Autumn Leaf Shopping Mall
Proposed township
Zeerust Extension 5

ENVIRONMENTAL IMPACT ASSESSMENT
DRAFT BASIC ASSESSMENT REPORT
Executive Summary

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Compiled by:

Setala Environmental
P.O. Box 36593
Menlopark, 0102
Contact person:
Ria Pretorius
Tel +27(0)82 568 6344
Fax +27(0)86 675 4026
Email ria@setalaenvironmental.co.za

Applicant:

Akani Properties (Pty) Ltd
7 Disa Street
Kempton Park, 1630
Contact person:
Ana Capelinha
Tel +27(0)11 578 5333
Fax +27(0) 11 578 5338
Email ana@akaniproperties.co.za

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Executive Summary

1 INTRODUCTION

Akani Properties Pty (Ltd) (the applicant) appointed Setala Environmental as the independent Environmental Assessment Practitioner (EAP) to undertake the Environmental Impact Assessment (EIA) for the proposed Autumn Leaf Mall and associated infrastructure in Zeerust.

Zeerust is an established commercial town and a popular retail destination with shoppers traveling to the town from surrounding areas, including Botswana. Currently Zeerust has one formal retail shopping centre, managed by Akani Properties. The proposed Autumn Leaf Shopping Mall project is located approximately 2km east of the Zeerust CBD, and falls within the Ramotshere Moiloa Local Municipality, North West Province. The Autumn Leaf Mall is proposed to be developed on an erf of approximately 28 hectares in extent.

This Basic Assessment will conform to the National Environmental Management Act 107 of 1998 and to the Environmental Impact Assessment Regulations published in GN R982/2014 - R985/2014 of 8 December 2014. *The Basic Assessment will provide information about the proposed Autumn Leaf Mall, a hotel with conference centre, free stander drive thru's, a Taxi rank, and a distribution centre, and its scope is restricted to these components of the project.*

2 APPROACH TO THE BASIC ASSESSMENT PROCESS

The approach followed by the consultants is based on the specifications for the Basic Assessment Report in terms of the Environmental Impact Assessment Regulations, 2014, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.
North West Provincial Department of Rural, Environment and Agricultural Development, is the lead authority for this Environmental Impact Assessment (EIA) process and the development needs to be authorised by this Department in accordance with the National Environmental Management Act 107 of 1998 (NEMA) (as amended).

To ensure that all requirements and processes in terms of the Acts are followed the following tasks need to be conducted. The following has to be submitted to the READ:

- ✓ Application form for Authorisation
- ✓ Draft Basic Assessment Report
- ✓ Environmental Management Plan (EMP)
- ✓ Final Basic Assessment Report

The environmental authority will review the Application and final Basic Assessment Report and the following decisions may be made:

- ✓ Grant authorisation of the activity
- ✓ Refuse the activity
- ✓ Request further information or investigations
- ✓ Refer the application to a scoping process where substantial additional investigations or assessments are required in order to make a decision.

3 PROJECT LOCALITY

The proposed project (study site) is located approximately 2km east of the Zeerust CBD, and is situated within the Ramotshere Moiloa Local Municipality, North West Province.

The proposed project is set out in the Location Map below.

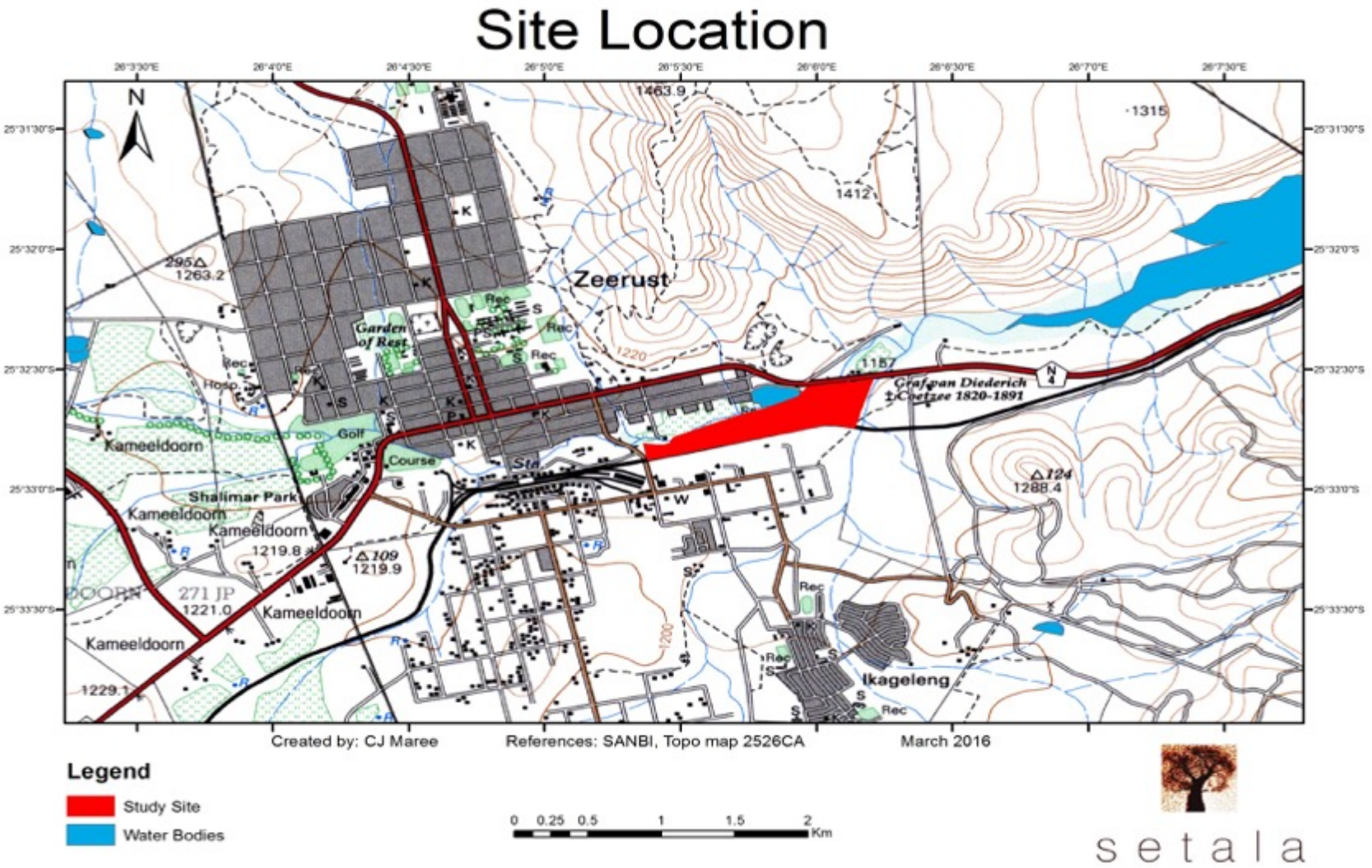


Figure 1: Site Location

The GPS coordinates of the main landmarks within the project area are as follows:

- Zeerust: 25°32'35.31"S; 26°04'43.38"E.
- Study site (Approximate centre point): 25°32'40.10"S; 26°05'59.95"E.
- Entrance into Site from National Road N4: 25°32'33.15"S; 26°06'6.69"E.
- 1:50 000 map grid references: 2526CA (2526CA02 & 2526CA03).

The site is bound by the N4, the Kareespruit, Portion 56 of Hazia 240-JP and Rudolf Street to the north, by River Avenue and the Klein-Marico River to the east, a Rail Way Line on Portion 48 of Hazia 240-JP to the south and by Kloof Street to the west.

Figure 2: Study area location

4 PROPERTY DESCRIPTION

The proposed project is located on Portion 24 (a Portion of Portion 5) of the farm HAZIA 240 JP, near Zeerust town situated in the Ramotshere Moiloa Local Municipality, North West Province. The Surveyor-general 21 digit site (erf/farm/portion) reference number is T0JP00000000024000024.

5 PROJECT DESCRIPTION

This environmental application is for the proposed Autumn Leaf Shopping Mall, a hotel with conference centre, free stander drive thru's, a Taxi rank, and a distribution centre.

In addition, application is made in terms of the Spatial Planning and Land Use Management Act, 2013 (Act No. 16 of 2013) and specifically in terms of Chapters 5 and 6 of the Ramotshere Moiloa Local Municipality Land Use Management By-law,2016 for township establishment. Proposed township to be known as **Zeerust Extension 5**. The property is at present zoned as "Special". The township application will be for:

(a) "Business 1" in terms of the Zeerust Town Planning Scheme, 1980, with an Annexure to permit a Shopping Mall including Places of refreshments; Cinema; Shops; Drive Thru Restaurants; Distribution Centre, a Hotel including conference facility; Lounge / Waiting Area; Day Spa; Gym uses compatible or approved by the Local Municipality.
(b) Special" for a Filling station to include a 24/7 Convenience shop with take-aways/Quick service restaurant (400m²) Car wash, an ATM and uses compatible or approved by the Local Municipality.
(c) "Private Open Space".
(d) "Existing Public Roads".

The Layout Plan depicts the 3 erven, namely Business 1, Special, Private Open Space and the public road.

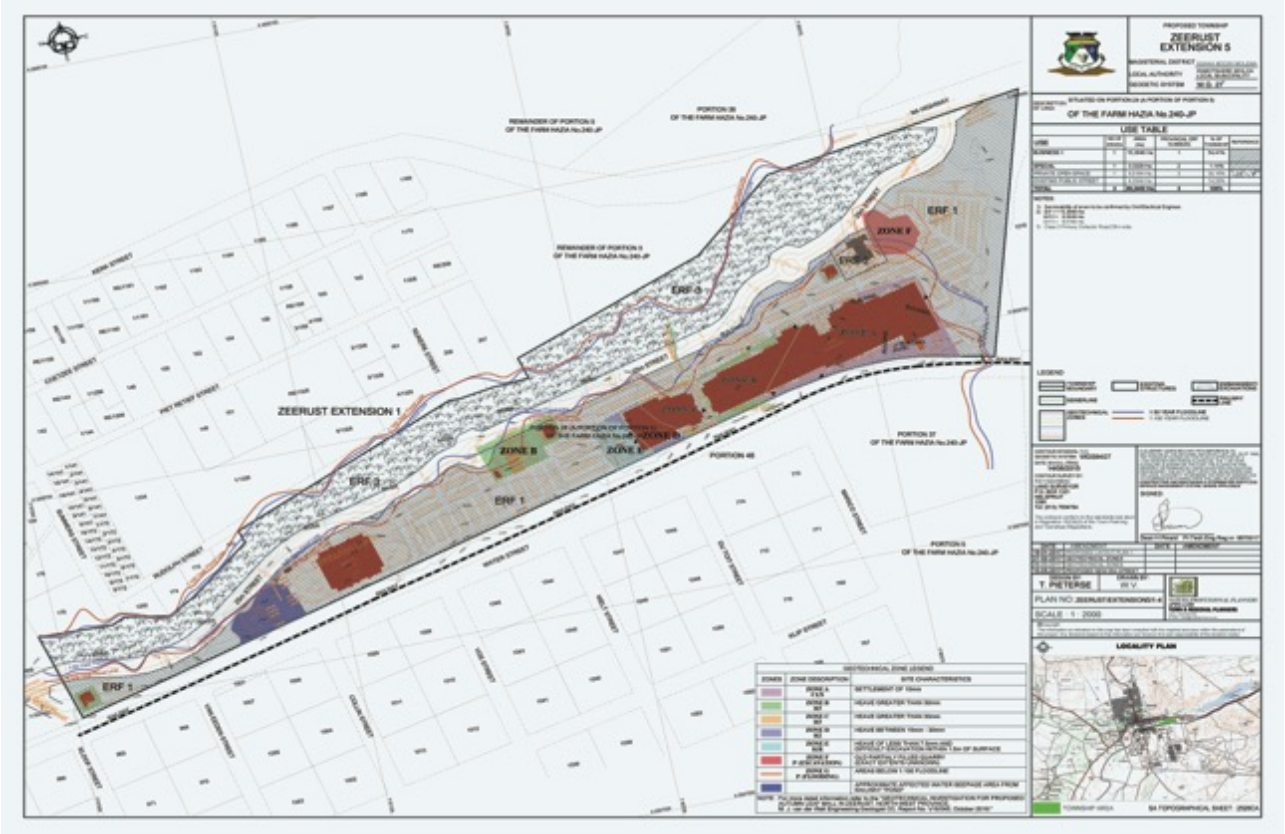


Figure 3 Layout Plan

The land uses will be as follows:

Table 1 Land Uses

Use	No of erven	Area (Ha)	Erf numbers	% of Township
Business 1	1	15, 3646 ha	1	54,41
Special	1	0,3228 ha	2	1,14
Private Open Space	1	8,5184 ha	3	30,16
Existing Public Street		4,0344 ha		14,29
TOTAL	3	28,2402 ha		100

The total site is 282 402 m² or 28.2402 hectares in size and has a coverage of 13% along with a Floor

Space Ratio (FSR) of 0.14.
The shopping mall, hotel including conference facility, free stander drive thru's and the distribution centre are planned on Erf 1.
Associated infrastructure will include roads and civil services (water, sewer, storm water reticulation and electricity).

Development Criteria as per Site Development Plan:

Erf Size:	282 402 m^2
Building Lines:	5m / 10m
Coverage:	13% (36 227m^2)
FSR:	0.14 (40 348m^2)

ERF. 1

Zoning:	Business 1
Erf Size:	153 646 m^2
Coverage:	23% (35 483m^2)
FSR:	0.26 (40 047m^2)

The business erf (Erf 1) stretches from the entrance on the eastern side/N4 Toll road all along the proposed (25m) new class 3 public road to the new intersection with Kloof Straat on the western side of the proposed Zeerust Extension 5. The erf is directly adjacent south of the new 25 public road. The most southern boundary of the erf is the railway line reserve.

The proposed Autumn Leaf Shopping Mall is situated closest to the entrance from the N4 Toll road on the eastern side of Zeerust. The retail development is classified as a community centre with a GLA size smaller than 25 000m², although there is sufficient demand for the retail development of up to 29 000m².
The size of Erf 1 is 15.3646 ha as indicated on the Layout plan.
There will be two anchor tenants and various line shops, as indicated below:

Anchor Tenant 1	3 003m2
Anchor Tenant	23 562m2
Line Shops	15 062m2
GLA:	*21 627m2*

Three Drive-Thru's are planned on the site, namely next to the Filling station site, between the shopping mall and distribution centre and another one west from the distribution centre, close to the Kloof Street entrance. These facilities are all located next to and south of the class 3 public road on the "Business1" zoned erf.

Free Stander 1	270m2
Free Stander 2	270m2
Free Stander 3	270m2
TOTAL GLA:	*22 437m2*

Parking is provided at a ratio of 6 parking bays per 100m². It translates to (22 437m2 /100 m2) x 6 = 1 346 Parking Bays required for the new Shopping Mall. The parking areas are well planned and accessible. They are located east, north and west of the shopping mall. The taxi drop off area is situated next to the public street between the shopping mall and the distribution centre.
The proposed Hotel is relatively small with 28 units.

Hotel (28 Unit)	2 673m2
Conference Area	1 165m2
Waiting/Lounge area	436m2
Day Spa/Gym	552m2
TOTAL AREA:	*4 826m2*

Parking is provided at 6 parking bays per 100m2 and1 parking bay per room.
Total Parking bays required for new Hotel: (3 762 m2 /100 m2) x 6 = 226 Parking Bays (excluding 1 064m2 hotel rooms).
28 Hotel Rooms x 1 parking Bay per room = 28 Parking Bays
Total Parking Bays provided are: 1 551

The proposed **Distribution centre** is also located south of the class 3 public road, west of the shopping mall, closer to the Kloof Street entrance on the business zoned erf. The distribution centre will be developed in two phases as indicated below in line with the recommendations of the Market Feasibility Study. (Also refer to the Site Development Plan).

Distribution Centre	4482m2 (Phase 1)
Distribution Centre	4838m2 (Phase 2)
Distribution Office	362m2
TOTAL AREA:	*9 501m2*

Parking will be provided at the following ratio:
Office - 4 parking Bays per100m2
Warehouse - 1 parking Bays per100m2
Total Parking bays required for new Distribution Centre:
(362m2 /100 m2) x 4 = 15 Parking Bays
(9 139m2 /100 m2) x 1 = 91 Parking Bays
Total provided: 67 Parking Bays

ERF. 2:

Zoning:	Special
Erf Size:	3 228 m^2
Coverage:	23% (744 m^2)
FSR:	0.09 (301 m^2)

The proposed **Hazia Filling Station** is situated closest to the entrance from the N4 Toll road on the eastern side of Zeerust next to the class 3 public road. The erf is zoned "Special" for a filling station and various related facilities as described in paragraph 2 of this memorandum. The building is 744m². The size of Erf 2 is 3 228m².

ERF. 3:

Zoning:	Private Open Space
Erf Size:	85 184 m^2

The **open space** area north of the proposed development is approximately 8.5184 ha in extent and will be zoned as "**Private Open Space**." Most of the land on Erf 3 is situated within 1:100 / 1:50 year's year flood

areas. The engineer has also calculated the flood lines and issued a flood line certificate which is included in the services report herewith attached as Annexure G.

The class 3 **public road** (zoned as "Existing Public Streets" on the Layout Plan) that links the N4 with Kloof Street has a 25m road reserve and also forms a "buffer" between the shopping mall/filling station and the Private open space directly north and adjacent to the public road. The total area of the road reserve is approximately 4.0344 ha.

The layout for Zeerust Extension 5 and the zoning of specific portions of land has been designed with due consideration of all the physical, as well as other constraining factors. The planning of the layout for Zeerust X5 was also done hand in hand with the compilation of the draft Site Development Plan to ensure the best scenario outcome. Various specialist inputs were obtained and incorporated to ensure an optimal design of the layout, as well as the draft SDP for the actual development.

The registered owner as per Deed of Transfer T9890/1971 for Portion 24 (a portion of Portion 5) of the farm Hazia 240 Registration Division JP, North West Province, is Zeerust Modern Bricks (Pty) Ltd. After approval and proclamation of the township (to be known as Zeerust X5), the land owner will enter into sales agreements with the potential buyers to sell off proposed Erven 1 and 3 of Zeerust X 5.
Correspondingly, Erf 2 of Zeerust X 5 (proposed filling station erf) will be sold to Munghana Leisure and Tourism (Pty) Ltd, the applicant for Hazia Filling station. *The Hazia filling station project is thus not dealt with in this EIA application.*

6 TOPOGRAPHY

The topography of the region and study area is comprised of mountains and ridges to the north, east and southeast, with the town of Zeerust and the study area situated as such on the flat valley bottom plains. The Klein Marico Poort Dam lies in the valley within these mountainous areas, to the east of the study area.

The study area itself consists of flat to relatively flat plains, with no significant rises. The average height above sea level of the study area within the open areas varies from about 1 180m to 1 160m. There are also no rocky ridges, ravines, kloofs or valleys present. There is however, a stream with a lower, incised channel and floodplain, which lies lower than most of the study area.

The site slopes from west to north east with an average gradient of approximately 1.1%. The gradient of the site promotes effective drainage towards the low point on the north eastern corner of the site.

7 SURROUNDING LAND USES

The study site falls within the urban edge of Zeerust. The surrounding land uses varies around the proposed development site. Access to the site is provided from the N4 and Kloof Street. The site is located between three elements, namely two rivers, the N4 and the Transnet railway. To the north of the site is the wastewater treatment works (WWTW) of Zeerust and a residential area that compromises mostly out of single residential units as well as a few high density residential units. The residential area falls within the middle-income category. The Zeerust dumping site is situated to the north of the site opposite the National Route N4. A guest farm is situated immediately north of the study area, on the opposite side of the National Route N4. The Transnet railway is located immediately south of the

development site. Other land-uses than the railway on the land south of the development site can be described as predominately light industrial and vacant stands. Some of the functions of the businesses in this area include: cash & carry; automotive industries and telecommunications. A Truck Stop is located to the east of the site along the N4.

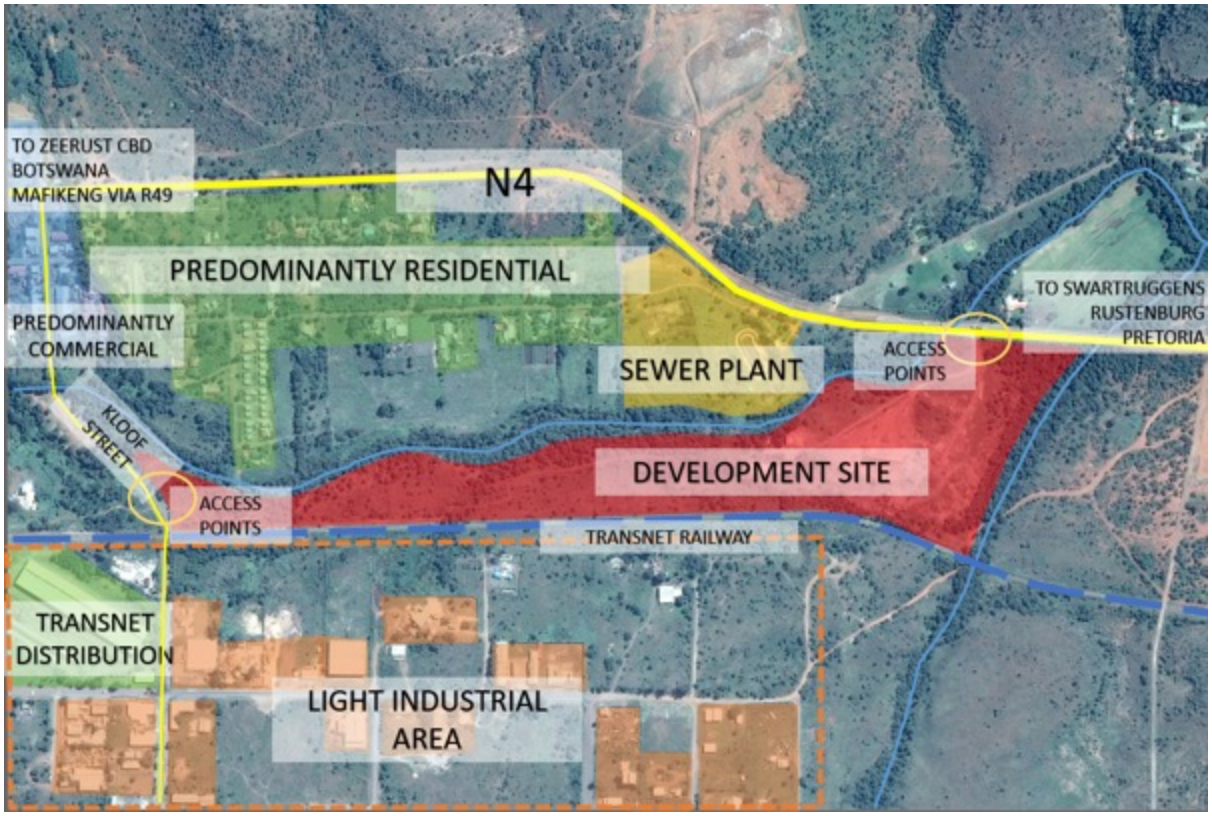


Figure 3: Immediate Surrounding Land-uses

The study site itself is situated on an old brickyard property in the extreme eastern edge of the town. This area is less densely urbanised with open bushveld, as well as two watercourses. Numerous large, alien weed tree species are present on the property. Presently the study area is a vacant lot, with no businesses or developments taking place. A number of derelict office buildings, factory buildings and vacant brickyard are on the site, which takes up a fair amount of the surface area of the study site.

8 NEED FOR THE PROJECT

The property is located adjacent to the N4 Toll Road between Groot Marico area and Zeerust Central Business District at the eastern entrance to Zeerust. The property enjoys good visibility and good access opportunities, which enhances the potential of the property for Business and/or Commercial purposes.

The North West Provincial Spatial Development Framework identified the following attributes, with specific relevance for the Ramotshere Moiloa local municipality and specifically relevant to Zeerust town:

- Zeerust is situated on the Platinum corridor, which intersects with the Western Frontier SDL
- Strengthening of Zeerust as a Regional Node in the North West Province
- Strengthening of Zeerust as one of the main centres to enhance corridor development (Western Frontier)

Ramotshere Moiloa Local Municipality (RMLM) area is characterised by occurrence of very low population, compared to municipalities like Rustenburg. However, 90 000 people (representing 65% of the total population) is concentrated in close proximity to the Platinum Highway and the Gaborone Road. The highest volume of traffic moves on the Platinum Highway and on the Zeerust – Gaborone Corridor. Zeerust is situated on the intersection of two development corridors of national importance namely the Western Frontier (Zeerust – Mafikeng – Vryburg – Taung) and the Platinum SDI (Pretoria – Rustenburg – Swartruggens – Zeerust – Lobatsi). The primary focus of the development corridors is to establish economic development along the major transport routes in order to promote economic growth and the creation of job opportunities. It does not only link with neighbouring provinces but also opens up international linkages with Botswana and Mozambique.

Botswana has become an important trade gateway between Gauteng and the West Coast via the Trans-Kalahari Corridor, a 1 900 kilometre road link from Johannesburg / Pretoria to the Port of Walvis Bay. Whether travelling through Gaborone or Lobatse, the route crosses into South Africa to the town of Zeerust in the North West. From Zeerust, the route moves east to Rustenburg, Sun City and then Pretoria or from Zeerust to Magaliesberg and the Cradle of Humankind.
South Africa and Botswana have signed a Memorandum of Agreement (MoA) that will see the two countries improve cooperation to stimulate economic growth and advance regional integration. The border post serves as a convenient, economic route between South Africa and Botswana, particularly to Zeerust in South Africa and Gaborone, Lobatse and Ramotswa in Botswana.
The Platinum Spatial Development (North West Province) initiative aims to “develop all areas on the N4 Highway that link South Africa’s most densely populated areas with the town of Lobatse in Botswana. By developing nodes along the logistical corridor, the aim is to stimulate economic development. Zeerust stands to benefit from increased traffic along this route, which is ultimately intended to link Namibia and Mozambique.” The international linkage between South Africa is very important for the economic survival of RMLM as most of the international traffic will have to travel through Zeerust. In essence, the more traffic will have to travel thought Zeerust, the more money will be spent in Zeerust which has been identified as one of the major economic nodes within RMLM.
Such a proposed development could serve as a powerful economic injection for Zeerust and help to further strengthen the role the town plays as an economic node for RMLM and Botswana and also to take advantage of the N4 Corridor which carries a high volume of traffic passing through Zeerust.
To summarise, it is believed that the proposed facility will enhance the role of Zeerust as a regional shopping facility and in general contribute to offer a wider variety of products in town.

9 LEGAL REQUIREMENTS

9.1 National Environmental Management Act

In terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) as amended and the EIA Regulations 2014, an application for environmental authorisation for certain listed activities must be submitted to the relevant authority, the Department of Rural, Environment and Agricultural Development, North West Provincial Government, (DREAD).

A Basic Assessment (BA) process for this proposed project is being undertaken by Setala Environmental. The listed activities for the proposed Autumn Leaf Shopping Mall project are the following:

Table 2: Listed Activities

Listed Activity	Activity/Project Description
GN R983/2014 Activity 19 The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse; but excluding where such infilling, depositing, dredging, excavation, removal or moving – (a) will occur behind a development setback; (b) is for maintenance purposes undertaken in accordance with a maintenance management plan; (c) falls within the ambit of activity 21 of this Notice, in which case that activity applies (d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or (e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.	To make provision for the excavation or infilling of more than 10 cubic metres of soil from a watercourse if required. Infilling and / or excavation within the 1:100 year flood lines will have to be done to construct the access roads along the periphery of the site. Parking bays and infrastructure within the 1:100 year flood lines will also require infilling and / or excavation.
GN R983/2014 Activity 27 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 (f) maintenance purposes undertaken in accordance with a maintenance management plan.	The study area and the surrounding region fall within the Savanna Biome, which is also known as the Bushveld Biome. According to the vegetation classification of Mucina & Rutherford (2006) the study area is found in the veldtype known as Zeerust Thornveld. According to Mucina & Rutherford the conservation status of Zeerust Thornveld is Least Concerned (LT). There are areas of the property that have been left as 'wild veld', but there are no areas of pristine Zeerust Thornveld present. The vegetation of the study area is representative of Zeerust Thornveld with deciduous, open short thorny woodland in patches. The natural veld, where it occurs, is dominated by Acacia thorn tree species with an herbaceous layer of mainly grasses on deep, high base-status and some clay soils on plains and lowlands. The majority of the vegetation of the study area, especially the large, central area is disturbed. The construction of the proposed shopping mall and associated structures will entail the clearance of more that 1 hectares of indigenous vegetation, but less than 20 hectares. The total site is 28.2402 hectares in size of which the impacted study area for this application is 27.9174 ha. Of this area, 8.5184 ha will be kept as private open space. An area of 19.3990 wil thus be impacted on of which 5.663 ha is highly disturbed and denuded. As a result, less than 20 hectares of indigenous vegetation will be cleared.
GN R985/2014 Activity 4 The development of a road wider than 4 metres with a reserve less than 13,5 metres. (h) North West (iv)Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority;	According to the conservation plan of the North-West Province (2009), the area is within a Critical biodiversity area (CBA 1). This includes large areas of the Zeerust town as well. The main reason for the area being a Critical biodiversity area (CBA1) is the importance of the catchment and watercourses of the Marico Rivers in particular for the North-West Province. The watercourses in the region of Zeerust are seen as being under threat and therefore in need of conservation. It is envisaged to construct a double carriage link road of 25 metres wide from the N4 through the site to link up with Kloof Street.

GN R985/2014 Activity 6 The development of resorts, lodges, hotels, tourism or hospitality facilities that sleeps 15 people or more. (h) North West: (iv) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority; (vi) Areas within a watercourse or wetland, or within 100 metres from the edge of a watercourse or wetland.	The development area is within a Critical biodiversity area (CBA 1). The development of the hospitality facility (hotel) sleeping more than the threshold will be within 100 metres from the edge of the floodline areas.
GN R985/2014 Activity 12 The clearance of an area of 300 square metres or more of indigenous vegetation. (h) North West: (iv) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority; (vi) Areas within a watercourse or wetland, or within 100 metres from the edge of a watercourse or wetland.	More than 300 square metres of indigenous vegetation will be cleared for the development. The area is within a Critical biodiversity area (CBA 1). In addition the development will be within 100 metres from the floodlines.
GN R985/2014 Activity 14 The development of- (ii) Infrastructure or structures with a physical footprint of 10 square metres or more; Where such development occurs- (c) if no development setback has been adopted within 32 metres of a watercourse, measured from the edge of the watercourse (h) North West: (iv) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority;	Infrastructure with a footprint of more that 10 square metres will be developed within 32 metres of a watercourse. The development area is within a Critical biodiversity area (CBA 1).

9.2 National Water Act

The National Water Act, 1998 (Act No. 36 of 1998) (NWA) regulates the use of water and the pollution of water resources. Section 19 of the NWA regulates pollution of a water resource and Section 21 of the NWA lists the water uses for which a water use licence (WUL) is required. A Water Use Licence Application (WULA) for the Water Uses as defined by Section 21(f) and (i) for the proposed development was submitted to the Department of Water and Sanitation (DWS).

The Development will therefore require authorisation for the following water uses:

- Section 21(f) - discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit, that is for the discharge of treated wastewater into the Klein-Marico River from a package sewage treatment plant with a maximum discharge of 500 m^3/day of treated effluent. (This sewage treatment plant is being installed to minimise the impact of an additional volume of untreated domestic wastewater, from the proposed development, being discharged from the Zeerust Waste Water Treatment Works which is currently not operational); and
- Section 21(i) water use - altering the bed, banks, course or characteristics of a watercourse, for the construction of paved roads and parking areas in the 1:100 flood line area. There will also be no new crossings and the development will use the existing N4 and other existing bridges to access the site. There is no Section 21 (c) water use, which is for, the impeding or diverting of the flow in the watercourse.

The Water Use Licence Application (WULA) Report has been completed in terms of the requirements of the National Water Act, 1998 (Act 36 of 1998) as amended (NWA), and external water use application guidelines and policies of the Department of Water and Sanitation (DWS) for a water use authorisation

(Section 22 of the NWA) in terms of the procedures and requirements as laid out in terms of Section 40 of the NWA.

10 FEASIBLE AND REASONABLE ALTERNATIVES

During investigations various alternatives within the larger study area were investigated. The best options will be determined through the environmental and specialist studies, as well as public opinion.

The following alternatives have been identified and are described as follows:

10.1 Site alternatives

As mentioned, the registered owner of the property is Zeerust Modern Bricks (Pty) Ltd. After approval and proclamation of the township (to be known as Zeerust X5), the land owner will enter into sales agreements with the potential buyer, Akani Properties, to sell off proposed Erven 1 and 3 of Zeerust X 5. It is therefore not feasible to consider other sites in terms of location alternatives. Alternative locations are therefore currently not available and would involve the lease or purchase of other land / other sites.

The development site lies on the N4; the main route between South Africa and Botswana. This route is also part of the Trans Kalahari Corridor, which extends from Walvis Bay in Namibia to Maputo in Mozambique. The R49 road is the main link between Zeerust and Mahikeng, it is believed that most of the buying power of Zeerust leaks to Mahikeng via this route since there is a lack of retail developments in Zeerust.

The site is regarded as ideal for the development of a mall due to the location along the N4 Highway which will provide visibility and easy access to the mall. The direct access to the N4, will contribute positively to the accessibility of the site, while access from Kloof Street provides a good alternative access point from which residents of Zeerust can get easier access to the development site.

Portion 24 (a Portion of Portion 5) of the farm Hazia 240 JP is thus the only site alternative. Layout and design alternatives will be considered.

Table 3: Site Co-ordinates:

Description (4 corners of site)	Lat (DDMMSS)	Long (DDMMSS)
North East	25°32'32.44"S	26° 6'12.70"E
North West	25°32'48.92"S	26° 5'21.00"E
South East	25°32'44.80"S	26° 6'8.26"E
South West	25°32'52.92"S	26° 5'22.14"E

10.2 Layout Alternatives

As mentioned above, no off-site or other site alternatives have been investigated due to the fact that the said property is proposed to be purchased by the applicant/ developer, and is located within an urban area. However layout design alternatives were assessed and a preferred alternative identified. The limitations inherent in this scenario are understood.

The sensitive areas identified during field investigations are the Kareespruit (Stream) and the Klein-Marico River, as well as their associated riparian zones. The riparian zone needs to be viewed as being a part of the watercourse ecosystem. There are no other sensitive areas or habitats identified such as rocky outcrops (koppies) or areas of protected trees, etc.

The watercourses, like all watercourses encountered, should be approached as sensitive. These areas were thus demarcated and rated as having a sensitivity rating of High. These areas should ideally be viewed during project planning and development as 'No-Go' zones.

The layout options were investigated in terms of the layout for the proposed establishment so as to accommodate the riverine area. As the property is located between the Klein Marico River and the Karee Spruit it is therefore impacted by flood lines as indicated and endorsed by the relevant engineer on the Site Development Plan. The flood line Assessment was conducted by Klunene Consulting Civil Engineers. (Appendix G of the BA report refers)

Preferred Alternative 1

The preferred and final layout Alternative was in consideration of the flood lines and sensitive water course areas.

Figure 4 : Preferred Layout Alternative 1

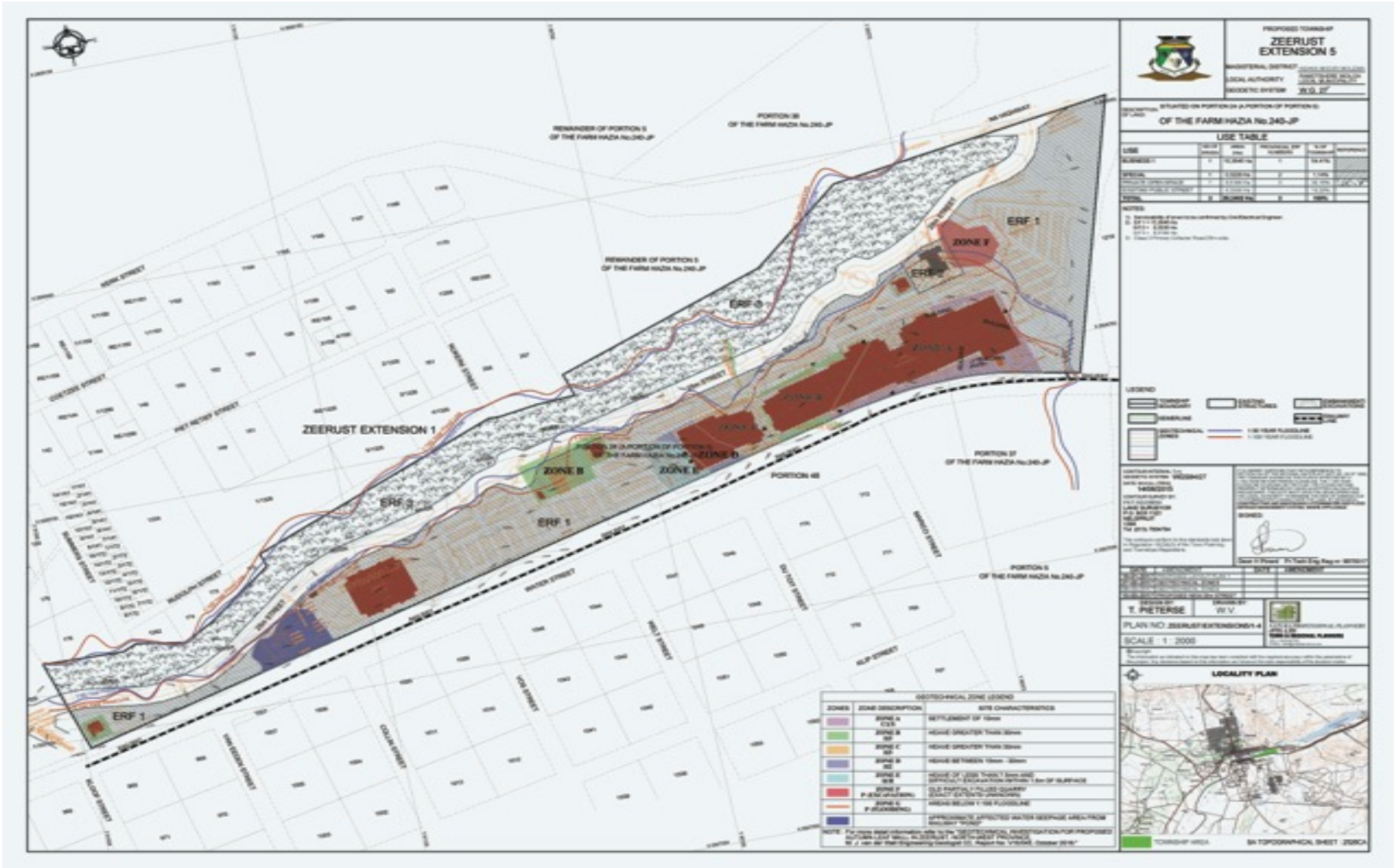
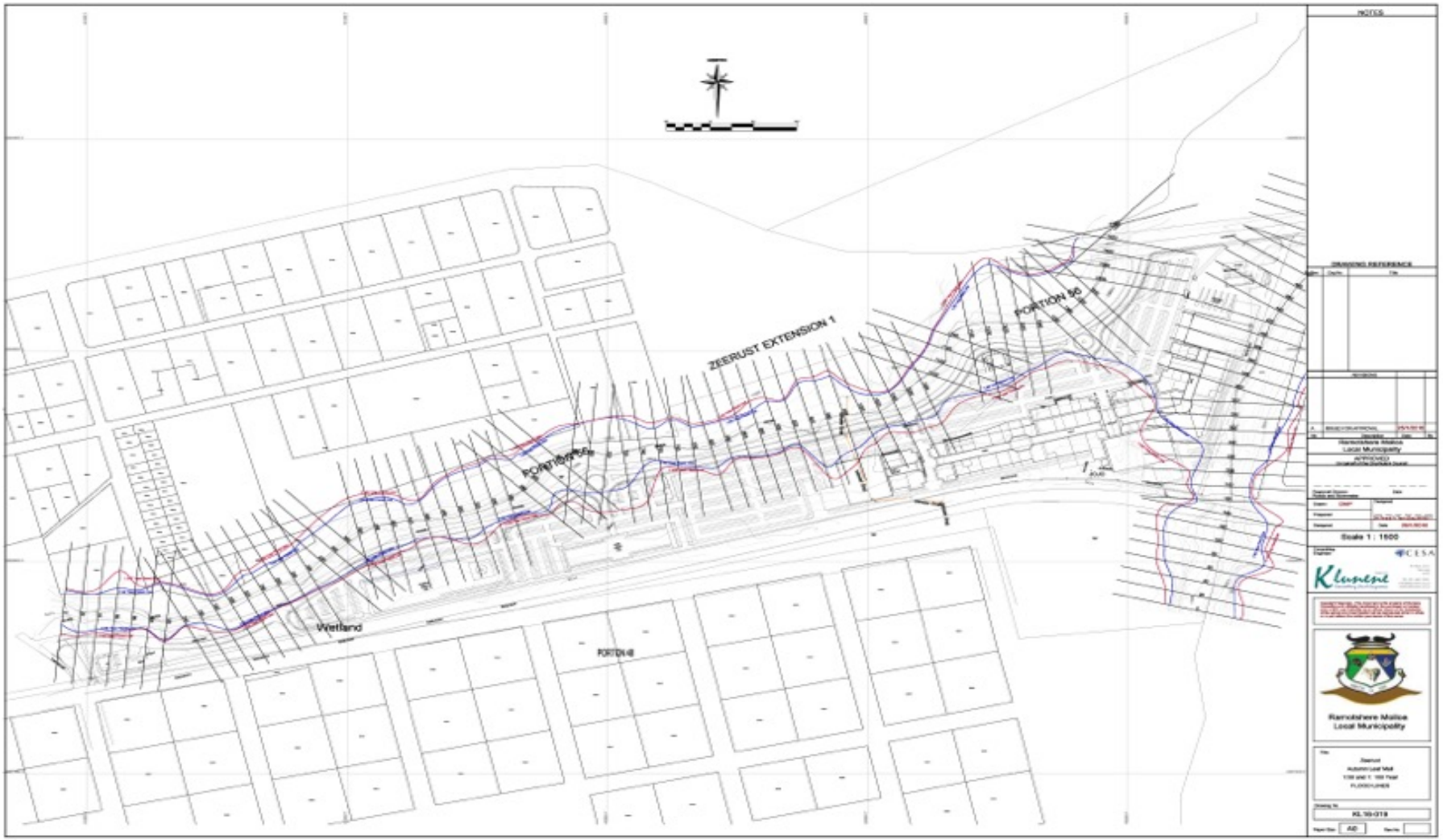


Figure 5 : Layout Alternative 2



Alternative 2

This layout Alternative was without consideration of the flood lines and the sensitive areas of the two watercourses. As seen in the layout plan on the previous page a huge portion of the development are within the 1:100 year floodline areas.

10.3 Activity alternative

Agricultural activity

No agricultural activities are presently taking place within the study area. Historically, none or very low-level activities have taken place. The present size and setting of the land parcel do not lend itself to any commercial agricultural practices of any significant value. This is not to say that no agricultural activities, especially in terms of cultivation, are possible on the study site.

Crop production

The soils found on the site are generally of medium/low to low agricultural potential (in terms of dryland and irrigated cropping) due to a number of reasons. These are:

- The soils are generally leached, sandy and gravelly, which are generally poor in nutrients.
- Although present, there is a lack of deep, nutrient-rich and well-drained soils ideal for cultivation.
- The lack of naturally good cultivation soils, within a small area, makes the agricultural potential of the study site, in terms of crop-yields and economic value low.
- Large areas in the centre of the study area have been badly degraded and compacted over the years from the brickyard and factory. Such soils take a number of years to recover and improve even when cultivated regularly.

Cattle production

The study area is too small for any meaningful commercial cattle production in terms of grazing lands. The area is hemmed in between various roads, railway lines and urban areas. The small size of the area and the low soil nutrient levels which limit good grass production, limits the carrying capacity of the site for meaningful economic cattle farming.

The study area as a unit has medium/low to low agricultural potential. Nearly all of the land in the study site has been calculated, as being 'low potential arable land' Due to the size of the study area and low richness of the soils the natural carrying capacity of the site is low in terms of grazing for cattle. The agricultural potential in terms of cattle farming is therefore 'low potential grazing land'.

Agriculture could therefore not be considered as an alternative for this property.

10.4 No-Go Alternative

It is suggested that to maintain the status quo is not the best option for the macro environment. The do-nothing ("no go") option would entail not using the site and maintaining the site as is. From certain perspectives this is not a viable option as the site is situated within an urban area surrounded by either upcoming or already existing residential communities. By not developing the site, the site will be anomalous in the context of the surrounding urban residential land-uses, and some of the direct and indirect socio-economic benefits (i.e. job creation, etc.) will not materialise.

From an environmental perspective, the site has a certain degree of ecological sensitivity due to the presence of the two watercourses, however much of the ecological linkages between the site and surrounding natural areas have been lost due to the increase in development around the site. Not

developing the site will assist in protecting the natural features on the site, however the development as proposed will maintain the watercourse areas as an undeveloped but importantly as an actively managed and controlled area. The water course areas are proposed to be zoned as private open space (erf 3). This will entail 8,5184 ha and approximately 30% of the township.
The No-Go development alternative could therefore not be considered the responsible way to manage the site.

11 SPECIALIST INPUT

Specialist input was obtained to investigate the impact of the various alternatives that could accomplish the purpose of the project. The specialist input is summarised as follows:

11.1 Market Feasibilty Study

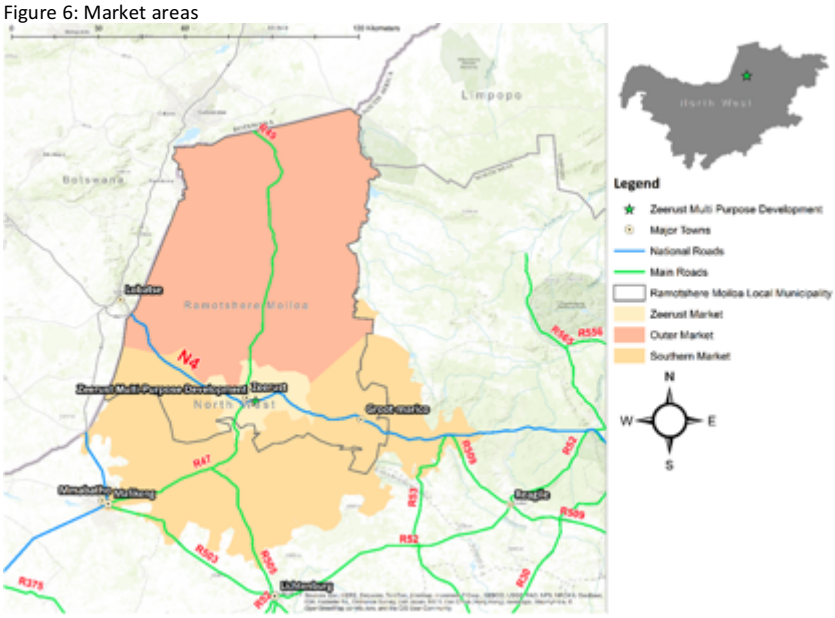
A Market Feasibility Study has been conducted by Urban-Econ Development Economists. Refer to Appendix G of the BAR.

Summary of Findings
The approach followed for this study by Urban Econ considered various market-related elements such as household income and expenditure, while also including external elements such as injections, leakages and trading densities. The investigation determined the current and future demand, as well as future scenarios based on market trends.

Spatial Analysis
The spatial analysis investigates the geographical location, regional connectivity, surrounding land-uses' accessibility, visibility, and proposed market area delineation.
The development site lies on the N4 which is also part of the Trans Kalahari Corridor, which extends from Walvis Bay in Namibia to Maputo in Mozambique. The site has direct access to the N4, which contributes positively to the accessibility of the site, while access from Kloof Street provides a good alternative access point from which residents of Zeerust can get easier access to the development site.
The land-uses within Zeerust are diverse in nature with a mixture of residential, businesses, amenities and light industrial services. The CBD is mostly concentrated on along Church Street, and Voortrekker and Coetzee streets and consists mostly out of street-front-shops. Surrounding land-uses around the development site varies in usage. This includes a light industrial area to the south, and a residential and sewage plant to the north. Future development, which is expected to have an impact on the proposed development, is De Beers prospecting licences outside Zeerust. The impact is expected to lead to an increase in employment, education and addition income.

The market area delineation derives the appropriate market catchment area from which the proposed development would draw potential consumers. The market area is based on a 15-minute, 30-minute and 60-minute drive time analysis. The market areas identified are called the Zeerust market area, the Outer market area and the Southern market area.

Figure 6: Market areas



Overall the development site is well located in terms of regional accessibility. The surrounding land-uses suggest that the proposed development would fit in with the existing spatial form. The sewerage plant could prove problematic as the plant is at capacity, and the proximity to the development site could result in odour pollution.

Market Situational Analysis

The market situational analysis investigates the prevailing macro-economic trends. Economic production, sectoral composition, and inflation and interest rates are discussed.

Gross Value Added is still expanding and this is a positive indicator; however, the growth has slowed to the extent that economic growth is expected to be only at 0,1% in 2016. The economic slowdown might have an impact on the purchasing power of the consumer. Furthermore, the GVA growth rate indicated that the RMLM is not isolated from the factors that affect the national economy growth rate.

The biggest sectors in the market area are the General Government sector (29.0%) and Wholesale and Retail sector (16.6%). The well-established Wholesale and Retail trade sector provides the validation that the location economy would have the expertise and the ability to adapt with the Zeerust Multi-Purpose Development in the market. The comparison between the Ramotshere Moiloa LM and North-West indicates that the RMLM has a stronger footprint in the General Government, and Wholesale and retail trade sectors and thus, has an advantage.

A high inflation rate leads to a lower disposable household income; thus, suggesting that households have less money to spend on retail goods and services, which would influence the success of the proposed development. A high prime interest rate also lowers the disposable household income, and limits retail spending in the identified market areas.

Socio-Economic Profile

The socio-economic profile provides the necessary information on the demographic characteristics of the market areas. The profile investigates the population, number of households, age profile, education level, household income and employment profile. Table 4 and Table 5 presents the population and household figures projected from 2016 to 2026.

Table 4: Population Profile

	2016	2018	2020	2022	2024	2026
Zeerust Market Area	19 453	20 078	20 723	21 388	22 075	22 784
Outer Market Area	155 349	160 338	165 486	170 800	176 285	181 946
Southern Market Area	78 429	80 948	83 547	86 230	88 999	91 857

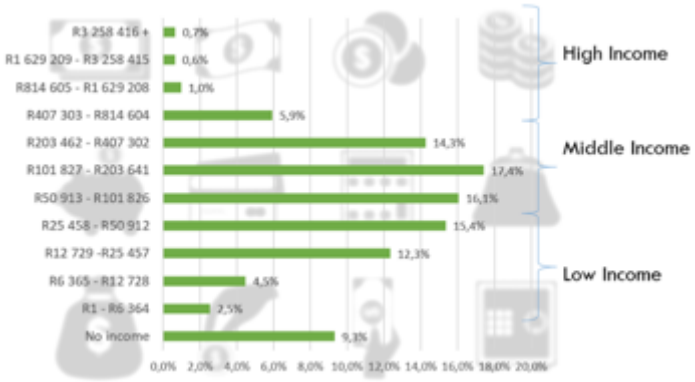
Table 5: Household Profile

	2016	2018	2020	2022	2024	2026
Zeerust Market Area	5 389	5 602	5 822	6 051	6 289	6 537

Outer Market Area	41 593	43 230	44 932	46 701	48 539	50 449
Southern Market Area	22 033	22 900	23 801	24 738	25 712	26 724

The high percentage of the potentially economically active population indicates that a large portion of the population can be employed and thus, generate personal income and a higher disposable income, which creates more demand for retail facilities.
The Zeerust MA is significantly more affluent than the Outer and Southern market areas. This indicates that the market is expected to have a higher disposable income, which can be spent on retail.

Figure 7: Income Profile



Hotel Demand Analysis

The North-West Province is also the main access corridor between South Africa and Botswana, with Zeerust being the key nodal point along the N4 corridor and the main link to the Provincial Capital Mahikeng (formerly known as Mafikeng). Hence, high volumes of tourists and other travellers travel through Zeerust.
It is estimated that Zeerust receives 24% of International Tourists travelling to the North-West Province. This figure has seen fluctuations over the past year, and is expected to increase as the corridor develops. Zeerust receives approximately 42,053 paid bednights from the domestic market, which is 3% of the total domestics bednights received by the Ngaka Modiri Molema DM, and 0.5% of North West Province. Based on an audit, there are 21 accommodation establishments available in Zeerust, with an estimated total 473 beds available per day.

The demand for bednights is calculated on a net effective demand basis, where the demand is calculated and the supply is subtracted to establish the market gap. Table 6 presents the market gap for bednights in Zeerust.

Table 6: Net Effective Demand for accommodation in Bednights in Zeerust

Foreign & Domestic Accommodation Demand	183 612
Total Number of Bednights Available in 2015	172 645
Net Effective Demand in 2015	10 967
Based on 70% bed occupancy	14 258

The NED is 10 967 bednights in 2015, which translates to 30 beds per day. Based on a 70% bed occupancy rate the NED for bednights is 14 258 which translates to 39 beds per day.

Table 7 presents the projected number of daily demand for rooms from 2015 to 2022 converted from bednights.

Table 7: Number of Bedrooms Projected from 2015 to 2022

	2015	2016	2017	2018	2019	2020	2021	2022
Beds Available	30	31	32	33	34	36	37	38
Beds 70% Occupancy	39	40	42	43	45	46	48	49
Single Travellers	13%	13%	13%	13%	13%	13%	13%	13%
Multiple Travellers	87%	87%	87%	87%	87%	87%	87%	87%
Total Number of Bedrooms	22	23	24	24	25	26	27	28

The beds available are based on the calculations of the NED by subtracting the bednights demand from the supply of bednights. A 70% bed occupancy factor is applied to calculate a realistic demand for bednights. A differential factor is applied for travellers who travel alone and travellers who would share a bedroom, as a single traveller would occupy a bedroom and multiple travellers would also occupy 1 rooms. After the differential factor was factored in, the demand for bedrooms was calculated.

The demand for bedrooms was 22 in 2015, and has grown to 24 in 2017. It is expected that in 2022 the demand for bedrooms will be 28 per day.

Conference Centre Demand Analysis

The scenario demand model calculates the viability of the conference centre through the number of conference delegates visiting the study area. The scenario assumes the number of events per year and number of delegates per event to be viable. By comparing the number of delegates visiting the study area and the viability assumption, the feasibility of the conference centre can be determined. In other words, the conference delegates must be greater than the Viability Assumption. Table 8 presents the scenario demand model for the conference centre, with the average assumption of the number of international and domestic business visitors. It is estimated that 1.0% of international business tourists visiting North West and 13% of domestic business tourists visiting North West, would visit Zeerust for conference means.

Table 8: Scenario Demand Model for Conference Centre

	International	Domestic
North West	59 498	1 616 333
Visiting Study Area (Zeerust)	14 280	970
Business Conference Trips	1,0%	13,0%
Total Person Business Conference Trips (per Annum)	269	126
Total Conference Delegates to Zeerust	269	
Total Number of Delegates to be Viable	2 600	

The viability number is calculated based on the assumption that for a conference centre to be viable, it should host 1 event per week, 52 events per year, and host a minimum of 50 delegates. The total conference trips to Zeerust amounts to 269 annually, and the number of delegates needed to be viable is 2 600. Thus, the conference centre would not be feasible as a standalone facility.

As a result of the current gap in available facilities in Zeerust potential is anticipated for the conference centre when provided as a complimentary facility to the hotel, it would add to high performance hospitality of the hotel and be a nice add-on and could cater for a wide variety of functions.

The facility must aim to attract a combination of users from the local and regional market area. It is expected the most of the events hosted at the facility would consist mostly out of small conferences and training sessions (20-50 people), and to a lesser extent, larger conference (120 people). The facility would also be able to host social events (weddings and banquets, etc.) as well as other type of conference activities which includes public meetings and performing arts.In order to translate the number of delegates a conversion factor was applied based on industry norms in existing facilities. The existing facilities used as case studies include Sondton Convention Centre, Gallagher Convention Centre, Sunnyside Park Hotel and Summer Palace, The Apollo. Based on the industry norms the recommended m² per delegate for a conference centre is illustrated in Table 9.

Table 9: Recommended m² per Delegate per Function

	Classroom	Banquet	Cocktail	Cinema Style
Delegates	3,0	4,5	2,0	1,5

It is recommended that the size of the conference centre is 540m², based on the banquet m² per delegate. This figure excludes the reception area, dish-up area, walkways, stage and other utilities. It is recommended that the total allowance for a conference centre does not exceed double the above stated figure.

Distribution Centre Demand Analysis

The distribution centre investigates the quantitative data on trade between South Africa and Botswana. Trade between South Africa and Botswana has shown consistent double digit growth between 2010 and 2014 and low growth in 2015. The value of exports to Botswana is significantly higher than the imports from Botswana. From a geographical point of view Zeerust is ideally located in terms of accessing border post to Botswana. The National Transport Masterplan 2050 indicates Kopfontein, Skilpadshek and Ramalatbama as key trading points with Botswana. The NATMAP 2050 also specifies the Maputo to Walvis Bay corridor as one of the most important corridors in southern Africa to enhance economic growth and increasing trade. The distribution centre would contribute to the goals and objectives of NATMAP 2050.

The market demand scenario calculates the needed capacity of the distribution centre based on the market share needed to be captured to be viable. The viability has been determined to be 6 000 TEU (Twenty-feet Equivalent Unit) annually. Table 10 presents the export trade to Botswana in volumes (kg).

Table 10: Export Trade to Botswana in Volumes (kg)

	2013	2014	2015	2016	4 -year Averages
Volumes (kg)	3 420 000 000	2 830 000 000	4 210 000 000	3 480 000 000	3 485 000 000
TEU = 28 080km	121 795	100 783	149 929	123 932	124 110
Daily TEU	334	276	411	340	340

It is visible that the 2016 value of daily TEU is lower than in 2015, but it must be noted that the average is 340 so this is not a sign of decrease trade. A 4-year average is used to calculate the viability scenario.

Table 11: Viability Scenario for the Distribution Centre

Viability Scenario	Market Share	Daily TEU	Yearly TEU	Capacity Needed
Scenario 1	5,0%	17,0	6 205,5	7000

The distribution centre would be sustainable if it can capture 5.0% of the market share of export volumes to Botswana, which translates to 17.0 TEU per day and 6025.5 TEU annually. It is recommended that the

implementation of the distribution centre be phased. A first phase of development would consist of 3 000m² under roof storage space excluding heavy vehicle turning space and allowance for open space. The subsequent phases should align to demand based on projected growth. It is not advised that the facility exceed 10,000m^2.

Retail Market Potential

The retail market potential provides an analysis of the market gap for retail developments in Zeerust. The methodology that is followed calculates the market demand by utilising number of households, household income, expenditure profiles, and the leakages and injections in the market area.

The leakage factor from the Zeerust market area is 27.5%, and the injection from the Outer market area is 55.0%, while the injection from the Southern market area is 5.0%.

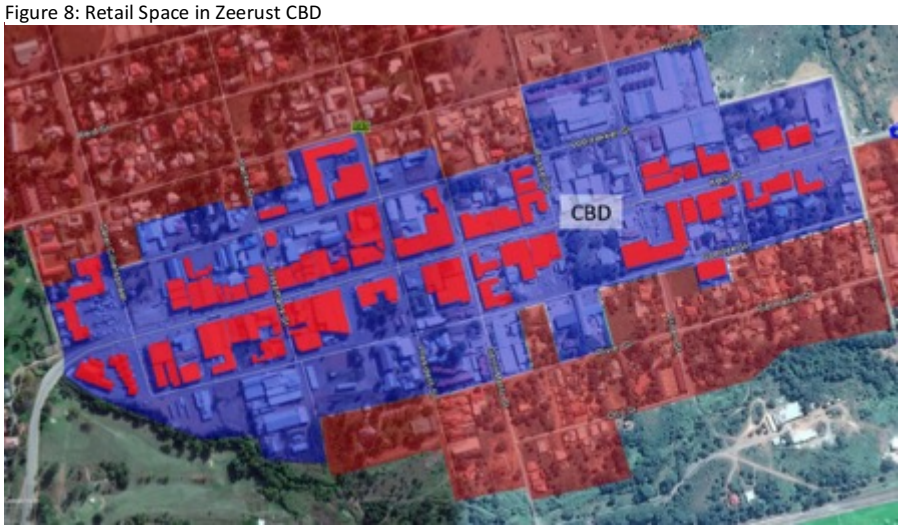
The effective demand in the market is shown in Table 12 in m².

Table 12: Effective Demand for Retail Space in m²

	2016	2018	2020	2022	2024	2026
Food and non-alcoholic beverages	33 395	34 709	36 075	37 495	38 971	40 505
Alcoholic beverages, tobacco and narcotics	3 007	3 125	3 248	3 376	3 509	3 647
Clothing and footwear	12 774	13 277	13 800	14 343	14 908	15 494
Furnishings, household equipment and routine maintenance of the house	16 223	16 861	17 525	18 215	18 932	19 677
Medical products, appliances and equipment	871	905	941	978	1 016	1 056
Postal services	79	82	85	88	92	96
Telephone and telefax equipment	866	900	935	972	1 010	1 050
Telephone and telefax services	6 759	7 025	7 302	7 589	7 888	8 199
Recreation and culture	29 952	31 131	32 356	33 630	34 954	36 329
Catering services	4 016	4 174	4 338	4 509	4 686	4 951
Personal care	3 912	4 066	4 226	4 392	4 565	4 745
Personal effects	416	433	450	468	486	505
Financial services	3 370	3 502	3 640	3 783	3 932	4 087
Total	115 639	120 190	124 921	129 838	134 949	140 341

The supply of retail space is estimated at 84 949m². Figure 8 illustrates in dark red the retail space in the CBD, which was taken into account when calculating the m².

Figure 8: Retail Space in Zeerust CBD



The net effective demand is illustrated in Table 13 as GLA in m².

Table 13: Net Effective Demand (Market Gap)

Distribution	2016	2018	2020	2022	2024	2026
Food and non-alcoholic beverages	8 858	10 171	7 207	8 627	10 102	11 658
Alcoholic beverages, tobacco and narcotics	797	916	649	777	909	1 050
Clothing and footwear	3 388	3 891	2 757	3 300	3 864	4 459
Furnishings, household equipment and routine maintenance of the house	4 303	4 941	3 501	4 191	4 907	5 663
Medical products, appliances and equipment	231	265	188	225	263	304
Postal services	21	24	17	20	24	28
Telephone and telefax equipment	230	264	187	224	262	302
Telephone and telefax services	1 793	2 059	1 459	1 746	2 045	2 360
Recreation and culture	7 944	9 123	6 464	7 737	9 060	10 456
Catering services	1 083	1 243	881	1 054	1 235	1 425
Personal care	1 038	1 192	844	1 011	1 183	1 366
Personal effects	110	127	90	108	126	145
Financial services	894	1 026	727	870	1 019	1 176
Total Net Effective Demand	30 690	35 241	24 972	29 889	35 000	40 392

There is sufficient demand for the new proposed Autumn Leaf Mall in the market area. The demand in 2016 is 30 690, and grows to 35 241 in 2018, there is a slight dip in the demand in 2020 due to the potential market entry of future supply. After 2022 the demand grows steadily and in 2026 the market gap is 40 392. The development opportunities lie with the following: food and non-alcoholic beverages, Furnishings and household equipment, Clothing and footwear, furnishings, household equipment, and routine maintenance of the house, recreational and culture, personal care and financial services.

Impact on the CBD

The CBD of Zeerust's retail facilities are diverse of nature and form part of the street retailing. The CBD cater for nearby residents, but mostly for people moving in and out of the CBD daily. Tenants of the CBD includes large national clothing stores, supermarkets, fast food restaurants, cell phone shops, banking facilities and other independent traders.

The CBD is congested with traffic and consumers. There is no by-passing route for Zeerust and all of the traffic that travels through Zeerust has to use the roads through the CBD. This leads to a mixture of vehicles, public transport and pedestrians competing for the same space. Parking problems is synonymous with CBDs, and Zeerust is no exception, there is limited parking available in the CBD. This is one of the reason why consumer with a vehicle would rather travel to neighbouring towns with enough parking as well as a more diverse retail offering.

The CBD is the main transport hub for public transport (taxi's) in Zeerust, thus the consumer traffic would continue to be in the CBD with selected trips to the new retail development. The LSM profile of Zeerust suggest that the CBD caters well for the lower LSM 1-4 segment, which leads the higher LSM segments travelling to other retail experiences outside of Zeerust. The higher LSM segments would be the key target market for the new development to reduce the effect on the CBD.

It is expected that the proposed mall would have some effects on the CBD in terms of the jobs losses and tenants moving. Jobs losses in the CBD is a possibility, but due to the growth in demand for retail space the net effect of job losses in the CBD would be absorbed by new jobs created in the new shopping centre. It is expected that there will be a surplus of jobs created, based on the socio-economic impact study.
Due to growing demand projections, it is expected that the market would partially normalised in 7 years if market entry of the mall is in 2019, and fully normalised by 2031. This calculation is based on the number of years the demand in the market would reach the similar levels as the current supply gap in 2017.
The retail development is classified as a community centre with a GLA size smaller than 25 000m². The role is to offer a larger variety of convenience products with more depth and variety of merchandise thus not direct competing with the CBD, but complementing the CBD due to differences in hierarchy. If there's a duplication of some of the retail facilities that are present in the CBD, these would be done considering the feasibility study that indicates where the tenant opportunities lie. The proposed tenant mix for Autumn Leaf Mall include tenant brands which are not present in Zeerust. These includes a large supermarket chain, liquor store, large discount retailer, pharmacy, cell phone stores, as well as financial institutions and brands currently without a presence in Zeerust. The proposed tenant mix opens more opportunities in the market and would attract more buying power to Zeerust.
The mall would serve a larger catchment area and provide services for more households than just the immediate area (Zeerust).
The proposed layout of the Autumn Leaf Mall provides space for various land-uses, the development is an inward retail experience which shelter consumers from weather events. The development provides sufficient parking for consumers visiting the retail development are well as the other land-uses, which would attract consumer who would normally travel outside of Zeerust for their shopping needs as the CBD of Zeerust lacks sufficient parking.
Overall the economic impacts of the mall would contribute to the economic competitiveness of the town and the region by retaining Zeerust's consumer spending in the area which is currently leaking to nearby markets such as Mafikeng and also assist in attracting more consumers to Zeerust.

Recommendations

Hotel Recommendations

- ✓ There are several established guesthouses and lodges in Zeerust, that have shown significant growth between 2014 and 2015 of the total paid bednights.
- ✓ Due to the proximity of Botswana to Zeerust, there is disproportional number of international tourists visiting Zeerust (24%).
- ✓ It is highly recommendable that Zeerust's accommodation sector has the potential to increase supply.
- ✓ Furthermore, tourism demand is also expected to increase, not just for South Africa but for the North-West Province as well, alongside increase spending power of Domestic and International Travellers.
- ✓ The hotel should target the high-end market of accommodation in Zeerust, with a 3-star or 4-star rating from the Tourism Grading Council of South Africa.
- ✓ There is a total NED for 10 967 bednights annually in Zeerust, which results in 30 beds per day; and at a 70% occupancy rate, the NED for bednights is 14 257.

Conference Centre Recommendations

- ✓ The conference centre would not be a feasible option to develop on its own.
- ✓ The conference can alternatively be managed in conjunction with the hotel; it would add to the high-performance hospitality of the hotel.
- ✓ The facility must aim to attract a variety of users from local, regional and international regions.

- ✓ The facility can also be used for other uses such as banquets, weddings, public meetings, and performing arts.
- ✓ The conference centre needs to consider the critical success factors to be managed successful.

Distribution Centre Recommendations

- ✓ The distribution centre would be viable if it captures 5% of the market share, which translates to 6 025.5 TEU annually.
- ✓ The initial capacity of the Distribution centre should be 7 000 TEU annually, to allow for expansion of trade and market share.
- ✓ The development of the proposed distribution centre should be built in phases; this is highly recommended as the distribution centre grows in operations.
- ✓ Trade has shown consistent growth between South Africa and Botswana, and the value thereof has also grown.
- ✓ The distribution centre would contribute to the goals and objectives for NATMAP 2050, with increase in trade and economic growth.
- ✓ Appointment of a distribution centre company is highly advised to handle the management and operational aspects of the distribution centre.
- ✓ The distribution centre should also consider the critical success factors.

Retail Recommendations

- ✓ There is sufficient demand for the retail development of up to 30 000m².
- ✓ The proposed retail facility should focus on Food and non-alcoholic beverages, Alcoholic beverages, tobacco and narcotics, Clothing and footwear, Furnishings and household equipment, Recreational and culture, Personal care and Financial Services.
- ✓ There is a high demand for Recreational & culture, it is recommended that a recreational centre should be family-friendly and should be promoted in conjunction with the catering services.
- ✓ The success of the proposed Zeerust Multi-Use Development is dependent on the following factors: the management of the centre, unique features of the retail component of the development, creation of a destination, best staff appointment, positive consumer engagement, innovative retail experience, and building of loyalty from consumers and employees.

11.2 Biodiversity Asessment

A Biodiversity Assessment has been conducted by Setala Environmental. Refer to Appendix G.
The report identified the following:

Terrestrial Ecology

Vegetation

The study area is within the Savanna Biome and the Central Bushveld Bioregion. The vegetation of the study area is representative of Zeerust Thornveld with deciduous, open short thorny woodland in patches. The natural veld, where it occurs, is dominated by Acacia thorn tree species with an herbaceous lower layer of mainly grasses on deep, high base-status and some clay soils on plains and lowlands. The majority of the vegetation of the study area, especially the large, central area is badly disturbed and degraded. Until recently, the property was an active brick-making and distribution yard.
The Kareespruit (Stream) and the Klein-Marico River border the study area to the north and east, respectively. The vegetation within the riparian zones of the stream and river is that of Acacia – Combretum - Celtis woodland.

Priority species
There are no priority species, including red data species.

Protected trees in the study area
There are no protected trees in the study area.

Fauna
No priority faunal species (which includes red data species) were encountered during field investigations.

Aquatic Ecology
Watercourses in the study area
Two rivers were identified during field investigations. These are the Kareespruit (Stream) and Klein-Marico River. No other watercourses, including wetlands or farm dams are present on the study site. The Kareespruit flows into the Klein-Marico River, which in turn flows into the Klein Marico Poort Dam.

Drainage regions
The study area is situated within the primary drainage area (PDA) of A, and the quaternary drainage area (QDA) of A31D. The area is within the Crocodile & Marico West Management Area (WMA 3) and under the jurisdiction of the newly proposed Limpopo Catchment Management Agency (CMA 1).

Drivers of ecological change
The main drivers of ecological change on the watercourse/s and water ecosystems in the study area are:

- Urbanisation;
- Faulty and poor managed WWTW;
- Water quality changes due to upstream impacts; and
- Over-utilisation of natural resources.

The two watercourses in the study area are important in terms of water supply for irrigation and general human consumption. The water from both these watercourses in the vicinity of the study area supply water to the important Klein-Marico Poort Dam.

Sensitivity analyses
The ecological sensitivity of the study area is determined by combining the sensitivity analyses of both the floral and faunal components. The highest calculated sensitivity unit of the two categories is taken to represent the sensitivity of that ecological unit.

Ecological sensitivity analysis
Table 14:

Ecological community	Floristic sensitivity	Faunal sensitivity	Ecological sensitivity	Development Go-ahead
Thornveld	Medium	Medium	Medium	Go-But
Watercourses	Medium/High	Medium/High	Medium/High	Go-But

Fatal flaws
There are no fatal flaws. However, development directly within the Kareespruit or Klein-Marico would constitute a fatal flaw.

Priority areas

The study site is not situated within any priority areas. Priority areas include protected areas, important bird areas (IBA), wetlands and National protected areas expansion strategy (NPAES) focus areas.

North-West Province Biodiversity Conservation Plan

According to the conservation plan of the North-West Province (2009), the area is within a Critical biodiversity area (CBA 1). This includes large areas of the Zeerust town as well.

The main reason for the area being a CBA1 area is the importance of the catchment and watercourses of the Marico Rivers in particular for the North-West Province. The watercourses in the region of Zeerust are seen as being under threat and therefore in need of conservation.

Identified sensitive areas

The sensitive areas identified during field investigations are the Kareespruit (Stream) and the Klein-Marico River. As well as their associated riparian zones. The riparian zone needs to be viewed as being a part of the watercourse ecosystem. There are no other sensitive areas or habitats identified such as rocky outcrops (koppies) or areas of protected trees, etc.

There are no natural habitats or areas in a pristine condition. The watercourses, like all watercourses encountered, should be approached as sensitive. These areas were thus demarcated and rated as having a sensitivity rating of High. These areas should ideally be viewed during project planning and development as 'No-Go' zones. The sensitivity map is shown below.

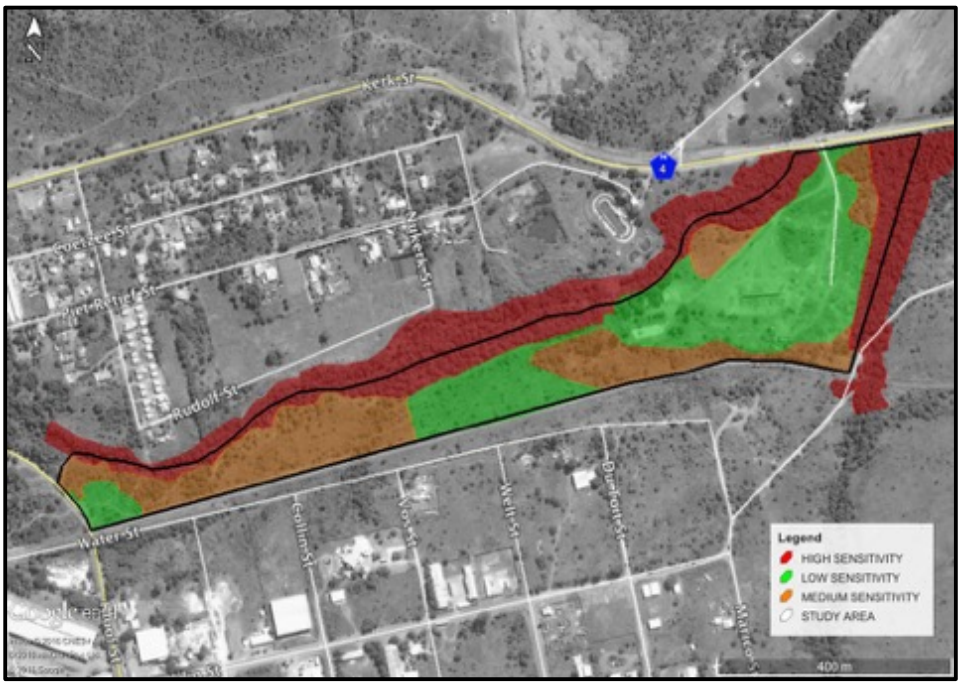


Figure 9: Sensitivity map

Mitigating measures

Mitigating measures have been recommended and need to be implemented to validate the findings and sensitivity demarcations of the report.

The main mitigating measures put forward are:

- Any temporary storage or accommodation facilities to be setup during construction to be within existing built-up or disturbed areas only.

- No temporary facilities or portable toilets to be setup within 50m of any watercourses and riparian zones.
- Avoid impeding or diverting waterflow during construction phase.
- Do not develop within the watercourse or riparian zone.
- Do not remove any indigenous trees from the riparian zone.
- Ensure a proper Stormwater Management Plan is compiled and implemented.

11.3 Heritage Impact Assessment

A Heritage Impact Assessment has been conducted by Integrated Specialist Services. Refer to Appendix G. A Heritage Impact Assessment (HIA) is the process to be followed in order to determine whether any heritage resources are located within the area to be developed as well as the possible impact of the proposed development thereon.

- A Phase I Heritage Impact Assessment (HIA) study was done and no heritage resources as outlined in Section 3 of the National Heritage Resources Act 25 of 1999 were found in the project area.

The report makes the following observations:

- Most sections of the project area are very accessible and the field survey was effective enough to cover significant sections of the project receiving environs. However, some portions of the proposed development site had limited access because of thick vegetation cover.
- The project area is predominantly industrial, commercial agricultural.
- Large sections of the proposed development site are severely degraded from existing developments such as clearing for brick moulding infrastructure, access roads, railway line, power lines and other industrial activities.

Recommendations/Mitigation

Should construction work begin for this project:

- The construction teams should be inducted on the significance of archaeological resources that may be encountered during subsurface construction work before they work on the area in order to ensure appropriate treatment and course of action is afforded to any chance finds.
- If archaeological materials are uncovered, work should cease immediately and the SAHRA be notified and activity should not resume until appropriate management provisions are in place.
- If any evidence of archaeological sites or remains (eg, remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, marine shell and charcoal/ash concentrations), unmarked human burials, or other categories of heritage resources are found during the proposed activities, SAHRA APM Unit (Philip Hine, 021 462 4502) must be alerted immediately, and a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contacted as soon as possible to inspect the findings. If the newly discovered heritage resources prove to be of archaeological significance, a Phase 2 rescue operation might be necessary.

This report concludes that the impacts of the proposed development on the cultural and environmental values are not significant.

11.4 Palaeontological Impact Assessment

A Palaeontological Impact Assessment has been conducted by Dr. Heidi Fourie. Refer to Appendix G.

The report makes the following observations:

Fossils in South Africa mainly occur in rocks of sedimentary nature and not in rocks from igneous or metamorphic nature. Therefore, if there is the presence of Karoo Supergroup strata the palaeontological

sensitivity can generally be LOW to VERY HIGH, and here locally HIGH for the Pretoria Group including the Time Ball Hill Formation.

Recommendation

The impact of the development on fossil heritage is HIGH and therefore a field survey or further mitigation or conservation measures may be necessary for this development (according to SAHRA protocol) if a fossil is found. A Phase 2 Palaeontological Impact Assessment and or mitigation may be recommended. The overburden and inter-burden must always be surveyed for fossils. Special care must be taken during the digging, drilling, blasting and excavating of foundations, trenches, channels and footings and removal of overburden not to intrude fossiliferous layers.

The development may go ahead with caution, the Environmental Control Officer must familiarise him- or herself with the Time Ball Hill Formation. If a fossil is found during construction, construction must stop, the area must be fenced off and SAHRA/PHRA must be notified (Protocol for Finds and Management Plan is provided in the Palaeontological Impact Assessment Report).

11.5 Town Planning

Application is made in terms of the Spatial Planning and Land Use Management Act, 2013 (Act No. 16 of 2013) and specifically in terms of Chapters 5 and 6 of the Ramotshere Moiloa Local Municipality Land Use Management By-law,2016 for township establishment. Proposed township to be known as **Zeerust Extension 5**. The property is at present zoned as "Special". The township application will be for:

a) "Business 1" in terms of the Zeerust Town Planning Scheme, 1980, with an Annexure to permit a Shopping Mall including Places of refreshments; Cinema; Shops; Drive Thru Restaurants; Distribution Centre, a Hotel including conference facility; Lounge / Waiting Area; Day Spa; Gym uses compatible or approved by the Local Municipality.
b) Special" for a Filling station to include a 24/7 Convenience shop with take-aways/Quick service restaurant (400m²) Car wash, an ATM and uses compatible or approved by the Local Municipality.
c) "Private Open Space".
d) "Existing Public Roads".

Compliance with forward planning policies

North West – Provincial Development Plan, 2030

The plan provides development guidelines and 8 development priorities on a macro level for the province as a whole. None of these priorities and/or development guidelines are restrictive on the proposed shopping mall. Appropriate processes are also followed with the township establishment application in terms of relevant legislation to ensure that there is compliance with policies and participation by all interested and affected parties/stakeholders.

Ramotshere Moiloa Spatial Development Framework, SDF 2014 – 2015 & Integrated Development Plan 2015-2016 (IDP): Development Suitability

In terms of the Ramotshere Moiloa SDF 2014 - 2015, the subject property is located in an area which is situated within the Urban Development Boundary (UDB) [also known as an Urban Edge]. It is a demarcated line to manage, direct and control the outer limits of development around an urban area. The subject property is therefore within the urban edge and in a general area earmarked for mixed land uses. The mixed use areas proposed by Zeerust provide an interface or transitional area between commercial uses and residential areas. Proposed uses amongst other include shops, offices and residential. A need for a diversification of land uses exist in the area as identified in terms of the Council's

forward planning policies. The subject site is due to its location in terms of the identified mixed use areas suitable for the proposed use. The application is thus in line with both the IDP and SDF for the Local Municipality as it is situated in the urban edge, in a very suitable area between the CBD and the area earmarked for "Mixed use" development.
The property is situated in an area earmarked for development in 5 – 10 years in terms of the SDF when it was compiled a few years ago. Specialist studies compiled by Urban-Econ Development Economists confirmed that there is in deed a need for the Shopping Mall as envisaged. Various othet specialist studies were conducted and proof the area to be suitable for the proposed shopping Mall. The local municipality in principle also agreed to the development of a shopping centre on the same property (as already indicated above) and the application for township establishment has been finalised and is ready for submission to Ramotshere Moiloa Local Municipality for consideration.

Zeerust Urban Edge, Ramotshere Moiloa Spatial Development Framework, SDF 2014 - 2015
The application is situated in both the "Existing Urban Development Boundary", as well as the "New Urban Development Boundary" (also known as the urban edge) in terms of the Ramotshere Moiloa Local Municipality Spatial Development Framework, 2014 - 2015 (SDF).

11.6 Geotchnical investigation

A Geotechnical investigation was conducted by M. J. van der Walt Engineering Geologist CC. Appendix G refers. The findings are summarised as follows:

The site is developable provided the foundation solutions in collaboration with the geotechnical engineer, quantity surveyor and the client are adhered to.

The site is underlain predominantly by clay with an expected heave of ±30mm in some areas with the largest affected zone in the parking areas, drive thru's, and parts of the shopping centre.

There are small zones where the soil conditions are more favourable under the main shopping centre with a zone of clay and rock on the western end of the building. No heave is expected in this area but there is a possibility of up to 10mm settlement. On the eastern portion of the proposed centre there is a thin layer of fill underlain by rock between 1 and 2m below the surface with an expected heave of ± 8mm.

Under the distribution centre there are numerous outcroppings of rock that will need to be excavated to achieve the required platform levels to the structure. The excavated rock may be crushed and used as part the sub base material of the proposed road if pre-approved by the civil engineer.

Zone A
This zone is covered with a layer of fill 0.65m thick on average from the past operations with heaps of spoil from the demolished structures also evident. It is expected that a settlement of up to 10mm could possibly occur. Firm soils intermixed with rock is found at ± 1.5m – 2.5m below this filed layer.

Zone B
This zone is of concern as it poses a structural challenge in reducing the expected heave of in excess 30mm while still providing an economic solution. The geotechnical engineer stated that to reduce the expected heave on the surface bed in this zone, up to 1.5m of the current in-situ clay material (which is approximately 5-6m deep on average) needs to be removed and replaced with controlled engineered fill (G6 minimum) on which surface beds and pad footings may be founded, with minimal additional

layerworks beneath individual pad and strip footings. Part of the hotel and conference centre straddles this area and it is suggested that these bases to these supporting columns should be piled.

Zone C

This zone is on slightly higher lying ground and is covered by a layer of medium to highly expansive material, 2-3m thick, with an expected heave in excess of 30mm. As per zone B ±1.5m of the current in-situ clay material needs to be removed and replaced with controlled engineered fill (G6 minimum) on which surface beds and pad footings may be founded, with minimal additional layerworks beneath individual pad and strip footings.

Zone D

This zone rests on slightly higher lying ground and is covered by a layer of medium to highly expansive soil 0.75m thick on average with an expected heave of 15-30mm. Due to the height of this area it is possible that most of this layer would be removed during the cut and fill operations on the site. It is noted that this layer is not suitable as fill material but it may be used as part of landscaping with the approval of the landscape architect.

Zone E

This zone is covered by abundant hard rock outcrops with a layer of medium expansive soil 0.6m thick on average with hard excavation expected at ± 1.5m below the current natural ground level. The excavated rock may be crushed and used as part the sub base material of the proposed road if pre-approved by the civil engineer. The clay material is expected to have ± 8mm of heave within the top 0.6m. Strip footings and column bases may be founded below the expansive soil horizon on engineered fill.

Zone F

This zone consists of an old quarry approximately 6-8m deep that has been partially filled with uncontrolled fill. The fill is to be removed and then the quarry be rehabilitated with engineered fill.

Zone G

This zone is characterised by the lower lying areas below the 1:100 year flood line. Parts of the shopping centre to the west of the existing sewer line is within this zone. It is strongly recommended that the civil engineer designs berms or a similar suitable solution to ensure a favourable realignment of the 100 year flood line away from all structures concerned.

Distribution centre

This area is characterised by hard rock boulders and outcrops. This will need to be excavated to achieve the required platform levels to the structure. The excavated rock may be crushed and used as part the sub base material of the proposed road if pre-approved by the civil engineer.

Parking, Drive Thru's, Taxi Drop-off

These areas are covered with a medium to highly expansive soil with an expected heave potential of 15 to 30mm to be expected. It is suggested that raft foundations should be considered for the structures in these areas due to the small floor areas being considered.

Material usage

The site soils are not suitable for layer works due to the expansive nature of the soil and should only be considered for landscaping. Excavated rock could be crushed and used as part of the layer works of the roadways.

Water Table

No water seepage was noted in the majority of the test pits but there is evidence of a perched water table during the wet season. It was noted that precautions would have to be taken to prevent ponding of surface water especially in the lower lying areas of the site and subsoil drawing should be considered to intersect the potential perched water table during the wet season. Seepage was encountered due west of the distribution centre. This seepage is due to water seeping through the railway layer works as a result of a small "pond" of water standing south of the railway line. This will have to be addressed up stream by a sub-soil drainage system designed by the civil engineer.

Excavation stability

To provide a safe working environment all excavations deeper than 1.5m should be temporarily supported or battered back at an acceptable slope to prevent collapse into the excavation by a competent geotechnical contractor. This must be taken into account in the excavation of the old quarry in zone F.

11.7 Electrical Services

An Electrical Services report has been compiled by CPE Consulting Engineers. Refer to Appendix G.

The Ramotshere Moiloa Local Municipality is the electricity supply authority in the area. The site has an existing supply of approximately 100kVA with a point of supply situated under the township overhead MV ring supply, that crosses the site, towards the main road.

The town's main electrical supply, Zeerust Municipal 88/22/11kV Substation, is in the process of being upgraded, with an additional 20MVA transformer . This main substation is approx. 2km away (in MV cable length) from the site, and a dedicated supply, preferably underground via 2xMV cables, may be installed to supply 4000 kVA at 11kV, for the Multipurpose Development as indicated in this report. The single bulk connection made available by Council can be configured to provide for a Council metered electrical connection to the Multipurpose Development on each individual subdivided erf.

Council already confirmed the availability of the bulk 4000kVA connection, and that the supply can be made available.

11.8 Engineering Services

A report titled "Concept Services report: Roads, stormwater, water and sewer" has been compiled by Klunene Consulting Civil Engineers. Refer to Appendix G.

Bulk Services

Zeerust is a well-established town with existing municipal services for water, sewer, roads and stormwater.

Water Reticulation

From information obtained from the Ramotshere Moiloa Local Municipality there is an existing water network close to the site. There are 3 reservoirs that services the town which are fed by boreholes and to date there has never been any shortages from this water source. The Hospital and Smook Street Reservoirs has a capacity of 950 KL and 5000 KL respectively and service the northern part of Zeerust. The Kop Street reservoir has a capacity of 7000 KL and services the southern part of Zeerust.

This new development will tie in to the Kop Street reservoir water network. This reservoir is located approximately 3.7km south west of the site and is roughly 65m higher than the site which means that there is a static head of roughly 6 Bar. Due to the existing draw offs from this reservoir it is expected that the pressure will drop to just above 3 Bar.
There is a 150mm Ø water main running along Klip Street to the south of the site which then decreases to a 75mm Ø water main from Collin Street onwards. This 150mm Ø water main will have to be extended up Kloof Street.

Sewer Reticulation
The Zeerust Waste Water Treatment Plant (WWTP) is just to the north of the proposed development. A 450 mm HDPE sewer line bisects the site from south to north, crossing the Karee River by means of a steel frame bridge into the sewer treatment plant.
At 70% percent of full capacity this sewer line can handle up to 285.9 l/s and estimated flows from existing infrastructure is roughly 116.9 l/s. There is enough capacity in this sewer line should the WWTP be upgraded and operating functionally.
This Sewer Treatment Plant is currently running at 184m³/h but is only 15% efficient due to maintenance constraints. Ngaka Modiri Molema District Municipality is to upgrade the plant from a 3.5ML to a 17 ML Treatment plan, and are at Tender stage. Once the treatment plant is upgraded it will have sufficient capacity to support the proposed development.
As the upgrades to the WWTP doesn't have a specified date, it is proposed that this development installs an onsite sewer package plant until such upgrades have been completed. This will require a water use licence from the Department of Water and Sanitation.

Traffic Statement
A traffic engineer, EDS Engineering Design Services (Pty) Ltd, has been appointed to produce and submit a Traffic Impact Assessment for this project.
All approved recommendations for any road or intersection upgrading will be addressed during the final township services design submissions by a registered consulting engineer.

Roads
There is a fully functional road network servicing the area accesses required from the N4 and Kloof street to the site. The N4 is currently being upgraded, and the upgrades through town should start in the near future.

Stormwater
There are functional stormwater systems around the site. As the site is situated between the Karee and Klein-Marico rivers it is envisioned to use Sustainable Urban Drainage Systems (SuDS) to manage stormwater runoff generated from the new development before being discharged into the natural water bodies. A Stormwater Management Report will be submitted to council before any construction starts. Extraneous stormwater from the south will be accommodated over the site.

Internal Services
The design of the township services for the proposed township will be based on the principles contained in the Guidelines for the Provision of Engineering Services in Residential Townships published by the department of Community Development and the Councils requirements for engineering services.

Outline Scheme
The outline scheme is in accordance with the above standards and with officials from the Ramotshere Moiloa Local Municipality.

Water Reticulation

There is an existing 150mm Ø water main to the south west of the site in Klip Street which, should have sufficient supply for this application due to the fact that the area has not yet reached its full potential.

The anticipated total water demand = 1.001l/s + 0.550l/s + 0.503l/s + 0.038l/s + 0.219= 2.311 l/s
Applying a peak of 4
Total peak flow = 9.244 l/s

V=Q/A = 9.224 l/s 150 mm Ø ID
17671.500 mm²
= 0.52310217 m/s

Adding in Fire Flow of 25 l/s
The total peak fire flow =34.224 l/s

V=Q/A = 34.224 l/s 150 mm Ø ID
17671.500 mm²
= 1.936677701 m/s

A 150mm Ø water main will be sufficient to service this proposed development.
The peak fire flow velocity is below the maximum of 3.5m/s specified therefore a 150mm Ø (ID) has sufficient capacity to service the proposed development.

As there is sufficient flow in the existing network an onsite reservoir will need to be erected and adequate firefighting points provided as per the Fire Consultants comments.
All water services will be designed to Local Authority specifications.

Sewer Reticulation

There is an existing 450mm Ø HDPE sewer line that bisects the site from south to north to where it discharges into the Zeerust Waste Water Treatment Plant just north of the site. This plant is in the process of being upgraded.

The anticipated sewer discharge:
Total demand = 0.801 l/s + 0.434 l/s + 0.503 l/s + 0.030 l/s + 0.160 l/s = 1.928 l/s
Applying a peak of 2.3
Total peak flow = 4.434 l/s

Internal reticulation on the site will be required. The development connection will be a 160mm Ø PVC-U sewer pipe to connect to the existing 450mm Ø HDPE existing sewer line bisecting the property if the WWTP has been upgraded. Alternatively, it will discharge into an onsite Sewer Package Plant.
All sewer services will be designed to Local Authority specifications.

Township Roads

This development is required to provide ingress and egress lanes from and to the N4 and Kloof Street. It is envisaged to construct a double carriage link road from the N4 through the site to link up with Kloof Street, which will reduce traffic congestions through the main road (Church Street) of town.
This will be provided at the time of final designs in accordance with the TIA and to Local and National Authority Specifications.

Township Stormwater

An internal stormwater system will be provided to drain the property in a safe and efficient manner. As this site is located between two (2) natural rivers and approximately 1.2km before the Klein-Maricopoort dam it will not be necessary to do on site attenuation. However, it is proposed to make use of the Sustainable Urban Drainage System (SuDS) treatment train to manage the stormwater runoff before being discharged back into the natural water courses.

Conclusions

The proposed development can be adequately serviced from the existing municipal infrastructure. Upgrades will have to be done to the water and roads network to the developers account. Sewer reticulation will be handled on site prior to the upgrades of the Waste water treatment plant.
All final designs for water, sewer, stormwater and roads will be submitted to council before any construction commences.
The findings of the civil engineering services report are positive that adequate bulk services can be made available in time for the development.

11.9 Waste Management

The collection of solid waste at the Autumn Leaf Shopping Mall should be carried out by the Local Municipality. If the Ramotshere Moiloa Local Municipality is not able to provide this service then a private company will be appointed by the management of the Autumn Leaf Mall for this purpose. A refuse area will be accommodated on site and waste will be disposed of at the municipal dumping site as per the requirements of the Municipal Health Bylaws.

11.10 Flood line Assessment

A flood line Assessment was conducted by Klunene Consulting Civil Engineers. Appendix G refers.
The subject property is located between the Klein Marico River and the Karee Spruit and is therefore impacted by flood lines as indicated and endorsed by the relevant engineer on the Site Development Plan.
The maximum discharges associated with the various return periods were calculated by means of the Rational Method, using the Adamson Method for the rainfall intensity estimation. The associated flood levels at various cross sections were modelled by means of HEC-RAS.

11.11 Traffic

A Traffic Impact Assesment was conducted by E.D.S Consulting Engineers. Appendix G refers.

The following can be concluded from the investigations:

- Necessary traffic counts were undertaken at the key intersections within the study area during the weekday AM, PM and Saturday peak hours.
- Number plate surveys were also undertaken at the key points within the study area during the weekday AM, PM and Saturday peak hours.
- In addition, travel time surveys were also carried out during the site visit.
- A new road link is proposed to form the northern boundary of the site and will connect N4 Platinum Highway and Kloof Street.
- The proposed road link would result in automatic diversion of the background traffic.
- The proposed Zeerust Extension 5 will gain access from the newly proposed road link.

- The proposed N4 / New Road Link Intersection to be constructed to the appropriate design standards of SANRAL.
- The proposed N4 / New Road Link Intersection will triggers a need to widen the bridge.
- The proposed Zeerust Extension 5 is estimated to generate a total of 537, 1096 and 846 NEW / PRIMARY trips during the weekday AM, PM and Saturday (SAT) peaks respectively.
- The 2017 background traffic is expected to escalate at an annual growth rate of 3% per annum.
- Necessary road and intersections upgrades would be required in support of the proposed development.
- Klip Street is currently in poor conditions.

It is recommended that:

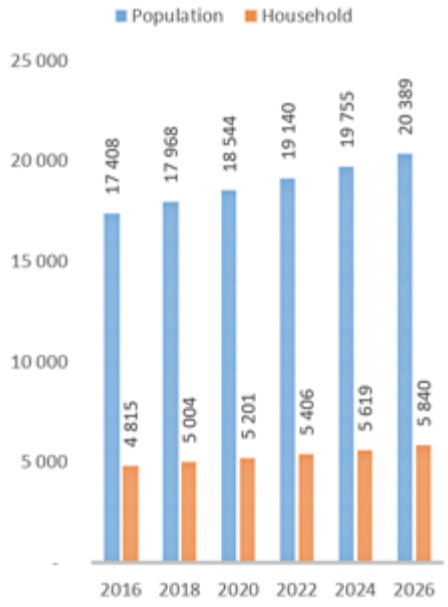
- On-site parking be provided in accordance with the requirements of Zeerust Town Planning Scheme, 1980.
- The local municipality considers undertaking Road Master Planning in support of the developments in the town of Zeerust in general.
- The local municipality rehabilitate Klip Street to the acceptable conditions.
- The local municipality budgets to upgrade those intersections which do not have sufficient spare capacity to accommodate the existing and future background traffic.
- The developer of Autumn Leaf Mall funds the upgrading of new roads and intersections as well as the intersections upgrades required to accommodate the anticipated development traffic impact as discussed above.
- The payable bulk services contributions (where applicable) be offset against construction of necessary road / intersections upgrading.
- Paved (or dust free) pedestrians` walkways be provided on the site frontages along the newly proposed development to the appropriate design standards of the local municipality.
- The proposed development is supported from traffic and transportation engineering perspective and thus be approved by the roads authorities, namely; SANRAL, local municipality and Bakwena Platinum Corridor Concessionaire.

11.12 Socio-economical Impact

Urban-Econ Development Economists conducted a socio-economic impact assessment of the proposed Autumn Leaf Mall.

The findings could be summarised as follows:

Figure 10: Population and Household Numbers



Introduction

The socio-economic impact assessment identifies the potential economic drawbacks as well as opportunities to be created as a result of the proposed development.

Baseline Profile

The baseline profile identifies key spatial, macro-economic, and socio-economic factors of the development.

Gross Value Added is still expanding and this is a positive indicator; however, the growth has slowed to the extent that economic growth is expected to be only at 0,1% in 2016. The economic slowdown might have an impact on the purchasing power of the consumer. Furthermore, the GVA growth rate

indicated that the RMLM is not isolated from the factors that affect the national economy growth rate. Figure 10 illustrates the population and household numbers. This is a natural increase and does not consider external factors that could lead a higher growth and decrease in population and household size. The large number of unemployed persons will be affected by the proposed development as this would lead to a reduction in the unemployment rate.
The economic sectoral section establishes that the necessary skills already exist within the study area to support the management and operational opportunities of the proposed Autumn Leaf Mall, with the wholesale and retail trade and construction sector being the biggest contributors to employment in Tertiary and Secondary sector respectively.
The education profile illustrates that Zeerust has a highly skilled labour market with half of the population consisting of Grade 12 to tertiary education. Approximately 50,4% of the population has Grade 12 or some form of Tertiary education, while only 19,3% of the population has an education less than just primary school. The employment opportunities that will be created by the mall would be beneficial for the education level of Zeerust. The employment opportunities would further help to provide education for Zeerust.

Socio-Economic Impact Assessment

The economic impact assessment is determined by the methodology as illustrated in Diagram 1. The quantification of the economic impacts is evaluated by the direct impacts, indirect impacts and induced impacts. The total intervention is indicated in the following indicators: production, gross domestic product, employment opportunities, and income generated.

Diagram 1: Economic Impact Assessment Methodology

Table 17 presents the total value of the CAPEX and OPEX on the Autumn Leaf Mall. The OPEX is a yearly expenditure.

Table 17: Expenditure Profile

	Expenditure
CAPEX (VAT Included)	R 511 465 107.00
OPEX (VAT Included)	R 7 410 000.00

Table 18 illustrates the economic impact of the Autumn Leaf Mall.

Table 18: Summary of the Economic Impact of Autumn Leaf Mall

	CAPEX		OPEX	
Production	R 835.42 Million	R 1 = R 1.92	R 13.0 Million	R 1 = R 2.00
GDP	R 336.26 Million	R 1 = R 0.77	R 8.08 Million	R 1 = R 1.24
Employment	1 242 Jobs	R 1 Million = 2.86 Jobs	14,48 Jobs	R 1 Million = 2.23 Jobs
Income	R 118.90 Million	R 1 = R 0.43	R 4.20 Million	R 1 = R 0.65

- Production/New Business Sales will have a total impact of roughly R835 Million and R 13 million in CAPEX and OPEX, respectively. The impact will result in an economic increase in the construction sector which is currently the largest GDP contributor in the secondary sector. In addition, a significant

increase will also be seen in the financial and business services sector, which is currently a very small sector in the local economy.

- The total contribution to GDP is roughly R336 Million and R8 Million in CAPEX and OPEX respectively. The impact would be greatly focused on the Financial & business services which is currently one of the smallest sectors.
- Employment Opportunities created amounts to 1 242 jobs during CAPEX and 14.48 jobs during OPEX. This would have an impact on the high unemployment rate and would lead to higher income levels.
- New Income generated amounts to R 118.90 Million and R4.20 Million in CAPEX and OPEX, respectively.

Conclusion

The proposed Autumn Leaf Mall would contribute significantly to the local economy and the economic impact would be substantial. Economic growth trends in the Ramotshere Moiloa LM have been higher than the national average and appears to be more resilient to shocks to the economy. This indicate that the economy has growing potential and can be identified as having investment potential.

In the Ramotshere Moiloa Local Municipality, the construction sector (3.8%) is the biggest in the secondary sector and 8th biggest sector in the Local Municipality. This sector would experience substantial growth through the construction of Autumn Leaf Mall. The construction sector employs only 0.1% of the workforce in Zeerust, this would increase the number of employed in this sector.

The Wholesale and retail trade sector (15.1%) is the second biggest contributor to the Local Municipality's economy. This sector would benefit tremendously from the operation of Autumn Leaf Mall. Wholesale and retail trade employs the biggest share (20.1%) of the workforce, this would be beneficial for the Mall.

The additional income generated by Autumn Leaf Mall would benefit the local population significantly. The additional income is expected to benefit the lower income households, which comprise a total of 54,4% of local households.

The impact on employment would be positive, and although the impact is expected to be small; any contribution to more employment is an achievement in South Africa.

12 IMPACT ASSESSMENT

The impacts that may result from the planning and design, construction, operational, decommissioning and closure phases as well as proposed management of identified impacts and proposed mitigation measures have been addressed in the Basic Assessment Report.

13 ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

An Environmental Management Programme was prepared to detail a plan of action to ensure that recommendations for preventing the negative environmental impacts (and where possible improving the environment) are implemented during the life-cycle of the project.

14 CONCLUSION

In summary the following is recommended for authorisation:

This EIA will seek to authorise the total property. The maps attached in Appendix A of the Basic Assessment report indicates/highlights the whole area that was investigated to inform READ on the area that is part of the authorisation. The wider area that was investigated will allow future potential amendments to the EA should it be necessary (at a later stage).
Should small changes be done to the layout of the shopping mall after authorisation it will not be considered crucial and will not warrant a new application. In other words, small changes will be allowed e.g. the location of shops in the mall could change.

Table 8: Co-ordinates of the corners of the site (wider area) that is investigated

Description (4 corners of site)	Lat (DDMMSS)	Long (DDMMSS)
North East	25°32'32.44"S	26° 6'12.70"E
North West	25°32'48.92"S	26° 5'21.00"E
South East	25°32'44.80"S	26° 6'8.26"E
South West	25°32'52.92"S	26° 5'22.14"E

The EIA recommends Alternative 1 for construction

The Preferred Layout Alternative 1 is recommended for the proposed development.

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