a parking area will be provided in front of Middelburg Preparatory School. This should address the issue of concerns raised by the adjacent Steelcrest High School in terms of parking and locating a primary school next to a secondary school. Section 3.3 provides further information in terms of the compatibility of a primary school adjacent to a secondary school.



#### **9.4 Overall conclusion**

The land use will change from agriculture to 'Educational'. The new land use will be compatible with that of the surrounding area and will be in line with the Steve Tshwete Spatial Development Framework.

It is anticipated that Middelburg Preparatory School will have a positive impact in terms of being a potential feeder school for the adjacent Steelcrest High School to be used by residents of Middelburg x4 and the rest of Middelburg. The site will also be managed, reducing the dumping of waste and the possible use of off road motor cycles thereby possibly reducing the impact on the nearby Klein Olifants River.

*Based on the above-mentioned, the development of the said site for the Middelburg Preparatory School can proceed subject to the implementation of mitigation measures included in the Environmental Management Plan (EMP) provided in Section 8 of this Basic Assessment Report.*

*In addition, the following conditions should be included in the Environmental Authorisation:*

- Prior to clearing any vegetation, a suitably experienced botanist to conduct a brief survey of the immediate footprint to be cleared and search for any plants or species of conservation concern, so that appropriate in situ and/or ex situ conservation measures can be developed and implemented in conjunction with the Mpumalanga Tourism and Parks Agency (MTPA). Permission for removal of any of these species of conservation concern will need to be obtained from the MTPA.*
- A storm water management plan must be drafted and implemented for the school site. The existing storm water system of Middelburg x4 must to be incorporated as part of the overall storm water management plan for the development. Storm water must be properly attenuated to minimize the anticipated increase in surface water runoff volume and flow velocity and reduce the potential impact on the nearby Klein Olifants River.*

## 10. EVALUATION OF BASIC ASSESSMENT REPORT

### 10.1 Availability of Basic Assessment Report

The draft Basic Assessment Report (dated: August 2015) will be submitted to the Department of Agriculture, Rural Development, Land and Environmental Affairs for evaluation purposes. A hard copy of the document will also be forwarded to the following authorities for evaluation (30-day period):

- Department of Water and Sanitation;
- Steve Tshwete Local Municipality;
- Mpumalanga Tourism and Parks Agency.

An electronic copy of the draft Basic Assessment Report will be made available during the above-mentioned period to the interested and affected parties and stakeholders consulted and/or registered as part of the Basic Assessment Process (refer to Section 10.2).

The various departments, stakeholders and interested and affected parties will be requested to forward any comments on the report to the consultant within the 30 day period provided. A register will be kept of all comments received in terms of the evaluation of the report. These comments will then be included and addressed in a final Basic Assessment Report.

The final Basic Assessment Report (incorporating comments received) will be submitted to the Department of Agriculture, Rural Development, Land and Environmental Affairs for final decision making.

A hard copy of the Draft Basic Assessment Report will be made available at the Gerard Sekoto Public Library for evaluation purposes. An electronic version will be made available on the company website ([www.cleanstreams.co.za](http://www.cleanstreams.co.za)) and on cd (on request).

### 10.2 Informing Interested and Affected Parties

The following interested and affected parties and stakeholders will be notified by means of facsimile, email, etc. of the availability of the report for evaluation:

INTERESTED AND AFFECTED PARTY LIST	
Organisation	Name
<b>Government Departments</b>	
Department of Agriculture, Rural Development, Land and Environmental Affairs	To be determined on registration
Department of Mineral Resources	The Director
Department of Rural Development and Land Reform (Commission on Restitution of Land Rights)	N.D. Nkambule
Department of Water and Sanitation	N.S. Maliaga
Department of Co-operative Governance and Traditional Affairs (COGTA)	M. Loock
Department of Education	KR Morena
Department of Agriculture, Rural Development, Land and Environmental Affairs (Natural Resource Investigations)	J. Venter

<b>INTERESTED AND AFFECTED PARTY LIST</b>	
<b>Organisation</b>	<b>Name</b>
<b>Other Organisations</b>	
South African Heritage Resources Agency (SAHRA)	J. Lavin (SAHRA website)
Mpumalanga Tourism and Parks Agency (MTPA) – Land Advisory Unit	K. Narasoo
<b>Local Municipality and Municipal Councillor</b>	
Nkangala District Municipality	S. Links
Steve Tshwete Local Municipality	M. Mahamba
Ward Councillor (Ward 13)	S. Wait
<b>Community</b>	
Steelcrest High School	Ms. Eksteen
Residents living in Springbok Avenue, Middelburg x4	

### **10.3 Comments received**

This section will be completed after the completion of the above-mentioned evaluation period.

## REFERENCES

Lotter, M.C., Lechmere-Oertel, R. & Cadman, M. 2014. **Mpumalanga Biodiversity Sector Plan Handbook**. Mpumalanga Tourism & Parks Agency, Nelspruit.

Louis Kruger Geotechnics cc., 2015. **Report on the engineering geological investigation on Portion 362 (a portion of Portion 27) of the farm Middelburg Town and Townlands 287 JS**. Report compiled by: Louis Kruger Geotechnics cc. Report compiled for: Urban Dynamics Mpumalanga (Pty) Ltd. Report dated: February 2015.

**Mpumalanga Biodiversity Conservation Plan, 2006**. Mpumalanga Parks and Tourism Agency.

**Mpumalanga Biodiversity Sector Plan, 2013**. Mpumalanga Parks and Tourism Agency.

Mucina, L. & Rutherford, M. C. (eds). 2006. **The Vegetation of South Africa, Lesotho and Swaziland. *Strelitzia* 19**. South African National Biodiversity Institute, Pretoria.

Urban Dynamics, 2015. **Motivating memorandum in support of an application for the rezoning of Portion 362 (a portion of Portion 27) of the farm Middelburg Town and Townlands 287 JS**. Report prepared by Urban Dynamics Mpumalanga Inc. Report dated: March 2015.

## **APPENDIX 1:**

### **APPLICATION FORM**

- Letter from Clean Stream Environmental Services (dated: 14 August 2015; Ref: BA 2015/03) to the Department of Agriculture, Rural Development, Land and Environmental Affairs (DARDLEA) regarding the submission of the application form.
- Letter from the Steve Tshwete Local Municipality (dated: 3 October 2014; Ref: 7/2/3/3; TC 103608) regarding the donation of the said property.



## **APPENDIX 2:**

### **CURRICULUM VITAE**

- ❖ Mrs. A. Erasmus *Pr. Sci. Nat.*
- ❖ Ms. R. Janse van Rensburg
- ❖ List of projects

## **APPENDIX 3:**

### **TOWNPLANNING MEMORANDUM**

- ❖ Urban Dynamics, 2015. Motivating memorandum in support of an application for the rezoning of Portion 362 (a portion of Portion 27) of the farm Middelburg Town and Townlands 287 JS. Report prepared by Urban Dynamics Mpumalanga Inc. Report dated: March 2015.

## **APPENDIX 4:**

### **GEOTECHNICAL STUDY**

- Louis Kruger Geotechnics cc., 2015. Report on the engineering geological investigation on Portion 362 (a portion of Portion 27) of the farm Middelburg Town and Townlands 287 JS. Report compiled by: Louis Kruger Geotechnics cc. Report compiled for: Urban Dynamics Mpumalanga (Pty) Ltd. Report dated: February 2015.

## **APPENDIX 5:**

### **ADVERTISING OF THE PROJECT**

- ◆ A copy of the advertisement published in the Middelburg Observer, 8 May 2015.
- ◆ A copy of the on-site notice.
- ◆ Printout of company website page [www.cleanstreams.co.za](http://www.cleanstreams.co.za) – New Projects – Notices.
- ◆ Printout of company website page [www.cleanstreams.co.za](http://www.cleanstreams.co.za) – New Projects – Background Information Documents.

## **APPENDIX 6:**

# **BACKGROUND INFORMATION DOCUMENT**



## APPENDIX 7:

### CORRESPONDENCE WITH THE AUTHORITIES AND INTERESTED AND AFFECTED PARTIES

- ◆ Email from CSES (dated: 15 May 2015; 18 May 2015) to:

CONTACT PERSON	AUTHORITY/I&AP
S. Links	Nkangala District Municipality
M. Loock	Department of Co-operative Governance and Traditional Affairs (COGTA)
M. Mahamba	Steve Tshwete Local Municipality
N.S. Maliaga	Department of Water and Sanitation (DWS)
M. Mokonyane	Department of Mineral Resources (DMR)
K.R. Morena	Department of Education
K. Narasoo	Mpumalanga Tourism and Parks Agency (MTPA) – Land Advisory Unit
J. Venter	Department of Agriculture, Rural Development, Land and Environmental Affairs (DARDLEA)

- ◆ Email from CSES (dated: 18 May 2015) to M. Wait (Ward Councillor – Ward 13).
- ◆ Print out from SAHRIS website (dated: 15 May 2015).
- ◆ Email from CSES (dated: 18 May 2015) to Department of Rural Development and Land Reform (ND Nkambule; GN Mathonsi; T. Mkhabela) regarding land claims.
- ◆ Letter from Department of Rural Development and Land Reform (dated: 29 January 2015; Ref: ND Nkambule) regarding land claims.
- ◆ Email from Komilla Narasoo (MTPA) (dated: 19 May 2015) acknowledging receipt of BID.
- ◆ Letter from Department of Agriculture, Rural Development, Land and Environmental Affairs (dated: 27 May 2015; Ref: -).
- ◆ Email from CSES (dated: 18 May 2015) to Ms. Eksteen (Steelcrest High School).
- ◆ Letter from Steelcrest High School (dated: 25 May 2015) to Steve Tshwete Local Municipality.
- ◆ Completed comment sheet from Steelcrest High School (dated: 27 May 2015).