Draft Basic Assessment Report and EMPr for the proposed Lotus Gardens Retail Development on Portion 539 of the Farm Pretoria Town and Townlands 351 JR, Gauteng

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24 November 2016

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Espero Properties (Pty) Ltd

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LIST OF ABBREVIATIONS

Abbreviation	Description
AIA	Archaeological Impact Assessment
BA	Basic Assessment
BAR	Basic Assessment Report
CA	Constitution of the Republic of South Africa
CBA	Critical Biodiversity Areas
GDARD	Gauteng Department of Agriculture and Rural Development
CBD	Central Business District
CTMM	City of Tshwane Metropolitan Municipality
DEA	Department of Environmental Affairs
DEAT	Department of Environmental Affairs and Tourism
DWS	Department of Water and Sanitation
EIA	Environmental Impact Assessment
ECO	Environmental Control Officer
EMPr	Environmental Management Programme Report
EMS	Environmental Management Services
EMZ	Environmental Management Zones
GA	General Authorisation
GEMF	Gauteng Environmental Management Framework
GNR	Government Notice Regulation
IEM	Integrated Environmental Management
I&AP's	Interested and Affected Parties
IDP	Integrated Development Programme
LSM	Living Standards Measures
NBR	National Building Regulations
NDPG	Neighbourhood Development Partnership Grant
NEMA	National Environmental Management Act
NEMBA	National Environmental Management Biodiversity Act
NFA	National Forest Act
NHRA	The National Heritage Resources Act
NWA	National Water Act
PAIA	Promotion of Access to Information Act
RIDP	Regional Integrated Development Programme
SA	South Africa
SABS	South African Bureau of Standards
SANS	South African National Standards
SUDS	Sustainable Urban Drainage Systems
SWMP	Stormwater Management Plan
TOSF	Tshwane Open Space Framework
WM	With Mitigation
WOM	Without Mitigation

EXECUTIVE SUMMARY

1. Background

Exigo Sustainability (Pty) Ltd (Exigo) was appointed by Espero Properties (Pty) Ltd to facilitate the Environmental Basic Assessment for the proposed Lotus Gardens Retail Centre Development on Portion 539 of the Farm Pretoria Town and Townlands 351 JR in Lotus Gardens, Gauteng.

Environmental Authorization is required by means of a Basic Assessment (BA) Process for Listed Activities in accordance with the National Environmental Management Act (107 of 1998) (NEMA) and the Environmental Impact Assessment (EIA) Regulations, 2014. The following activities listed in GNR 983 (Listing Notice 1) and GNR 985(Listing Notice 3) of 8 December 2014 are applicable to the proposed development:

- Listing Notice 1: Listed Activities 27
- Listing Notice 3: Listed Activities 4 (c)(iv), 12(a)(ii), 18(c)(iv)

The application has been awarded the following reference number by the Gauteng Department of Agriculture and Rural Development (GDARD): GDARD Reference Number 002/16-17/E0158

This Basic Assessment Report (BAR) follows the official template as provided by the GDARD for all Basic Assessments.

2. Project Description

The proposed site is located on the north-eastern corner of the N4 and Acridian Street interchange in Lotus Gardens within the City of Tshwane Metropolitan Municipality. Figure 1 and Figure 2 indicates the location of the project site. The following coordinates serve as the centre point of the site:

Latitude (S): -25.750764°; Longitude (E): 28.094500°

The 21 digit code for the site: TOJR00000000035100539

The proposed mixed-use development will comprise of:

- Construction of a 11 000 m2 retail centre
- Construction of a 500 m2 fast food outlet
- Upgrade of existing access roads and construction of internal roads and parking area

3. Need & Desirability

Demacon Market Studies conducted a retail market analysis for the proposed retail centre development in April 2014. The project has the potential as a business development to serve the residents of suburbs like Philip Nel Park, Danville, Pretoria West, West Park, Lotus Gardens and Atteridgeville, as well as visitors or tourists travelling to Hartbeespoort, based on its location. The site is in close proximity to the Saulsville / Atteridgeville Urban Core Node. The node forms part of the Tsosoloso programme (NDPG), aiming to create vibrant, and quality spaces focusing on economic potential to act as catalysts for development. The Municipal Spatial Development Framework demarcated the urban edge to include the site, and is therefore earmarked for potential development.

The proposed shopping centre development is in line with current and future spatial development guidelines as set out in the spatial development framework (Tshwane Regional Spatial Development Framework: Region 3, 2013). Emphasis is placed on commercial developments and concentration of economic activity. This will contribute to a more favourable and market-driven investment environment for businesses and local communities.

4. Environmental Impact Assessment and Public Participation Process

An Environmental Assessment process (in this case a Basic Assessment (BA)) is an essential planning tool for any development. It identifies the environmental impacts of a proposed project and assists in ensuring that a project will be environmentally acceptable and integrated into the

surrounding environment in a sustainable way.

The key issues listed in the following section have been determined through the following avenues:

- Views of interested and affected parties;
- Legislation; and
- Professional understanding of the project team, environmental assessment practitioners and specialist consultants.

Assessing the comments/concerns received during the public participation process, it is evident that the key comments raised are:

1) Guideline documents be considered:
    - Tshwane Bioregional Plan
    - Tshwane Open Space Framework Document
2) SUDS principles to be incorporated in cement stormwater channel – cement channel could be recreated into a SUDS canal with a retention pond at the discharge point should this channel be used for the discharge of stormwater. Following consultation this is no longer required as the development's stormwater will be managed via existing municipal stormwater infrastructure. Refer to Section D (1) and Appendix F.5: Stormwater Management Plan
3) Chemical storage on site, such as fuel
4) Stormwater Management Plan (SWMP) for the development
5) General Authorisation (GA) to be applied for in terms of new gazette (GN 1180 in GG 39458 of 27 November 2015), not yet promulgated, for Section 21 (c) and (i) water uses
6) Requirement of an Environmental Management Programme Report (EMPr)
7) Sewerage Services/sewerage system crossing the watercourse
8) The development will lead to more jobs and improve security in the area.

5. Specialist Studies

The following specialist studies were conducted as part of the Environmental Basic Assessment Process:

- Biodiversity Impact Assessment – Appendix F.1: Biodiversity Impact Assessment
- Wetland Impact Assessment – Appendix F.2: Wetland Impact Assessment
- Archaeological Impact Assessment – Appendix F.3: Archaeological Impact Assessment
- Traffic Impact Assessment – Appendix F.4: Traffic Impact Assessment
- Stormwater Management Plan – Appendix F.5: Stormwater Management Plan

6. Alternatives

The assessment of alternatives is an objective of the EIA Regulations 2014. The Integrated Environmental Management (IEM) procedure requires that an environmental investigation needs to consider feasible alternatives for any proposed development. Therefore, DEA (previously DEAT) requires that a number of possible proposals or alternatives for accomplishing the same objectives should be considered. To ensure that the proposed development enables sustainable development, feasible alternatives must be explored.

In the case of the proposed development, possible alternatives were identified through discussions with the project team, reviewing of existing environmental data, and specialist inputs/studies.

Land use alternatives for the development was considered as follows:

Proposal (preferred alternative) - Retail:

Proposed development of a Retail Centre on portion 539 of the farm Pretoria Town and Townlands 351 JR in Lotus Gardens, Pretoria, Gauteng. The zoning rights applied was for the proposed retail development comprising of a multiple storey office block with ground retail.

The site shall have the following controls:

- Zoning: “Business 1” (For offices and retail)
- Approximate Area: 2.3278 ha
- Height: 3 storeys
- Proposed Commercial Development Size: 7 257 m²
- Parking: The proposed architect’s plan indicates a required parking of 4 per 100 m² which resulted in 281 parking bays.

Alternative 1 - Residential:

The site is located in an area that accommodates more than 24 000 families in formal units in suburbs like Phillip Nel Park, Danville, Pretoria West, West Park, Lotus Gardens and Atteridgeville. The Tshwane Western region is characterised by high levels of residential growth within the market. An estimated 46 027 people or 13 263 households reside within the primary trade area. The total existing supply of shopping centre retail’s floor space in the primary market area presently amounts to approximately 4723 m2, and consists of a local convenience centre and Shoprite centre. The current and future spatial development guidelines as set out in the spatial development framework emphasize commercial developments and concentration of economic activity.

The zoning of the site is “Business 1” for offices and retail and the Proposal (Preferred Alternative) is therefore in line with the spatial development framework.

Based on the above and the retail feasibility study conducted for the site, Alternative 1 for a residential development was not further considered.

No-go Option:

One of the options to be considered as part of the study is that of the no development option. This would entail leaving the site in its present state and not developing the proposed retail centre. If the development does not take place the following advantages and disadvantages will be foreseen:

Advantages of no-go:

The site will stay as is from a biophysical environment point of view

No economic impact on surrounding shopping centres

Disadvantages of no-go:

The socio economic benefits associated with the development will not be realized

Traffic upgrades proposed will not be done.

Continued dumping of waste and informal settlement being established

It is considered that the no-go option would not be a feasible alternative. The site is in a highly degraded state and being used a pass-through area by the local community. Should the mitigation measures proposed in the EMPr be implemented the impact on the environment can be considered to be of negligible to low significance. The proposed activities fit in well with the surrounding land uses as the development is in line with current and future spatial development guidelines as set out in the spatial development framework (Tshwane Regional Spatial Development Framework: Region 3, 2013).

7. Summary of specialist findings

The following section includes information abstracted from the specialist studies conducted as part of the BA process. For more information please refer to the specialist studies attached as Appendix F of this report.

7.1. Fauna

A healthy environment is inhabited by animals that vary from micro-organisms to the birds and mammals. The species composition and diversity are often parameters taken into consideration when determining the state of the environment. A comprehensive survey of all animals is a time consuming task that will take a long time and several specialists to conduct. The alternative approach to such a study is to do a desktop study from existing databases and conduct a site visit to verify the habitat requirements and condition of the habitat. If any rare or endangered species are discovered in the desktop study that will be negatively influenced by the proposed development, specialist surveys will be conducted.

- Results of desktop survey and site visits during April 2016

A survey was conducted during April 2016 to identify specific fauna habitats, and to compare these habitats with habitat preferences of the different fauna groups (birds, mammals, reptiles, amphibians) occurring in the QDS. The project area represents degraded grassland with stands of young Eucalyptus trees.

During the site visits mammals, birds, reptiles, and amphibians were identified by visual sightings through random transect walks. In addition, mammals were also recognized as present by means of spoor, droppings, burrows or roosting sites. The 500 meters of adjoining properties were scanned for important fauna habitats.

- Mammal Habitat Assessment and species survey

Large and medium sized mammals such as zebra, red hartebeest, springbok and blesbok that occurred historically in the larger study area, are absent from the area, owing to anthropogenic impacts in recent centuries. Most of these larger antelope and predator species are today confined to game reserves and national parks in South Africa and therefore will not occur naturally in the study area. This loss of large species means that the mammal diversity at the site is far from its original natural state not only in terms of species richness but also with regards to functional roles in the ecosystem.

The use of trapping techniques was not deemed necessary due to the degraded state of the natural environment, although the development of the retail centre will have a significant impact on any small mammal species that may occur within the study area.

Mammals are sensitive to disturbances and habitat destruction and degradation and as such the anticipated species diversity of the study area would be low. Residential areas have negated the possibility of encountering any medium to large mammals. The presence of dogs as well as poaching activities (snares observed on site), poses a threat to the presence of mammals on sites. The mammals are mostly represented by generalised species such as rodents and scrub hares.

- Avifaunal Habitat Assessment and species survey

One major bird habitat system was identified within the borders of the study site, namely degraded grassland. The majority of the natural grasslands and woodland in the area have been transformed into human settlements.

Most bird species identified within the study area are common species known to nest within or utilise the old fields and woodland habitat in the region and may be either permanently or occasionally present within the study area.

In general terms these open grassland patches could attract the White-bellied Korhaans, and White

Stork and Abdim's Stork. However, the close proximity to various residential areas and informal settlements means that disturbance levels in these areas are likely to be high due to humans, and hunting by dogs. The low reporting for these species is evidence of the impact that the surrounding communities are having on the birds that would, under optimum conditions, inhabit these open areas. The grassland patches are also a favourite foraging area for non-Red Data game birds such as Swainson's Spurfowl and Helmeted Guineafowl. This in turn could attract large raptors because of both the presence and accessibility of prey. Many habitat generalist species utilize this habitat type predominantly for foraging and hunting purposes. The disturbances of the topsoil layers also very often allow for greater foraging for insectivorous species. The farmland habitat type, however, is not a habitat type that is relied upon by any avifaunal species for survival.

- Tyto capensis (Grass Owl)

According to Birdlife South Africa, the study area falls outside of any Important Bird Areas (IBA), identified within South Africa (www.birdlife.org.za). No direct observations or signs of Tyto capensis (Grass Owl) were recorded in the study area or within the surrounding areas. The lack of sightings or species evidence is further confirmed by both SABAP 1 and SABAP 2, where no sightings have been made of Tyto capensis. No habitat suitable for Tyto capensis also occurred on the proposed development site and the levels of disturbance and anthropogenic activities will preclude this species from the area, predominantly due to the fact that this species is ground dominant, both roosting and breeding within dense rank grasslands. This behaviour puts them in direct conflict with humans as well as domestic animals, of which there is a large presence within the study area. However, as owls are highly mobile species, there remains the possibility that they may extend their foraging ranges to include the study area from time to time, in which case they may be subject to collision with construction or operational vehicles.

- Reptiles and Amphibians Assessment and species survey

There is a low potential to find any frogs or toads on site due to the lack of suitable habitat. The terrestrial species that might occur on site are non-threatened and widespread species, and as such the development will not have any impact on amphibian conservation within the region.

In the absence or scarcity of dead termitaria, the small geckos listed are probably found on the walls of houses and in the rocky areas to the east of the site. A number of terrestrial lizards (Yellow-throated Plated Lizard, Variegate Skink), typical for Highveld Grassveld, are expected to be present. A variety of smaller snake species characteristic for Highveld Grassveld will be present (Common Wolf Snake, Brown House Snake), although some might be negatively affected by the absence of dead termitaria. The only venomous snakes, which has been reported as being present and common, is as expected, the Rinkhals and the Puffadder for this QDS. All the aforementioned reptile species are common and widespread, and as such the development of the Lotus Garden Retail Centre will not have any impact on reptile conservation within the region.

Under the GDARD (2014) C-Plan version 3.3, no specialist studies for any species of herpetofauna are required for consideration in the review of a development application.

- Red data species

According to the existing databases and field survey a number of fauna species included in the IUCN red data lists can potentially be found in the study area. The impact of the proposed development on the red data and other mammal species will mostly have a medium to low probability as a result of the following:

- If one considers the habitat descriptions of the red data species, some of them are limited in range or threatened as a direct result of habitat loss in the southern African sub-region (e.g. South African hedgehog), although other species with large home ranges (e.g. martial eagle) are not directly threatened by habitat loss. The impact of development on the red data species would therefore be less than predicted;

- The habitats have been severely degraded and fragmented. The close proximity to existing residential developments have further caused reduction in habitat;
- The Red Data status of the “Data Deficient” taxa indicate that the conservation ranking is no more than a precautionary measure to express conservation concern in the face of insufficient field data to express a quantitative opinion;
- Bird species such as vultures are dependent on food sources such as carcasses that will not occur on site.

7.2. Flora

A Flora assessment was conducted by Exigo, Dr. Buks Henning. The vegetation survey was conducted on site during May 2016.

The study area is characterised by one major landscape namely slightly undulating to flat plains. Vegetation units were identified during the ecological surveys according to plant species composition, previous land-use, soil types and topography. The state of the vegetation of the proposed development site is in a highly degraded state. Most of the study area is vacant land at present, although being used as a pass-through area by the local community.

The vegetation map indicates the location of the plant communities in the larger project area (Figure 1). The vegetation communities identified on the proposed development site during the ecological surveys are classified as physiographic physiognomic units, where physiognomic refers to the outer appearance of the vegetation, and physiographic refers to the position of the plant communities in the landscape. The physiographic-physiognomic units will be referred to as vegetation units in the following sections. These vegetation units are classified according to the land-use and soil differences that had the most definitive influence on the vegetation units. Each unit is described in terms of its characteristics. A species list for each of the units identified during the field surveys and photographs is included in the Appendix F1. The aim of the study was to determine the suitability of the area from an ecological perspective for the proposed development activities.

After the initial ecological surveys of the study area, the analysis of the data resulted in the identification of one major vegetation unit on the proposed development site, namely Eucalyptus stands / degraded grassland. The complete project area can be described as degraded grassland with Eucalyptus stands in between. The area used to be a denser stands of the exotic species Eucalyptus camaldulensis, although the trees were eradicated recently and at present the trees represent young individuals. Most of the site is therefore more representative of degraded grasslands in a highly degraded state. Littering and garden refuse dumping are evident on site, while small footpaths bisect the site.

- Red data Flora Species

The GDARD databases for the specific farm portions and quarter degree grid square were obtained from South African National Biodiversity Institute (SANBI) indicated the red data species potentially occurring in the area.
The GDACE Red Data plant policy considers endemism to be the most important criterion when conserving biodiversity (GDARD, 2012). Species endemic to Gauteng only are given highest priority, followed by those endemic to Gauteng and one other province, etc. The floristic surveys specifically focused on the abovementioned species. **None of the listed species above was documented during the surveys.**

- Protected tree species (NFA)

The National Forest Act (Act 84 of 1998) provides a list of tree species that are considered important from a South African perspective as a result of scarcity, high utilisation, common value, etc. In terms of the National Forest Act of 1998, these tree species may not be cut, disturbed, damaged, destroyed and their products may not be possessed, collected, removed, transported, exported, donated,

purchased or sold – except under license granted by DWAF (or a delegated authority). **No protected tree species were documented in the project area or direct vicinity of the proposed development footprints.**

- Protected plants (GNCB)

Plant species are also protected according to the Gauteng Nature Conservation Bill (GNCB). According to this Bill, no person may pick, import, export, transport, possess, cultivate or trade in a specimen of a specially protected or protected plant species. The Appendices to the Act provide an extensive list of species that are protected, although **none of these species was observed during the vegetation surveys.**

- Invasive alien species (CARA, 1983)

Invasive alien plants pose a direct threat not only to South Africa's biological diversity, but also to water security, the ecological functioning of natural systems and the productive use of land. They intensify the impact of fires and floods and increase soil erosion. Of the estimated 9000 plants introduced to this country, 198 are currently classified as being invasive. It is estimated that these plants cover about 10% of the country and the problem is growing at an exponential rate.
The Alien and Invasive Species Regulations (GNR 599 of 2014) are stipulated as part of the National Environmental Management: Biodiversity Act (10/2004). The regulation listed a total of 559 alien species as invasive and further 560 species are listed as prohibited and may not be introduced into South Africa.
Table 1 List of exotic plant species of the study area

Species	**Category**
Datura stramonium	1b
Eucalyptus camaldulensis	1b
Ipomoea purpurea	1b
Ricinus communis	2
Verbean brasiliensis	1b
Verbena bonariensis	1b

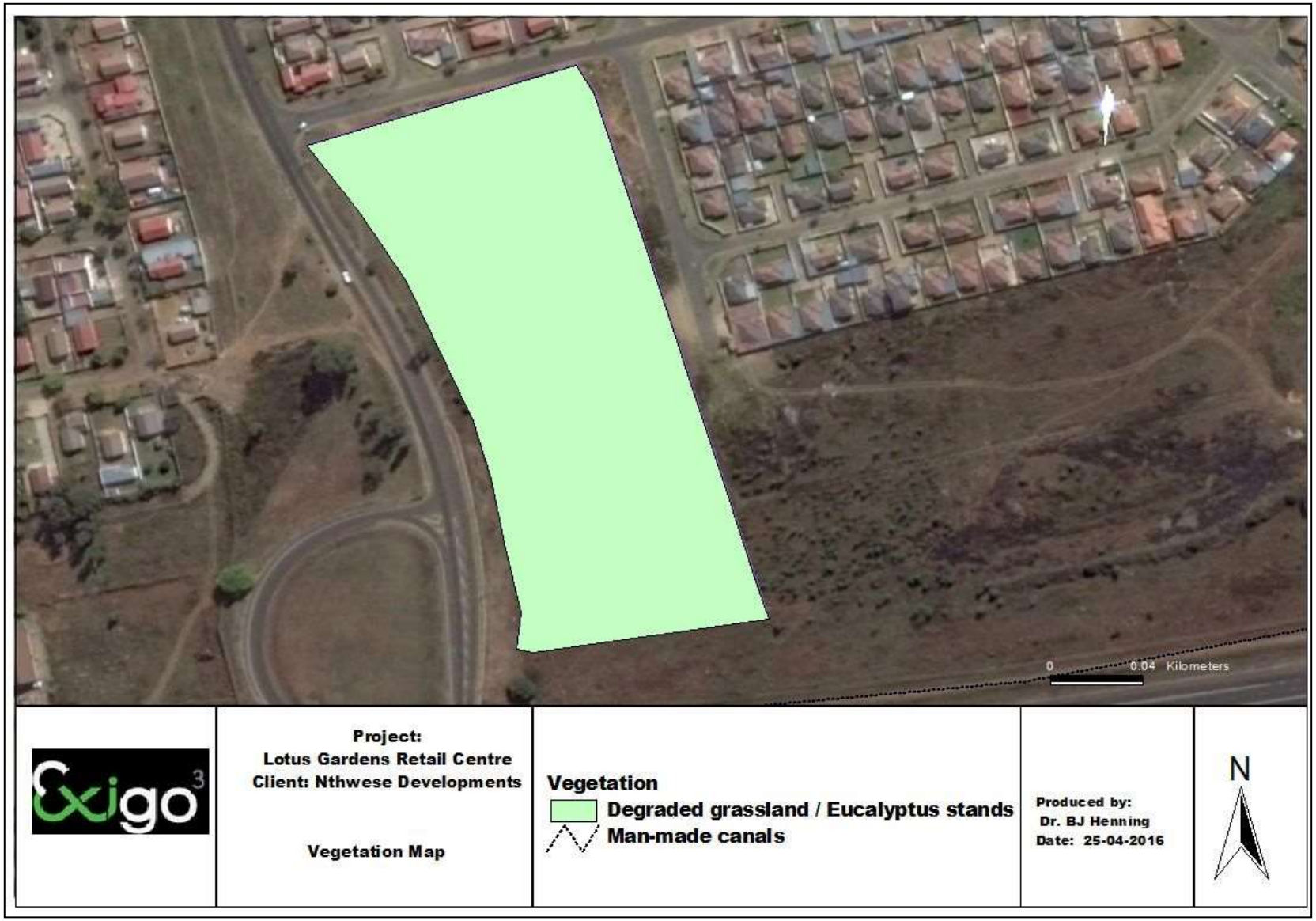

Figure 1: Vegetation Map for the proposed Lotus Gardens development

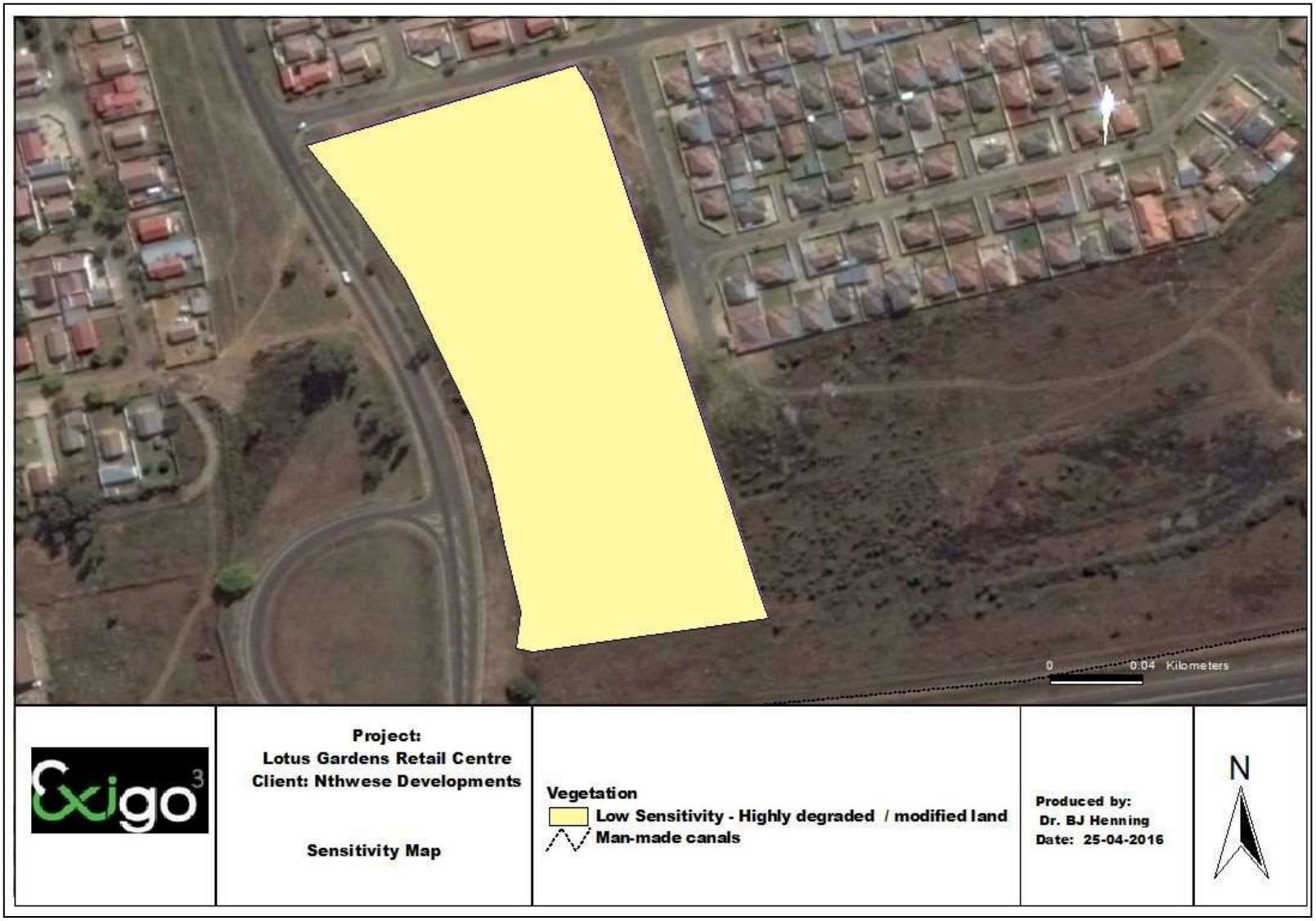

Figure 2: Ecological Sensitivity Map

7.3. Archaeology

The history and archaeology of the greater Tshwane area is well known and the landscape around Pretoria is rich in archaeology of the Stone Ages, Iron Age Farmer Period, Historical Period as well as legacies of warfare. However, the proposed Lotus Gardens X17 Retail Centre Development area is situated in environments that have been transformed and degraded as a result of urbanisation as well as natural elements. No archaeological objects or sites, or features of heritage potential were noted during the site survey of the development footprint and it might be assumed that these areas have largely been sterilized of heritage remains, especially those dating to prehistorical times.

- The Stone Age

In this area, Stone Age material generally occurs along drainage lines and exposed surfaces in the landscape. No Stone Age material was documented along the proposed Lotus Gardens X17 Retail Centre Development Project footprint during the site survey.

- The Iron Age Farmer Period

A frontier zone between the north and the south, the Tshwane landscape is rich in precolonial Iron Age Farmer Period remnants. No Farmer Period occurrences were noted in the proposed Lotus Gardens X17 Retail Centre Development Project footprint area.

Historical / Colonial Period and recent times

In Colonial times, Gauteng was a conflict region between local and imperial forces and traces of Colonial developments and warfare occur across the landscape. However, the site inspection produced no Colonial period remnants. In terms of the built environment, the area has no significance, as there are no old buildings, structures, or features, old equipment, public memorial or monuments in the footprint areas.

- Graves

In the rural areas of the Gauteng Province graves and cemeteries often occur within settlements or around homesteads but they are also randomly scattered around archaeological and historical settlements. The probability of additional and informal human burials encountered during development should thus not be excluded. Should any unmarked human burials/remains be found during the course of construction, work in the immediate vicinity should cease and the find must immediately be reported to the archaeologist, or the South African Heritage Resources Agency (SAHRA). Under no circumstances may burials be disturbed or removed until such time as necessary statutory procedures required for grave relocation have been met.

No heritage resources have been documented in the proposed Lotus Gardens X17 Retail Centre Development footprint areas. It is the opinion of the author of this Archaeological Impact Assessment Report that the proposed Lotus Gardens X17 Retail Centre Development in Lotus Gardens will have no impact on archaeological resources, the built environment, the cultural landscape or human burials. The project should be allowed to proceed from a culture resources management perspective on the condition that that the relevant Heritage Resources authority approve these findings and provided that no subsurface heritage remains are encountered during construction.

7.4. Wetlands

- Unchannelled valley bottom wetland

The wetland that feeds the Skinner Spruit wetland from the south is classified as a modified unchannelled valley-bottom wetland (Photograph 1) and occurs approximately 350 m from the closest edge of the proposed development site. Large areas of the wetland are also impacted by alien species invasion. Furrows were also constructed in the wetland to drain water from the wetland and to allow development footprint areas (Photograph 2). Wetness indicators were limited in the soils due to a combination of draining of the wetland areas as well as the humic conditions. The system is impounded through the excavation into the wetland.

An unchannelled valley-bottom wetland is a mostly flat valley-bottom wetland area without a major channel running through it (although canals were constructed in the wetland to allow

draining), characterised by an absence of distinct channel banks and the prevalence of diffuse flows, even during and after high rainfall events. Water inputs are typically from an upstream channel, as the flow becomes dispersed, and from adjacent slopes (if present) or groundwater. Water generally moves through the wetland in the form of diffuse surface flow and/or interflow (with some temporary containment of water in depressional areas), but the outflow can be in the form of diffuse or concentrated surface flow. Infiltration and evaporation from unchannelled valley-bottom wetlands can be significant, particularly if there are a number of small depressions within the wetland area. Horizontal, unidirectional diffuse surface-flow tends to dominate in terms of the hydrodynamics.

In terms of plant species composition the wetland represents moist grassland dominated by grasses such as Setaria sphacelata, Sorghum bicolor and Sporobolus africanus, although sedges also occur in the HGM.

Unfortunately, the valley bottom wetland provides a distribution route for weeds and invading trees. Many of the usual weeds were recorded together with Solanum mauritianum (Bugweed), Xanthium strumarium (Large cocklebur) Datura stramonium and Flaveria bidentis. Weeds and invaders should be removed, as well as destruction of such plants in a safe place and manner.

As a result of the furrow inside the valley bottom, alluvial soils formed causing the development of riparian habitat along the edges of the furrow. Riparian Habitat are described by the National Water Act (1998) Section 1.1 (xxi) as follows: "Riparian habitat" includes the physical structure and associated vegetation of the areas associated with a watercourse (in this case the furrow) which are commonly characterised by alluvial soils, and which are inundated or flooded to an extent and with a frequency sufficient to support vegetation of species with a composition and physical structure distinct from those of adjacent land areas". The riparian zones can mostly be described as dense, medium tall riparian woodland on alluvial soils (Photograph 3). The riparian woodland is dominated by species such as Acacia karroo, Searsia pyroides and various alien invasive species such as Melia azedarach.

Photograph 1 Unchannelled valley bottom wetland in the project area feeding the Skinner Spruit indicating the furrows

Photograph 2 Topsoil stockpiles from development in the area inside the wetland area

Photograph 3 Riparian woodland that formed along the edge of the wetland at a crossing on alluvial soils

- Valley bottom wetland with channel

The Skinner Spruit represents a valley bottom with a channel that occurs approximately 230 m to the south of the proposed development site (Photograph 4). The Skinner Spruit flows in an easterly direction and eventually feeds the Apies River at the Pretoria Wastewater Treatment Works in Pretoria West.

A channelled valley-bottom wetland is classified as a mostly flat valley-bottom wetland dissected by and typically elevated above a channel. Dominant water inputs to these areas are typically from the channel, either as surface flow resulting from overtopping of the channel bank/s or as interflow, or from adjacent valley-side slopes (as overland flow or interflow). Water generally moves through the wetland as diffuse surface flow, although occasional, short-lived

concentrated flows are possible during flooding events. Small depressional areas within a channelled valley-bottom wetland can result in the temporary containment and storage of water within the wetland. Water generally exits in the form of diffuse surface flow and interflow, with the infiltration and evaporation of water from these wetlands also being potentially significant (particularly from depressional areas). The hydrodynamic nature of channelled valley-bottom wetlands is characterised by bidirectional horizontal flow, with limited vertical fluctuations in depressional areas (SANBI, 2009).

The vegetation structure of the valley bottom wetlands vary from the actual channels being closed grassland in certain areas, to a sandy riverbed with alluvial sand and conglomerates along the riverbanks. The drainage channels that from part of the channelled valley bottom wetlands is mostly non-perennial.

The most abundant and most conspicuous plant species is hygrophilous grasses such as Sporobolus africanus, Paspalum dilatatum, Andropogon eucomis, Hyparrhenia tamba, Eragrostis gummiflua and Setaria sphacelata. Other plants associated with valley bottom channels are Juncus effusus, Schoenoplectus corymbosus, Verbena bonariensis, Persicaria serrulata and Typha capensis.

Unfortunately, the valley bottom wetlands provide a distribution route for weeds and invading trees. Many of the usual weeds were recorded together with Salyx babylonica, Eucalyptus camaldulensis (Red river gum), Populus alba, Xanthium strumarium (Large cocklebur) Datura stramonium and Flaveria bidentis. Weeds and invaders should be removed, as well as destruction of such plants in a safe place and manner.

The exotic species are more dominant in the valley bottom wetlands in the surrounding Townships where dumping and littering has occurred in the streams. Erosion also occurs in these areas and needs to be rehabilitated to allow natural drainage to be reinstated.

Photograph 4. Channelled Valley Bottom wetland to the south of the project area

- Man-made depression (dam)

The man-made dams in the valley bottom wetland are classified as depression wetlands (Photograph 5), even though these drainage features are now considered as artificial wetlands. These artificial wetlands are located approximately 360 m away from the proposed development site.

A depression is classified as a landform with closed elevation contours that increases in depth from the perimeter to a central area of greatest depth, and within which water typically

accumulates. Dominant water sources are precipitation, ground water discharge, interflow and (diffuse or concentrated) overland flow. For 'depressions with channelled inflow', concentrated overland flow is typically a major source of water for the wetland, whereas this is not the case for 'depressions without channelled inflow'. Dominant hydrodynamics are (primarily seasonal) vertical fluctuations. Depressions may be flat-bottomed (in which case they are often referred to as 'pans') or round-bottomed (in which case they are often referred to as 'basins'), and may have any combination of inlets and outlets or lack them completely.

The depressions that occur in the project area are characterised by the way water exits the systems. Water exits as concentrated surface flow in channels for exorheic depressions (dams in wetland area), although the primary means of water still exits as evaporation.

The vegetation associated with depressions is mostly sedges and bulrushes depending on the depth of the water and the substrate. Species such as Persicaria serullata, Typha capensis, Schoenoplectus corymbosus, Ludwigia stolonifer and Phragmites australis mostly grow along the shallow edges of dams in the project area on a muddy substrate.

Photograph 5. Edge of dam inside the channelled valley bottom wetland

7.5. Traffic

A traffic impact assessment was conducted by Civil Concepts in June 2013. It should be noted that the assessment included a filling station; however this has been excluded from this application.

The existing road network consists of the following:

- Magalies Freeway (N4) is a class 1 road that lies to the south of the proposed development site. It runs in an east-west direction and serves an important mobility function.
- Acridian Street is a class 3 district distributor that lies to the west of the proposed development site and runs in a north-south direction.
- Anthesis Street is a class 3 district distributor that lies to the north of the proposed development site and runs in an east-west direction.
- Cyme Street is a class 4(a) collector (non-residential) that lies to the west of the proposed development site. It runs in a north-south direction at its intersection with Anthesis Street.
- Coriander Street is a class 4(b) residential collector that runs in an east-west direction to the north of the site.
- Tamarind Street is a class 4(b) residential collector that liest to the east of the proposed

development site and runs in an east-west direction.

- Dijon Street, Jalapeno Street and Ajowan Street are class 5 residential streets.

It is envisaged by the City of Tshwane Metropolitan Municipality (CTMM) to extend the Acridian Street to the north up to an intersection with a proposed class 3 road that will link Lotus Gardens with Elandspoort and Danville and thereby improve accessibility to the proposed development.

The proposed development will gain access of two points. The access to the retail centre will be off Dijon Street in the form of a fourth leg opposite Tamarind Street, the intersection will remain priority controlled. A services access will be off Dijon Street in the form of a new priority controlled T-intersection. This access should be constructed south of the access opposite Tamarind Street via the extension of Dijon Street to the south.

It is anticipated that the proposed development will generate a total of 983 and 1350 trips during the Friday afternoon and Saturday peak hours, respectively. The base year (2014) and 5 year horizon (2019) were considered in the study. Upgrades and/or changes to the road network without the proposed development (due to existing background traffic) and with the proposed development are recommended in the report. The existing and proposed intersections will operate satisfactorily with the proposed upgrades and optimized signal timing for the background and development traffic scenario.

8. Environmental impact prediction and evaluation

An assessment of potential impacts identified for the Lotus Gardens Retail Development was undertaken. The impacts identified for further assessment were assessed within the respective specialist studies. The specialist studies undertaken to this effect are listed above.

The specialist studies recommended mitigation measures in order to reduce or eliminate any impacts identified.

The proposed project could be developed in a sustainable manner in light of the site being situated within an existing developed residential area and should the mitigation measures proposed in the EMPr be implemented the impact on the environment can be considered to be of negligible to low significance. The proposed activities fit in well with the surrounding land uses. The site is located within a Critical Biodiversity Area (CBA) according to the Gauteng Conservation Plan; however site is in a highly degraded state with not natural vegetation components remaining on site other than individual plant species. No protected tree or plant species or red data flora or fauna species were observed on site. It should be noted that the Gauteng Conservation Plan has in many areas not been ground-truthed and it is recommended that the GDARD verify whether this area can still be classified as a CBA.

All impacts identified were also analysed according the following key considerations, a description of which is included in Section E (2):

Probability: This describes the likelihood of the impact actually occurring.

Duration: The lifetime of the impact

Scale: The physical and spatial size of the impact

Magnitude/ Severity: Does the impact destroy the environment, or alter its function.

Significance: This is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required.

Below is a summary of the potential environmental impacts associated with the project through the different phases:

No	Activity	Impact	Without or	Significance

			With Mitigation	
				Magnitude
ECOLOGICAL/BIODIVERSITY IMPACTS				
Construction Phase				
1	Clearing of vegetation for construction of infrastructure, access roads etc.	Habitat destruction	**WOM**	Moderate
			WM	Low
2	Clearing of vegetation for construction of infrastructure, access roads etc.	Habitat fragmentation	**WOM**	Moderate
			WM	Low
3	Exposure of soils to rainfall and wind during construction	Soil erosion	**WOM**	High
			WM	Low
4	Movement of vehicles on site during construction, storage of waste material and chemicals (if relevant)	Spillages of harmful substances	**WOM**	Moderate
			WM	Low
5	Exposure of soils to rainfall and wind during construction	Dust contamination (air pollution)	**WOM**	Moderate
			WM	Low
6	Continued movement of personnel and vehicles on and off the site during the construction phase, as well as occasional delivery of materials required for maintenance	Spread of alien invasive species	**WOM**	Moderate
			WM	Negligible
7	Construction of infrastructure, access roads etc.	Negative effect of human activities on flora	**WOM**	Moderate
			WM	Negligible
8	Continued movement of vehicles on and off the site during the construction phase, as well as occasional delivery of materials required for maintenance	Fauna mortality on roads	**WOM**	Moderate
			WM	Low
Operational Phase				
9	Exposure of soils to rainfall and wind during operations	Soil erosion	**WOM**	Moderate
			WM	Negligible
10	Movement of vehicles on site during operation, storage of waste material and chemicals (if relevant)	Spillages of harmful substances	**WOM**	Moderate
			WM	Negligible
11	Continued movement of personnel and vehicles on and off the site during the operational phase, as well as occasional delivery of materials required for maintenance	Spread of alien invasive species	**WOM**	Moderate
			WM	Negligible
WETLAND IMPACTS				
Construction Phase				
12	The increased exposed areas created, as	Soil compaction and erosion	**WOM**	Low

	well as the roads and additional surface areas created during construction	leading to sedimentation of wetland/water resources	**WM**	Negligible
13	Large construction vehicles contributing substantially due to oil and fuel spillages; building waste, batching plants, sewage and domestic waste; stripping of topsoil	Water pollution from spillages and dust, etc.	**WOM**	Low
			WM	Negligible
14	Continued movement of personnel and vehicles on and off the site during the construction phase, as well as occasional delivery of materials required for maintenance	Spread of alien invasive species in wetland systems	**WOM**	Low
			WM	Negligible
Operational Phase				
15	The increased hardened surfaces around infrastructure, as well as the roads and additional surface areas	Soil compaction and erosion leading to sedimentation of wetland/water resources	**WOM**	Moderate
			WM	Negligible
16	Vehicles contributing due to oil and fuel spillages, dust	Water pollution from spillages and dust	**WOM**	Moderate
			WM	Negligible
17	Continued movement of personnel and vehicles on and off the site, as well as occasional delivery of materials required for maintenance	Spread of alien invasive species in wetland systems	**WOM**	Low
			WM	Negligible
HERITAGE IMPACTS				
Construction Phase				
18	Digging foundations and trenches into sensitive deposits that are not visible at the surface	Damage/destruction of unknown sites of archaeological importance	**WOM**	Negligible
			WM	Negligible
AIR QUALITY IMPACTS				
Construction Phase				
19	Dust pollution and emissions from vegetation clearance, earthworks and increased traffic	Construction activities and vehicular movement on site	**WOM**	Moderate
			WM	Low
NOISE IMPACTS				
Construction Phase				
20	Noisy activities during construction (e.g. drilling, hammering, etc.)	Noise impact on surrounding landowners	**WOM**	Low
			WM	Negligible
Operational Phase				
21	Noisy activities during operations	Noise impact on surrounding landowners	**WOM**	Negligible
			WM	Negligible
VISUAL IMPACTS				
Construction Phase				
22	Construction of infrastructure	Impact on landscape characteristics, key views and the visual quality of the area	**WOM**	Moderate
			WM	Negligible
Operational Phase				
23	Additional lights at night	Additions to the cumulative	**WOM**	Moderate

		negative effect on the visual quality of the landscape	**WM**	Low
TRAFFIC IMPACTS				
Construction Phase				
24	Construction vehicle movement on and off site	Additional pressure on road network	**WOM**	Moderate
			WM	Negligible
25	Construction vehicle movement on and off site	Upgrade of existing roads surrounding retail centre	**WOM**	High
			WM	High
Operational Phase				
26	Operational traffic due to retail centre	Additional pressure on road network	**WOM**	Moderate
			WM	Low
WASTE MANAGEMENT IMPACTS				
Construction Phase				
27	Poor management and disposal of solid waste	Ineffective management of waste could result in surface, ground water and air contamination as well as ecological and health impacts.	**WOM**	Moderate
			WM	Negligible
Operational Phase				
28	Poor management and disposal of solid waste	Ineffective management of waste could result in surface, ground water and air contamination as well as ecological and health impacts.	**WOM**	Low
			WM	Negligible
SOCIO-ECONOMIC IMPACTS				
Construction Phase				
29	Creation of job opportunities	Economic upliftment in the area	**WOM**	Negligible
			WM	Moderate
30	Construction workers on site	Increase in crime - safety risks to neighbours	**WOM**	Negligible
			WM	Negligible
Operational Phase				
31	Creation of job opportunities	Economic upliftment in the area	**WOM**	Low
			WM	High
32	Development of new retail centre	Impact on livelihood of surrounding retail centres	**WOM**	Negligible
			WM	Negligible

In summary, based on the Impact analysis (Section E (3)), the Lotus Gardens Retail Development can be established without fatal flaws should the mitigation proposed be followed. Before mitigation the following impacts were rated of high significance without mitigation measures:

- Soil erosion
- Upgrade of existing roads surrounding retail centre (positive)

The above soil erosion impact can however be mitigated to low significance. The upgrade of existing roads surrounding the retail centre is a positive impact. Should the mitigation measures proposed in the EMPr be implemented the impact on the environment can be considered to be of negligible to low significance.

9. Conclusions & Recommendations

The findings of the specialist studies undertaken within this Environmental process provide an assessment of both the benefits and potential negative impacts anticipated as a result of the proposed project. The findings conclude that provided that the recommended mitigation and management measures are implemented there are no environmental fatal flaws that should prevent the proposed project from proceeding.

In order to achieve appropriate environmental management standards and ensure that the findings of the environmental studies are implemented through practical measures, the recommendations from this report have been included within an Environmental Management Plan (EMPr) which has been included in Appendix G: EMPr.

This EMPr will form part of the contract with the contractors appointed to construct and maintain the proposed retail centre. The EMPr should be used to ensure compliance with environmental specifications and management measures. The implementation of this EMPr for key cycle phases (i.e. construction and operation) of the proposed project is considered to be fundamental in achieving the appropriate environmental management standards as detailed for this project.

It is also recommended that the process of communication and consultation with the community is maintained after the closure of this BA process, in particular, during the construction phase associated with the proposed project.

GAUTENG PROVINCE
AGRICULTURE AND RURAL DEVELOPMENT
REPUBLIC OF SOUTH AFRICA

Basic Assessment Report in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the Environmental Impact Assessment Regulations, 2014 (Version 1)

Kindly note that:

1. This **Basic Assessment Report** is the standard report required by GDARD in terms of the EIA Regulations, 2014.

2. This application form is current as of 8 December 2014. It is the responsibility of the EAP to ascertain whether subsequent versions of the form have been published or produced by the competent authority.

3. **A draft Basic Assessment Report must be submitted, for purposes of comments within a period of thirty (30) days, to all State Departments administering a law relating to a matter likely to be affected by the activity to be undertaken.**

4. **A draft Basic Assessment Report (1 hard copy and two CD's) must be submitted, for purposes of comments within a period of thirty (30) days, to a Competent Authority empowered in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended to consider and decide on the application.**

5. Five (5) copies (3 hard copies and 2 CDs-PDF) of the final report and attachments must be handed in at offices of the relevant competent authority, as detailed below.

6. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.

7. Selected boxes must be indicated by a cross and, when the form is completed electronically, must also be highlighted.

8. An incomplete report may lead to an application for environmental authorisation being refused.

9. **Any report that does not contain a titled and dated full colour large scale layout plan of the proposed activities including a coherent legend, overlain with the sensitivities found on site may lead to an application for environmental authorisation being refused.**

10. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the application for environmental authorisation being refused.

11. No faxed or e-mailed reports will be accepted. Only hand delivered or posted applications will be accepted.

12. Unless protected by law, and clearly indicated as such, all information filled in on this application will become public information on receipt by the competent authority. The applicant/EAP must provide any interested and affected party with the information contained in this application on request, during any stage of the application process.

13. Although pre-application meeting with the Competent Authority is optional, applicants are advised to have these meetings prior to submission of application to seek guidance from the Competent Authority.

DEPARTMENTAL DETAILS

Gauteng Department of Agriculture and Rural Development
Attention: Administrative Unit of the of the Environmental Affairs Branch
P.O. Box 8769
Johannesburg
2000

Administrative Unit of the of the Environmental Affairs Branch
Ground floor Diamond Building
11 Diagonal Street, Johannesburg

Administrative Unit telephone number: (011) 240 3377
Department central telephone number: (011) 240 2500

(For official use only)

NEAS Reference Number:						
File Reference Number:						
Application Number:						
Date Received:						

If this BAR has not been submitted within 90 days of receipt of the application by the competent authority and permission was not requested to submit within 140 days, please indicate the reasons for not submitting within time frame.

Is a closure plan applicable for this application and has it been included in this report?

If not, state reasons for not including the closure plan.

Has a draft report for this application been submitted to a competent authority and all State Departments administering a law relating to a matter likely to be affected as a result of this activity? Y

Is a list of the State Departments referred to above attached to this report including their full contact details and contact person? Y

If no, state reasons for not attaching the list.

Have State Departments including the competent authority commented? Y

If no, why?

SECTION A: ACTIVITY INFORMATION

1. PROPOSAL OR DEVELOPMENT DESCRIPTION

Project title (must be the same name as per application form):

Environmental Impact Assessment (Basic Assessment) for the development of a Retail Centre in Lotus Gardens, Pretoria, Gauteng

Select the appropriate box

The application is for an upgrade of an existing development		The application is for a new development	X	Other, specify	

Does the activity also require any authorisation other than NEMA EIA authorisation?

~~YES~~	NO

If yes, describe the legislation and the Competent Authority administering such legislation

General Authorisation in terms of section 39 of the National Water Act (Act 36 of 1998) (NWA) and GNR 509 of 2016 – Department of Water and Sanitation

If yes, have you applied for the authorisation(s)?	YES	~~NO~~
If yes, have you received approval(s)? (attach in appropriate appendix)	YES	~~NO~~

An application for a General Authorisation in terms of Section 21 (c) and (i) will be submitted to the Department of Water and Sanitation along with the Final BAR. Please refer to the DWS Pre-application Meeting Minutes in Appendix D.5: Minutes of any public and/or stakeholder meetings.

2. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations:

Title of legislation, policy or guideline:	Administering authority:	Promulgation Date:
The Constitution of the Republic of South Africa (Act 108 of 1996)	Minister for Justice and Constitutional Development	18 December 1996
The Promotion of Access to Information Act, 2000 (Act No. 2 of 2000)	Ministry of Public Administration and Justice	9 March 2001
National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended)	Department of Environmental Affairs (DEA) and Gauteng Department of Agriculture and Rural Development (GDARD)	27 November 1998
Environmental Impact Assessment Regulations, 2014	Department of Environmental Affairs (DEA) and Gauteng Department of Agriculture and Rural Development (GDARD)	4 December 2014
National Water Act (Act No 36 of 1998) (NWA)	Department of Water and Sanitation (DWS)	26 August 1998
The National Heritage Resources Act (Act No 25 of 1999) (NHRA)	South African Heritage Resources Association (SAHRA)	28 April 1999
National Environmental Management: Biodiversity Act (Act No 10 of 2004)	Department of Environmental Affairs (DEA) and Gauteng Department of Agriculture and Rural Development (GDARD)	7 June 2004
The National Forest Act (Act No 84 of 1998)	Department of Agriculture, Forestry and Fisheries (DAFF)	30 October 1998
Gauteng Nature Conservation Bill	Gauteng Department of	1 October 2014

	Agriculture and Rural Development (GDARD)	
Conservation of Agricultural Resources Act (Act No. 43 of 1983)	Department of Agriculture, Forestry and Fisheries (DAFF)	1 June 1984
City of Tshwane Metropolitan Municipality Integrated Development Plan 2011 to 2016	City of Tshwane Metropolitan Municipality	2011
Regional Integrated Development Plan: Region 3, 2014 - 2015	City of Tshwane Metropolitan Municipality	2014
Tshwane Bioregional Plan	City of Tshwane Metropolitan Municipality: Environmental Management Services (EMS) Department	14 October 2011
Gauteng Conservation Plan 3.3	Department of Environmental Affairs (DEA) and Gauteng Department of Agriculture and Rural Development (GDARD)	2011
Tshwane Open Space Framework Document	City of Tshwane Metropolitan Municipality: Environmental Management Services (EMS) Department	November 2005
Sustainable Development Criteria for Built Environment Projects requiring Environmental Impact Assessments in Gauteng	Uncertain	2009
Gauteng Environmental Management Framework (GEMF)	Department of Environmental Affairs (DEA) and Gauteng Department of Agriculture and Rural Development (GDARD)	2014

Description of compliance with the relevant legislation, policy or guideline:

Legislation, policy of guideline	Description of compliance
The Constitution of the Republic of South Africa (Act 108 of 1996)	Section 2 of the Constitution of the Republic of South Africa (Act 108 of 1996) (CA) states that: "This Constitution is the supreme law of the Republic; law or conduct inconsistent with it is invalid, and the obligations imposed by it must be fulfilled." Section 24 of the CA, states that everyone has the right to an environment that is not harmful to their health or well-being and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that: • prevent pollution and ecological degradation; • promote conservation; and • secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development. Section 24 guarantees the protection of the environment through reasonable legislative (and other measures) and such legislation is continuously in the process of being promulgated. Section 33(1) concerns administrative justice which includes the constitutional right to administrative action that is lawful, reasonable and procedurally fair. This report has been prepared, submitted and considered within the constitutional framework set by inter alia section 24 and 33 of the Constitution.
The Promotion of Access to Information Act,	Section 32 of the Constitution enshrines the right of

2000 (Act No. 2 of 2000)	access to certain information, and the Promotion of Access to Information Act (PAIA) gives effect to that right. The Act maintains and protects South Africans' right to access any information held by the State and/or information held by another person that is needed to protect or exercise any rights. Access to information will be granted once certain requirements have been met. The Act also recognises that the right of access to information may be limited if the limitations are reasonable in an open and democratic society (e.g. a limitation that protects privacy). The provisions of this legislation will be heeded throughout the public participation process.
National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended) and the Environmental Impact Assessment Regulations (EIA), 2014	The overarching principle of the National Environmental Management Act 1998 (Act 107 of 1998) (NEMA) is sustainable development. It defines sustainability as meaning the integration of social, economic and environmental factors into planning, implementation and decision making so as to ensure the development serves present and future generations. Section 2 of NEMA (Act no 107 of 1989) provides for National Environmental Management Principles. These principles include: • Environmental management must place people and their needs at the forefront of its concern. • Development must be socially, environmentally and economically sustainable. • Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated. • Environmental justice must be pursued. • Equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing must be pursued. • Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle. • The participation of all Interested and Affected Parties (I&APs) in environmental governance must be promoted. • Decisions must take into account the interests, needs and values of all I&APs. • The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment. • Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law. • The environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage. • The costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment. The Basic Assessment process followed is in compliance with the National Environmental Management Act: NEMA, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations of 2014 (Government Notice No R983 of

	December 2014). The proposed development involves 'listed activities', as defined by the NEMA, 1998. Listed activities are activities, which may potentially have detrimental impacts on the environment and therefore require environmental authorization from the relevant authorizing body. The proposed development occurs within Gauteng and thus the Gauteng Department of Agriculture and Rural Development (GDARD) is the responsible decision making authority. An application for environmental authorisation was submitted to the GDARD on the 16th of September 2016. No activities may commence until Environmental Authorisation has been granted by the GDARD. This report has been prepared, submitted and considered in line with Appendix 1 of the EIA Regulations (GNR 982)
National Water Act (Act No 36 of 1998) (NWA)	In terms of the NWA, the national government, acting through the Minister of Water and Environmental Affairs (previously the Minister of Water Affairs and Forestry), is the public trustee of South Africa's water resources, and must ensure that water is protected, used, development, conserved, managed and controlled in a sustainable and equitable manner for the benefit of all persons (section 3(1)). In terms of the NWA a person may only use water without a license under certain circumstances. All other use, provided that such use qualify as a use listed in section 21 of the Act, require a water use license. A person may only use water without a license if such water use is permissible under Schedule 1 (generally domestic type use) if that water use constitutes a continuation of an existing lawful water use (water uses being undertaken prior to the commencement of the NWA, generally in terms of the Water Act of 1956), or if that water use is permissible in terms of a general authorisation issued under section 39 (general authorisations allow for the use of certain section 21 uses provided that the criteria and thresholds described in the general authorisation is met). Permissible water use furthermore includes water use authorised by a license issued in terms of the NWA. Section 21 of the NWA indicates that "water use" includes: • taking water from a water resource (section 21(a)); • storing water (section 21(b)); • impeding or diverting the flow of water in a water course (section 21(c)); • engaging in a stream flow reduction activity contemplated in section 36 (section 21(d)); • engaging in a controlled activity which has either been declared as such or is identified in section 37(1) (section 21(e)); • discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit (section 21(f)); • disposing of waste in a manner which may detrimentally impact on a water resource (section 21(g); • disposing in any manner of water which contains waste from, or which has heated in, any industrial or power generation process (section 21 (h)); • altering the bed, banks, course or characteristics of a water course (section 21(i)); • removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people

	(section 21(j)); and • using water for recreational purposes (section 21(k)). An application for General Authorisation will be submitted to the DWS. Please refer to the Pre-Application Meeting Minutes in Appendix D.5: Minutes of any public and/or stakeholder meetings.
The National Heritage Resources Act (Act No 25 of 1999) (NHRA)	The NHRA established the South African Heritage Resources Agency (SAHRA) as well as provincial heritage resources agencies. In terms of the NHRA, no person may destroy, damage, deface, excavate, alter, remove from its original position, subdivide or change the planning status of any heritage site without a permit issued by the heritage resources authority responsible for the protection of such site. Section 38 of the NHRA states that any person who intends to undertake developments categorised in Section 38 of the NHRA must at the very earliest stages of initiating such development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development. By way of example, the developments referred to in Section 38 of the NHRA include: • the construction of a road, wall, power-line, pipeline, canal or other similar form of linear development or barrier exceeding 300 metres in length; • the construction of a bridge or similar structure exceeding 50 metres in length; • any development or other activity which will change the character of a site as specified in the regulations; • any other category of development provided for in regulations by SAHRA or the provincial heritage resources authority. The proposed retail development footprint is situated in an area that has been altered and disturbed by past anthropogenic activities, therefore no heritage receptors occur here and the landscape directly surrounding the proposed retail development is generally not sensitive in terms of history or sense of place. As such, no major impact on heritage resources or the larger heritage landscape is anticipated. The legislation was taken into account during the compilation of the Archaeological Impact Assessment. Please refer to Appendix F.3: Archaeological Impact Assessment.
National Environmental Management: Biodiversity Act (Act No 10 of 2004)	The National Environmental Management Biodiversity Act (Act No. 10 of 2004) (NEMBA) aims to provide for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998. The NEMBA provides for the publishing of various lists of species and ecosystems by the Minister of Environmental Affairs and Tourism (now the Minister of Water and Environmental Affairs) as well as by a Member of the Executive Council responsible for the conservation of biodiversity of a province in relation to which certain activities may not be undertaken without a permit. No protected plant species occur on site but the legislation will be heeded throughout the process and was taken into account during the compilation of the Biodiversity Impact Assessment. Please refer to Appendix F.1: Biodiversity Impact Assessment.
The National Forest Act (Act No 84 of 1998)	The project may involve the cutting, disturbing, damaging or destroying of any protected trees declared

	in terms of section 12 of the National Forest Act (NFA) (Act 84 of 1998). Should the presence of these trees on site be confirmed after receipt of the Record of Decision (ROD), a licence in terms of section 15 of the NFA will be required. No protected trees occur on site but the legislation will be heeded throughout the process and was taken into account during the compilation of the Biodiversity Impact Assessment. Please refer to Appendix F.1: Biodiversity Impact Assessment
Gauteng Nature Conservation Bill	This Act deals with the following: • To provide for the sustainable utilisation and protection of biodiversity within Gauteng; • To provide for professional hunting; • To provide for the preservation of caves and cave formations; • To provide for the establishment of zoos and similar institutions; • To provide for the appointment of nature conservators; • To provide for the issuing of permits and other authorisations; • To provide for offences and penalties for contravention of the Bill; • To implement the provisions of the Bill; and to provide for matters connected therewith. The legislation was heeded during the compilation of the Biodiversity Impact Assessment. Refer to Appendix F.1: Biodiversity Impact Assessment.
Conservation of Agricultural Resources Act (Act No. 43 of 1983)	This Act regulates the utilization and protection of wetlands, soil conservation and all matters relating thereto; control and prevention of veld fires, control of weeds and invader plants, the prevention of water pollution resulting from farming practices and losses in biodiversity. The legislation was heeded during the compilation of the Biodiversity Impact Assessment and Wetland Impact Assessment. Refer to Appendix F.1: Biodiversity Impact Assessment and Appendix F.2: Wetland Impact Assessment.
City of Tshwane Metropolitan Municipality Integrated Development Plan 2011 to 2016	The City of Tshwane adopted its Integrated Development Plan (IDP) in 2011 which maps out the delivery agenda of the current term of office of the City for the period 2011 to 2016. As part of the process of establishing the seven (7) service delivery regions, the City have embarked on a process to develop Regional Integrated Development Plans (RIDPs) which will complement the City-wide IDP. The site is located within Region 3.
Regional Integrated Development Plan: Region 3, 2014 - 2015	The study area falls within Region 3 of the IDP. Region 3 is situated in the eastern portion of the Metropolitan area. 1 City of Tshwane. Accelerated Service Delivery Implementation: Regionalisation & Transformation Strategic Plan 2012 – 2016 Region 3 is bordered by the Magaliesberg Mountain range to the north and the N4 freeway to the east, including a small part of East Lynne and Silverton. The region includes the CBD of Tshwane, the Brooklyn and Hatfield metropolitan nodes as well as the western area of Tshwane (commonly known as Pretoria West). To the south west, the region borders on the jurisdiction of Mogale City and to the west is Madibeng in North West Province. The site is in close proximity to the Saulsville / Atteridgeville Urban Core Node. The node forms part of

	the Tsosoloso programme (NDPG), aiming to create vibrant, and quality spaces focusing on economic potential to act as catalysts for development. Even though the site falls outside the Urban Core Node, it will create additional employment and economic opportunity, strengthening the local market.
Tshwane Bioregional Plan and Gauteng Conservation Plan 3.3	The purpose of a bioregional plan is to inform land-use planning, environmental assessment and authorisations, and natural resource management, by a range of sectors whose policies and decisions impact on biodiversity. This is done by providing a map of biodiversity priority areas, referred to as Critical Biodiversity Areas and Ecological Support Areas, with accompanying land-use planning and decision-making guidelines. This bioregional plan is based on Critical Biodiversity Areas designed and described in CPlan 3.3 (Compaan et al. 2011), a systematic biodiversity plan developed by GDARD. Consequently, the draft bioregional plan is consistent with the National Environmental Management: Biodiversity Act (Act No. 10 of 2004), and meets all the requirements of the guideline regarding the determination of bioregions and the preparation and publication of bioregional plans (DEAT 2009). According to the Gauteng C-Plan the majority of the site falls within a Critical Biodiversity Area (CBA). Therefore, a Biodiversity Impact Assessment was conducted for the site. Refer to Appendix F.1: Biodiversity Impact Assessment.
Tshwane Open Space Framework Document	Open Space as defined by the Tshwane Open Space Framework (TOSF) as areas predominantly free of building that provide ecological, socio-economic and place-making functions at all scales of the metropolitan area. The Tshwane Open Space Framework provides a holistic framework within which the sustainable spatial development of the City can be guided and directed. Open spaces include Green (irreplaceable site, protected area, high ecological sensitivity and ridge systems) and Blue (dams, wetlands, watercourses, floodlines and rivers) areas These open space types are all considered to be of metropolitan significance and influence. The principles of the TOSF serve to facilitate the merger of development alongside areas of conservation importance. Developments must actively contribute to the protection and enhancement of the current and envisioned open space network, without harming the integrity of the open space in any way. The site is not affected by any of the above mentioned open space types. The guideline document was heeded during the compilation of this Basic Assessment Report (BAR).
Gauteng Environmental Management Framework (GEMF) 2014	The GEMF is seen as part of a pro-active framework that will inform planning on provincial and municipal level. The Environmental Management Zones (EMZ) were derived from the desired state, the environmental sensitivity as well the unique control areas as identified in sections 1, 2 and 3. The EMZs were presented to the Gauteng Planning Forum where it was generally accepted as a suitable contribution to facilitate appropriate development in Gauteng. The EMZs also took the Gauteng Growth and Management Perspective, 2014, into account and is therefore aligned to the general development policy for Gauteng. Five EMZs were identified and overlaying those a further six Special Management Areas were identified where specific planning and policy measures are necessary to achieve the development objective of those areas.

	The study area is located within EMZ 1: Urban development zone **Intention** The intention with this zone is to streamline urban development activities in it and to promote development infill, densification and concentration of urban development within the development zones as defined in the Gauteng Spatial Development Framework (GSDF), in order to establish a more effective and efficient city region that will minimise urban sprawl into rural areas. **Conditions** • Development in this area must be sustainable in respect to the capacity of the environment and specifically the hydrological system to absorb additional sewage and stormwater loads as a result of increased densities; • Existing open spaces and urban parks should be retained as open space to cater for the open space needs of the foreseen increased densities; and • Stormwater drainage must be in accordance with the Water Research Commission Report, 2012 and the South African Guidelines for Sustainable Drainage Systems. The development is in line with the GEMF.

3. ALTERNATIVES

Describe the proposal and alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished. The determination of whether the site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment.

The no-go option must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. **Do not** include the no go option into the alternative table below.

Note: After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Please describe the process followed to reach (decide on) the list of alternatives below

The assessment of alternatives is an objective of the EIA Regulations 2014. The Integrated Environmental Management (IEM) procedure requires that an environmental investigation needs to consider feasible alternatives for any proposed development. Therefore, DEA (previously DEAT) requires that a number of possible proposals or alternatives for accomplishing the same objectives should be considered. To ensure that the proposed development enables sustainable development, feasible alternatives must be explored.

In the case of the proposed development, possible alternatives were identified through discussions with the project team, reviewing of existing environmental data, and specialist inputs/studies.

Provide a description of the alternatives considered

No.	**Alternative type**, either alternative: site on property, properties, activity, design, technology, energy, operational or other(provide details of "other")	**Description**
1	Proposal (preferred alternative)	Proposed development of a Retail Centre on portion 539 of the farm Pretoria Town and Townlands 351 JR in Lotus Gardens, Pretoria, Gauteng. The zoning rights applied was for the proposed retail development comprising of a multiple storey office block with ground retail. The site shall have the following controls: • Zoning: "Business 1" (For offices and retail)

		• Approximate Area: 2.3278 ha • Height: 3 storeys • Proposed Commercial Development Size: 7 257 m² • Parking: The proposed architect's plan indicates a required parking of 4 per 100 m² which resulted in 281 parking bays.
2	Alternative 1	Residential Land Use The site is located in an area that accommodates more than 24 000 families in formal units in suburbs like Phillip Nel Park, Danville, Pretoria West, West Park, Lotus Gardens and Atteridgeville. The Tshwane Western region is characterised by high levels of residential growth within the market. An estimated 46 027 people or 13 263 households reside within the primary trade area. The total existing supply of shopping centre retail's floor space in the primary market area presently amounts to approximately 4723 m^2, and consists of a local convenience centre and Shoprite centre. The current and future spatial development guidelines as set out in the spatial development framework emphasize commercial developments and concentration of economic activity. The zoning of the site is "Business 1" for offices and retail and the Proposal (Preferred Alternative) is therefore in line with the spatial development framework. Based on the above and the retail feasibility study conducted for the site, Alternative 1 for a residential development was not further considered.

In the event that no alternative(s) has/have been provided, a motivation must be included in the table below.

Only one site is currently proposed, no other location alternatives are currently evaluated due to various coexisting factors, including ownership and preferential locality. The proposed site was evaluated through a Retail Feasibility Study and found suitable. Alternative 1 in terms of land use was also not further considered due to the large existing residential development in the area and the lack of retail development and the demand for commercial developments in the area.

4. PHYSICAL SIZE OF THE ACTIVITY

Indicate the total physical size (footprint) of the proposal as well as alternatives. Footprints are to include all new infrastructure (roads, services etc.), impermeable surfaces and landscaped areas:

	Size of the activity:
Proposed activity ***(Total environmental (landscaping, parking, etc.) and the building footprint)***	2.325 ha (1.15 ha)
Alternatives:	
Alternative 1 (if any)	
Alternative 2 (if any)	
	Ha/ m^2

or, for linear activities:

	Length of the activity:
Proposed activity	
Alternatives:	
Alternative 1 (if any)	
Alternative 2 (if any)	
	m/km

Indicate the size of the site(s) or servitudes (within which the above footprints will occur):

	Size of the site/servitude:
Proposed activity	2.325 ha
Alternatives:	
Alternative 1 (if any)	
Alternative 2 (if any)	
	Ha/m^2

5. SITE ACCESS

Proposal

Does ready access to the site exist, or is access directly from an existing road?	~~YES~~	NO
If NO, what is the distance over which a new access road will be built		m

Describe the type of access road planned:

Access to the site is via the existing tarred N4 and Acridian Street. The proposed development will gain access of two points. The access to the retail centre will be off Dijon Street in the form of a fourth leg opposite Tamarind Street, the intersection will remain priority controlled. A services access will be off Dijon Street in the form of a new priority controlled T-intersection. This access should be constructed south of the access opposite Tamarind Street via the extension of Dijon Street to the south. No other access roads will need to be constructed and therefore no alternatives were considered.

Include the position of the access road on the site plan (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

Alternative 1

Does ready access to the site exist, or is access directly from an existing road?	YES	NO
If NO, what is the distance over which a new access road will be built		m

Describe the type of access road planned:

Include the position of the access road on the site plan. (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

Alternative 2

Does ready access to the site exist, or is access directly from an existing road?	YES	NO
If NO, what is the distance over which a new access road will be built		m

Describe the type of access road planned:

Include the position of the access road on the site plan. (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

PLEASE NOTE: Points 6 to 8 of Section A must be duplicated where relevant for alternatives

Section A 6-8 has been duplicated **1** Number of times

(only complete when applicable)

6. LAYOUT OR ROUTE PLAN

A detailed site or route (for linear activities) plan(s) must be prepared for each alternative site or alternative activity. It must be attached to this document. The site or route plans must indicate the following:

- the layout plan is printed in colour and is overlaid with a sensitivity map (if applicable);
- layout plan is of acceptable paper size and scale, e.g.
  - A4 size for activities with development footprint of 10sqm to 5 hectares;
  - A3 size for activities with development footprint of > 5 hectares to 20 hectares;
  - A2 size for activities with development footprint of >20 hectares to 50 hectares);
  - A1 size for activities with development footprint of >50 hectares);

- The following should serve as a guide for scale issues on the layout plan:
  - A0 = 1: 500
  - A1 = 1: 1000
  - A2 = 1: 2000
  - A3 = 1: 4000
  - A4 = 1: 8000 (±10 000)
- shapefiles of the activity must be included in the electronic submission on the CD's;
- the property boundaries and Surveyor General numbers of all the properties within 50m of the site;
- the exact position of each element of the activity as well as any other structures on the site;
- the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, sewage pipelines, septic tanks, storm water infrastructure;
- servitudes indicating the purpose of the servitude;
- sensitive environmental elements on and within 100m of the site or sites (including the relevant buffers as prescribed by the competent authority) including (but not limited thereto):
  - Rivers and wetlands;
  - the 1:100 and 1:50 year flood line;
  - ridges;
  - cultural and historical features;
  - areas with indigenous vegetation (even if it is degraded or infested with alien species);
- Where a watercourse is located on the site at least one cross section of the water course must be included (to allow the position of the relevant buffer from the bank to be clearly indicated)

FOR LOCALITY MAP (NOTE THIS IS ALSO INCLUDED IN THE APPLICATION FORM REQUIREMENTS)

- the scale of locality map must be at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map;
- the locality map and all other maps must be in colour;
- locality map must show property boundaries and numbers within 100m of the site, and for poultry and/or piggery, locality map must show properties within 500m and prevailing or predominant wind direction;
- for gentle slopes the 1m contour intervals must be indicated on the map and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the map;
- areas with indigenous vegetation (even if it is degraded or infested with alien species);
- locality map must show exact position of development site or sites;
- locality map showing and identifying (if possible) public and access roads; and
- the current land use as well as the land use zoning of each of the properties adjoining the site or sites.

7. SITE PHOTOGRAPHS

Colour photographs from the center of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under the appropriate Appendix**.** It should be supplemented with additional photographs of relevant features on the site, where applicable.

8. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of 1:200 for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity to be attached in the appropriate Appendix.

SECTION B: DESCRIPTION OF RECEIVING ENVIRONMENT

Note: Complete Section B for the proposal and alternative(s) (if necessary)

Instructions for completion of Section B for linear activities

1) For linear activities (pipelines etc.) it may be necessary to complete Section B for each section of the site that has a significantly different environment.
2) Indicate on a plan(s) the different environments identified
3) Complete Section B for each of the above areas identified
4) Attach to this form in a chronological order
5) Each copy of Section B must clearly indicate the corresponding sections of the route at the top of the next page.

Section B has been duplicated for sections of the route | **"insert No. of duplicates"** | times

Instructions for completion of Section B for location/route alternatives

1) For each location/route alternative identified the entire Section B needs to be completed
2) Each alterative location/route needs to be clearly indicated at the top of the next page
3) Attach the above documents in a chronological order

Section B has been duplicated for location/route alternatives | **"insert No. of duplicates"** | times (complete only when appropriate)

Instructions for completion of Section B when both location/route alternatives and linear activities are applicable for the application

Section B is to be completed and attachments order in the following way

- All significantly different environments identified for Alternative 1 is to be completed and attached in a chronological order; then
- All significantly different environments identified for Alternative 2 is to be completed and attached chronological order, etc.

Section B - Section of Route | | (complete only when appropriate for above)

Section B – Location/route Alternative No. | | (complete only when appropriate for above)

1. PROPERTY DESCRIPTION

Property description: (Including Physical Address and Farm name, portion etc.)	Portion 539 of the Farm Pretoria Town and Townlands 351 JR

2. ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in decimal degrees. The degrees should have at least six decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

Alternative:	**Latitude (S):**	**Longitude (E):**
	-25.750764 °	28.094500 °

In the case of linear activities:

Alternative:	**Latitude (S):**	**Longitude (E):**
• Starting point of the activity	°	°
• Middle point of the activity	°	°
• End point of the activity	°	°

For route alternatives that are longer than 500m, please provide co-ordinates taken every 250 meters along the route and attached in the appropriate Appendix

Addendum of route alternatives attached

The 21 digit Surveyor General code of each cadastral land parcel

PROPOSAL	T	0	J	R	0	0	0	0	0	0	0	0	0	3	5	1	0	0	5	3	9
ALT. 1																					
ALT. 2																					
etc.																					

3. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Flat	~~1:50 – 1:20~~	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

4. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site.

Ridgeline	Plateau	Side slope of hill/ridge	Valley	Plain	~~Undulating plain/low hills~~	River front

5. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

a) Is the site located on any of the following?

Shallow water table (less than 1.5m deep)	YES	~~NO~~
Dolomite, sinkhole or doline areas	YES	~~NO~~
Seasonally wet soils (often close to water bodies)	YES	~~NO~~
Unstable rocky slopes or steep slopes with loose soil	YES	~~NO~~
Dispersive soils (soils that dissolve in water)	YES	~~NO~~
Soils with high clay content (clay fraction more than 40%)	YES	~~NO~~
Any other unstable soil or geological feature	YES	~~NO~~
An area sensitive to erosion	YES	~~NO~~

(Information in respect of the above will often be available at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

b) are any caves located on the site(s) YES ~~NO~~

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

c) are any caves located within a 300m radius of the site(s) YES ~~NO~~

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

d) are any sinkholes located within a 300m radius of the site(s) YES ~~NO~~

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

If any of the answers to the above are “YES” or “unsure”, specialist input may be requested by the Department

6. AGRICULTURE

Does the site have high potential agriculture as contemplated in the Gauteng Agricultural Potential Atlas (GAPA 4)? YES ~~NO~~

Please note: The Department may request specialist input/studies in respect of the above.

7. GROUNDCOVER

To be noted that the location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Indicate the types of groundcover present on the site and include the estimated percentage found on site

Natural veld - good condition % =	Natural veld with scattered aliens % =	Natural veld with heavy alien infestation % =	Veld dominated by alien species % = 80	Landscaped (vegetation) % =
Sport field % =	Cultivated land % =	Paved surface (hard landscaping) % =	Building or other structure % =	Bare soil % = 20

Please note: The Department may request specialist input/studies depending on the nature of the groundcover and potential impact(s) of the proposed activity/ies.

Are there any rare or endangered flora or fauna species (including red list species) present on the site

YES | NO (X)

If YES, specify and explain:

Are there any rare or endangered flora or fauna species (including red list species) present within a 200m (if within urban area as defined in the Regulations) or within 600m (if outside the urban area as defined in the Regulations) radius of the site.

YES | NO (X)

If YES, specify and explain:

Are there any special or sensitive habitats or other natural features present on the site? YES | ~~NO~~ (X)

If YES, specify and explain:

Was a specialist consulted to assist with completing this section ~~YES~~ (X) | NO

If yes complete specialist details

Name of the specialist:	Dr Buks Henning
Qualification(s) of the specialist:	PhD plant Ecology; MSc Botany - Soil Science related
Postal address:	Postnet Suite 74, Private Bag X07, Arcadia
Postal code:	0007
Telephone:	012 751 2160
Cell:	
E-mail:	buks@exigo3.com
Fax:	086 607 2406

Are any further specialist studies recommended by the specialist? ~~YES~~ (X) | NO

If YES, specify: Wetland Impact Assessment

If YES, is such a report(s) attached? ~~YES~~ (X) | NO

If YES list the specialist reports attached below

Biodiversity Impact Assessment – Appendix F.1: Biodiversity Impact Assessment
Wetland Impact Assessment – Appendix F.2: Wetland Impact Assessment
Archaeological Impact Assessment – Appendix F.3: Archaeological Impact Assessment
Traffic Impact Assessment – Appendix F.4: Traffic Impact Assessment
Stormwater Management Plan – Appendix F.5: Stormwater Management Plan

Signature of specialist: 

Date: 22/11/2016

Please note; if more than one specialist was consulted to assist with the filling in of this section then this table must be appropriately duplicated

8. LAND USE CHARACTER OF SURROUNDING AREA

Using the associated number of the relevant current land use or prominent feature from the table below, fill in the position of these land-uses in the vacant blocks below which represent a 500m radius around the site

1. Vacant land	2. River, stream, wetland	3. Nature conservation area	4. Public open space	5. Koppie or ridge
6. Dam or reservoir	7. Agriculture	8. Low density residential	9. Medium to high density residential	10. Informal residential
11. Old age home	12. Retail	13. Offices	14. Commercial & warehousing	15. Light industrial
16. Heavy industrial^{AN}	17. Hospitality facility	18. Church	19. Education facilities	20. Sport facilities
21. Golf course/polo fields	22. Airport^{N}	23. Train station or shunting yard^{N}	24. Railway line^{N}	25. Major road (4 lanes or more)^{N}

26. Sewage treatment plant[A]	27. Landfill or waste treatment site[A]	28. Historical building	29. Graveyard	30. Archeological site
31. Open cast mine	32. Underground mine	33.Spoil heap or slimes dam[A]	34. Small Holdings	
Other land uses (describe):				

NOTE: Each block represents an area of 250m X 250m, if your proposed development is larger than this please use the appropriate number and orientation of hashed blocks

NORTH

19	**9**	**9**	**7 & 9**	**1 & 9**
1 & 9	**9**	**9**	**9**	**1 & 9**
9	**1 & 9**		**1 & 9**	**1 & 9**
1, 2 & 25	**1 & 25**	**1, 2 & 25**	**1, 2 & 25**	**1, 9 & 25**
2	**1, 2 & 9**	**9**	**1 & 9**	**2 & 9**

WEST

EAST

SOUTH

Note: More than one (1) Land-use may be indicated in a block

Please note: The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed activity/ies. Specialist reports that look at health & air quality and noise impacts may be required for any feature above and in particular those features marked with an "[A]" and with an "[N]" respectively.

Have specialist reports been attached ~~YES~~ NO

If yes indicate the type of reports below

Biodiversity Impact Assessment – Appendix F.1: Biodiversity Impact Assessment
Wetland Impact Assessment – Appendix F.2: Wetland Impact Assessment
Archaeological Impact Assessment – Appendix F.3: Archaeological Impact Assessment
Traffic Impact Assessment – Appendix F.4: Traffic Impact Assessment
Stormwater Management Plan – Appendix F.5: Stormwater Management Plan

9. SOCIO-ECONOMIC CONTEXT

Describe the existing social and economic characteristics of the area and the community condition as baseline information to assess the potential social, economic and community impacts.

Demographics of a study area are important to ensure that new developments will complement the existing land uses.

Socio-Economic Environment

The following information was obtained from the Regional Integrated Development Plan for Region 3 of the CTMM the period 2014 – 2015 as well as the Retail Feasibility study conducted by Demacon for the project.

Population demographics

Region 3 had a total population of 585 160 people in 2011 (Stats SA Census 2011). This region includes the CBD and adjoining areas which include as number of high-rise flats; some of the highest population wards are located in the CBD. The other high population wards are located in Atteridgeville, a previously disadvantaged area, requiring a specific focus in terms of service delivery and the creation of sustainable human settlements The site is located in Ward 7 which has a population of 42 846 with a density of 2.82 per Ha, 8915 dwelling units and an average household size of 4.81.

Age

The age profile for the project area is as follows:

- 0 – 14 years: 27.9%
- 15 - 19 years: 8.8%
- 20 - 34 years: 30.3%
- 35 - 64 years: 31.5%
- 65 years +: 1.5%

The age groups from 20 to 34 years and 35-64 years are the largest. This falls within the economically active age group, which will require employment opportunities in the area.

Education

In summary, in Region 3:

- 2% of adults have no schooling.
- 28% of adults are schooled up to grade 12.

The highest level of education is broken down as follows:

- Grade 12: 36.6 %
- Some Secondary: 29.6%
- Higher: 24.4%
- Some Primary: 5.3%
- Complete Primary: 2.4%
- None: 1.7%

In general, the education level in the region is low, but is higher than neighbouring regions 1 and 2 with a higher number of people having completed tertiary education. This may result in people having slightly higher access to employment opportunities than the lower skilled regions.

Employment

Approximately 19% of economically active persons are permanently unemployed in the region. The level of employment for the project area is as follows:

- Economically active: 73.9%
- Employed: 71.0%
- Unemployed: 29.0%

Accommodation

A total of 24222 units, or approximately 12% of the dwellings in the region, are informal. The number of families still residing in informal dwellings is relatively low compared to other regions, but still represents a substantial number of houses to be provided to address the backlog. The weighted average household income (2014) is as follows:

All Living Standards Measures (LSM's):

- R252 196 per annum
- R21 016 per month

LSM 4 – 10+ households:

- R307 002 per annum
- R25 583 per month

10. CULTURAL/HISTORICAL FEATURES

Please be advised that if section 38 of the National Heritage Resources Act 25 of 1999 is applicable to your proposal or alternatives, then you are requested to furnish this Department with written comment from the South African Heritage Resource Agency (SAHRA) – Attach comment in appropriate annexure

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;

(b) the construction of a bridge or similar structure exceeding 50m in length;

(c) any development or other activity which will change the character of a site-

(i) exceeding 5 000 m2 in extent; or

(ii) involving three or more existing erven or subdivisions thereof; or

(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or

(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;

(d) the re-zoning of a site exceeding 10 000 m2 in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

Are there any signs of culturally (aesthetic, social, spiritual, environmental) or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including archaeological or palaeontological sites, on or close (within 20m) to the site?	YES	NO
If YES, explain:		

If uncertain, the Department may request that specialist input be provided to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist if one was already appointed:

No heritage resources have been documented in the proposed Lotus Gardens X17 Retail Centre Development footprint areas. It is the opinion of the specialist that the proposed Lotus Gardens X17 Retail Centre Development in Lotus Gardens will have no impact on archaeological resources, the built environment, the cultural landscape or human burials. The project should be allowed to proceed from a culture resources management perspective on the condition that the relevant Heritage Resources authority approves these findings and provided that no subsurface heritage remains are encountered during construction.

Will any building or structure older than 60 years be affected in any way?	YES	NO
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	YES	NO
If yes, please attached the comments from SAHRA in the appropriate Appendix		

SECTION C: PUBLIC PARTICIPATION (SECTION 41)

1. The Environmental Assessment Practitioner must conduct public participation process in accordance with the requirement of the EIA Regulations, 2014.

2. LOCAL AUTHORITY PARTICIPATION

Local authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of the application at least thirty (30) calendar days before the submission of the application to the competent authority.

Was the draft report submitted to the local authority for comment?	~~YES~~ NO
If yes, has any comments been received from the local authority?	~~YES~~ NO

If "YES", briefly describe the comment below (also attach any correspondence to and from the local authority to this application):

On 12 May 2016 Ms Rudzani Mukheli from the City of Tshwane Environmental Management Services (EMS) Department provided the following guideline documents to be considered in the compilation of the DBAR:

1. Tshwane bioregional plan
2. Tshwane Open Space Framework Document

She also requested that 2 hard copies and two electronic copies of the report be submitted for further comment.

This Draft BAR has been submitted to the City of Tshwane EMS Department for review and comment. The Department's comments will be included and addressed in the Final BAR.

If "NO" briefly explain why no comments have been received or why the report was not submitted if that is the case.

3. CONSULTATION WITH OTHER STAKEHOLDERS

Any stakeholder that has a direct interest in the activity, site or property, such as servitude holders and service providers, should be informed of the application at least **thirty (30) calendar days** before the submission of the application and be provided with the opportunity to comment.

Has any comment been received from stakeholders?	~~YES~~ NO

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

Please refer to the Comments and Response Report in Appendix D.6: Comments and Responses Report.

This Draft BAR is currently available for public review and comments. All comments received from I&AP's during the review period will be included and addressed in the Final BAR.

If "NO" briefly explain why no comments have been received

4. GENERAL PUBLIC PARTICIPATION REQUIREMENTS

The Environmental Assessment Practitioner must ensure that the public participation process is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of each case. Special attention should be given to the involvement of local community structures such as Ward Committees and ratepayers associations. Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was flawed.

The EAP must record all comments and respond to each comment of the public / interested and affected party before the application report is submitted. The comments and responses must be captured in a Comments and Responses Report as prescribed in the regulations and be attached to this application.

5. APPENDICES FOR PUBLIC PARTICIPATION

All public participation information is to be attached in the appropriate Appendix. The information in this Appendix is to be ordered as detailed below

Appendix 1 – Proof of site notice

Appendix 2 – Written notices issued as required in terms of the regulations

Appendix 3 – Proof of newspaper advertisements

Appendix 4 –Communications to and from interested and affected parties

Appendix 5 – Minutes of any public and/or stakeholder meetings

Appendix 6 - Comments and Responses Report

Appendix 7 –Comments from I&APs on Basic Assessment (BA) Report

Appendix 8 –Comments from I&APs on amendments to the BA Report

Appendix 9 – Copy of the register of I&APs

SECTION D: RESOURCE USE AND PROCESS DETAILS

Note: Section D is to be completed for the proposal and alternative(s) (if necessary)

Instructions for completion of Section D for alternatives

1) For each alternative under investigation, where such alternatives will have different resource and process details (e.g. technology alternative), the entire Section D needs to be completed
4) Each alterative needs to be clearly indicated in the box below
5) Attach the above documents in a chronological order

Section D has been duplicated for alternatives **"insert No. of duplicates"** times (complete only when appropriate)

Section D Alternative No. "insert alternative number" (complete only when appropriate for above)

1. WASTE, EFFLUENT, AND EMISSION MANAGEMENT

Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase? YES ~~NO~~

If yes, what estimated quantity will be produced per month? Undetermined m^3

How will the construction solid waste be disposed of (describe)?

Construction solid waste will feed into the municipal waste stream or alternatively be disposed of at a registered landfill site.
It is recommended that a recycling programme be implemented in order to minimize the waste being disposed of. It is recommended that waste be sorted in to the different categories for recycling, e.g. paper, plastic, glass and metal, and be collected by appointed third party waste recycling companies. All other waste which cannot be recycled should be stored in skip waste containers for disposal via the municipal waste stream or to a registered landfill site. The proper disposal of waste will be the responsibility of the contractor and will be allowed for in the EMPr which is legally binding document.

Where will the construction solid waste be disposed of (describe)?

The construction solid waste will either be disposed in the municipal waste stream or at a City of Tshwane Metropolitan Municipality (CTMM) registered landfill site

Will the activity produce solid waste during its operational phase? YES ~~NO~~

If yes, what estimated quantity will be produced per month? Undetermined `m^3

How will the solid waste be disposed of (describe)?

Solid waste will feed into the municipal waste stream of the CTMM. It is recommended that a recycling programme also be implemented for the operational phase of the development.

Has the municipality or relevant service provider confirmed that sufficient air space exists for treating/disposing of the solid waste to be generated by this activity?	YES	~~NO~~

Confirmation of capacity for the disposal of the solid waste will be applied for with the CTMM upon proclamation of the township development.

Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?

Note: If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation? If yes, inform the competent authority and request a change to an application for scoping and EIA.	YES	~~NO~~

Is the activity that is being applied for a solid waste handling or treatment facility? If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.	YES	~~NO~~

Describe the measures, if any, that will be taken to ensure the optimal reuse or recycling of materials:

It is recommended that waste be recycled during both the construction and operational phases of the development. Please refer to the mitigation measures recommended in the EMPr (Appendix G: EMPr) for waste management measures during the construction phase.

During the operational phase waste will feed into the municipal waste stream and will be collected by the CTMM Waste Services. It is recommended that the separate businesses each individually sort their recyclable waste for collective collection at a central collection point by a third party waste recycling company on a weekly, bi-weekly or monthly basis as determined by the retail centre management or as required.

Liquid effluent (other than domestic sewage)

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	YES	~~NO~~
If yes, what estimated quantity will be produced per month?		m^3
If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the liquid effluent to be generated by this activity(ies)?	YES	NO

Will the activity produce any effluent that will be treated and/or disposed of on site?	Yes	~~NO~~
If yes, what estimated quantity will be produced per month?		m^3

If yes describe the nature of the effluent and how it will be disposed.

Note that if effluent is to be treated or disposed on site the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA

Will the activity produce effluent that will be treated and/or disposed of at another facility?	YES	~~NO~~

If yes, provide the particulars of the facility:

Facility name:			
Contact person:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

The internal stormwater will be collected by a conventional catch pits and pipe system and discharged via the municipal stormwater system. The development's stormwater system will connect to the municipal stormwater system at points AK3/3a and AK3/4a as per the SWMP Report. Please refer to the Stormwater Management Plan in Appendix F.5: Stormwater Management Plan.

Liquid effluent (domestic sewage)

Will the activity produce domestic effluent that will be disposed of in a municipal sewage system?	~~YES~~	NO
If yes, what estimated quantity will be produced per month?		1742 m^3
If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the domestic effluent to be generated by this activity(ies)?	YES	~~NO~~

A temporary sewage connection will be applied for with the CTMM to connect the development to the existing sewage pipeline which is located adjacent to the site upon proclamation of the township development.

Will the activity produce any effluent that will be treated and/or disposed of on site?	YES	~~NO~~

If yes describe how it will be treated and disposed off.

Emissions into the atmosphere

Will the activity release emissions into the atmosphere?	~~YES~~	NO
If yes, is it controlled by any legislation of any sphere of government?	YES	NO

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the emissions in terms of type and concentration:

Dust will be generated during the construction phase of the project as well as emissions from construction vehicles. The impact can however be mitigated to low significance with the implementation of the proposed mitigation measures.

2. WATER USE

Indicate the source(s) of water that will be used for the activity

~~municipal~~	Directly from water board	groundwater	river, stream, dam or lake	other	the activity will not use water

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month: liters

If Yes, please attach proof of assurance of water supply, e.g. yield of borehole, in the appropriate Appendix

Does the activity require a water use permit from the Department of Water Affairs?	~~YES~~	NO

If yes, list the permits required

General Authorisation for Section 21 (c) and (i) water uses in terms of section 39 of the National Water Act

If yes, have you applied for the water use permit(s)?	YES	~~NO~~
If yes, have you received approval(s)? (attached in appropriate appendix)	YES	~~NO~~

An application for a General Authorisation in terms of Section 21 (c) and (i) will be submitted to the Department of Water and Sanitation along with the Final BAR. Please refer to the DWS Pre-application Meeting Minutes in Appendix D.5: Minutes of any public and/or stakeholder meetings.

3. POWER SUPPLY

Please indicate the source of power supply e.g. Municipality / Eskom / Renewable energy source

Electricity will be supplied by the CTMM. An application for connection was submitted to the CTMM Services Infrastructure Department Energy and Electricity Development Division). Refer to Appendix D.6: Comments and Responses Report for the correspondence in this regard.

If power supply is not available, where will power be sourced from?

4. ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

Energy efficiency is being evaluated by way of energy efficient lighting, gas for cooking and use of solar energy. Appropriate structural designs, energy effective building construction and orientation, are not currently being considered: The following is recommended:

- Local building material instead of imported building material should be used as much as possible (this will reduce transportation impacts and enhance local employment creation).
- Building material that can be recycled / reused should be used as far as possible.
- Use should be made of highly durable building material for parts of the building that is unlikely to be changed during the life of the building (unlikely to change due to e.g. renovation, fashion, changes in facility life cycle, etc.) is recommended.
- Building material should be legally obtained by the supplier, e.g. wood must have been legally harvested, and sand should be obtained only from legal borrow pits and from commercial sources.
- Use of building material that requires excessive amounts of energy to manufacture should be minimised.
- Use of building material originating from sensitive or scarce environmental resources should be minimised. E.g. no tropical hardwood should be used.

The development will be constructed in line with the National Building Regulations *(*SANS 10400-NBR (SA) and the SANS 204 Energy Efficiency in Buildings' standard (SABS 2009) with regards to energy efficient building practices and materials.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

Gas and solar energy will be used where feasible. The development will be constructed in line with the National Building Regulations *(*SANS 10400-NBR (SA) and the SANS 204 Energy Efficiency in Buildings' standard (SABS 2009) and the requirements thereof with regards to energy efficient building practices and materials. The principles of passive thermal design with regards to energy efficient techniques and sustainability should also be noted with regards to the following amongst others:

- Orientation of buildings
- Optimizing use of natural sunlight
- Utilizing thermally efficient building materials or building materials with a high thermal mass

These principles are a low cost intervention, and are applicable to all climatic regions of South Africa (Design Guidelines for Energy Efficient Buildings in Johannesburg; 2008).

SECTION E: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts as well as the impacts of not implementing the activity (Section 24(4)(b)(i).

1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summarise the issues raised by interested and affected parties.

1. Guideline documents be considered:
    - Tshwane Bioregional Plan
    - Tshwane Open Space Framework Document
2. SUDS principles to be incorporated in cement stormwater channel – cement channel could be recreated into a SUDS canal with a retention pond at the discharge point should this channel be used for the discharge of stormwater. Following consultation this is no longer required as the development's stormwater will be managed via existing municipal stormwater infrastructure. Refer to Section D (1) and Appendix F.5: Stormwater Management Plan
3. Chemical storage on site, such as fuel
4. Stormwater Management Plan (SWMP) for the development
5. General Authorisation (GA) to be applied for in terms of new gazette (GN 1180 in GG 39458 of 27 November 2015), not yet promulgated, for Section 21 (c) and (i) water uses
6. Requirement of an Environmental Management Programme Report (EMPr)

7. Sewerage Services/sewerage system crossing the watercourse
8. The development will lead to more jobs and improve security in the area.

Summary of response from the practitioner to the issues raised by the interested and affected parties (including the manner in which the public comments are incorporated or why they were not included)
(A full response must be provided in the Comments and Response Report that must be attached to this report):

1. The Tshwane Bioregional Plan was taken into account in the Biodiversity Impact Assessment Study conducted for the project (refer to Appendix F.1: Biodiversity Impact Assessment). Likewise the Tshwane Open Space Framework Document was taken into account in the compilation of this BAR.
2. Please refer to the Wetland Impact Assessment Report in Appendix F.2: Wetland Impact Assessment.
3. No chemicals, such as fuel, will be stored on site.
4. Refer to the SWMP attached as Appendix F.5: Stormwater Management Plan.
5. An application for a GA with the subsequent risk assessment and motivation will be submitted along with the Draft BAR to the DWS.
6. Refer to Appendix G: EMPr for the Environmental Management Programme Report.
7. The retail centre will connect to the existing municipal sewerage system on the site. Refer to the Services Report in Appendix F.6 Services Report.
8. The benefits of the project are discussed below in Section E (2) and (9).

2. IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION AND OPERATIONAL PHASE

Briefly describe the methodology utilised in the rating of significance of impacts

An impact can be defined as any change in the physical-chemical, biological, cultural and/or socio-economic environmental system that can be attributed to human activities related to alternatives under study for meeting a project need. Assessment of impacts will be based on the Department of Environmental Affairs Guideline Document: EIA Regulations 2010. The significance of the aspects/impacts of the process will be rated by using a matrix derived from Plomp (2004) and adapted to some extent to fit this process. These matrixes use the consequence and the likelihood of the different aspects and associated impacts to determine the significance of the impacts.

The significance of the impacts will be determined through a synthesis of the criteria below:

Probability. This describes the likelihood of the impact actually occurring.

Improbable:	The possibility of the impact occurring is very low, due to the circumstances, design or experience.
Probable:	There is a probability that the impact will occur to the extent that provision must be made therefore.
Highly Probable:	It is most likely that the impact will occur at some stage of the development.
Definite:	The impact will take place regardless of any prevention plans, and there can only be relied on mitigatory actions or contingency plans to contain the effect.

Duration. The lifetime of the impact

Short term:	The impact will either disappear with mitigation or will be mitigated through natural processes in a time span shorter than any of the phases.
Medium term:	The impact will last up to the end of the phases, where after it will be negated.
Long term:	The impact will last for the entire operational phase of the project but will be mitigated by direct human action or by natural processes thereafter.
Permanent:	Impact that will be non-transitory. Mitigation either by man or natural processes will not occur in such a way or in such a time span that the impact can be considered transient.

Scale. The physical and spatial size of the impact

Local:	The impacted area extends only as far as the activity, e.g. footprint
Site:	The impact could affect the whole, or a measurable portion of the

above mentioned properties.

Regional: The impact could affect the area including the neighbouring residential areas.

Magnitude/ Severity. Does the impact destroy the environment, or alter its function.

Low: The impact alters the affected environment in such a way that natural processes are not affected.

Medium: The affected environment is altered, but functions and processes continue in a modified way.

High: Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.

Significance. This is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required.

Negligible: The impact is non-existent or unsubstantial and is of no or little importance to any stakeholder and can be ignored.

Low: The impact is limited in extent, has low to medium intensity; whatever its probability of occurrence is, the impact will not have a material effect on the decision and is likely to require management intervention with increased costs.

Moderate: The impact is of importance to one or more stakeholders, and its intensity will be medium or high; therefore, the impact may materially affect the decision, and management intervention will be required.

High: The impact could render development options controversial or the project unacceptable if it cannot be reduced to acceptable levels; and/or the cost of management intervention will be a significant factor in mitigation.

The following weights will be assigned to each attribute:

Aspect	Description	Weight
Probability	Improbable	1
	Probable	2
	Highly Probable	4
	Definite	5
Duration	Short term	1
	Medium term	3
	Long term	4
	Permanent	5
Scale	Local	1
	Site	2
	Regional	3
Magnitude/Severity	Low	2
	Medium	6
	High	8
Significance	Sum (Duration, Scale, Magnitude) x Probability	
	Negligible	<20
	Low	<40

	Moderate	<60
	High	>60

The significance of each activity will be rated without mitigation measures and with mitigation measures for both construction, operational and closure phases of the fluorspar mine development.

The mitigation effect of each impact will be indicated without and with mitigation measures as follows:

- Can be reversed
- Can be avoided, managed or mitigated
- May cause irreplaceable loss of resources

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the construction phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

Proposal

No	Activity	Impact	Without or With Mitigation	Nature (Negative or Positive Impact)	Significance Magnitude	Mitigation Measures	Mitigation Effect
ECOLOGICAL/BIODIVERSITY IMPACTS							
Construction Phase							
1	Clearing of vegetation for construction of infrastructure, access roads etc.	Habitat destruction	**WOM**	Negative	Moderate	• The removal of plant species should only occur on the footprint area of the development and not over the larger area; • Conduct flora species search and rescue efforts (small succulents such as Aloe davyana) before ground clearing begins in order to reduce negative impacts on species of concern; • Remove and relocate any plants of botanical or ecological significance as indicated by the ecologist or Environmental Control Officer (ECO); • Vegetation to be removed as it becomes necessary; • Clearly demarcate the entire development footprint prior to initial site clearance and prevent construction personnel from leaving the demarcated area; • Monitoring should be implemented during the construction phase of the development to ensure that minimal impact is caused to the flora of the area; • The ECO should advise the construction team in all relevant matters to ensure minimum destruction and damage to the environment. The ECO should enforce any measures that he/she deem necessary. Regular environmental training should be	N/A
			WM	Negative	Low		Can be avoided, managed or mitigated

						• provided to construction workers to ensure the protection of the habitat, fauna and flora and their sensitivity to conservation; • Limit pesticide use to non-persistent, immobile pesticides and apply in accordance with label and application permit directions and stipulations for terrestrial and aquatic applications; • Where trenches pose a risk to animal safety, they should be adequately cordoned off to prevent animals falling in and getting trapped and/or injured. This could be prevented by the constant excavating and backfilling of trenches during pipeline construction; • Poisons for the control of problem animals should rather be avoided since the wrong use thereof can have disastrous consequences for the raptors (refer to Appendix C) occurring in the area. The use of poisons for the control of rats, mice or other vermin should only be used after approval from an ecologist; • A detailed riparian management and rehabilitation plan should be developed for the wetland area associated with the site.	
2	Clearing of vegetation for construction of infrastructure, access roads etc.	Habitat fragmentation	**WOM** **WM**	Negative Negative	Moderate Low	• All possible efforts must be made to ensure as little disturbance as possible to the sensitive habitats such as rocky footslopes during construction; • Only necessary damage must be caused and, for example, unnecessary driving around in the veld or bulldozing natural habitat must not take place; • Construction activities must remain within defined construction areas and the road servitudes. No construction / disturbance will occur outside these areas.	N/A Can be avoided, managed or mitigated
3	Exposure of soils to rainfall and wind during construction	Soil erosion	**WOM**	Negative	High	• The following mitigation measures should be implemented to prevent erosion along	N/A

			WM	Negative	Low	sensitive soils, wetlands and drainage channels during the construction phase of the development: Cover disturbed soils as completely as possible, using vegetation or other materials; • Minimize the amount of land disturbance and develop and implement stringent erosion and dust control practices. • Sediment trapping, erosion and stormwater control should be addressed by a hydrological engineer in a detailed stormwater management plan; • Protect sloping areas that are susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and Work Areas; • Repair all erosion damage as soon as possible to allow for sufficient rehabilitation growth; • Gravel roads must be well drained in order to limit soil erosion; • Minimize clearance of vegetation. Retain natural trees, shrubbery and grass species wherever possible;	Can be avoided, managed or mitigated
4	Movement of vehicles on site during construction, storage of waste material and chemicals (if relevant)	Spillages of harmful substances	**WOM**	Negative	Moderate	• Appropriate sanitary facilities must be provided during construction and all waste removed to an appropriate waste facility. • Any excess or waste material or chemicals should be removed from the site and discarded in an environmental friendly way. The ECO should enforce this rule rigorously; • Hazardous chemicals to be stored on an impervious surface protected from rainfall and storm water run-off; • Spill kits should be on-hand to deal with spills immediately; • All vehicles should be inspected for oil and fuel leaks on a regular basis. Vehicle maintenance yards on site should make provision for drip trays that will be used to	N/A
			WM	Negative	Low		Can be avoided, managed or mitigated

						capture any spills. Drip trays should be emptied into a holding tank and returned to the supplier.	
5	Exposure of soils to rainfall and wind during construction	Dust contamination (air pollution)	**WOM**	Negative	Moderate	• A speed limit should be enforced on dirt roads (preferably 30km/h) during construction. • Implement standard dust control measures, including periodic spraying (frequency will depend on many factors including weather conditions, soil composition and traffic intensity and must thus be adapted on an on-going basis) of construction areas and access roads, and ensure that these are continuously monitored to ensure effective implementation.	N/A
			WM	Negative	Low		Can be avoided, managed or mitigated
6	Continued movement of personnel and vehicles on and off the site during the construction phase, as well as occasional delivery of materials required for maintenance	Spread of alien invasive species	**WOM**	Negative	Moderate	• Control involves killing the plants present, killing the seedlings which emerge, and establishing and managing an alternative plant cover to limit re-growth and re-invasion. Weeds and invader plants will be controlled in the manner prescribed for that category by the CARA or in terms of Working for Water guidelines. The control of these species should even begin prior to the construction phase considering that small populations of these species was observed during the field surveys; • Institute strict control over materials brought onto site, which should be inspected for seeds of noxious plants and steps taken to eradicate these before transport to the site. Routinely fumigate or spray all materials with appropriate low-residual herbicides prior to transport to or in a quarantine area on site. The contractor is responsible for the control of weeds and invader plants within the construction site for the duration of the construction phase. Alien invasive tree species listed by the CARA regulations should be eradicated; • Rehabilitate disturbed areas as quickly as possible to reduce the area where invasive	N/A
			WM	Negative	Negligible		Can be avoided, managed or mitigated

						species would be at a strong advantage and most easily able to establish; • Institute a monitoring programme to detect alien invasive species early, before they become established and, in the case of weeds, before the release of seeds. Once detected, an eradication/control programme should be implemented to ensure that the species' do not spread to surrounding natural ecosystems.	
7	Construction of infrastructure, access roads etc.	Negative effect of human activities on flora	**WOM**	Negative	Moderate	• Staff should not be accommodated on site. No temporary accommodation must be erected on the site. Adequate rubbish bins and sanitation facilities should be provided to construction workers; • The ECO should regularly inspect the site, including storage facilities and compounds. A monitoring programme should also be implemented around these areas to detect alien invasive species early, before they become established and, in the case of weeds, before the release of seeds; • Maintain proper firebreaks around entire development footprint. • Educate construction workers regarding fire risks and the occurrence of important resources in the area and the importance of protection; • Construction activities must remain within defined construction areas and the road servitudes. No construction / disturbance will occur outside these areas. • Construction activities must be restricted to working hours Monday to Saturday, unless otherwise approved by the appropriate competent person in consultation with the affected residents. • Instruct employees, contractors, and site visitors to avoid harassment and disturbance of wildlife, especially during reproductive (e.g. courtship, nesting) seasons. In addition, control pets to avoid harassment	N/A
			WM	Negative	Negligible		Can be avoided, managed or mitigated

						and disturbance of wildlife. • Camp fires at construction sites must be strictly controlled to ensure that no veld fires are caused.	
8	Continued movement of vehicles on and off the site during the construction phase, as well as occasional delivery of materials required for maintenance	Fauna mortality on roads	**WOM**	Negative	Moderate	• More fauna are normally killed the faster vehicles travel. A speed limit should be enforced (speed on site max 40 km/hour; Outside of the site 60 km/h. It can be considered to install speed bumps in sections where the speed limit tends to be disobeyed. (Speed limits will also lessen the probability of road accidents and their negative consequences). • Travelling at night should be avoided or limited as much as possible. No travelling at night should be allowed without approval by site manager;	N/A
			WM	Negative	Low		Can be avoided, managed or mitigated
Operational Phase							
9	Exposure of soils to rainfall and wind during operations	Soil erosion	**WOM**	Negative	Moderate	The following mitigation measures should be implemented to prevent erosion along sensitive soils, wetlands and drainage channels during the operational phase of the development: • Cover disturbed soils as completely as possible, using vegetation or other materials; • Minimize the amount of land disturbance and develop and implement stringent erosion and dust control practices. • Sediment trapping, erosion and stormwater control should be addressed by a hydrological engineer in a detailed stormwater management plan;	N/A
			WM	Negative	Negligible		Can be avoided, managed or mitigated
10	Movement of vehicles on site during operation, storage of waste material and chemicals (if relevant)	Spillages of harmful substances	**WOM**	Negative	Moderate	• All waste should be removed to an appropriate waste management facility; • Hazardous chemicals to be stored on an impervious surface protected from rainfall and storm water run-off; • Spill kits should be on-hand to deal with spills immediately; • All vehicles should be inspected for oil and fuel leaks on a regular basis.	N/A
			WM	Negative	Negligible		Can be avoided, managed or mitigated

11	Continued movement of personnel and vehicles on and off the site during the operational phase, as well as occasional delivery of materials required for maintenance	Spread of alien invasive species	**WOM**	Negative	Moderate	• Control involves killing the plants present, killing the seedlings which emerge, and establishing and managing an alternative plant cover to limit re-growth and re-invasion. Weeds and invader plants will be controlled in the manner prescribed for that category by the CARA or in terms of Working for Water guidelines. The control of these species should even begin prior to the construction phase considering that small populations of these species was observed during the field surveys; • Institute a monitoring programme to detect alien invasive species early, before they become established and, in the case of weeds, before the release of seeds. Once detected, an eradication/control programme should be implemented to ensure that the species' do not spread to surrounding natural ecosystems.	N/A
			WM	Negative	Negligible		Can be avoided, managed or mitigated
WETLAND IMPACTS							
Construction Phase							
12	The increased exposed areas created, as well as the roads and additional surface areas created during construction	Soil compaction and erosion leading to sedimentation of wetland/water resources	**WOM**	Negative	Low	The following mitigation measures should be implemented to prevent erosion along slopes and drainage channels during construction: • Increased runoff due to removal of vegetation and increased soil compaction must be managed to ensure the prevention of siltation and the maximum stream bank stability. • Storm water leaving the site downstream must be clean and of the same quality as in situ before it enters the construction site (upstream). Preconstruction measures must be in place to ensure sediments are trapped. • The project should be divided into as many phases as possible, to ensure that the exposed areas prone to erosion are minimal at any specific time; • Cover disturbed soils as completely as	N/A
			WM	Negative	Negligible		Can be avoided, managed or mitigated

						possible, using vegetation or other materials; • Minimize the amount of land disturbance and develop and implement stringent erosion and dust control practices. • Sediment trapping, erosion and stormwater control should be addressed by a hydrological engineer in a detailed stormwater management plan; • Protect sloping areas and drainage channel banks that are susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and Work Areas; • Repair all erosion damage as soon as possible to allow for sufficient rehabilitation growth; • Gravel roads must be well drained in order to limit soil erosion; • Control the flow of runoff to move the water safely off the site without destructive gully formation; • Have both temporary (during construction) and permanent erosion control plans: o Temporary control plans should include: ▪ Brush-packing of exposed areas to prevent overgrazing and subsequent erosion; ▪ Silt fencing; ▪ Temporary silt trap basins; ▪ Short term seeding or mulching of exposed soil areas (particularly on slopes); ▪ Limitations on access for heavy machinery and the storage of materials to avoid soil compaction; o Permanent erosion control plans should focus on the establishment of stable native vegetation	

						communities. o Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and Work Areas.	
13	Large construction vehicles contributing substantially due to oil and fuel spillages; building waste, batching plants, sewage and domestic waste; stripping of topsoil	Water pollution from spillages and dust, etc.	**WOM**	Negative	Low	• Any excess or waste material or chemicals should be removed from the site and discarded in an environmental friendly way. The ECO should enforce this rule rigorously; • Hazardous chemicals to be stored on an impervious surface protected from rainfall and storm water run-off; • Ensure that refueling stations on site are constructed so as to prevent spillage of fuel or oil onto the soil, and put in place measures to ensure that any accidental spillages can be contained and cleaned up promptly; • Spill kits should be on-hand to deal with spills immediately; • All vehicles should be inspected for oil and fuel leaks on a regular basis. Vehicle maintenance yards on site should make provision for drip trays that will be used to capture any spills. Drip trays should be emptied into a holding tank and returned to the supplier.	N/A
			WM	Negative	Negligible		Can be avoided, managed or mitigated
14	Continued movement of personnel and vehicles on and off the site during the construction phase, as well as occasional delivery of materials required for maintenance	Spread of alien invasive species in wetland systems	**WOM**	Negative	Low	• The use of indigenous plants must be encouraged in the rehabilitated areas (stormwater canals), and stockpiles containing mostly exotic or weedy species should receive specialised handling and should be covered for extended periods to inhibit seedling germination of these species. Active management and eradication of exotic / alien plant species should also occur when seedlings are found. • Institute strict control over materials brought onto site, which should be inspected for potential invasive invertebrate species and steps taken to eradicate these before	N/A
			WM	Negative	Negligible		Can be avoided, managed or mitigated

						transport to the site. Routinely fumigate or spray all materials with appropriate low-residual insecticides prior to transport to or in a quarantine area on site. The contractor is responsible for the control of weeds and invader plants within the construction site for the duration of the construction phase. • Control involves killing the plants present, killing the seedlings which emerge, and establishing and managing an alternative plant cover to limit re-growth and re-invasion. Weeds and invader plants will be controlled in the manner prescribed for that category by the Conservation of Agricultural Resources Act or in terms of Working for Water guidelines. • Rehabilitate disturbed areas as quickly as possible to reduce the area where invasive species would be at a strong advantage and most easily able to establish. • Institute a monitoring programme to detect alien invasive species early, before they become established and, in the case of weeds, before the release of seeds. • Institute an eradication/control programme for early intervention if invasive species are detected, so that their spread to surrounding natural ecosystems can be prevented. • A plan should be developed for control of noxious weeds and invasive plants that could occur as a result of new surface disturbance activities at the site. The plan should address monitoring, weed identification, the manner in which weeds spread, and methods for treating infestations. Require the use of certified weed-free mulching. Prohibit the use of fill materials from areas with known invasive vegetation problems. The spread of invasive plants should be avoided by keeping vehicles and equipment clean and reseeding disturbed areas with native plants.	

Operational Phase							
15	The increased hardened surfaces around infrastructure, as well as the roads and additional surface areas	Soil compaction and erosion leading to sedimentation of wetland/water resources	**WOM**	Negative	Moderate	• Increased runoff due to removal of vegetation and increased soil compaction must be managed to ensure the prevention of siltation and the maximum stream bank stability. • Sediment trapping, erosion and stormwater control should be addressed by a hydrological engineer in a detailed stormwater management plan; • Control the flow of runoff to move the water safely off the site without destructive gully formation; • Permanent erosion control plans should focus on the establishment of stable native vegetation communities.	N/A
			WM	Negative	Negligible		Can be avoided, managed or mitigated
16	Vehicles contributing due to oil and fuel spillages, dust	Water pollution from spillages and dust	**WOM**	Negative	Moderate	• All waste material or chemicals should be removed from the site and discarded in an environmental friendly way; • Hazardous chemicals to be stored on an impervious surface protected from rainfall and storm water run-off; • Spill kits should be on-hand to deal with spills immediately; • All vehicles should be inspected for oil and fuel leaks on a regular basis.	N/A
			WM	Negative	Negligible		Can be avoided, managed or mitigated
17	Continued movement of personnel and vehicles on and off the site, as well as occasional delivery of materials required for maintenance	Spread of alien invasive species in wetland systems	**WOM**	Negative	Low	• Control involves killing the plants present, killing the seedlings which emerge, and establishing and managing an alternative plant cover to limit re-growth and re-invasion. Weeds and invader plants will be controlled in the manner prescribed for that category by the Conservation of Agricultural Resources Act or in terms of Working for Water guidelines. • Institute a monitoring programme to detect alien invasive species early, before they become established and, in the case of weeds, before the release of seeds. • Institute an eradication/control programme for early intervention if invasive species are	N/A
			WM	Negative	Negligible		Can be avoided, managed or mitigated

						detected, so that their spread to surrounding natural ecosystems can be prevented. • A plan should be developed for control of noxious weeds and invasive plants that could occur as a result of new surface disturbance activities at the site. The plan should address monitoring, weed identification, the manner in which weeds spread, and methods for treating infestations. Require the use of certified weed-free mulching. Prohibit the use of fill materials from areas with known invasive vegetation problems. The spread of invasive plants should be avoided by keeping vehicles and equipment clean and reseeding disturbed areas with native plants.	
HERITAGE IMPACTS							
Construction Phase							
18	Digging foundations and trenches into sensitive deposits that are not visible at the surface	Damage/destruction of unknown sites of archaeological importance	**WOM** **WM**	Negative Negative	Negligible Negligible	• Site Monitoring: Regular examination of trenches and excavations. • Considering the localised nature of heritage remains, the general monitoring of the development progress by an ECO or by the heritage specialist is recommended for all stages of the project. Should any subsurface palaeontological, archaeological or historical material, or burials be exposed during construction activities, all activities should be suspended and the archaeological specialist should be notified immediately • A Palaeontological Impact Assessment should be considered where bedrock is to be impacted and, should fossil remains such as fossil fish, reptiles or petrified wood be exposed during construction, these objects should carefully safeguarded and the relevant heritage resources authority (SAHRA) should be notified immediately so that the appropriate action can be taken by a professional paleontologist. • It is essential that cognisance be taken of	N/A Can be avoided, managed or mitigated

						the larger archaeological landscape of the area in order to avoid the destruction of previously undetected heritage sites. It should be stated that it is likely that further undetected archaeological remains might occur elsewhere in the Study Area along water sources and drainage lines, fountains and pans would often have attracted human activity in the past. Also, since Stone Age material seems to originate from below present soil surfaces in eroded areas, the larger landscape should be regarded as potentially sensitive in terms of possible subsurface deposits. Burials and historically significant structures dating to the Colonial Period occur on farms in the area and these resources should be avoided during all phases of construction and development, including the operational phases of the development.	
AIR QUALITY IMPACTS							
Construction Phase							
19	Dust pollution and emissions from vegetation clearance, earthworks and increased traffic	Construction activities and vehicular movement on site	**WOM**	Negative	Moderate	• Dust suppression of access roads, stockpiles and cleared areas must take place to minimize dust pollution. • Hard surface the site roads at the earliest stage in the construction phase. • Proper rehabilitation of disturbed areas is required in order to minimize bare patches	N/A
			WM	Negative	Low		Can be avoided, managed or mitigated
NOISE IMPACTS							
Construction Phase							
20	Noisy activities during construction (e.g. drilling, hammering, etc.)	Noise impact on surrounding landowners	**WOM**	Negative	Low	• Ensuring that equipment is well maintained and fitted with the correct and appropriate noise abatement measures. Acoustical mufflers (or silencers) should be considered on equipment exhausts. • The developer should investigate the use of white-noise generators instead of tonal reverse alarms on heavy vehicles.	N/A
			WM	Negative	Negligible		Can be avoided, managed or mitigated

Operational Phase							
21	Noisy activities during operations	Noise impact on surrounding landowners	**WOM**	Negative	Negligible	• Ensuring that equipment is well maintained and fitted with the correct and appropriate noise abatement measures. Acoustical mufflers (or silencers) should be considered on equipment exhausts. • The developer should investigate the use of white-noise generators instead of tonal reverse alarms on heavy vehicles.	N/A
			WM	Negative	Negligible		Can be avoided, managed or mitigated
VISUAL IMPACTS							
Construction Phase							
22	Construction of infrastructure	Impact on landscape characteristics, key views and the visual quality of the area	**WOM**	Negative	Moderate	• The construction site, material stores, stockpiles and lay down area should be kept tidy. • Measures to control wastes and litter should be included in the contract specification documents	N/A
			WM	Negative	Negligible		Can be avoided, managed or mitigated
Operational Phase							
23	Additional lights at night	Additions to the cumulative negative effect on the visual quality of the landscape	**WOM**	Negative	Moderate	• Paint buildings & structures - environmental complementing colours (natural browns and dark greens of the surrounding landscape) Avoid pure lights & darks. • To reduce glare external surfaces - structures surfaces to be articulated & textured. • Planted Trees to emulate natural/cultural adjacent patterns. • Paving materials with 'earthy' tones to complement the natural colours of the soils in the area. • Parking areas to be laid out to retain clusters of vegetation to break monotony of paved surfaces. • Light fixtures - precisely directed illumination - reduce light "spillage". • High pole top security lighting avoided. • Public movement areas (pathways and roads) - low level 'bollard' type lights - avoid post top lighting.	N/A
			WM	Negative	Low		Can be avoided, managed or mitigated

TRAFFIC IMPACTS							
Construction Phase							
24	Construction vehicle movement on and off site	Additional pressure on road network	**WOM**	Negative	Moderate	• Provide advanced communication (i.e. signage, advertisements in local papers) about changes to local access, potential road hazards and expected traffic volumes during construction. • Developer to construct three accesses to the site as follows: o Acridian Street/Coriander Street ▪ It is proposed that a queue length survey be conducted after the opening of the centre. ▪ Traffic signals to be installed subject to any of the three queue lengths warrants of the SARTSM being met. ▪ A right-turn lane with 45m storage capacity at the southern approach. ▪ A right-turn lane with 45m storage capacity at the eastern approach. ▪ Road marking to be provided accordingly. o Dijon Street/Tamarind Street/Proposed access to retail centre ▪ Existing priority controlled T-intersection to be converted into a four-legged priority controlled intersection to provide access to the retail centre o Dijon Street/Proposed Service Access ▪ Dijon Street to be extended southwards and a priority controlled	N/A
			WM	Negative	Negligible		Can be avoided, managed or mitigated
25	Construction vehicle movement on and off site	Upgrade of existing roads surrounding retail centre	**WOM**	Positive	High		N/A
			WM	Positive	High		Can be avoided, managed or mitigated

						service access to the retail centre should be constructed	
Operational Phase							
26	Operational traffic due to retail centre	Additional pressure on road network	**WOM**	Negative	Moderate	• Appropriate road signage to be provided • Developer to construct three accesses to the site as follows: o Acridian Street/Coriander Street ▪ It is proposed that a queue length survey be conducted after the opening of the centre. ▪ Traffic signals to be installed subject to any of the three queue lengths warrants of the SARTSM being met. ▪ A right-turn lane with 45m storage capacity at the southern approach. ▪ A right-turn lane with 45m storage capacity at the eastern approach. ▪ Road marking to be provided accordingly. o Dijon Street/Tamarind Street/Proposed access to retail centre ▪ Existing priority controlled T-intersection to be converted into a four-legged priority controlled intersection to provide access to the retail centre o Dijon Street/Proposed Service Access ▪ Dijon Street to be extended southwards and a priority controlled service access to the retail centre should be	N/A
			WM	Negative	Low		Can be avoided, managed or mitigated

						constructed	
WASTE MANAGEMENT IMPACTS							
Construction Phase							
27	Poor management and disposal of solid waste	Ineffective management of waste could result in surface, ground water and air contamination as well as ecological and health impacts.	**WOM**	Negative	Moderate	• Implementation of an appropriate collection and disposal strategy to ensure regular removal of waste to a permitted waste disposal facility. • Ensuring that the design of the development includes adequate facilities for the temporary storage of waste, in terms of volume, location and enclosure; • The waste area should be concreted and bunded; • Monitor the sewerage facilities for spillages, and handle any spillages as hazardous waste; • Contaminated soil must be considered to be hazardous waste and disposed of accordingly.	N/A
			WM	Negative	Negligible		Can be avoided, managed or mitigated
Operational Phase							
29	Poor management and disposal of solid waste	Ineffective management of waste could result in surface, ground water and air contamination as well as ecological and health impacts.	**WOM**	Negative	Low	• Implementation of an appropriate collection and disposal strategy to ensure regular removal of waste to a permitted waste disposal facility. • Ensuring that the design of the development includes adequate facilities for the temporary storage of waste, in terms of volume, location and enclosure; • The waste area should be concreted and bunded; • Ensuring that waste handling, storage and collection is undertaken in accordance with the relevant health and municipal legislation, practices and procedures; • Provision of adequate numbers of litter bins throughout the development; • Promoting the recycling of waste, with specialist service providers appointed to remove the waste from site.	N/A
			WM	Negative	Negligible		Can be avoided, managed or mitigated

SOCIO-ECONOMIC IMPACTS							
Construction Phase							
27	Creation of job opportunities	Economic upliftment in the area	**WOM**	Positive	Negligible	Use of local labour as far as possible.	N/A
			WM	Positive	Moderate		N/A
28	Construction workers on site	Increase in crime - safety risks to neighbours	**WOM**	Negative	Negligible	No mitigation measures recommended	N/A
			WM	Negative	Negligible		N/A
Operational Phase							
29	Creation of job opportunities	Economic upliftment in the area	**WOM**	Positive	Low	Use of local labour as far as possible.	N/A
			WM	Positive	High		N/A
30	Development of new retail centre	Impact on livelihood of surrounding retail centres	**WOM**	Negative	Negligible	No mitigation measures recommended	N/A
			WM	Negative	Negligible		N/A

No Go

Potential impacts:	**Significance rating of impacts (positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact** and **mitigation not being implemented**
Continued dumping of waste and informal settlement being established	High (negative)	Sustainable development of the retail centre	Low	Low
The socio economic benefits associated with the development will not be realized	High (negative)	Sustainable development of the retail centre and employment practices.	Negligible	Low
Traffic upgrades proposed will not be done	High (negative)	Adequate development of the road infrastructure	Negligible	Low

List any specialist reports that were used to fill in the above tables. Such reports are to be attached in the appropriate Appendix.

Biodiversity Impact Assessment – Appendix F.1: Biodiversity Impact Assessment
Wetland Impact Assessment – Appendix F.2: Wetland Impact Assessment
Archaeological Impact Assessment – Appendix F.3: Archaeological Impact Assessment
Traffic Impact Assessment – Appendix F.4: Traffic Impact Assessment
Stormwater Management Plan – Appendix F.5: Stormwater Management Plan

Describe any gaps in knowledge or assumptions made in the assessment of the environment and the impacts associated with the proposed development.

Ecological Limitations and Assumptions:

- In order to obtain a comprehensive understanding of the dynamics of communities and the status of endemic, rare or threatened species in an area, ecological studies should ideally be replicated over several seasons and over a number of years. However, due to project time constraints such long-term studies are not feasible;
- The majority of threatened plant species are extremely seasonal and only flower during specific periods of the year,
- The majority of threatened faunal species are extremely secretive and difficult to survey even during thorough field surveys conducted over several seasons;

Wetland Limitations and Assumptions:

- The large study area did not allow for the finer level of assessment that can be obtained in smaller study areas. Therefore, data collection in this study relied heavily on data from representative sections, as well as general observations and a desktop analysis.

Heritage Limitations and Constraints:

- Access
    - The project site for the Lotus Gardens X17 Retail Centre Development is accessed directly via Acridian Street connecting to the N4 Magalies freeway. Access control is not applied to the area and no restrictions were encountered during the site visit.
- Visibility
    - The surrounding vegetation in the study area is mostly comprised out of mixed grasslands and scattered trees as well as pioneering species in disturbed and transformed areas. The general visibility at the time of the AIA survey (May 2016) was

moderate to high due to surface vegetation and. In single cases during the survey sub-surface inspection was possible. Where applied, this revealed no archaeological deposits. Visibility proved to be somewhat of a constraint in areas with denser surface cover, as well as portions where vegetation is more pristine.

- The pedestrian site survey for the Lotus Gardens X17 Retail Centre Development Project AIA primarily focused around areas tentatively identified as sensitive and of high heritage probability (i.e. those noted during the aerial survey) as well as areas of high human settlement catchment. Thus, even though it might be assumed that survey findings are representative of the heritage landscape of the project area for the Lotus Gardens X17 Retail Centre Development, it should be stated that the possibility exists that individual sites could be missed due to the localised nature of some heritage remains as well as the possible presence of sub-surface archaeology. Therefore, maintaining due cognisance of the integrity and accuracy of the archaeological survey, it should be stated that the heritage resources identified during the study do not necessarily represent all the heritage resources present in the project area. The subterranean nature of some archaeological sites, dense vegetation cover and visibility constraints sometimes distort heritage representations and any additional heritage resources located during consequent development phases must be reported to the Heritage Resources Authority or an archaeological specialist.

3. IMPACTS THAT MAY RESULT FROM THE DECOMISSIONING AND CLOSURE PHASE

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the decommissioning and closure phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

Proposal

NOT APPLICABLE

Potential impacts:	**Significance rating of impacts(positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact** and **mitigation not being implemented**

List any specialist reports that were used to fill in the above tables. Such reports are to be attached in the appropriate Appendix.

Biodiversity Impact Assessment – Appendix F.1: Biodiversity Impact Assessment
Wetland Impact Assessment – Appendix F.2: Wetland Impact Assessment
Archaeological Impact Assessment – Appendix F.3: Archaeological Impact Assessment
Traffic Impact Assessment – Appendix F.4: Traffic Impact Assessment
Stormwater Management Plan – Appendix F.5: Stormwater Management Plan

Where applicable indicate the detailed financial provisions for rehabilitation, closure and ongoing post decommissioning management for the negative environmental impacts.

Not applicable

4. CUMULATIVE IMPACTS

Describe potential impacts that, on their own may not be significant, but is significant when added to the impact of other activities or existing impacts in the environment. Substantiate response:

Cumulative impacts result from actions, which may not be significant on their own, but which

are significant when added to the impact of other similar actions i.e. combined impacts from existing residential areas and other retail developments. Cumulative impacts relating to the proposed development include:

- Increased air pollution due to vehicle-entrained dust emissions, and motor vehicle emissions.
- There will be a general visual and light intrusion caused by the proposed retail centre due to the construction activities as well as the lighting utilised during both the construction and operational phases;
- Surface water pollution and increased run-off will occur as a result of the increased paved surfaces. However, it will be contained as the area will be provided with comprehensive storm water infrastructure systems.
- Other retail centres will be impacted on due to the increased capacity of the new retail development.
- The proposed development may add to existing road users in the area and will have an impact on traffic.
- The proposed development will add additional pressure on services in the area.
- Socio-economic benefits such as local economic growth, employment creation, skills transfer, etc.

All these cumulative impacts have been taken into consideration in the impact assessment above

5. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that sums up the impact that the proposal and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Proposal

An assessment of potential impacts identified for the Lotus Gardens Retail Development was undertaken. The impacts identified for further assessment were assessed within the respective specialist studies. The specialist studies undertaken to this effect are listed above.

The specialist studies recommended mitigation measures in order to reduce or eliminate any impacts identified.
The proposed project could be developed in a sustainable manner in light of the site being situated within an existing developed residential area and should the mitigation measures proposed in the EMPr be implemented the impact on the environment can be considered to be of negligible to low significance. The proposed activities fit in well with the surrounding land uses. The site is located within a Critical Biodiversity Area (CBA) according to the Gauteng Conservation Plan; however site is in a highly degraded state with not natural vegetation components remaining on site other than individual plant species. No protected tree or plant species or red data flora or fauna species were observed on site. It should be noted that the Gauteng Conservation Plan has in many areas not been ground-truthed and it is recommended that the GDARD verify whether this area can still be classified as a CBA.

All impacts identified were also analysed according the following key considerations, a description of which is included in Section E (2):
Probability: This describes the likelihood of the impact actually occurring.
Duration: The lifetime of the impact
Scale: The physical and spatial size of the impact
Magnitude/ Severity: Does the impact destroy the environment, or alter its function.
Significance: This is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required.

In summary, based on the Impact analysis (Section E (3)), the Lotus Gardens Retail Development can be established without fatal flaws should the mitigation proposed be followed. Before mitigation the following impacts were rated of high significance without

mitigation measures:
1. Soil erosion
2. Upgrade of existing roads surrounding retail centre

The above soil erosion impact can however be mitigated to low significance. The upgrade of existing roads surrounding the retail centre is a positive impact.

Alternative 1

Alternative 2

No-go (compulsory)

One of the options to be considered as part of the study is that of the no development option. This would entail leaving the site in its present state and not developing the proposed retail centre. If the development does not take place the following advantages and disadvantages will be foreseen:

Advantages of no-go:

- The site will stay as is from a biophysical environment point of view
- No economic impact on surrounding shopping centres

Disadvantages of no-go:

- The socio economic benefits associated with the development will not be realized
- Traffic upgrades proposed will not be done.
- Continued dumping of waste and informal settlement being established

It is considered that the no-go option would not be a feasible alternative. The site is in a highly degraded state and being used a pass-through area by the local community. Should the mitigation measures proposed in the EMPr be implemented the impact on the environment can be considered to be of negligible to low significance. The proposed activities fit in well with the surrounding land uses as the development is in line with current and future spatial development guidelines as set out in the spatial development framework (Tshwane Regional Spatial Development Framework: Region 3, 2013).

6. IMPACT SUMMARY OF THE PROPOSAL OR PREFERRED ALTERNATIVE

For proposal:

An assessment of potential impacts identified for the Lotus Gardens Retail Development was undertaken. The impacts identified for further assessment were assessed within the respective specialist studies. The specialist studies undertaken to this effect are listed above.

All impacts identified were also analysed according the following key considerations, a description of which is included in Section E (2):
Probability: This describes the likelihood of the impact actually occurring.
Duration: The lifetime of the impact
Scale: The physical and spatial size of the impact
Magnitude/ Severity: Does the impact destroy the environment, or alter its function.
Significance: This is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required.

In summary, based on the Impact analysis (Section E (3)), the Lotus Gardens Retail Development can be established without fatal flaws should the mitigation proposed be followed. Before mitigation the following impacts were rated of high significance without mitigation measures:
1. Soil erosion

2. Upgrade of existing roads surrounding retail centre (positive)

The above soil erosion impact can however be mitigated to low significance. The upgrade of existing roads surrounding the retail centre is a positive impact. Should the mitigation measures proposed in the EMPr be implemented the impact on the environment can be considered to be of negligible to low significance.

For alternative:

Having assessed the significance of impacts of the proposal and alternative(s), please provide an overall summary and reasons for selecting the proposal or preferred alternative.

The findings of the specialist studies undertaken within this Environmental process provide an assessment of both the benefits and potential negative impacts anticipated as a result of the proposed project. The findings conclude that provided that the recommended mitigation and management measures are implemented there are no environmental fatal flaws that should prevent the proposed project from proceeding.

In order to achieve appropriate environmental management standards and ensure that the findings of the environmental studies are implemented through practical measures, the recommendations from this report have been included within an Environmental Management Plan (EMPr) which has been included in Appendix G: EMPr.

This EMPr will form part of the contract with the contractors appointed to construct and maintain the proposed retail centre. The EMPr should be used to ensure compliance with environmental specifications and management measures. The implementation of this EMPr for key cycle phases (i.e. construction and operation) of the proposed project is considered to be fundamental in achieving the appropriate environmental management standards as detailed for this project.

It is also recommended that the process of communication and consultation with the community is maintained after the closure of this BA process, in particular, during the construction phase associated with the proposed project.

Therefore, based on the results of this Report, Exigo recommends that this report is accepted for consideration by the competent authority.

7. SPATIAL DEVELOPMENT TOOLS

Indicate the application of any spatial development tool protocols on the proposed development and the outcome thereof.

The proposed shopping centre development is in line with current and future spatial development guidelines as set out in the spatial development framework (Tshwane Regional Spatial Development Framework: Region 3, 2013). Emphasis is placed on commercial developments and concentration of economic activity. This will contribute to a more favourable and market-driven investment environment for businesses and local communities (Demacon, 2014).

8. RECOMMENDATION OF THE PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the Environmental Assessment Practitioner as bound by professional ethical standards and the code of conduct of EAPASA).

YES	NO
X	

If “NO”, indicate the aspects that require further assessment before a decision can be made (list the aspects that require further assessment):

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application:

All the recommended mitigations measures as contained in the EMPr must be implemented (Appendix G: EMPr). The EMPr will be binding on the developer and contractors operating/constructing the development as well as the project manager for the development.
An ECO should be appointed by the Applicant, to ensure that the construction of the development is implemented in line with the recommendations of the EMPr and complies with the conditions of approval as contained within the Environmental Authorisation for the project. The ECO should submit audit reports to GDARD monthly for the duration of the construction phase.

9. THE NEEDS AND DESIREBILITY OF THE PROPOSED DEVELOPMENT (as per notice 792 of 2012, or the updated version of this guideline)

Demacon Market Studies conducted a retail market analysis for the proposed retail centre development in April 2014. The project has the potential as a business development to serve the residents of suburbs like Philip Nel Park, Danville, Pretoria West, West Park, Lotus Gardens and Atteridgeville, as well as visitors or tourists travelling to Hartbeespoort, based on its location. The site is in close proximity to the Saulsville / Atteridgeville Urban Core Node. The node forms part of the Tsosoloso programme (NDPG), aiming to create vibrant, and quality spaces focusing on economic potential to act as catalysts for development. The Municipal Spatial Development Framework demarcated the urban edge to include the site, and is therefore earmarked for potential development.

The proposed shopping centre development is in line with current and future spatial development guidelines as set out in the spatial development framework (Tshwane Regional Spatial Development Framework: Region 3, 2013). Emphasis is placed on commercial developments and concentration of economic activity. This will contribute to a more favourable and market-driven investment environment for businesses and local communities.

How will this development (and its separate elements/aspects) impact on the ecological integrity of the area?	Please explain
Please refer to section B and E of this report.	
How were the following ecological integrity considerations taken into account? :	
Threatened Ecosystems	Please explain
Please refer to Appendix F.1: Biodiversity Impact Assessment and section B of this report.	
Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure	Please explain
Please refer to Appendix F.1: Biodiversity Impact Assessment and section B of this report.	
Critical Biodiversity Areas ("CBAs") and Ecological Support Areas ("ESAs")	Please explain
Please refer to Appendix F.1: Biodiversity Impact Assessment and section B of this report.	
Conservation targets	Please explain
Please refer to Appendix F.1: Biodiversity Impact Assessment and section B of this report.	
Ecological drivers of the ecosystem	Please explain
Please refer to Appendix F.1: Biodiversity Impact Assessment and section B of this report.	

Environmental Management Framework			Please explain
Please refer to Appendix F.1: Biodiversity Impact Assessment and section A (2) of this report.			
Spatial Development Framework			
Please refer to the retail market analysis feasibility study in Appendix F.7 Demacon Retail Market Analysis.			
Global and international responsibilities relating to the environment (e.g. RAMSAR sites, Climate Change, etc.)			Please explain
Please refer to Appendix F.1: Biodiversity Impact Assessment (however not of significant relevance)			
How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity? What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?			Please explain
Please refer to section E			
How will this development pollute and/or degrade the biophysical environment? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?			Please explain
Please refer to section E			
What waste will be generated by this development? What measures were explored to firstly avoid waste and where waste could not be avoided altogether, what measures were explored to minimise, reuse and/or recycle the waste? What measures have been explored to safely treat and/or dispose of unavoidable waste?			Please explain
Refer to Section A (3), and E			
How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?			Please explain
Please refer to Section E			
How will this development use and/or impact on non-renewable natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of the non-renewable natural resources been considered? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?			Please explain
Please refer to Section A (3) for the alternatives considered for the proposed development			
How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part? Will the use of the resources and/or impact on the ecosystem jeopardise the integrity of the resource and/or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds? What measures were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimise the use of resources? What measures were taken to ensure responsible and equitable use of the resources? What measures were explored to enhance positive impacts?			Please explain
Refer to Section A (3)			
Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e. de-	**YES**	NO	Please explain

materialised growth)?			
The natural resource dependency in terms of water and power will increase, however the proposed development will promote economic development. Use of solar energy (where feasible) will also reduce power usage. The development is also likely to reduce people having to travel greater distances for certain retail offers in the project area.			
Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and intergenerational equity, and are there more important priorities for which the resources should be used (i.e. what are the opportunity costs of using these resources this proposed development alternative?)	**YES**	NO	Please explain
Rainwater harvesting and use of solar energy (where feasible) is recommended to reduce additional water and energy requirements.			
Do the proposed location, type and scale of development promote a reduced dependency on resources?	**YES**	NO	Please explain
The natural resource dependency in terms of water and power will increase, however the proposed development will promote economic development. Use of solar energy (where feasible) will also reduce power usage. The development is also likely to reduce people having to travel greater distances for certain retail offers in the project area thus decreasing the carbon footprint.			
How were a risk-averse and cautious approach applied in terms of ecological impacts			Please explain
A risk analyses of the impacts identified was conducted to determine the significance of the impacts on the fauna and flora of the study area.			
What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?			Please explain
Refer to Section E			
What is the level of risk associated with the limits of current knowledge?			Please explain
Refer to Section E			
Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?			Please explain
A risk analyses of the impacts identified was conducted to determine the significance of the impacts on the fauna and flora of the study area.			
How will the ecological impacts resulting from this development impact on people's environmental right in terms following:			
Negative impacts: e.g. access to resources, opportunity costs, loss of amenity (e.g. open space), air and water quality impacts, nuisance (noise, odour, etc.), health impacts, visual impacts, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?			Please explain
Please refer to section E			
Positive impacts: e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts?			
Please refer to section E			
Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)?			Please explain
Refer to Section E			

Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives/targets/considerations of the area?	Please explain
Please refer to section E and E (5)	
Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the "best practicable environmental option (BPEO)" in terms of ecological considerations?	Please explain
Please refer to section A (3)	
Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area?	Please explain
Please refer to section 6 of the Biodiversity Impact Assessment (Appendix F.1: Biodiversity Impact Assessment)	

10. THE PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

(CONSIDER WHEN THE ACITIVTY IS EXPECTED TO BE CONCLUDED)

Prior to construction the validity of the environmental authorization is required for 5 years as per Regulation 26 (d)(i) of the EIA regulations 2014; with regards to the operational phase it is requested that the EA be valid for the life of the retail centre.

11. ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

(must include post construction monitoring requirements and when these will be concluded.)

If the EAP answers “Yes” to Point 7 above then an EMP is to be attached to this report as an Appendix

EMPr attached ☒

SECTION F: APPENDIXES

1. **Appendix A: Site plan(s) –** ***(must include a scaled layout plan of the proposed activities overlain on the site sensitivities indicating areas to be avoided including buffers)***

2. Appendix B: Photographs

3. Appendix C: Facility illustration(s)

4. Appendix D: Public participation Information

4.1 Appendix D.1: Proof of site notice

To be attached to the Final BAR

4.2 Appendix D.2: Written notices issued as required in terms of the regulations

4.3 Appendix D.3: Proof of newspaper advertisements

To be attached to Final BAR

4.4 Appendix D.4: Communications to and from interested and affected parties

4.5 Appendix D.5: Minutes of any public and/or stakeholder meetings

4.6 Appendix D.6: Comments and Responses Report

4.7 Appendix D.7: Comments from I&APs on Basic Assessment (BA) Report

To be attached to Final BAR

4.8 Appendix D.8: Comments from I&APs on amendments to the BA Report

To be attached to Final BAR Amendment (if relevant)

5. Appendix D.9: Copy of the register of I&APs

Refer to Appendix D.6

6. **Appendix E: Water use license(s) authorisation, SAHRA information, service letters from municipalities, water supply information**

7. Appendix F: Specialist reports

7.1 Appendix F.1: Biodiversity Impact Assessment

7.2 Appendix F.2: Wetland Impact Assessment

7.3 Appendix F.3: Archaeological Impact Assessment

7.4 Appendix F.4: Traffic Impact Assessment

7.5 Appendix F.5: Stormwater Management Plan

7.6 Appendix F.6 Services Report

7.7 Appendix F.7 Demacon Retail Market Analysis

8. Appendix G: EMPr

9. Appendix H: Impact Assessment Matrix

CHECKLIST

To ensure that all information that the Department needs to be able to process this application, please check that:

- Where requested, supporting documentation has been attached;
- All relevant sections of the form have been completed.