



MANGAUNG IPTN – ENVIRONMENTAL SCREENING REPORT

ENVIRONMENTAL SCREENING REPORT FOR THE CITY-WIDE NETWORK, THABA NCHU CORRIDOR AS PART OF THE INTEGRATED PUBLIC TRANSPORT NETWORK IN BLOEMFONTEIN, MANGAUNG METROPOLITAN MUNICIPALITY, FREE STATE PROVINCE



Client Reference: Contract No.: C447

GladAfrica Reference: Project Number 127

Project Name: Intergrated Public Transport Network (IPTN)

QUALITY REVIEW

Report Heading: Environmental Screening Report for the City-Wide Network, Thaba Nchu Corridor as part of the Integrated Public Transport Network in Bloemfontein, Mangaung Metropolitan Municipality, Free State Province


Compiled by: Kirthi Peramaul

Signature: 

Date: 05/09/2019

BSc (Hons), Cert.Sci.Nat


Reviewed by: Dirk Prinsloo

Signature: 

Date: 05/09/2019

M.Env Mgmt. REAP 2019/471

Released by: Nkhensani Khandlela

Signature: 

Date: 05/09/2019

MSc, Pr.Sci.Nat

Received and accepted by a duly authorised representative of the client

Client representative name:

Athenkosi Godongwana

Signature: _____ Date: _____

Steve Rapulungoane

Signature: _____ Date: _____

Report Status

Draft		Revision Number		Final	✓
-------	--	-----------------	--	-------	---

TABLE OF CONTENTS

1.	INTRODUCTION AND BACKGROUND	11
1.1	Project Description	12
1.2	Assumptions,Gaps and Limitations.....	14
1.3	Project Location	14
2.	SITE ENVIRONMENTAL CONDITIONS	17
2.1	General conditions of existing roads and infrastructure	17
2.2	Site Sensitivity	18
2.3	Geology and Soils	19
2.4	Hydrological Conditions	20
2.5	Fauna and Flora.....	23
2.6	Cultural and Heritage	24
2.7	Waste Management	25
2.8	Stakeholder Engagement.....	26
3.	LEGISLATIVE REQUIREMENTS	27
3.1	NEMA EIA Regulations 2014 (as amended)	27
3.2	National Water Act, 1998 (Act No. 36 of 1998)	28
3.3	National Heritage Resources Act, 1999 (Act No. 25 of 1999)	29
3.3.1	Cemeteries	29
3.4	Department of Environmental Affairs Screening Tool.....	31
4.	CONCLUSION AND RECOMMENDATIONS.....	32
5.	REFERENCES	33

LIST OF FIGURES

Figure 1:	Locality Map showing the Thaba Nchu Corridor	15
Figure 2:	Lenyatso Nyaredi Street.....	16
Figure 3:	Seroala Dam.....	16
Figure 4:	Picture of the CBD (taken from brand street)	16
Figure 5:	Railway line on Kgosimang Dimpane Road.....	16
Figure 6:	JS Moroka hospital situated on Kgosimang Dimpane Street	16
Figure 7:	Potholes identified of Kgosimang Dimpane Street	17
Figure 8:	Sidewalks required on Brand Street	17
Figure 9:	Newly constructed on Pulevg Makhathe Street	18
Figure 10:	Stormwater Drain on Pulevg Makhathe Street.....	18
Figure 11:	Electricity powelines on Kgosimang Street.....	18
Figure 12:	Electricity Powerlines on Pulevg Makhathe Street.....	18

Figure 13:Thaba Nchu Site Sensitivity	19
Figure 14: Thaba Nchu Geology Map.....	20
Figure 15: Thaba Nchu Hydrology Map	21
Figure 16: Some of the Watercourses identified within the Corridor	22
Figure 17: Thaba Nchu Vegetation Map	23
Figure 18: Tree observed on Brand Street.....	Error! Bookmark not defined.
Figure 19: Cattle Kraal on the Unnamed Road situated off Kgosimang Dimpane Road.....	Error! Bookmark not defined.
Figure 20: Cemetery Observed on Brand Street.....	24
Figure 21: Cemetery Observed on an Unnamed Road Situated off Kgosimang Road.....	24
Figure 22:Palaentological Map (Source: DEA Screening Tool, 2009).....	25
Figure 23: Dumping of Water along the Road	26
Figure 24: Used Diapers disposed of on the Riverbanks	26

LIST OF TABLES

Table 1: Facility Type Description	12
Table 2: Listed Activities in Terms of NEMA EIA Regulations (as amended)	27

GLOSSARY OF TERMS

Alien Invasive Species: Species of plants, animals or other organisms that are not indigenous to a region and which easily spread and destroy the indigenous plant species, taking over an area and causing biological and socio-economic harm .

Basic Assessment Process: An environmental assessment process that is undertaken in line with Listing Notices 1 and 3 the NEMA EIA Regulations with the aim of obtaining Environmental Authorisation

Competent Authority: An organ of state charged by the National Environmental Management Act (NEMA) with evaluating the environmental impact of an activity and, where appropriate, with granting or refusing an environmental authorisation in respect of that activity.

Critical Biodiversity Area: Areas that are deemed important to conserve ecosystems and species. For this reason, these areas require protection.

Cultural significance: means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance

Development: means the building, erection, construction or establishment of a facility, structure or infrastructure, including associated earthworks or borrow pits, that is necessary for the undertaking of a listed or specified activity, but excludes any modification, alteration or expansion of such a facility, structure or infrastructure, including associated earthworks or borrow pits, and excluding the redevelopment of the same facility in the same location, with the same capacity and footprint

Ecological Support Area: area that must retain its ecological processes in order to: meet biodiversity targets for ecological processes that have not been met in CBAs or protected areas; meet biodiversity targets for representation of ecosystem types or species of special concern when it is not possible to meet them in CBAs; support ecological functioning of a protected area or CBA (e.g. protected area buffers); or a combination of these.

Environmental Assessment Practitioner: individual responsible for the planning, management, coordination or review of environmental impact assessments, strategic environmental assessments, environmental management programmes or any other appropriate environmental instruments introduced through regulations.

Environmental Authorisation: This is a decision by a Competent Authority to authorise a listed activity in terms of the National Environmental Management Act (NEMA). The authorisation means that a project, either in totality or partially, can commence subject to certain conditions. The Competent Authority has a right to refuse to grant authorisation for a project in totality or partially.

Environmental Impact Assessment Process: An environmental assessment process that is undertaken in line with Listing Notice 2 the NEMA EIA Regulations with the aim of obtaining Environmental Authorisation

Environmental Management Programme: A programme with set objectives and timeframes that seek to achieve a required end state and describes how activities that have or could have an adverse impact on the environment will be mitigated, controlled and monitored.

Fatal Flaw: an environmental or social negative impact that is not possible to mitigate and significant enough to prevent the scheme from being able to be implemented.

Flora: plant life that occurs in a specific geographical region and/habitat

Fauna: animal life that occurs in a specific geographical region and/habitat

Heritage Resource: means any place or object of cultural significance

Indigenous Vegetation: plant species occurring naturally in an area, regardless of the level of alien infestation and where the topsoil has not been lawfully disturbed during the preceding ten years.

Interested and Affected Party: in relation to an application for Environmental Authorisation, this refers to an interested and affected party whose name is recorded in the register opened for that application in terms of regulation 42 of the NEMA EIA Regulations. This party will ideally be interested in the development but also affected by the proposed application and have a certain interest in the application.

Regulated area of a watercourse:

- The outer edge of the 1:100-year flood line and /or delineated riparian habitat whichever is the greatest measured from the middle of a river, spring, natural channel, lake or dam;
- In the absence of a determined 1:100-year flood line or riparian area, the area within 100m from the edge of a watercourse where the edge of the watercourse is the first identifiable annual bank fill flood bench (subject to compliance to section 144 of the Act);
- 500m radius from the delineated boundary of any wetland or pan.

Riparian Area: A Habitat that includes the physical structure and associated vegetation of the areas associated with a watercourse 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

Screening: Screening determines whether or not a development proposal requires environmental assessment, and if so, what level of assessment is appropriate Screening is therefore a decision-making process that is initiated during the early stages of the development of a proposal.

Threatened or Protected Species: These refers to either plants or animals that are at a threat of Extinction or are protected due to their high conservation value or national importance.

Watercourse:

- (a) a river or spring;
- (b) a natural channel in which water flows regularly or intermittently;
- (c) a wetland, lake or dam into which, or from which, water flows; and
- (d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse, and a reference to a watercourse includes, where relevant, its bed and banks;

Wetland: land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

LIST OF ABBREVIATIONS/ACRONYMS

CBA	Critical Biodiversity Area
DEA	Department of Environmental Affairs
DWS	Department of Water and Sanitation
EIA	Environmental Impact Assessment
ESA	Ecological Support Areas
GIS	Geographical Information Systems
IPTN	Integrated Public Transport System
MMM	Mangaung Metropolitan Municipality
NEMA	National Environmental Management Act (Act 107 of 1998)
NEM:BA	National Environmental Management: Biodiversity Act (Act 10 of 2004)
NMT	Non-Motorised Transport
SANBI	South African National Biodiversity Institute

EXECUTIVE SUMMARY

Over the recent years, there has been a great emphasis in reviving the public transportation system and the upgrading and development of supporting infrastructure by Mangaung Metropolitan Municipality (MMM). As a result, the City has been planning for the implementation of an Integrated Public Transport Network (IPTN) known as *Hauweng*, as part of the National Public Transport Strategy and Action Plan that was released by the National Department of Transport (NDoT) in 2007. The development of the Integrated Transport Networks (ITN) in metropolitan areas is a process driven at national level by the NDoT. The ITN is planned and implemented by metropolitan authorities under the direction and guidelines set by the NDoT and funded by National Treasury (NT). The main objectives of the *Hauweng* services will be to transform the City's current public transport system by providing a high-quality, safe, affordable and integrated public transport services to its communities. The project is to be implemented in a number of phases over the next decade.

Five (5) demand public transport Corridors are currently being proposed as part of the network/system planning of *Hauweng*. These Corridors were derived by obtaining regional and local travel patterns, existing public transport demand, as well as existing functional transport Corridors (minibus taxi operational areas and subsidised bus operators). The proposed Corridors for the *Hauweng* Services are as follows:

- Dr Belcher;
- Maphisa;
- Central Business District;
- Botshabelo; and
- Thaba Nchu.

GA Environment (Pty) Ltd, a member of the GladAfrica Group, has been appointed by GladAfrica Consulting Engineers on behalf of MMM to undertake an Environmental Screening for the Thaba Nchu Corridor. The purpose of this report is to present the results of the screening assessment for the proposed project. The report will present the following:

- Legislative framework governing the sites;
- The status quo of the environmental conditions of the site as well as applicable environmental studies, licences and permits; and
- Overall findings to indicate the sensitivity of the sites, potential fatal flaws, and issues that require the attention of the MMM.

The ground truthing of the site was undertaken on the 30th of August 2019, to identify and describe the ecological environment of the Thaba Nchu Corridor and what considerations must be made prior construction activities. The proposed new roads fall within Ecological Support Areas as defined by the competent authority, hence listed activities from the NEMA 2014 EIA regulations (as amended) will be triggered. In addition to NEMA the proposed network will traverse the Sepane River at various locations within the Corridor. The Seroalo dam is situated approximately 86m from the proposed

network (Lenyatso Nyaredi Road earmarked for rehabilitation). Pockets of wetlands are situated at various locations within the Corridor. A Water Use Authorisation will be required for the proposed Corridor. Consultation with DWS must be undertaken to obtain guidance about the required process.

As this screening report was compiled in the initial stages of the project, it is important that project details be finalised as soon as possible to allow for the early undertaking of all relevant activities in order to ensure adherence to legislation and overall environmental protection whilst ensuring that the MMM meets their objectives in line with IPTN.

1. INTRODUCTION AND BACKGROUND

Mangaung Metropolitan Municipality (MMM) has proposed the implementation of an Integrated Public Transport Network (IPTN) known as *Hauweng*, as part of the National Public Transport Strategy and Action Plan released in 2007 by the National Department of Transport (NDoT) for its community. The strategy proposes the implementation of Integrated Rapid Public Transport Networks (IRPTN) in 12 (now 13) South African cities. Currently the cities which have successfully implemented this system are Cape Town (MyCiTi), Johannesburg (Rea Vaya) and Pretoria (A re Yeng). The reason is that such systems relieve inhabitants' reliance on private transportation, which in turn, reduce Greenhouse Gas (GHG) emissions and therefore the impact of the city on the environment. The MMM has decided to implement an IPTN with the assistance of the NDoT and to ensure that the system is as sustainable as possible.

There has been a great emphasis in reviving the public transportation system and the upgrading and development of supporting infrastructure by MMM. The implementation of *Hauweng* will enable service provision to numerous communities of the City. These services will transform the existing public transport system through the provision of an integrated, high-quality, safe and affordable public transport system. The primary aim of the *Hauweng* is to incrementally transform the existing public transport services to a multi-modal, integrated, high-quality, affordable, universally accessible, safe and reliable commuter service.

It is envisaged that the *Hauweng* will consist of an extensive network of bus and pedestrian walkways mainly concentrated within the City. According to the Draft City Wide Integrated Public Transport Plan (CWIPTP) 2019, the minimum requirements for an integrated public transport system are based on best practice and standards set by National Department of Transport for public transport systems in South Africa. The CWIPTP, 2019 makes reference to an IPTN that is based on demand Corridors taking into account the existing public transport supply and land use. Five (5) demand public transport Corridors are currently being proposed as part of the network/system planning of *Hauweng*. These Corridors were derived by obtaining regional and local travel patterns, existing public transport demand, as well as existing functional transport Corridors (minibus taxi operational areas and subsidised bus operators). The proposed Corridors for the *Hauweng* Services are as follows:

- Dr Belcher;
- Maphisa;
- Central Business District;
- Botshabelo; and
- **Thaba Nchu.**

GA Environment (Pty) Ltd has been appointed by GladAfrica Consulting Engineers on behalf of MMM to undertake an Environmental Screening for the City-Wide Network (five Corridors). This Screening report is applicable to the **Thaba Nchu** Corridor. The purpose of this screening report is to document the findings of the site assessment and advise MMM on the applicable environmental legislative requirements that must be met prior to the commencement of any proposed activity. Environmental screening is a process whereby key environmental issues associated with a proposed development are identified and form an integral part of prefeasibility investigations to allow adjustments to be

made to the proposal prior to the submission of the final development plans. The identified issues provide the MMM with adequate time and opportunity to respond to the environmental implications arising from the proposed development. The screening process may include the need for further environmental assessments, if it is determined with certainty that the proposed activities will not require any Environmental Authorisations, Licences or Permits.

The findings contained in this report should not be regarded as indicative of a comprehensive environmental assessment as the assessment was undertaken in response to the requirements of MMM. The main objective of the screening exercise is to provide input in the plans for the City-Wide Network based on identified environmental constraints and opportunities. The methods to be employed for each task will be underpinned by the key environmental legislation that governs each process within the prescribed administrative timeframes.

1.1 Project Description

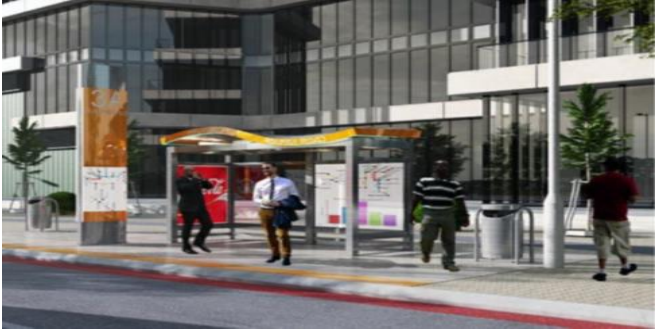



According to the CWIPTP, 2019 the Thaba Nchu Corridor will include the following infrastructure:

- Resurfacing and rehabilitation of certain sections of the road;
- Maintenance of certain sections of the road including stormwater infrastructure;
- Intersection upgrades; and
- Non-Motorized Infrastructure.

The Corridor facilities as proposed in the CWIPTP, 2019 are provided in **Table 1**. It should be noted that the dimensions of the facility types were not made available to the Environmental Assessment Practitioner (EAP) during the finalization of this report. In terms of the main transfer station for Thaba Nchu, a rejuvenation project has been planned for the CBD and the existing rank. Should the IPTN be implemented prior to the rejuvenation project, the existing rank will be upgraded to accommodate the IPTN.

Table 1: Facility Type Description

Facility Type Description	Visual Illustration
1. Stops Incremental implementation	

<p>2. Uncontrolled Access Stations Provided along all routes. The stops can have a shelter depending on the location along the route and space availability.</p>	
<p>3. Controlled Access Stations (stop with shelter) Will provide the following level of service:</p> <ul style="list-style-type: none"> • Pedestrian waiting area; • Pedestrian walkways; • Staircase; • Station access points/gates 	
<p>4. Transfers (Main) The route design alternatives all require a transfer facility in the CBD of Bloemfontein, Botshabelo and Thaba Nchu. These facilities will be the main integration points between modes and services in the areas and to other areas. Long distance- and cross border public transport services will integrate with the local Corridors at these points.</p>	<p>Transfer - Main</p>  <ul style="list-style-type: none"> • Feeder/trunk service integration point • High capacity • Space available for transfer facility
<p>5. Transfers High Capacity Provide transfer between routes in the network. The size is dependent on the number of feeder routes and vehicle fleet servicing the feeder routes.</p>	<p>High Capacity Transfer</p>  <p>32 m vehicle Shelter</p> <p>Other vehicles, pick-up/drop-off only, Kiss and Ride</p>

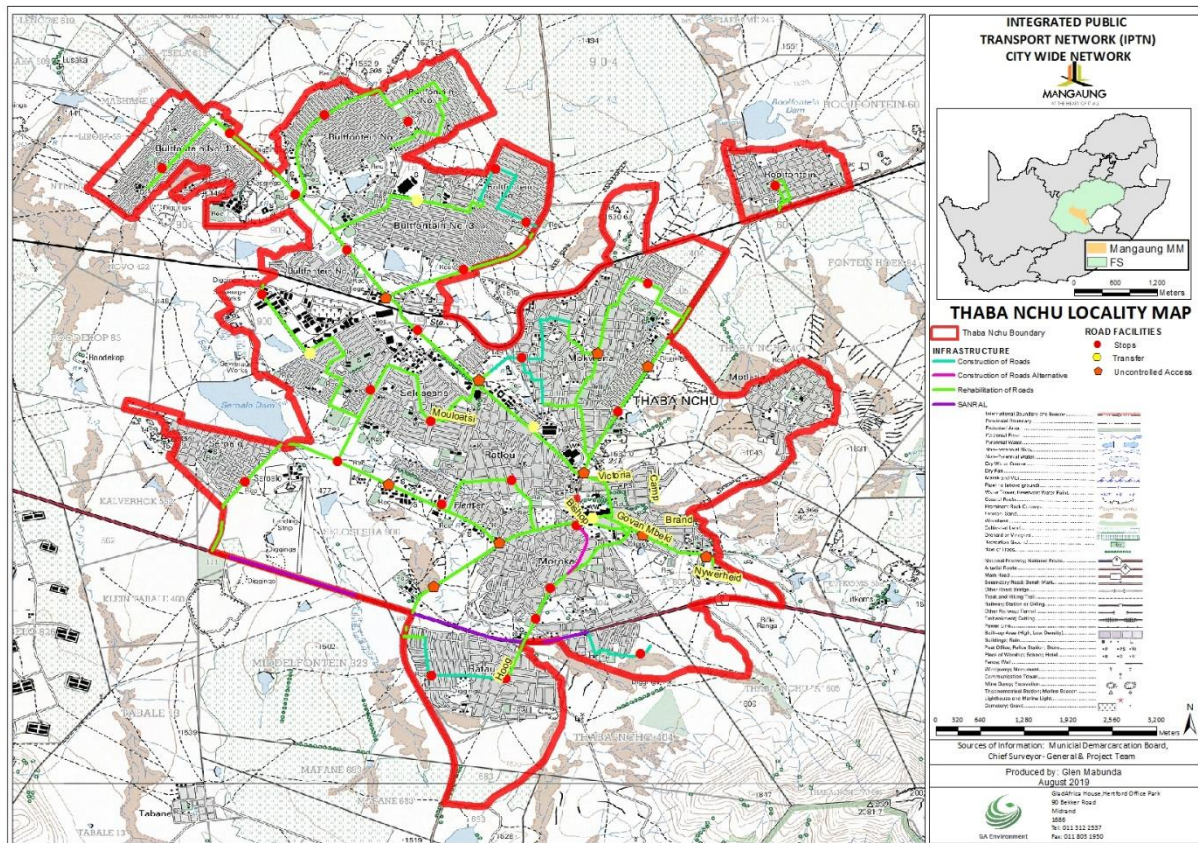


Figure 1: Locality Map showing the Thaba Nchu Corridor

The network centre coordinates are $29^{\circ}11'36.57''S$, $26^{\circ}49'13.69''E$ with the proposed study area situated within the urban edge of the metropolitan. The N8 intersects the Corridor on the southern end and the site can be accessed via Brand Street, Hoog Street and Lenyatso Nyaredi Street (**Figure 2**), which are all situated off the N8 (towards the south). The Seroalo Dam (**Figure 3**) is situated west of the Corridor, with the Seloshesha Wastewater Treatment Works towards the north west. A shopping centre is situated towards the south east of the Corridor along Brand Street within the Thaba Nchu CBD, (**Figure 4**) with the Thaba Nchu Community hall situated at the northern boundary of the Corridor. The proposed network will traverse a railway line (**Figure 5**) that is situated towards the north western section of the Corridor on Kgosimang Dimpene Road. Various primary and secondary schools exist within the Corridor such as Tawana Primary School, Moroka High school, Goronyane High School as well as the JS Moroka hospital which is situated on Station Road (**Figure 6**).



Figure 2: Lenyatso Nyaredi Street



Figure 3: Seroala Dam in the background



Figure 4: Picture of the CBD (taken from brand street)



Figure 5: Railway line on Kgosimang Dimpene Road



Figure 6: JS Moroka hospital situated on Kgosimang Dimpene Street

2. SITE ENVIRONMENTAL CONDITIONS

This section provides an overview of the environmental setting and issues identified on site during the site visit that was undertaken on 30th of August 2019. Site photographs are provided to present an overview of the existing site conditions.

2.1 General conditions of existing roads and infrastructure

Although a discussion of site infrastructure does not fall within the scope of Environmental Reporting, this aspect was presented in order to provide an idea of the activities that have already impacted on the site as the proposed development will itself further impact of the site.

Potholes were identified on roads at various locations within the Corridor (**Figure 7**) as well as pavement distress due to regular wear and tear. Majority of the roads within the corridor will be required to undergo maintenance eg. pothole repair, crack sealing and filling etc. Non-Motorised Transport e.g.; sidewalks form part of the Scope of Work for the entire IPTN, the need to construct sidewalks on various streets were identified during ground truthing (**Figure 8**). The main road (unnamed road) on the southern section of the Corridor (south of the N8) appeared to be newly constructed and included stormwater drains (**Figure 9 & 10**). Street lighting does exist within the Corridor but mainly in areas situated closer to the CBD as well as electricity infrastructure. (**Figure 11 & 12**).



Figure 7: Potholes identified of Kgosimang Dimpane Street



Figure 8: Sidewalks required on Brand Street



Figure 9: Newly constructed paved road on Puleng Makhathe Street



Figure 10: Stormwater Drain on Puleng Makhathe Street



Figure 11: Electricity powerlines on Kgosisimang Street



Figure 12: Electricity powerlines on Puleng Makhathe Street

2.2 Site Sensitivity

The South African National Biodiversity Institute (SANBI) data was consulted in order to determine the location of areas of increased ecological or conservation importance and sensitivity within the vicinity of the study area. This was undertaken by an investigation of biodiversity priority areas which include Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs). According to the GIS data most of the Corridor is regarded as being degraded. The northern and south western edge of the Corridor is situated within an ESA. A portion of the Corridor towards the south east is situated within a CBA (Figure 13).

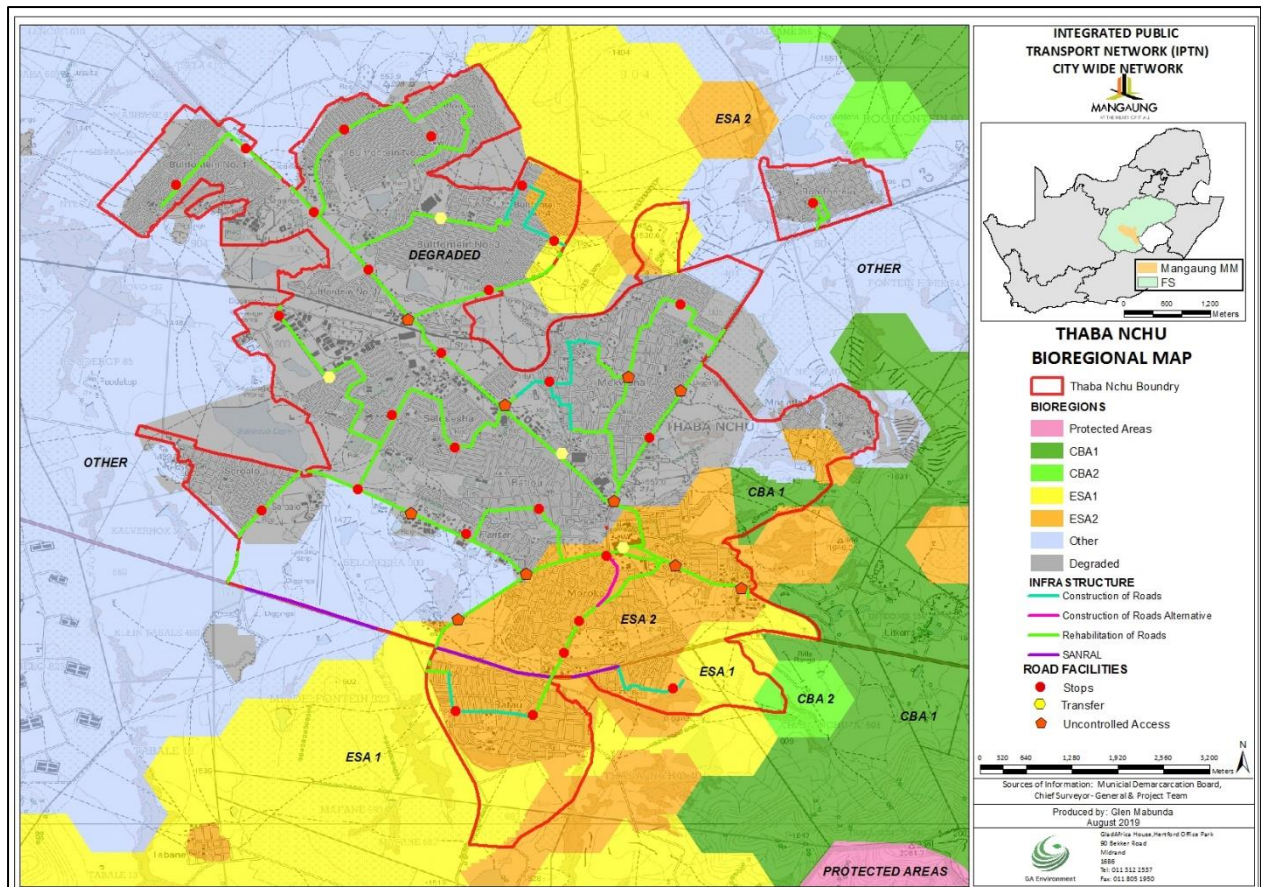


Figure 13: Thaba Nchu Site Sensitivity

The proposed Corridor does not fall within any protected area.

2.3 Geology and Soils

A desktop-based assessment with the use of shapefiles from the National Department of Rural Development and Land Reform was undertaken. Based on the assessment, the site is largely underlain by Mudstone (**Figure 14**). No dolomitic conditions were identified based on the GIS Desktop based Assessment.

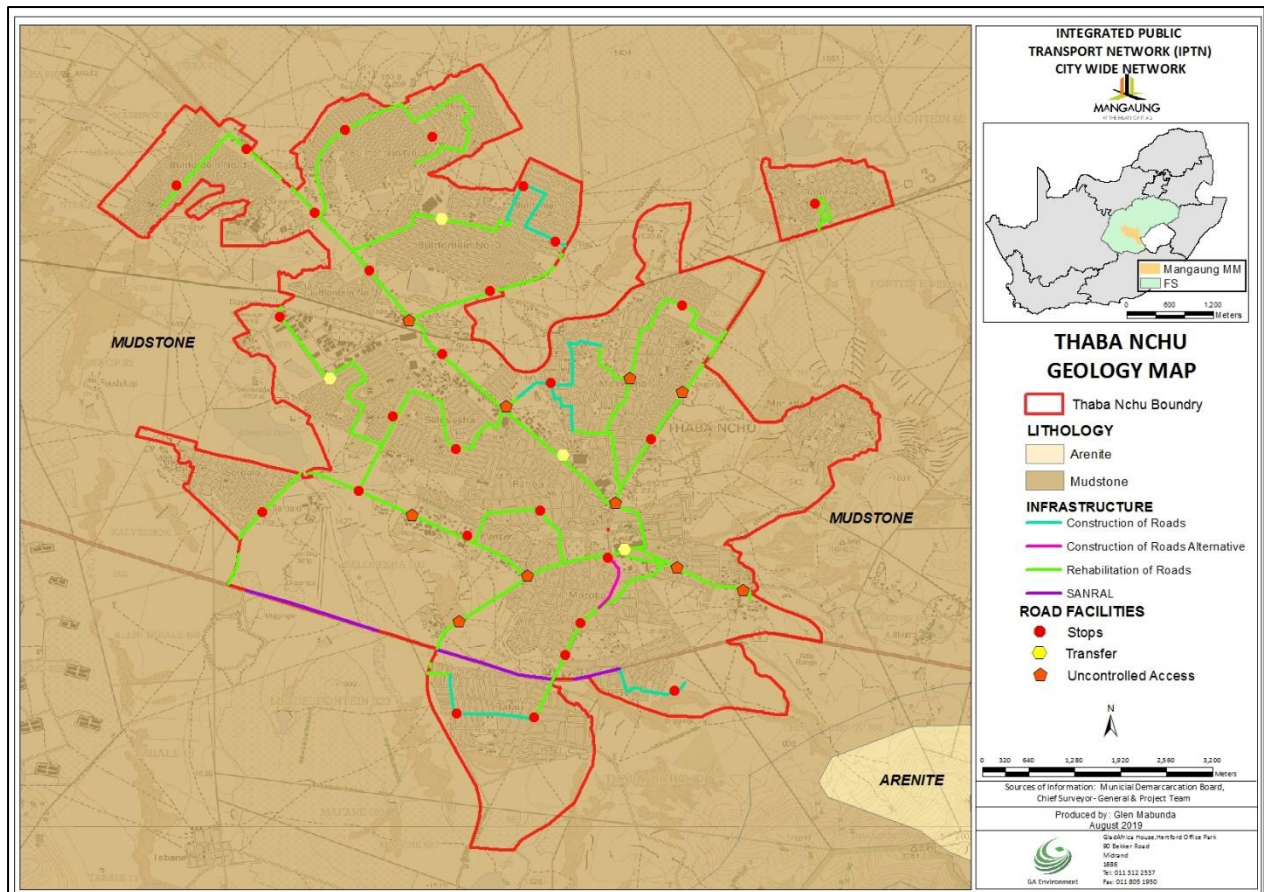


Figure 14: Thaba Nchu Geology Map

The proposed project also includes the construction of roads. This will require knowledge on the geology of the site in order to determine the founding conditions and pavement designs. A Geotechnical Assessment will be required to be undertaken; however, this assessment does not fall within the scope of GA Environment.

2.4 Hydrological Conditions

The proposed Corridor falls with the Quaternary Catchment C52B and C52C within the Orange Water Management Area (WMA). According to the desktop assessment using the GIS data, the Sepane river is located within the southern sections of the Corridor. The proposed route will traverse this river at various locations within the Corridor. The Seroalo dam is situated approximately 86m from the proposed network (Lenyatso Nyaredi road earmarked for rehabilitation). A number of wetlands are situated at various locations within the Corridor (**Figure 15**).

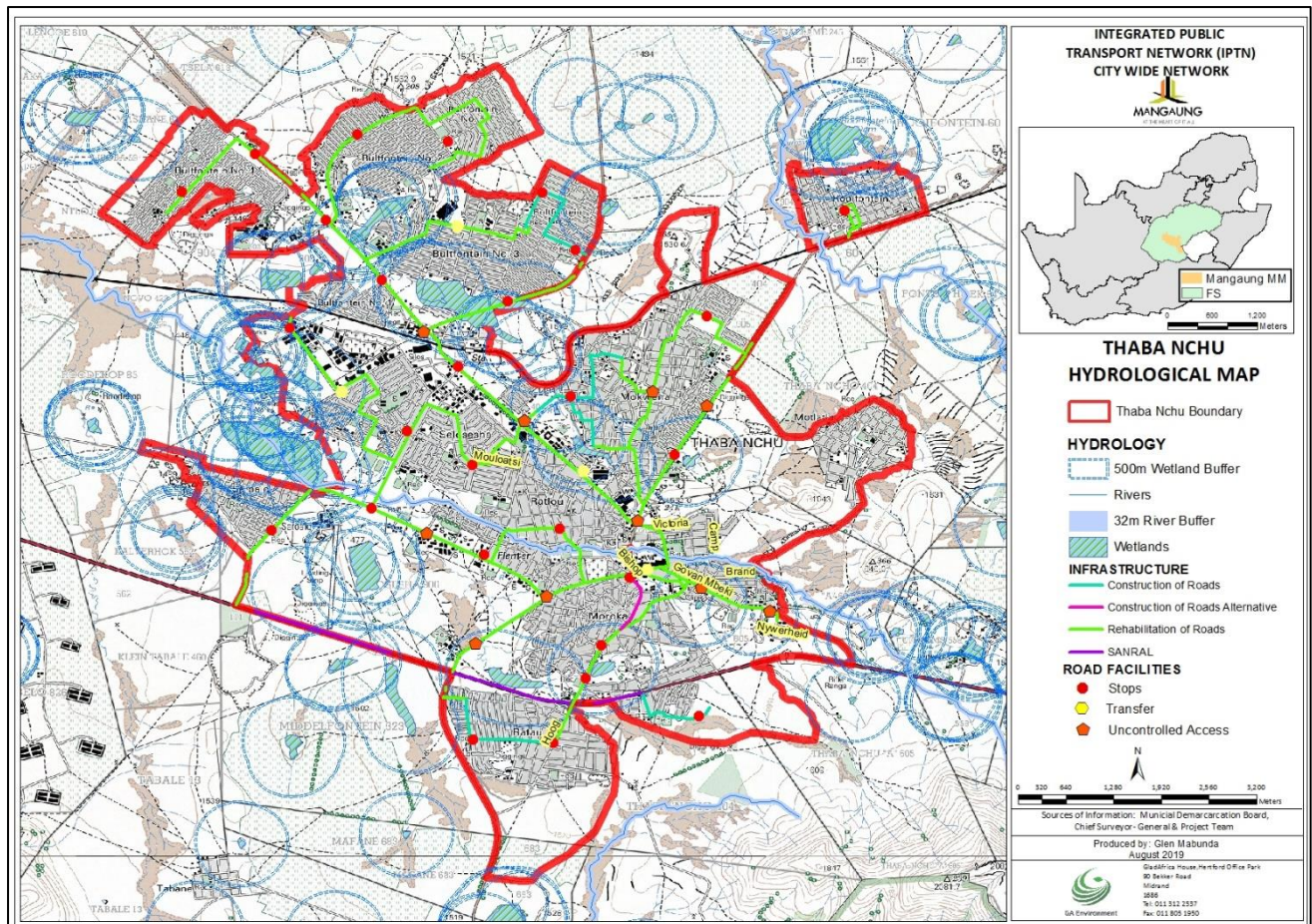


Figure 15: Thaba Nchu Hydrology Map

According to the information provided by the Systems planning Work Stream, certain network routes that require rehabilitation and the construction of new routes fall with the DWS regulated area (**Figure 16**). The following pictures are represented on **Figure 16**:

- **A**-Sepane River crossing point at an unnamed street situated of Lenyatso Nyaredi Street;
- **B**-Seroalo dam;
- **C**-Wetland situated at an unnamed street situated of Kgosimang Street; and
- **D**-Wetland situated east of the Brand Street and N8 intersection.

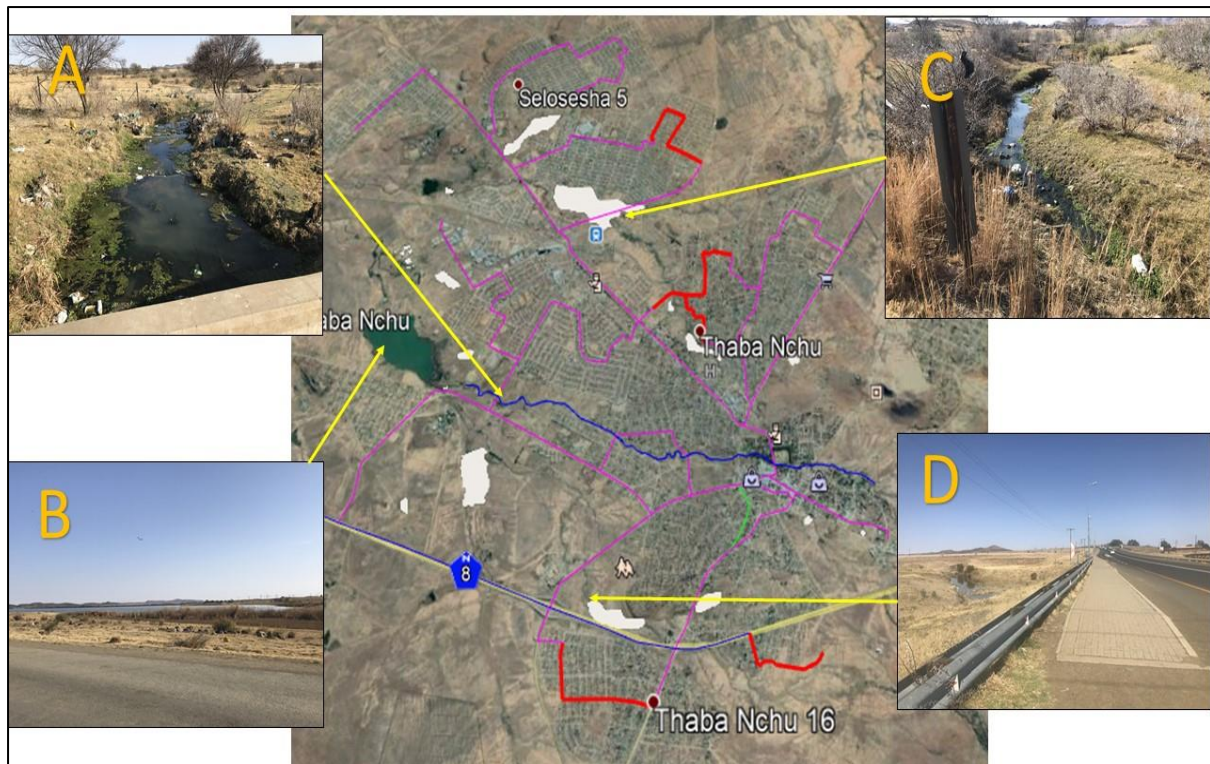


Figure 16: Some of the Watercourses identified within the Corridor

The Department of Water and Sanitation's (DWS) regulated areas for watercourses are as follows:

- An outer edge of the 1:100-year flood line and /or delineated riparian habitat whichever is the greatest measured from the middle of a river, spring, natural channel, lake or dam; or
- In the absence of a determined 1:100-year flood line or riparian area, the area within 100m from the edge of a watercourse where the edge of the watercourse is the first identifiable annual bank fill flood bench (subject to compliance to section 144 of the Act); or
- 500m radius from the delineated boundary of any wetland or pan.

This means that the relevant Water Use Authorisation (WUA) must be acquired to permit the proposed development. Further to the above, it is important that the following water related studies be undertaken to aid the MMM with determining the suitability of the site for development:

- Wetland and riparian assessment and delineation; and
- Aquatic Assessment.

The legislation governing any activities within the watercourse is discussed in **Section 3.2** of this Screening Report

2.5 Fauna and Flora

The entire study area is significantly disturbed and built-up, as such very little vegetation was noted during the site visit. According to the 2006 vegetation map produced by Mucina & Rutherford's (2006), the Thaba Nchu Corridor site is located within the *Central Free State Grassland (Mapping Unit Gh 6)* vegetation unit (**Figure 17**) which is considered Vulnerable. The vegetation and landscape features include undulating plains supporting short grassland in natural condition, dominated by *Themeda triandra*. *Eragrostis curvula* and *E. chloromelas* become dominant in degraded habitats. Dwarf karoo bushes establish in severely degraded clayey bottomlands. Overgrazed and trampled low-lying areas with heavy clayey soils are prone to *Acacia karroo* encroachment.

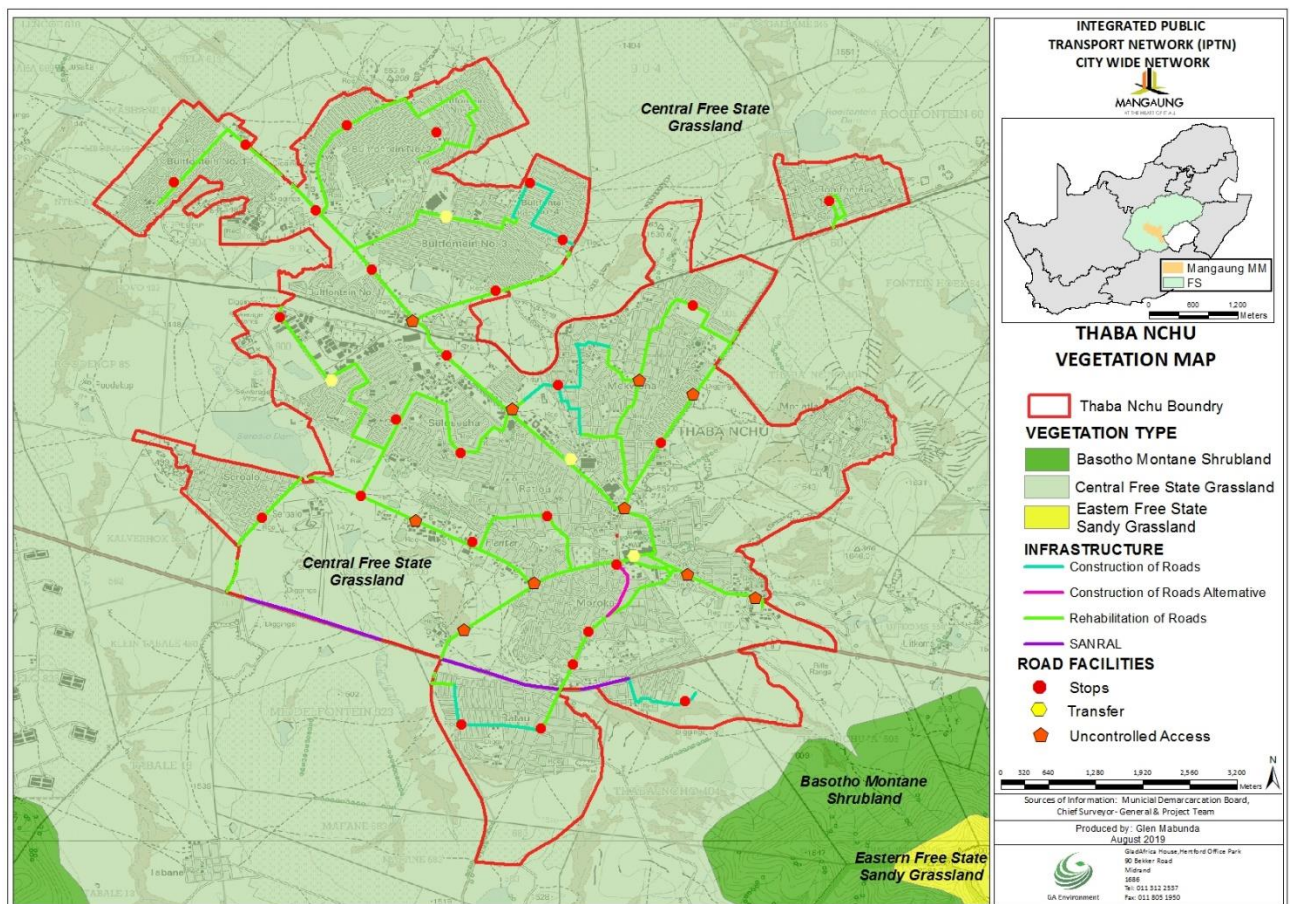


Figure 17: Thaba Nchu Vegetation Map

Trees were noted adjacent to the proposed network (**Figure 18**), at this early stage of the project it is unknown whether trees will be removed or retained. The MMM City parks Department will be involved should any of the trees be impacted by the proposed development, and should permits be required, the relevant Environmental Authority be consulted.

In terms of fauna, cows, sheep and goats were observed along the proposed network and a cattle kraal was also noted along the unnamed road situated off Kgosimang Dimpane Road (**Figure 19**).



Figure 18: Tree observed on Brad Street



Figure 19: Cattle Kraal on the Unnamed Road situated off Kgosimang Dimpene Road

2.6 Cultural and Heritage

During ground truthing exercise, two cemeteries were noted, one on Brand Street and the latter on the unnamed Road situated off Kgosimang Dimpene Road (**Figure 19 & 20**).



Figure 20: Cemetery observed on Brand Street



Figure 21: Cemetery observed on an Unnamed Road Situated off Kgosimang Road

Although it is the EAP's recommendation that the cemeteries within the proposed Corridor remain undisturbed and incorporated into the proposed development through protective measures such as fencing or similar demarcation methods. Where this is not possible, it is imperative that the MMM ensure adherence to the requirements of Section 36 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) which are already discussed in **Section 3.3** of this report prior to commencement with any works on this particular site.

According to information obtained from the DEA Screening Tool (Appendix A) and as presented in **Figure 22**, the entire Corridor is situated within an area of high palaeontological sensitivity.

Palaeontological sites are protected according to Section 34 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) which is further discussed in **Section 3.3**. Based on the GIS desktop study, a Palaeontological Assessment must be undertaken for the project.

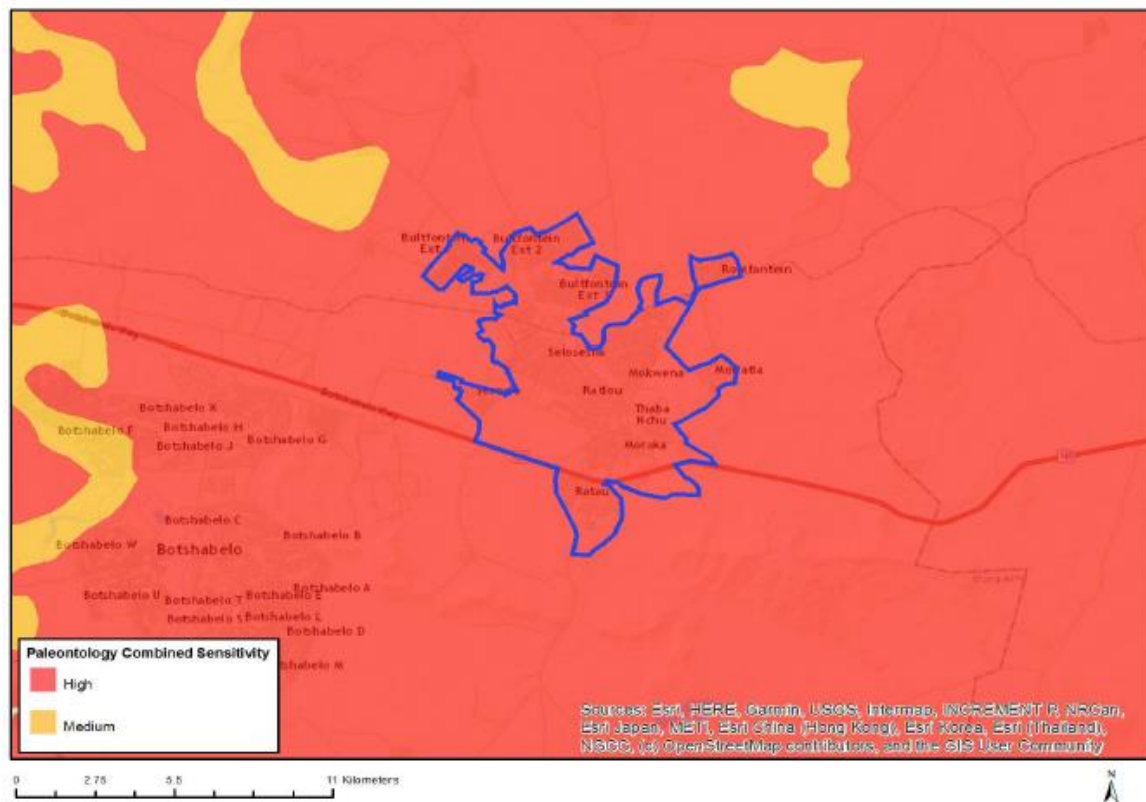


Figure 22: Palaentological Map (Source: DEA Screening Tool, 2009)

In addition to the above, it must be mentioned that the proposed activities may trigger the need to undertake a **Heritage Impact Assessment**. This is based on as per Section 38 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999). Activities such as the construction of roads, laying of pipelines and other linear infrastructure over 300m in length. **Section 3.3** details the above-mentioned activities in line with the National Heritage Resources Act, 1999 (Act No. 25 of 1999).

2.7 Waste Management

Domestic waste disposal was noted within the Corridor (**Figure 23 & 24**). Rubbish dumping, building rubble and littering was noted to be causing visual nuisances along the watercourses.



Figure 23: Dumping of waste along the road



Figure 24: Used Diapers disposed of on the riverbanks

Furthermore, the dumping of used diapers has been identified as an area that requires attention, as such activities have the potential to significantly decrease the water quality within the watercourses. Such has a potential to cause *faecal coliform* and *E. coli* contamination.

2.8 Stakeholder Engagement

Stakeholder consultation activities are typically undertaken to provide project stakeholders with an opportunity for early participation in the planning and development of a proposed project. Such participation can lead to improved decision-making by the proponent, while fostering good neighbour relationships with project stakeholders. It is of critical importance that adequate public participation is undertaken to avoid any project opposition.

Stakeholder consultation is managed by the Marketing and Stakeholder Engagement Work Stream, it is critical that the public is informed of the proposed activities through the relevant channels as approved by MMM.

A Social Impact Assessment (SIA) has been commissioned for the City-Wide IPTN. The SIA investigates the potential change in the activity, interaction and/or sentiment of the community, as it responds to the impacts resulting from the alteration in the surrounding environment.

Based on the observations and discussions with residents during the site visit, the following were identified as key stakeholders and authorities who must be notified of the project:

- Adjacent residents and businesses;
- Ward Councillor;
- Department of Economic, Small Business Development, Tourism and Environmental Affairs (DESTEa);
- Department of Water and Sanitation (DWS); and
- Free State Heritage Resources Agency (FSHRA)

Any additional stakeholders and authorities will be identified in subsequent project stages

3. LEGISLATIVE REQUIREMENTS

3.1 NEMA EIA Regulations 2014 (as amended)

Environmental Impact Assessment (EIA) Regulations were promulgated in December 2014 (as amended) in terms of Section 24(5) and Section 44 of the National Environmental Management Act (NEMA), Act 107 of 1998 and consist of the following:

- Regulation 982 provides details on the processes and procedures to be followed when undertaking an Environmental Authorisation process;
- Listing Notice 1 (Regulation 983) defines activities which will trigger the need for a Basic Assessment process;
- Listing Notice 2 (Regulation 984) defines activities which trigger an Environmental Impact Assessment (EIA) process. If activities from both R983 and R984 are triggered, then an EIA process will be required.
- Listing Notice 3 (Regulations 985) defines certain additional listed activities for which a Basic Assessment process would be required within identified geographical areas.

The above regulations were reviewed to determine whether the proposed project will trigger any of the above listed activities, and if so, what Environmental Authorisation Process would be required.

The review revealed that Activities from Listing Notice 3 will be triggered, hence a Basic Assessment process will be required.

Table 2: Listed Activities in Terms of NEMA EIA Regulations (as amended)

Listing Number	Description of Listing triggered by the proposed activity	Applicability
Listing Notice 3 Activity 4	The development of a road wider than 4 meters with a reserve less than 13.5 meters. b. Free State ii Inside Urban Areas (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in the Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose; or (cc) Areas within urban protected areas.	The proposed new roads will have a road reserve of 13m.
Listing Notice 3 Activity 18	The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre.	This activity is yet to be confirmed depending on the design of the roads that will require upgrading.

Listing Number	Description of Listing triggered by the proposed activity	Applicability
	b. Free State ii Inside Urban Areas (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in the Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose; or (cc) Areas within urban protected areas.	

The possible triggered Listed activities presented in this report are dependent on the following:

- The finalising of project details by the relevant Work Streams; and
- Confirmation of the Listed Activities with the Free State Department of Economic, Small Business Development, Tourism and Environmental Affairs (DESTE) to confirm the EAP's findings about the required processes mainly in line with the site conditions which include a built-up area. DESTE has established an enquiry system where advice and guidance can be provided prior to a formal Environmental application process.

3.2 National Water Act, 1998 (Act No. 36 of 1998)

The National Water Act No. 36 of 1998 (NWA) governs the management of water resources. It aims to ensure the sustainable use of water through the protection of the quality and quantity of water resources for the benefit of all water users. According to the Act, a person can only be entitled to use water if the use is permissible under the NWA. Section 21 of the NWA specifies the water uses, which require authorisation from the Department of Water and Sanitation (DWS) prior to the commencement of the activity. Based on desktop studies and initial field assessments, a list of regulated areas that could possibly be triggered by the development are presented as follows:

- The outer edge of the 1:100-year flood line and /or delineated riparian habitat whichever is the greatest measured from the middle of a river, spring, natural channel, lake or dam;
- In the absence of a determined 1:100-year flood line or riparian area, the area within 100m from the edge of a watercourse where the edge of the watercourse is the first identifiable annual bank fill flood bench (subject to compliance to section 144 of the Act); or
- 500m radius from the delineated boundary of any wetland or pan.

Certain activities, such as construction activities within these areas are regulated by the Department of Water and Sanitation and will require a Water Use Authorisation in terms of Section 21 of the National Water Act.

Any activity that occurs within a regulated area requires an application for a Water Use Authorisation (WUA) in the form of a Water Use License Application (WULA) or a General Authorisation (GA) with the DWS. Eleven (11) Water Uses are covered under Section 21 of the National Water Act, 1998 (Act No. 36 of 1998) and are as follows:

- (a) taking water from a water resource;*
- (b) storing water;*
- (c) impeding or diverting the flow of water in a watercourse;*
- (d) engaging in a stream flow reduction activity contemplated in section 36;*
- (e) engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1);*
- (f) discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit;*
- (g) disposing of waste in a manner which may detrimentally impact on a water resource;*
- (h) disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process;*
- (i) altering the bed, banks, course or characteristic of a watercourse;*
- (j) 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; and*
- (k) using water for recreational purposes.*

As shown in **Section 2.4**, the proposed network will traverse the Sepane River at various locations within the Corridor. The Seroalo dam is situated approximately 86m from the proposed network (Lenyatso Nyaredi Road earmarked for rehabilitation). A number of wetlands are situated at various locations within the corridor. A Water Use Authorisation will be required for the proposed corridor. Consultation with DWS must be undertaken to obtain guidance about the required process.

3.3 National Heritage Resources Act, 1999 (Act No. 25 of 1999)

The objective of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) is to introduce an integrated system for the management of national heritage resources. The Act defines a 'heritage resource' as any place or object of cultural significance (aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance). The identification, evaluation and assessment of any cultural heritage site, artefact or find in South Africa is required by this Act. This section of the report will present the heritage issues. In this section of the report and based on National Heritage Resources Act (1999), all mention of the 'Responsible Heritage Resources Authority' refers to the Free State Heritage Resources Agency (FSHRA)

Section 2.6 present the cultural and heritage matters applicable to the project. National Heritage Resources Act, 1999 (Act No. 25 of 1999) may be applied in the management of all heritage resources that could potentially occur within the Thaba Nchu Corridor. With regards to the project, Section 35, 36 and 38 of the Act are applicable and will be discussed.

3.3.1 Cemeteries

As presented in **Section 2.6** of this report, cemeteries were noted within the Corridor. Although it is the EAP's recommendation that the graves within the Corridor remain undisturbed and incorporated

into the proposed development through protective measures such as fencing or maintaining a buffer, where this is not possible, it is imperative that the MMM ensure adherence to Section 36(3)(b) of the National Heritage Resources Act, 1999 which states that:

'No person may, without a permit issued by SAHRA or a provincial heritage resources authority- destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority'.

In addition to the above, should any additional graves be uncovered during the construction phase of the project, Section 38(6) of the National Heritage Resources Act (1999) will apply. This Section states the following:

'Subject to the provision of any other law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority.'

3.3.2 Activities governed by the National Heritage Resources Act, 1999 (Act No. 25 of 1999)

As presented in Section 2.6, the Thaba Nchu Corridor occurs within a site with a high Palaeontological rating. Section 35 of the Act pertains to the protection of archaeological and palaeontological sites or material as well as meteorites. Section 35(4)(1)(a) states that

'No person may, without a permit issued by the responsible heritage resources authority—

*(a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or **palaeontological site** or any meteorite.*

Based on the above, a **Palaeontological Impact Assessment** must be undertaken for the project.

With regards to the proposed activities, the relevant parts of Section 38, which pertains to Heritage Resources Management must be adhered to. Section 38(1) and indicated in **maroon** as follows:

'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 50 m 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,*

Based on the above, a **Heritage Impact Assessment** may be required for the project. FSHRA as the relevant Heritage Resource Authority for the project must be notified of the project as early as possible in the initiation stage of the project.

3.4 Department of Environmental Affairs Screening Tool

According to Regulation 16(1)(v) of the NEMA EIA Regulations 2014, as amended, an Application for Environmental Authorisation must be accompanied by a 'the report generated by the national web based environmental screening tool, once this tool is operational.' The custodian of this report is the Department of Environmental Affairs (DEA). At the time of the compilation of this Screening Report, the tool was operational but not yet effected as this would take place on the 04th October 2019. Regardless of the status quo and while confirmation regarding the need for the undertaking of an application for Environmental Authorisation was still awaited, the EAP utilised a proactive approach to use this tool in the compilation of the Screening Report for the MMM IPTN Thaba Nchu Corridor. The results of the tool are indicated in the Report attached as Appendix A.

Page 24 of 32 of the Report indicates that certain Specialist assessments will be required for the undertaking of the proposed development and upgrades in the Thaba Nchu Corridor. There is however an allowance of the EAP to motivate for the reasons for not including certain assessments in the assessment report. The following Specialist assessments have been identified as per the DEA Screening tool:

- Agricultural Impact Assessment;
- Landscape/Visual Impact Assessment;
- Archaeological and Cultural Heritage Impact Assessment;
- Palaeontology Impact Assessment;
- Terrestrial Biodiversity Impact Assessment;
- Aquatic Biodiversity Impact Assessment;
- Noise Impact Assessment;
- Traffic Impact Assessment;
- Geotechnical Assessment;
- Socio-Economic Assessment;

- Ambient Air Quality Impact Assessment.

The need for the above-mentioned studies will be discussed with the competent authority during the pre-application meeting and their applicability will be confirmed.

4. CONCLUSION AND RECOMMENDATIONS

This Environmental Screening investigation was undertaken to determine if any legislative or other requirements must be met for the proposed Thaba Nchu Corridor. This report is based on an assessment of information gathered during desktop studies and the site ground truthing exercise.

The report presented the site conditions and also outlined all possible legislative requirements based on these site conditions as well as proposed activities. The legislative requirements discussed were in line with various pieces of legislation governing the protection of flora and fauna, water, heritage resources, etc. and outlined the need for authorisations, permits and licences where applicable as well as the authorities that will be involved in the granting of these. The screening assessment revealed that a Basic Assessment process will be required for the proposed Corridor, a NEMA enquiry will be lodged with the Competent Authority in order to confirm the authorisation requirements. In addition, a Water Use Authorisation will also be required for the proposed Corridor due to the construction and rehabilitation of roads within a DWS regulated area.

The report also outlined the need for various specialist studies such as wetland and riparian assessment and delineation; aquatic assessment; Palaeontological Impact Assessment and Heritage Impact Assessment. Their applicability will be confirmed through a pre application meeting with the Competent Authority.

It is important to note that this Environmental Screening was undertaken in terms of the current promulgated 2014 EIA Regulations (as amended). Since the proposed IPTN will be implemented in an incremental manner, there is a possibility of legislation changes, as well as possible promulgation of Provincial Environmental Management Framework Regulations. The implication of the aforementioned could result in the triggered activities as documented in this report being not applicable. Should this be the case, Section 28 (Duty of Care) of the National Environmental Management Act (Act 107 of 1998) shall be implemented.

The prevention of any site degradation due to non-compliance, administrative or financial problems, and inactivity during the construction phase, illegal activities, delays caused by archaeological finds etc. are ultimately the responsibility of the applicant / developer as per Section 28 of NEMA, 1998 (as amended) which discusses 'Duty of Care and remediation of environmental change'. An Environmental Management Plan shall be compiled for the proposed project in order to management potential environmental impacts and independent Environmental Control Monitoring and Auditing is recommended.

As this screening report was compiled in the initial stages of the project, it is important that project details be finalised as soon as possible to allow for the early undertaking of all relevant activities in order to ensure adherence to legislation and overall environmental protection whilst ensuring that the MMM meets their objectives in line with IPTN.

5. REFERENCES

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

Mangaung Metropolitan Municipality, 2019, Draft City Wide Integrated Public Transport Plan

APPENDIX A

DEA SCREENING TOOL

**SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION OR
FOR A PART TWO AMENDMENT OF AN ENVIRONMENTAL AUTHORISATION
AS REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED SITE
ENVIRONMENTAL SENSITIVITY**

EIA Reference number: Not Applicable

Project name: MMM IPTN

Project title: Thaba Nchu

Date screening report generated: 28/08/2019 07:44:13

Applicant: Manguang Metropolitan Municipality

Compiler: Kirthi Peramaul

Compiler signature:

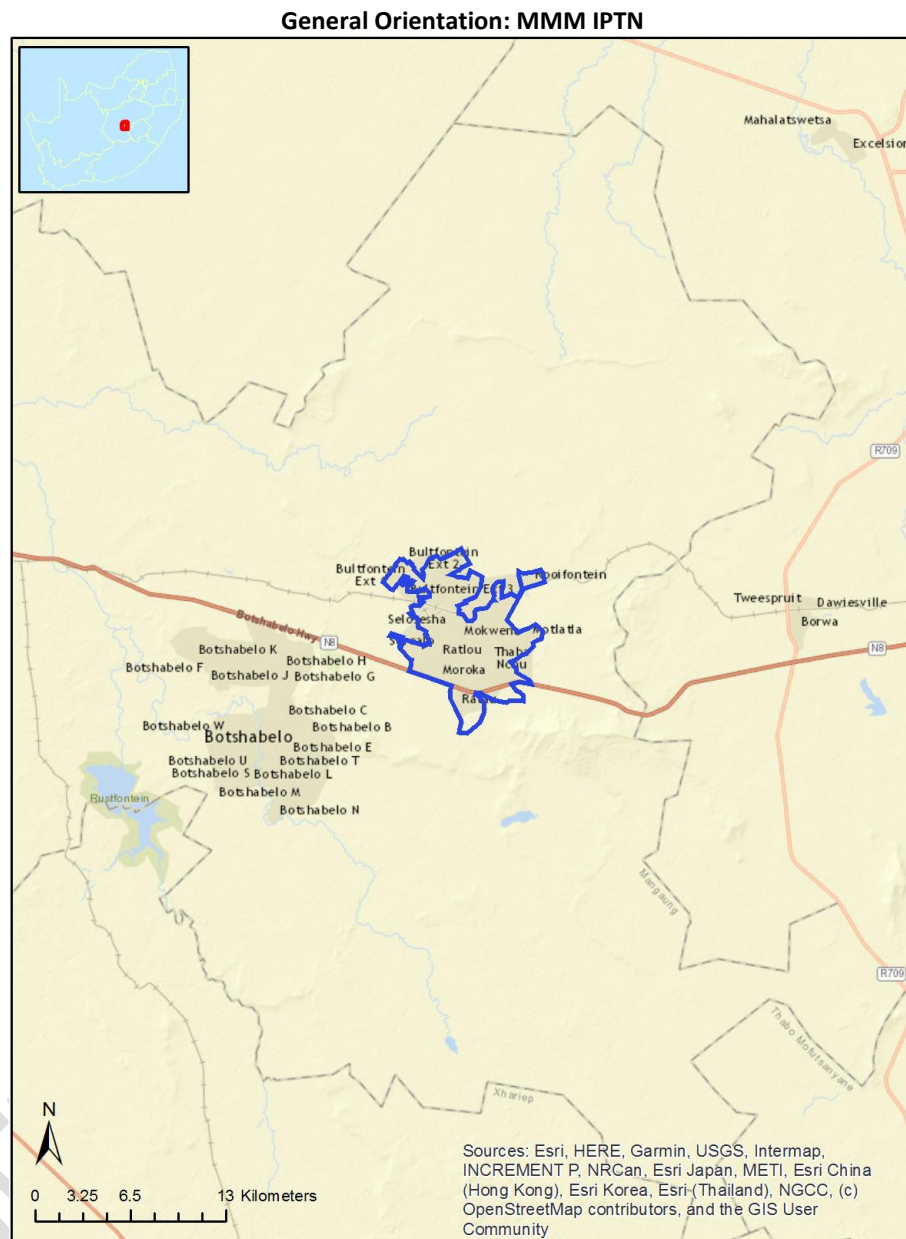
.....

Table of Contents

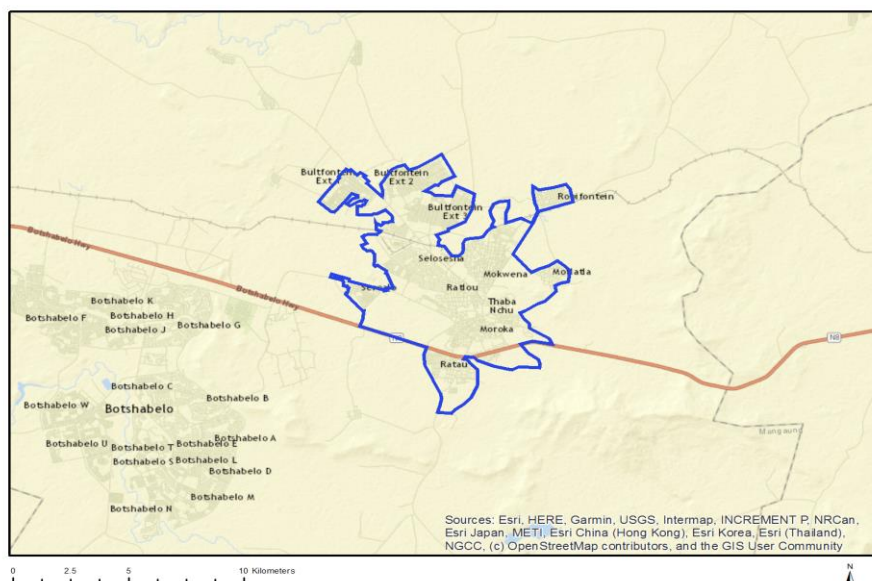
Proposed Project Location	3
Orientation map 1: General location	3
Map of proposed site and relevant area(s)	4
Cadastral details of the proposed site	4
Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area	21
Environmental Management Frameworks relevant to the application	21
Environmental screening results and assessment outcomes	22
Relevant development incentives, restrictions, exclusions or prohibitions	22
Map indicating proposed development footprint within applicable development incentive, restriction, exclusion or prohibition zones	23
Proposed Development Area Environmental Sensitivity	23
Specialist assessments identified	24
Results of the environmental sensitivity of the proposed area	25
MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY	26
MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY	27
MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY	28
MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY	29
MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY	30
MAP OF RELATIVE DEFENCE THEME SENSITIVITY	31
MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY	32

Proposed Project Location

Orientation map 1: General location



Map of proposed site and relevant area(s)



Cadastral details of the proposed site

Property details:

No	Farm Name	Farm/Erf Number	Portion	Latitude	Longitude
1	THABA 'NCHU	759	00000	-29.21018	26.84643
2	THABA 'NCHU	529	00000	-29.21068	26.84975
3	SELOSESHA	13569	00000	-29.17026	26.82181
4	SELOSESHA	13629	00000	-29.17051	26.81954
5	SELOSESHA	13737	00000	-29.16746	26.8284
6	SELOSESHA	13739	00000	-29.16773	26.82828
7	SELOSESHA	13967	00000	-29.16839	26.83193
8	SELOSESHA	13980	00000	-29.16947	26.83422
9	SELOSESHA	13751	00000	-29.16933	26.82754
10	SELOSESHA	13749	00000	-29.16907	26.82766
11	SELOSESHA	13760	00000	-29.16818	26.8278
12	SELOSESHA	13987	00000	-29.16933	26.83334
13	SELOSESHA	14050	00000	-29.17008	26.83223
14	SELOSESHA	14082	00000	-29.16994	26.83105
15	SELOSESHA	13790	00000	-29.16848	26.82832
16	SELOSESHA	13792	00000	-29.16816	26.82847
17	SELOSESHA	13763	00000	-29.16778	26.82798
18	SELOSESHA	14043	00000	-29.17054	26.83334
19	SELOSESHA	14045	00000	-29.17041	26.83302
20	SELOSESHA	13837	00000	-29.16853	26.83056
21	SELOSESHA	13866	00000	-29.1691	26.83048
22	SELOSESHA	13873	00000	-29.16892	26.82947
23	SELOSESHA	13919	00000	-29.16944	26.82843
24	SELOSESHA	13899	00000	-29.16945	26.82989
25	SELOSESHA	13902	00000	-29.16976	26.83011
26	SELOSESHA	13907	00000	-29.16946	26.82932
27	SELOSESHA	13910	00000	-29.16927	26.82887
28	SELOSESHA	13774	00000	-29.1699	26.82708
29	SELOSESHA	14021	00000	-29.16952	26.83233
30	SELOSESHA	13819	00000	-29.1683	26.83085

31	SELOSESHA	13843	00000	-29.16904	26.8312
32	SELOSESHA	13824	00000	-29.16799	26.83011
33	SELOSESHA	13829	00000	-29.16767	26.82935
34	SELOSESHA	14008	00000	-29.17003	26.83412
35	SELOSESHA	14106	00000	-29.17102	26.83304
36	SELOSESHA	14109	00000	-29.17064	26.83213
37	SELOSESHA	14035	00000	-29.1704	26.83361
38	SELOSESHA	13991	00000	-29.16908	26.83274
39	SELOSESHA	13994	00000	-29.16889	26.8323
40	SELOSESHA	14120	00000	-29.17063	26.83128
41	SELOSESHA	14121	00000	-29.1707	26.83144
42	SELOSESHA	14123	00000	-29.17084	26.83178
43	SELOSESHA	14134	00000	-29.17118	26.8326
44	SELOSESHA	13945	00000	-29.16957	26.82817
45	SELOSESHA	13888	00000	-29.16919	26.83079
46	SELOSESHA	14086	00000	-29.17018	26.83165
47	SELOSESHA	13951	00000	-29.16892	26.83193
48	SELOSESHA	13552	00000	-29.17002	26.81946
49	SELOSESHA	13559	00000	-29.17026	26.81982
50	SELOSESHA	13554	00000	-29.17008	26.81986
51	SELOSESHA	13565	00000	-29.17028	26.82101
52	SELOSESHA	13678	00000	-29.17221	26.8187
53	SELOSESHA	8766	00000	-29.17232	26.8193
54	SELOSESHA	3476	00000	-29.19761	26.80203
55	THABA 'NCHU	243	00000	-29.21842	26.84587
56	SELOSESHA	2755	00000	-29.19552	26.80474
57	SELOSESHA	2760	00000	-29.1958	26.80545
58	THABA 'NCHU	7702	00000	-29.2015	26.84171
59	THABA 'NCHU	7708	00000	-29.20187	26.84177
60	THABA 'NCHU	7713	00000	-29.20209	26.83986
61	THABA 'NCHU	6873	00000	-29.20034	26.84414
62	THABA 'NCHU	5754	00000	-29.18352	26.84809
63	THABA 'NCHU	6456	00000	-29.1877	26.83493
64	THABA 'NCHU	6462	00000	-29.18696	26.83456
65	SELOSESHA	4727	00000	-29.18301	26.79952
66	SELOSESHA	5161	00000	-29.18289	26.80831
67	SELOSESHA	5164	00000	-29.18252	26.80816
68	SELOSESHA	4302	00000	-29.19411	26.82182
69	SELOSESHA	4306	00000	-29.19083	26.81967
70	SELOSESHA	4320	00000	-29.19109	26.82052
71	SELOSESHA	3457	00000	-29.19595	26.80351
72	SELOSESHA	3885	00000	-29.19709	26.80835
73	THABA 'NCHU	7031	00000	-29.19557	26.84163
74	THABA 'NCHU	7044	00000	-29.19487	26.84004
75	THABA 'NCHU	6191	00000	-29.18942	26.84568
76	SELOSESHA	356	00000	-29.20181	26.82508
77	THABA 'NCHU	605	00000	-29.22029	26.85371
78	THABA 'NCHU	4500	00000	-29.22509	26.84676
79	THABA 'NCHU	5039	00000	-29.21564	26.82687
80	THABA 'NCHU	6617	00000	-29.1931	26.84209
81	THABA 'NCHU	6621	00000	-29.193	26.84179
82	THABA 'NCHU	5780	00000	-29.18435	26.84844
83	THABA 'NCHU	4715	00000	-29.2103	26.81808
84	THABA 'NCHU	6891	00000	-29.19909	26.84273
85	THABA 'NCHU	6903	00000	-29.19823	26.84385
86	THABA 'NCHU	364	00000	-29.2151	26.85041
87	THABA 'NCHU	509	00000	-29.20946	26.8488
88	THABA 'NCHU	521	00000	-29.20899	26.85079
89	THABA 'NCHU	2215	00000	-29.20071	26.82704
90	THABA 'NCHU	1225	00000	-29.23756	26.82162

91	THABA 'NCHU	1228	00000	-29.23778	26.82163
92	SELOSESHA	5016	00000	-29.18263	26.80912
93	SELOSESHA	5444	00000	-29.17381	26.78051
94	THABA 'NCHU	897	00000	-29.23089	26.82296
95	THABA 'NCHU	1192	00000	-29.23697	26.82034
96	THABA 'NCHU	1200	00000	-29.23602	26.81947
97	SELOSESHA	438	00000	-29.20276	26.82407
98	THABA 'NCHU	7695	00000	-29.20173	26.83962
99	THABA 'NCHU	7699	00000	-29.20151	26.84122
100	THABA 'NCHU	5194	00000	-29.23186	26.83655
101	THABA 'NCHU	5198	00000	-29.23239	26.83713
102	THABA 'NCHU	4257	00000	-29.21826	26.83886
103	THABA 'NCHU	4717	00000	-29.21001	26.81758
104	THABA 'NCHU	6453	00000	-29.18775	26.8353
105	THABA 'NCHU	4728	00000	-29.20898	26.81528
106	THABA 'NCHU	3844	00000	-29.2258	26.83206
107	THABA 'NCHU	3858	00000	-29.22634	26.83342
108	THABA 'NCHU	2824	00000	-29.20801	26.82715
109	THABA 'NCHU	2829	00000	-29.20853	26.82676
110	THABA 'NCHU	2400	00000	-29.20645	26.83127
111	THABA 'NCHU	2411	00000	-29.20551	26.83276
112	THABA 'NCHU	1534	00000	-29.23417	26.82982
113	THABA 'NCHU	1971	00000	-29.20301	26.86904
114	SELOSESHA	339	00000	-29.19848	26.82248
115	THABA 'NCHU	5796	00000	-29.18475	26.8484
116	THABA 'NCHU	5220	00000	-29.23202	26.83741
117	THABA 'NCHU	613	00000	-29.21513	26.85068
118	THABA 'NCHU	6040	00000	-29.18402	26.84419
119	THABA 'NCHU	6045	00000	-29.18562	26.84385
120	THABA 'NCHU	6053	00000	-29.18417	26.84356
121	THABA 'NCHU	4083	00000	-29.22339	26.83464
122	THABA 'NCHU	4090	00000	-29.22192	26.83518
123	THABA 'NCHU	4093	00000	-29.22417	26.83424
124	THABA 'NCHU	6467	00000	-29.18796	26.83318
125	THABA 'NCHU	6886	00000	-29.19892	26.84284
126	SELOSESHA	5167	00000	-29.1822	26.80788
127	SELOSESHA	5171	00000	-29.18177	26.80752
128	THABA 'NCHU	3862	00000	-29.22596	26.83398
129	THABA 'NCHU	540	00000	-29.21151	26.84889
130	THABA 'NCHU	2081	00000	-29.19687	26.86416
131	THABA 'NCHU	7417	00000	-29.19896	26.83628
132	THABA 'NCHU	7422	00000	-29.19894	26.83577
133	THABA 'NCHU	7862	00000	-29.20317	26.83817
134	THABA 'NCHU	884	00000	-29.23318	26.82343
135	THABA 'NCHU	894	00000	-29.23181	26.82294
136	THABA 'NCHU	902	00000	-29.23188	26.82402
137	THABA 'NCHU	1207	00000	-29.23698	26.81923
138	THABA 'NCHU	139	00000	-29.21711	26.85212
139	THABA 'NCHU	5204	00000	-29.23247	26.83981
140	THABA 'NCHU	5209	00000	-29.23293	26.83867
141	SELOSESHA	5608	00000	-29.17134	26.78308
142	SELOSESHA	4322	00000	-29.19106	26.82017
143	SELOSESHA	4745	00000	-29.18358	26.80227
144	SELOSESHA	4760	00000	-29.18416	26.80346
145	SELOSESHA	3897	00000	-29.19804	26.80787
146	SELOSESHA	3908	00000	-29.19899	26.80892
147	THABA 'NCHU	7460	00000	-29.19993	26.83604
148	THABA 'NCHU	7477	00000	-29.1993	26.83804
149	THABA 'NCHU	6631	00000	-29.19378	26.84136
150	THABA 'NCHU	7048	00000	-29.1942	26.83941

151	THABA 'NCHU	7063	00000	-29.19495	26.83839
152	THABA 'NCHU	6208	00000	-29.18862	26.84464
153	THABA 'NCHU	6639	00000	-29.19247	26.84299
154	THABA 'NCHU	5793	00000	-29.18453	26.84792
155	THABA 'NCHU	5798	00000	-29.18489	26.84872
156	THABA 'NCHU	4773	00000	-29.20917	26.81632
157	THABA 'NCHU	4785	00000	-29.20937	26.81686
158	THABA 'NCHU	4800	00000	-29.20963	26.81784
159	THABA 'NCHU	4806	00000	-29.20955	26.81736
160	THABA 'NCHU	4272	00000	-29.21855	26.83926
161	THABA 'NCHU	4277	00000	-29.21911	26.84023
162	SELOSESHA	4345	00000	-29.19251	26.82441
163	THABA 'NCHU	6058	00000	-29.18398	26.84167
164	THABA 'NCHU	6475	00000	-29.18755	26.8322
165	THABA 'NCHU	6481	00000	-29.18874	26.8316
166	THABA 'NCHU	5045	00000	-29.21433	26.82941
167	THABA 'NCHU	3105	00000	-29.21121	26.83112
168	THABA 'NCHU	3433	00000	-29.22692	26.82616
169	THABA 'NCHU	3861	00000	-29.2272	26.8332
170	THABA 'NCHU	3869	00000	-29.22457	26.83363
171	THABA 'NCHU	2843	00000	-29.20803	26.82827
172	THABA 'NCHU	1082	00000	-29.23546	26.82227
173	THABA 'NCHU	1086	00000	-29.2351	26.82194
174	THABA 'NCHU	3007	00000	-29.21078	26.82578
175	THABA 'NCHU	3010	00000	-29.21125	26.82578
176	THABA 'NCHU	2556	00000	-29.2101	26.83538
177	THABA 'NCHU	1656	00000	-29.23572	26.83158
178	THABA 'NCHU	1661	00000	-29.23542	26.82991
179	THABA 'NCHU	1664	00000	-29.23611	26.83069
180	THABA 'NCHU	6598	00000	-29.19218	26.83953
181	THABA 'NCHU	6603	00000	-29.19275	26.84103
182	THABA 'NCHU	697	00000	-29.21685	26.85114
183	THABA 'NCHU	678	00000	-29.21621	26.85024
184	SELOSESHA	468	00000	-29.20089	26.81857
185	THABA 'NCHU	2856	00000	-29.20653	26.82761
186	SELOSESHA	4748	00000	-29.1837	26.80269
187	THABA 'NCHU	2429	00000	-29.20639	26.83209
188	SELOSESHA	3906	00000	-29.19875	26.80905
189	THABA 'NCHU	1560	00000	-29.23248	26.82607
190	THABA 'NCHU	7726	00000	-29.20292	26.84045
191	THABA 'NCHU	7055	00000	-29.19556	26.84018
192	THABA 'NCHU	7744	00000	-29.20458	26.83994
193	THABA 'NCHU	6907	00000	-29.19752	26.84356
194	SELOSESHA	5613	00000	-29.17214	26.78235
195	SELOSESHA	5617	00000	-29.17184	26.78308
196	SELOSESHA	5629	00000	-29.16861	26.78132
197	SELOSESHA	5188	00000	-29.1831	26.80743
198	SELOSESHA	5199	00000	-29.18398	26.80725
199	SELOSESHA	4334	00000	-29.19164	26.82297
200	SELOSESHA	4340	00000	-29.192	26.82383
201	SELOSESHA	4353	00000	-29.19213	26.82368
202	THABA 'NCHU	7918	00000	-29.20106	26.83448
203	THABA 'NCHU	631	00000	-29.22399	26.85602
204	THABA 'NCHU	5623	00000	-29.18376	26.84691
205	THABA 'NCHU	5632	00000	-29.18337	26.84686
206	THABA 'NCHU	4102	00000	-29.22098	26.8366
207	THABA 'NCHU	4513	00000	-29.22742	26.8484
208	THABA 'NCHU	2644	00000	-29.20752	26.83253
209	THABA 'NCHU	2658	00000	-29.20727	26.83199
210	THABA 'NCHU	4026	00000	-29.22223	26.83282

211	THABA 'NCHU	2586	00000	-29.21059	26.83418
212	THABA 'NCHU	3025	00000	-29.21042	26.82599
213	THABA 'NCHU	2998	00000	-29.21089	26.82458
214	SELOSESHA	7	00000	-29.19675	26.81811
215	THABA 'NCHU	2115	00000	-29.19865	26.87089
216	THABA 'NCHU	1257	00000	-29.23895	26.82086
217	THABA 'NCHU	7878	00000	-29.20382	26.83746
218	THABA 'NCHU	7020	00000	-29.19414	26.84142
219	THABA 'NCHU	285	00000	-29.21784	26.85053
220	THABA 'NCHU	149	00000	-29.21502	26.849
221	THABA 'NCHU	766	00000	-29.21735	26.84961
222	THABA 'NCHU	146	00000	-29.21527	26.84851
223	THABA 'NCHU	2662	00000	-29.20794	26.83111
224	THABA 'NCHU	2667	00000	-29.20838	26.83087
225	THABA 'NCHU	1982	00000	-29.20156	26.86868
226	THABA 'NCHU	1549	00000	-29.23183	26.82464
227	THABA 'NCHU	1554	00000	-29.23177	26.82593
228	THABA 'NCHU	6650	00000	-29.19306	26.84385
229	THABA 'NCHU	5804	00000	-29.18531	26.84908
230	THABA 'NCHU	5809	00000	-29.18495	26.84828
231	THABA 'NCHU	7728	00000	-29.20328	26.84019
232	THABA 'NCHU	6241	00000	-29.18863	26.84064
233	THABA 'NCHU	7321	00000	-29.19523	26.83115
234	THABA 'NCHU	5816	00000	-29.18444	26.84716
235	THABA 'NCHU	4807	00000	-29.20934	26.81743
236	THABA 'NCHU	4817	00000	-29.20979	26.81972
237	THABA 'NCHU	4831	00000	-29.20979	26.81814
238	THABA 'NCHU	3873	00000	-29.22529	26.83262
239	THABA 'NCHU	4293	00000	-29.21873	26.84191
240	THABA 'NCHU	4296	00000	-29.21887	26.84139
241	THABA 'NCHU	3460	00000	-29.22669	26.82736
242	THABA 'NCHU	3468	00000	-29.22645	26.82775
243	THABA 'NCHU	2440	00000	-29.20764	26.8336
244	THABA 'NCHU	2448	00000	-29.20764	26.8331
245	THABA 'NCHU	1988	00000	-29.20075	26.87123
246	THABA 'NCHU	75	00000	-29.21639	26.84976
247	THABA 'NCHU	88	00000	-29.21581	26.84631
248	THABA 'NCHU	5640	00000	-29.18161	26.84856
249	THABA 'NCHU	4531	00000	-29.22696	26.84623
250	THABA 'NCHU	3682	00000	-29.21852	26.83163
251	THABA 'NCHU	3688	00000	-29.21939	26.83182
252	THABA 'NCHU	3692	00000	-29.21867	26.83135
253	THABA 'NCHU	1124	00000	-29.23434	26.81996
254	THABA 'NCHU	1099	00000	-29.23575	26.82131
255	THABA 'NCHU	1104	00000	-29.23455	26.82115
256	THABA 'NCHU	1107	00000	-29.23409	26.82065
257	THABA 'NCHU	1113	00000	-29.23547	26.82084
258	THABA 'NCHU	6	00000	-29.21233	26.83976
259	THABA 'NCHU	401	00000	-29.21687	26.84484
260	THABA 'NCHU	4043	00000	-29.22262	26.83433
261	THABA 'NCHU	4467	00000	-29.22375	26.83665
262	THABA 'NCHU	4470	00000	-29.22395	26.83619
263	THABA 'NCHU	3623	00000	-29.22117	26.82763
264	THABA 'NCHU	3627	00000	-29.22112	26.82802
265	THABA 'NCHU	3632	00000	-29.22067	26.82921
266	THABA 'NCHU	2118	00000	-29.19919	26.87048
267	THABA 'NCHU	2587	00000	-29.21061	26.83448
268	THABA 'NCHU	1700	00000	-29.238	26.83133
269	THABA 'NCHU	1284	00000	-29.23834	26.81999
270	THABA 'NCHU	7902	00000	-29.20461	26.83864

271	THABA 'NCHU	7449	00000	-29.2002	26.83404
272	THABA 'NCHU	7889	00000	-29.20499	26.83763
273	THABA 'NCHU	7896	00000	-29.20452	26.83903
274	THABA 'NCHU	126	00000	-29.21562	26.85304
275	THABA 'NCHU	907	00000	-29.23186	26.82368
276	THABA 'NCHU	738	00000	-29.2156	26.84423
277	THABA 'NCHU	163	00000	-29.21795	26.84928
278	THABA 'NCHU	16	00000	-29.21479	26.84256
279	THABA 'NCHU	584	00000	-29.21982	26.85461
280	THABA 'NCHU	7068	00000	-29.19516	26.83853
281	THABA 'NCHU	7481	00000	-29.20039	26.83789
282	THABA 'NCHU	6657	00000	-29.1924	26.84472
283	SELOSESHA	399	00000	-29.20223	26.82499
284	THABA 'NCHU	1567	00000	-29.23296	26.8272
285	THABA 'NCHU	1573	00000	-29.23275	26.82806
286	THABA 'NCHU	5238	00000	-29.23044	26.84017
287	THABA 'NCHU	5810	00000	-29.18487	26.84812
288	THABA 'NCHU	7752	00000	-29.2052	26.84034
289	THABA 'NCHU	4824	00000	-29.20968	26.81861
290	SELOSESHA	6070	00000	-29.16591	26.78732
291	THABA 'NCHU	3876	00000	-29.22523	26.83181
292	SELOSESHA	5633	00000	-29.16921	26.78106
293	SELOSESHA	5639	00000	-29.1689	26.78174
294	THABA 'NCHU	3457	00000	-29.22717	26.82644
295	SELOSESHA	4792	00000	-29.18338	26.80354
296	THABA 'NCHU	2445	00000	-29.20799	26.83319
297	SELOSESHA 1A	58	00000	-29.18834	26.79415
298	THABA 'NCHU	7498	00000	-29.19633	26.8384
299	THABA 'NCHU	7091	00000	-29.19265	26.83739
300	THABA 'NCHU	7097	00000	-29.19386	26.8361
301	THABA 'NCHU	1181	00000	-29.23718	26.82109
302	THABA 'NCHU	6920	00000	-29.19802	26.8427
303	THABA 'NCHU	6072	00000	-29.1853	26.8434
304	THABA 'NCHU	6078	00000	-29.18691	26.84157
305	THABA 'NCHU	5069	00000	-29.21818	26.82825
306	THABA 'NCHU	4117	00000	-29.22148	26.83764
307	THABA 'NCHU	4122	00000	-29.21983	26.84023
308	THABA 'NCHU	4109	00000	-29.22258	26.83688
309	THABA 'NCHU	4114	00000	-29.22159	26.83691
310	THABA 'NCHU	434	00000	-29.20963	26.84604
311	THABA 'NCHU	992	00000	-29.23188	26.82
312	THABA 'NCHU	5013	00000	-29.21497	26.82672
313	THABA 'NCHU	5005	00000	-29.21423	26.82725
314	THABA 'NCHU	4066	00000	-29.22061	26.83505
315	THABA 'NCHU	3059	00000	-29.21227	26.82819
316	THABA 'NCHU	3062	00000	-29.21237	26.82749
317	THABA 'NCHU	2148	00000	-29.19631	26.86707
318	THABA 'NCHU	2161	00000	-29.19664	26.87004
319	THABA 'NCHU	7912	00000	-29.20007	26.83337
320	THABA 'NCHU	1299	00000	-29.24002	26.82038
321	THABA 'NCHU	172	00000	-29.2182	26.84932
322	THABA 'NCHU	3117	00000	-29.21108	26.83222
323	THABA 'NCHU	2004	00000	-29.20096	26.86835
324	THABA 'NCHU	2009	00000	-29.20045	26.86808
325	SELOSESHA	393	00000	-29.20206	26.82406
326	THABA 'NCHU	1576	00000	-29.23281	26.82926
327	THABA 'NCHU	5820	00000	-29.18317	26.85163
328	THABA 'NCHU	5828	00000	-29.1843	26.85089
329	THABA 'NCHU	7749	00000	-29.20495	26.84015
330	THABA 'NCHU	4838	00000	-29.21037	26.81949

331	SELOSESHA	6057	00000	-29.16543	26.78701
332	THABA 'NCHU	4305	00000	-29.22029	26.84095
333	SELOSESHA	5206	00000	-29.18312	26.80713
334	THABA 'NCHU	3472	00000	-29.22688	26.82768
335	SELOSESHA	5642	00000	-29.16933	26.7816
336	THABA 'NCHU	3903	00000	-29.22361	26.83179
337	THABA 'NCHU	2875	00000	-29.2093	26.82948
338	THABA 'NCHU	3476	00000	-29.22725	26.82809
339	THABA 'NCHU	2467	00000	-29.20678	26.83405
340	THABA 'NCHU	1581	00000	-29.2331	26.82892
341	THABA 'NCHU	2022	00000	-29.20088	26.86701
342	SELOSESHA	405	00000	-29.20236	26.82416
343	SELOSESHA	411	00000	-29.2022	26.82323
344	THABA 'NCHU	7788	00000	-29.20372	26.84103
345	THABA 'NCHU	7799	00000	-29.20303	26.84163
346	THABA 'NCHU	7346	00000	-29.1962	26.83206
347	THABA 'NCHU	6500	00000	-29.19	26.83234
348	THABA 'NCHU	5642	00000	-29.18177	26.84886
349	THABA 'NCHU	4132	00000	-29.2205	26.83915
350	THABA 'NCHU	3130	00000	-29.21042	26.83143
351	THABA 'NCHU	445	00000	-29.22102	26.8509
352	THABA 'NCHU	5022	00000	-29.21503	26.82623
353	THABA 'NCHU	4484	00000	-29.22543	26.83508
354	THABA 'NCHU	2627	00000	-29.20897	26.8319
355	THABA 'NCHU	1740	00000	-29.23913	26.83501
356	THABA 'NCHU	917	00000	-29.23348	26.82385
357	THABA 'NCHU	929	00000	-29.23368	26.82278
358	THABA 'NCHU	6665	00000	-29.19309	26.84558
359	THABA 'NCHU	6669	00000	-29.1938	26.8448
360	SELOSESHA	424	00000	-29.20239	26.82191
361	THABA 'NCHU	5836	00000	-29.18377	26.85094
362	SELOSESHA	7391	00000	-29.16765	26.81565
363	THABA 'NCHU	5255	00000	-29.23008	26.8423
364	SELOSESHA	6510	00000	-29.16612	26.79147
365	THABA 'NCHU	4309	00000	-29.21972	26.84101
366	SELOSESHA	5659	00000	-29.16945	26.78252
367	THABA 'NCHU	3894	00000	-29.22395	26.83231
368	SELOSESHA	5225	00000	-29.18276	26.80549
369	SELOSESHA	5230	00000	-29.18314	26.80492
370	THABA 'NCHU	2888	00000	-29.2091	26.82903
371	THABA 'NCHU	1325	00000	-29.23983	26.82296
372	THABA 'NCHU	1329	00000	-29.23954	26.82353
373	THABA 'NCHU	7957	00000	-29.20489	26.83673
374	THABA 'NCHU	7524	00000	-29.19674	26.84014
375	THABA 'NCHU	7531	00000	-29.19769	26.83761
376	THABA 'NCHU	6680	00000	-29.19379	26.84567
377	THABA 'NCHU	6686	00000	-29.19274	26.84713
378	THABA 'NCHU	6261	00000	-29.19023	26.84158
379	THABA 'NCHU	6270	00000	-29.19065	26.84204
380	THABA 'NCHU	7358	00000	-29.19561	26.83326
381	THABA 'NCHU	5645	00000	-29.18213	26.84904
382	THABA 'NCHU	5652	00000	-29.18189	26.84806
383	THABA 'NCHU	4545	00000	-29.22643	26.84648
384	THABA 'NCHU	1139	00000	-29.23464	26.81931
385	THABA 'NCHU	1025	00000	-29.23272	26.8191
386	THABA 'NCHU	1028	00000	-29.23348	26.81919
387	THABA 'NCHU	1038	00000	-29.23468	26.82397
388	THABA 'NCHU	3649	00000	-29.21974	26.83008
389	THABA 'NCHU	3654	00000	-29.21934	26.82951
390	THABA 'NCHU	3080	00000	-29.21128	26.82849

391	THABA 'NCHU	1742	00000	-29.23938	26.83436
392	THABA 'NCHU	1746	00000	-29.23766	26.83434
393	THABA 'NCHU	2068	00000	-29.19817	26.86283
394	THABA 'NCHU	188	00000	-29.21581	26.84456
395	THABA 'NCHU	767	00000	-29.21739	26.84945
396	THABA 'NCHU	55	00000	-29.21618	26.84818
397	THABA 'NCHU	60	00000	-29.2157	26.85052
398	SELOSESHA	431	00000	-29.20258	26.82299
399	THABA 'NCHU	7763	00000	-29.20632	26.83988
400	THABA 'NCHU	5263	00000	-29.23154	26.84187
401	SELOSESHA	7400	00000	-29.16688	26.81749
402	SELOSESHA	6500	00000	-29.16542	26.79087
403	THABA 'NCHU	4847	00000	-29.20999	26.8202
404	SELOSESHA	6523	00000	-29.1666	26.79255
405	THABA 'NCHU	4868	00000	-29.21062	26.82098
406	SELOSESHA	6080	00000	-29.16595	26.78774
407	SELOSESHA	6084	00000	-29.16655	26.78748
408	SELOSESHA	6088	00000	-29.16692	26.78762
409	SELOSESHA	5239	00000	-29.18335	26.80684
410	THABA 'NCHU	1323	00000	-29.23978	26.82261
411	THABA 'NCHU	3500	00000	-29.22514	26.8282
412	THABA 'NCHU	3915	00000	-29.22275	26.83181
413	THABA 'NCHU	1342	00000	-29.23994	26.82221
414	THABA 'NCHU	2907	00000	-29.2103	26.82765
415	THABA 'NCHU	7520	00000	-29.19605	26.84029
416	THABA 'NCHU	2035	00000	-29.19979	26.86448
417	SELOSESHA	435	00000	-29.20268	26.8236
418	THABA 'NCHU	1611	00000	-29.23584	26.83435
419	SELOSESHA	7406	00000	-29.16733	26.81703
420	SELOSESHA	7863	00000	-29.16381	26.80992
421	SELOSESHA	7867	00000	-29.16416	26.80908
422	SELOSESHA	6946	00000	-29.16157	26.80374
423	THABA 'NCHU	7365	00000	-29.19578	26.83253
424	THABA 'NCHU	7811	00000	-29.2013	26.83657
425	THABA 'NCHU	4549	00000	-29.22856	26.8444
426	THABA 'NCHU	4561	00000	-29.228	26.84233
427	THABA 'NCHU	5090	00000	-29.21625	26.82894
428	THABA 'NCHU	1060	00000	-29.23557	26.82344
429	THABA 'NCHU	1064	00000	-29.23437	26.82287
430	THABA 'NCHU	2072	00000	-29.19852	26.8613
431	THABA 'NCHU	2077	00000	-29.19657	26.86606
432	THABA 'NCHU	7853	00000	-29.20377	26.83896
433	THABA 'NCHU	1051	00000	-29.23464	26.8236
434	THABA 'NCHU	99	00000	-29.21463	26.84493
435	THABA 'NCHU	104	00000	-29.21471	26.84328
436	THABA 'NCHU	110	00000	-29.21137	26.84202
437	THABA 'NCHU	119	00000	-29.21132	26.83947
438	THABA 'NCHU	841	00000	-29.23056	26.81918
439	THABA 'NCHU	846	00000	-29.23036	26.81986
440	THABA 'NCHU	5265	00000	-29.23195	26.84167
441	THABA 'NCHU	5270	00000	-29.23154	26.84166
442	THABA 'NCHU	5840	00000	-29.1832	26.85131
443	THABA 'NCHU	4852	00000	-29.21025	26.8208
444	THABA 'NCHU	4861	00000	-29.2106	26.82127
445	THABA 'NCHU	4866	00000	-29.21104	26.82078
446	SELOSESHA	6526	00000	-29.16706	26.79244
447	THABA 'NCHU	4318	00000	-29.2202	26.84262
448	SELOSESHA	5674	00000	-29.17047	26.78282
449	THABA 'NCHU	3482	00000	-29.22746	26.82804
450	THABA 'NCHU	3486	00000	-29.22701	26.82841

451	THABA 'NCHU	2477	00000	-29.20823	26.83501
452	THABA 'NCHU	2900	00000	-29.20908	26.8279
453	THABA 'NCHU	2033	00000	-29.19849	26.86711
454	THABA 'NCHU	8413	00000	-29.18669	26.8427
455	THABA 'NCHU	1597	00000	-29.23134	26.8262
456	THABA 'NCHU	7125	00000	-29.19551	26.83805
457	THABA 'NCHU	6694	00000	-29.19267	26.8469
458	SELOSESHA	7416	00000	-29.16754	26.81364
459	THABA 'NCHU	6708	00000	-29.19498	26.84612
460	THABA 'NCHU	6287	00000	-29.18999	26.84406
461	SELOSESHA	456	00000	-29.20285	26.82293
462	THABA 'NCHU	6953	00000	-29.19671	26.84516
463	THABA 'NCHU	6962	00000	-29.19617	26.84547
464	THABA 'NCHU	6092	00000	-29.18674	26.84312
465	THABA 'NCHU	6098	00000	-29.18706	26.84256
466	THABA 'NCHU	5092	00000	-29.21583	26.82878
467	THABA 'NCHU	4137	00000	-29.21987	26.83894
468	THABA 'NCHU	4148	00000	-29.22085	26.83787
469	THABA 'NCHU	545	00000	-29.21167	26.84799
470	THABA 'NCHU	2533	00000	-29.21095	26.83709
471	THABA 'NCHU	2537	00000	-29.21085	26.83611
472	THABA 'NCHU	7002	00000	-29.19588	26.8436
473	THABA 'NCHU	7007	00000	-29.19773	26.84222
474	THABA 'NCHU	7011	00000	-29.1986	26.8421
475	THABA 'NCHU	622	00000	-29.22297	26.85525
476	SELOSESHA	6960	00000	-29.16224	26.80469
477	SELOSESHA	6093	00000	-29.16641	26.78839
478	SELOSESHA	6531	00000	-29.16725	26.79308
479	SELOSESHA	5667	00000	-29.16962	26.78312
480	SELOSESHA	5672	00000	-29.17043	26.78239
481	THABA 'NCHU	1346	00000	-29.24027	26.82197
482	THABA 'NCHU	1754	00000	-29.2387	26.83567
483	THABA 'NCHU	1766	00000	-29.23787	26.8292
484	THABA 'NCHU	1352	00000	-29.24045	26.82302
485	THABA 'NCHU	8405	00000	-29.18266	26.84431
486	THABA 'NCHU	8423	00000	-29.19184	26.83219
487	THABA 'NCHU	7123	00000	-29.19529	26.83747
488	THABA 'NCHU	2920	00000	-29.2099	26.8254
489	THABA 'NCHU	6702	00000	-29.19366	26.84635
490	THABA 'NCHU	2057	00000	-29.1985	26.86374
491	THABA 'NCHU	5856	00000	-29.18661	26.84954
492	THABA 'NCHU	5862	00000	-29.18729	26.84896
493	SELOSESHA	8325	00000	-29.16558	26.80703
494	SELOSESHA	7435	00000	-29.16588	26.81477
495	SELOSESHA	7438	00000	-29.16614	26.81414
496	THABA 'NCHU	7823	00000	-29.20131	26.83622
497	THABA 'NCHU	7829	00000	-29.20154	26.83784
498	THABA 'NCHU	6525	00000	-29.18889	26.83401
499	THABA 'NCHU	6536	00000	-29.18982	26.83378
500	THABA 'NCHU	5102	00000	-29.21503	26.82985
501	THABA 'NCHU	5109	00000	-29.21539	26.83165
502	THABA 'NCHU	4156	00000	-29.22005	26.83703
503	THABA 'NCHU	1072	00000	-29.23521	26.82267
504	THABA 'NCHU	1077	00000	-29.2341	26.8221
505	THABA 'NCHU	3589	00000	-29.22336	26.82906
506	THABA 'NCHU	2540	00000	-29.21074	26.83706
507	SELOSESHA	8	00000	-29.19665	26.81822
508	THABA 'NCHU	125	00000	-29.21588	26.84389
509	THABA 'NCHU	6162	00000	-29.19129	26.84776
510	THABA 'NCHU	6584	00000	-29.19205	26.83902

511	THABA 'NCHU	654	00000	-29.21641	26.84353
512	THABA 'NCHU	667	00000	-29.21652	26.84439
513	THABA 'NCHU	204	00000	-29.21796	26.85184
514	THABA 'NCHU	5287	00000	-29.2315	26.84254
515	THABA 'NCHU	4342	00000	-29.2203	26.84337
516	THABA 'NCHU	4870	00000	-29.21091	26.82221
517	THABA 'NCHU	4876	00000	-29.21069	26.8217
518	THABA 'NCHU	3930	00000	-29.22037	26.83256
519	THABA 'NCHU	3934	00000	-29.21962	26.83238
520	THABA 'NCHU	3939	00000	-29.21921	26.83265
521	THABA 'NCHU	3505	00000	-29.2262	26.82803
522	THABA 'NCHU	7128	00000	-29.19603	26.83742
523	THABA 'NCHU	2489	00000	-29.20829	26.83545
524	THABA 'NCHU	2495	00000	-29.20843	26.83597
525	THABA 'NCHU	2499	00000	-29.20841	26.83686
526	THABA 'NCHU	6300	00000	-29.19076	26.84577
527	THABA 'NCHU	6304	00000	-29.19047	26.84663
528	THABA 'NCHU	2046	00000	-29.19868	26.86315
529	SELOSESHA	6113	00000	-29.16744	26.7887
530	SELOSESHA	6116	00000	-29.16698	26.78916
531	SELOSESHA	7874	00000	-29.16364	26.8098
532	SELOSESHA	7879	00000	-29.16372	26.80877
533	THABA 'NCHU	2232	00000	-29.20256	26.82835
534	SELOSESHA	7425	00000	-29.16706	26.8133
535	THABA 'NCHU	1362	00000	-29.24058	26.82246
536	THABA 'NCHU	1366	00000	-29.24196	26.82335
537	SELOSESHA	6542	00000	-29.16774	26.79419
538	SELOSESHA 1A	92	00000	-29.19021	26.81374
539	THABA 'NCHU	7374	00000	-29.19654	26.83252
540	THABA 'NCHU	7388	00000	-29.19752	26.83284
541	THABA 'NCHU	6540	00000	-29.19026	26.83377
542	THABA 'NCHU	5677	00000	-29.18279	26.85015
543	THABA 'NCHU	5685	00000	-29.18283	26.8509
544	THABA 'NCHU	307	00000	-29.21324	26.84666
545	THABA 'NCHU	554	00000	-29.21163	26.84838
546	THABA 'NCHU	974	00000	-29.23139	26.82078
547	THABA 'NCHU	3598	00000	-29.22109	26.82962
548	THABA 'NCHU	3601	00000	-29.22186	26.82897
549	THABA 'NCHU	3612	00000	-29.22238	26.8279
550	THABA 'NCHU	2561	00000	-29.20871	26.83577
551	THABA 'NCHU	2579	00000	-29.20929	26.83493
552	THABA 'NCHU	2101	00000	-29.19736	26.86766
553	THABA 'NCHU	2104	00000	-29.19775	26.86737
554	THABA 'NCHU	1245	00000	-29.23832	26.82092
555	THABA 'NCHU	7865	00000	-29.20318	26.83789
556	THABA 'NCHU	1677	00000	-29.23641	26.8297
557	THABA 'NCHU	7437	00000	-29.19891	26.8345
558	SELOSESHA	4135	00000	-29.20169	26.80895
559	THABA 'NCHU	6154	00000	-29.18995	26.85157
560	THABA 'NCHU	851	00000	-29.23033	26.81958
561	THABA 'NCHU	1167	00000	-29.23677	26.82171
562	THABA 'NCHU	1170	00000	-29.23721	26.82149
563	THABA 'NCHU	1176	00000	-29.23609	26.82093
564	SELOSESHA	6548	00000	-29.16808	26.79466
565	THABA 'NCHU	7551	00000	-29.20002	26.83902
566	THABA 'NCHU	7554	00000	-29.20021	26.83861
567	THABA 'NCHU	8429	00000	-29.19446	26.83232
568	THABA 'NCHU	8434	00000	-29.19278	26.83637
569	THABA 'NCHU	7842	00000	-29.20223	26.83862
570	THABA 'NCHU	5879	00000	-29.18475	26.8503

571	THABA 'NCHU	4883	00000	-29.21218	26.82198
572	THABA 'NCHU	7140	00000	-29.19477	26.83638
573	THABA 'NCHU	7144	00000	-29.19582	26.83648
574	THABA 'NCHU	5715	00000	-29.18356	26.84965
575	THABA 'NCHU	6720	00000	-29.19356	26.84841
576	THABA 'NCHU	6725	00000	-29.19327	26.84732
577	SELOSESHA	1915	00000	-29.19664	26.80986
578	THABA 'NCHU	1771	00000	-29.23847	26.82854
579	THABA 'NCHU	2233	00000	-29.20229	26.82839
580	THABA 'NCHU	1358	00000	-29.2407	26.82315
581	THABA 'NCHU	1371	00000	-29.24019	26.82424
582	THABA 'NCHU	1784	00000	-29.239	26.8317
583	THABA 'NCHU	5177	00000	-29.21495	26.83682
584	THABA 'NCHU	7543	00000	-29.19753	26.84014
585	THABA 'NCHU	1635	00000	-29.23418	26.83131
586	THABA 'NCHU	3814	00000	-29.22526	26.8308
587	THABA 'NCHU	6551	00000	-29.19032	26.83613
588	THABA 'NCHU	4584	00000	-29.22933	26.83986
589	THABA 'NCHU	5118	00000	-29.2153	26.83024
590	THABA 'NCHU	5123	00000	-29.21611	26.83036
591	THABA 'NCHU	320	00000	-29.21183	26.84696
592	THABA 'NCHU	1122	00000	-29.23409	26.82031
593	THABA 'NCHU	3614	00000	-29.22247	26.82738
594	THABA 'NCHU	3043	00000	-29.21162	26.82759
595	THABA 'NCHU	2138	00000	-29.19717	26.86838
596	THABA 'NCHU	1269	00000	-29.23916	26.82051
597	THABA 'NCHU	1278	00000	-29.23929	26.82031
598	THABA 'NCHU	1681	00000	-29.23632	26.83445
599	SELOSESHA 1A	17	00000	-29.1864	26.8004
600	SELOSESHA	26	00000	-29.19617	26.81922
601	SELOSESHA	4139	00000	-29.20148	26.80842
602	SELOSESHA	3281	00000	-29.19514	26.80186
603	THABA 'NCHU	339	00000	-29.21784	26.84839
604	THABA 'NCHU	1212	00000	-29.2376	26.81924
605	THABA 'NCHU	6977	00000	-29.19508	26.84442
606	THABA 'NCHU	7399	00000	-29.19732	26.83498
607	THABA 'NCHU	7402	00000	-29.19799	26.83407
608	THABA 'NCHU	5710	00000	-29.18364	26.8504
609	THABA 'NCHU	5720	00000	-29.1832	26.84887
610	THABA 'NCHU	5725	00000	-29.18285	26.8481
611	THABA 'NCHU	6146	00000	-29.18871	26.84742
612	SELOSESHA	2260	00000	-29.19083	26.81159
613	THABA 'NCHU	7691	00000	-29.20149	26.84046
614	THABA 'NCHU	5731	00000	-29.18339	26.84837
615	THABA 'NCHU	7279	00000	-29.19368	26.8324
616	THABA 'NCHU	5168	00000	-29.21498	26.8357
617	THABA 'NCHU	4221	00000	-29.21749	26.83742
618	THABA 'NCHU	4225	00000	-29.21868	26.83759
619	THABA 'NCHU	4230	00000	-29.21924	26.8374
620	SELOSESHA	4286	00000	-29.19568	26.82417
621	SELOSESHA	4291	00000	-29.19616	26.82472
622	THABA 'NCHU	3808	00000	-29.22493	26.82933
623	THABA 'NCHU	2787	00000	-29.20827	26.82425
624	THABA 'NCHU	2792	00000	-29.20702	26.82578
625	SELOSESHA	4725	00000	-29.18309	26.7998
626	SELOSESHA	3856	00000	-29.19802	26.80946
627	SELOSESHA	3876	00000	-29.19765	26.80941
628	SELOSESHA	3879	00000	-29.1975	26.80903
629	THABA 'NCHU	6124	00000	-29.1876	26.84436
630	THABA 'NCHU	6128	00000	-29.18796	26.84424

631	THABA 'NCHU	6134	00000	-29.18715	26.84628
632	THABA 'NCHU	6139	00000	-29.18821	26.84511
633	THABA 'NCHU	5131	00000	-29.21673	26.83048
634	THABA 'NCHU	5127	00000	-29.21633	26.82991
635	THABA 'NCHU	938	00000	-29.23149	26.82218
636	THABA 'NCHU	20	00000	-29.21672	26.84455
637	THABA 'NCHU	580	00000	-29.21999	26.85572
638	THABA 'NCHU	3639	00000	-29.22007	26.82799
639	THABA 'NCHU	4053	00000	-29.22309	26.83341
640	THABA 'NCHU	4062	00000	-29.2213	26.83485
641	THABA 'NCHU	3052	00000	-29.21091	26.82784
642	THABA 'NCHU	3075	00000	-29.21228	26.82856
643	THABA 'NCHU	1717	00000	-29.2375	26.83238
644	SELOSESHA	40	00000	-29.19704	26.81889
645	SELOSESHA	44	00000	-29.19665	26.81933
646	THABA 'NCHU	1311	00000	-29.23867	26.81933
647	SELOSESHA	1505	00000	-29.20577	26.82067
648	SELOSESHA	2273	00000	-29.19097	26.81132
649	SELOSESHA	2277	00000	-29.19051	26.81099
650	THABA 'NCHU	867	00000	-29.23106	26.82153
651	THABA 'NCHU	874	00000	-29.23084	26.82215
652	THABA 'NCHU	2804	00000	-29.20845	26.82548
653	THABA 'NCHU	1930	00000	-29.20055	26.86465
654	THABA 'NCHU	1935	00000	-29.20203	26.86532
655	THABA 'NCHU	1495	00000	-29.2363	26.82868
656	THABA 'NCHU	1512	00000	-29.23375	26.82462
657	SELOSESHA	272	00000	-29.19745	26.82131
658	SELOSESHA	295	00000	-29.19687	26.82108
659	SELOSESHA	300	00000	-29.19735	26.82164
660	THABA 'NCHU	7675	00000	-29.20031	26.84211
661	THABA 'NCHU	7681	00000	-29.20036	26.8417
662	THABA 'NCHU	7267	00000	-29.19302	26.83361
663	THABA 'NCHU	7274	00000	-29.19405	26.83351
664	THABA 'NCHU	7285	00000	-29.19446	26.83293
665	THABA 'NCHU	4245	00000	-29.21757	26.83798
666	THABA 'NCHU	6018	00000	-29.18736	26.84774
667	THABA 'NCHU	6025	00000	-29.18689	26.84664
668	THABA 'NCHU	6028	00000	-29.18669	26.84617
669	SELOSESHA	4717	00000	-29.18292	26.80003
670	SELOSESHA	4722	00000	-29.18322	26.80023
671	THABA 'NCHU	2811	00000	-29.20703	26.82518
672	THABA 'NCHU	5585	00000	-29.18309	26.84438
673	SELOSESHA	3864	00000	-29.19712	26.80942
674	SELOSESHA	3870	00000	-29.19694	26.8089
675	THABA 'NCHU	5589	00000	-29.1835	26.84515
676	SELOSESHA	2740	00000	-29.19595	26.8065
677	SELOSESHA	2743	00000	-29.19632	26.8063
678	THABA 'NCHU	1953	00000	-29.20315	26.86632
679	THABA 'NCHU	1518	00000	-29.23318	26.82817
680	THABA 'NCHU	5139	00000	-29.21642	26.83243
681	THABA 'NCHU	5703	00000	-29.18314	26.8493
682	THABA 'NCHU	5708	00000	-29.1835	26.85008
683	THABA 'NCHU	1001	00000	-29.23211	26.81931
684	THABA 'NCHU	5026	00000	-29.21455	26.82799
685	THABA 'NCHU	5031	00000	-29.21477	26.82847
686	THABA 'NCHU	4070	00000	-29.22123	26.83569
687	THABA 'NCHU	1319	00000	-29.23967	26.82192
688	THABA 'NCHU	1729	00000	-29.23936	26.83315
689	SELOSESHA	5004	00000	-29.18198	26.80887
690	SELOSESHA	5007	00000	-29.18228	26.80913

691	SELOSESHA	5011	00000	-29.18272	26.80936
692	SELOSESHA	4582	00000	-29.19561	26.82513
693	THABA 'NCHU	355	00006	-29.2171	26.85268
694	THABA 'NCHU	2374	00000	-29.2053	26.83052
695	SELOSESHA	3444	00000	-29.19752	26.80305
696	SELOSESHA	2751	00000	-29.19529	26.80417
697	SELOSESHA	2765	00000	-29.19582	26.80475
698	SELOSESHA	2771	00000	-29.19547	26.80387
699	THABA 'NCHU	5753	00000	-29.18359	26.84825
700	THABA 'NCHU	6184	00000	-29.18922	26.84706
701	THABA 'NCHU	5761	00000	-29.18386	26.84792
702	THABA 'NCHU	4643	00000	-29.23058	26.83474
703	THABA 'NCHU	4699	00000	-29.20894	26.81472
704	THABA 'NCHU	4705	00000	-29.21155	26.82081
705	THABA 'NCHU	3827	00000	-29.22721	26.83011
706	THABA 'NCHU	4246	00000	-29.21727	26.83825
707	THABA 'NCHU	4254	00000	-29.21733	26.83902
708	THABA 'NCHU	3417	00000	-29.22766	26.82734
709	THABA 'NCHU	3834	00000	-29.22746	26.83215
710	THABA 'NCHU	2396	00000	-29.20572	26.83177
711	THABA 'NCHU	1948	00000	-29.20223	26.86627
712	THABA 'NCHU	32	00000	-29.2176	26.84638
713	THABA 'NCHU	40	00000	-29.21692	26.8468
714	THABA 'NCHU	47	00000	-29.21685	26.84785
715	THABA 'NCHU	5604	00000	-29.18368	26.84619
716	THABA 'NCHU	5608	00000	-29.18371	26.84587
717	THABA 'NCHU	1957	00000	-29.20302	26.86737
718	THABA 'NCHU	5770	00000	-29.18451	26.84936
719	THABA 'NCHU	5709	00000	-29.18357	26.85023
720	THABA 'NCHU	956	00000	-29.23145	26.82149
721	THABA 'NCHU	1016	00000	-29.23301	26.81976
722	THABA 'NCHU	1022	00000	-29.23325	26.81954
723	THABA 'NCHU	488	00000	-29.22189	26.85571
724	THABA 'NCHU	492	00000	-29.22272	26.85649
725	THABA 'NCHU	2635	00000	-29.21004	26.83196
726	THABA 'NCHU	2640	00000	-29.20966	26.8315
727	THABA 'NCHU	2213	00000	-29.20038	26.82712
728	SELOSESHA	3638	00000	-29.19881	26.80369
729	SELOSESHA	12222	00000	-29.20808	26.79269
730	SELOSESHA	2484	00000	-29.19311	26.81085
731	SELOSESHA	11391	00000	-29.15905	26.82029
732	SELOSESHA	3213	00000	-29.19808	26.81916
733	SELOSESHA	1685	00000	-29.19794	26.8173
734	SELOSESHA	1691	00000	-29.19876	26.81741
735	SELOSESHA	1710	00000	-29.19824	26.81702
736	SELOSESHA	824	00000	-29.20108	26.81087
737	SELOSESHA	828	00000	-29.20058	26.81113
738	SELOSESHA	7987	00000	-29.16447	26.80779
739	SELOSESHA	7531	00000	-29.16249	26.81175
740	SELOSESHA	8256	00000	-29.16789	26.80569
741	SELOSESHA	8262	00000	-29.16726	26.80659
742	SELOSESHA	8266	00000	-29.16691	26.80744
743	SELOSESHA	7324	00000	-29.16582	26.81573
744	SELOSESHA	7798	00000	-29.16629	26.81034
745	SELOSESHA	6470	00000	-29.16234	26.78868
746	SELOSESHA	6887	00000	-29.16223	26.80236
747	SELOSESHA	6892	00000	-29.16303	26.80314
748	SELOSESHA	6038	00000	-29.16947	26.78905
749	SELOSESHA	6046	00000	-29.16515	26.78544
750	SELOSESHA	6473	00000	-29.16286	26.78856

751	SELOSESHA	9247	00000	-29.17627	26.81498
752	SELOSESHA	9250	00000	-29.17641	26.81565
753	SELOSESHA	9259	00000	-29.17599	26.81346
754	SELOSESHA	6760	00000	-29.16605	26.80081
755	SELOSESHA	6764	00000	-29.16662	26.80149
756	SELOSESHA	3501	00000	-29.19592	26.80268
757	SELOSESHA	3510	00000	-29.1972	26.80286
758	SELOSESHA	4627	00000	-29.18359	26.80031
759	SELOSESHA	3755	00000	-29.19829	26.80581
760	SELOSESHA	3761	00000	-29.19863	26.80664
761	SELOSESHA	8078	00000	-29.16777	26.81012
762	SELOSESHA	8081	00000	-29.16822	26.80988
763	SELOSESHA	673	00000	-29.19755	26.81475
764	SELOSESHA	6727	00000	-29.17094	26.78997
765	SELOSESHA	1366	00000	-29.20356	26.82004
766	SELOSESHA	1804	00000	-29.19369	26.81287
767	SELOSESHA	5865	00000	-29.16866	26.78478
768	SELOSESHA	5873	00000	-29.16834	26.78585
769	SELOSESHA	148	00000	-29.19946	26.81931
770	SELOSESHA	156	00000	-29.19986	26.81952
771	THABA 'NCHU	5905	00000	-29.18783	26.8505
772	THABA 'NCHU	7608	00000	-29.19986	26.84111
773	THABA 'NCHU	7612	00000	-29.1991	26.84204
774	THABA 'NCHU	5335	00000	-29.22985	26.84443
775	THABA 'NCHU	4387	00000	-29.22383	26.84599
776	THABA 'NCHU	2527	00000	-29.21038	26.83784
777	THABA 'NCHU	6838	00000	-29.19902	26.84507
778	THABA 'NCHU	5002	00000	-29.21339	26.82761
779	THABA 'NCHU	5560	00000	-29.18247	26.8453
780	SELOSESHA	6994	00000	-29.1616	26.80537
781	SELOSESHA	1001	00000	-29.20111	26.81465
782	SELOSESHA	2701	00000	-29.19451	26.80686
783	THABA 'NCHU	4170	00000	-29.21966	26.83555
784	SELOSESHA	567	00000	-29.19688	26.81309
785	THABA 'NCHU	1859	00000	-29.20021	26.86257
786	THABA 'NCHU	3758	00000	-29.22257	26.83018
787	SELOSESHA	13001	00000	-29.17399	26.80912
788	SELOSESHA	12696	00000	-29.16961	26.86216
789	SELOSESHA	10415	00000	-29.17385	26.82659
790	SELOSESHA	10851	00000	-29.17933	26.82569
791	SELOSESHA	12297	00000	-29.21221	26.79253
792	SELOSESHA	12703	00000	-29.17072	26.86371
793	SELOSESHA	12622	00000	-29.17206	26.86107
794	SELOSESHA	5404	00000	-29.17592	26.77967
795	SELOSESHA	4547	00000	-29.19434	26.8246
796	SELOSESHA	13224	00000	-29.16767	26.80375
797	SELOSESHA	11540	00000	-29.16247	26.81703
798	SELOSESHA	10233	00000	-29.17442	26.83199
799	SELOSESHA	9455	00000	-29.1772	26.81308
800	SELOSESHA	12447	00000	-29.20613	26.79555
801	SELOSESHA	11174	00000	-29.15939	26.81564
802	SELOSESHA	11598	00000	-29.16287	26.8182
803	SELOSESHA	11611	00000	-29.16458	26.81764
804	SELOSESHA	9883	00000	-29.18008	26.81702
805	SELOSESHA	9888	00000	-29.18006	26.81799
806	SELOSESHA	9145	00000	-29.17659	26.81955
807	SELOSESHA	12518	00000	-29.20662	26.79681
808	SELOSESHA	11686	00000	-29.16261	26.81941
809	SELOSESHA	13066	00000	-29.17956	26.81263
810	SELOSESHA	9581	00000	-29.17903	26.82241

811	SELOSESHA	9585	00000	-29.17937	26.82304
812	SELOSESHA	10833	00000	-29.17794	26.8248
813	SELOSESHA	10982	00000	-29.17931	26.82342
814	SELOSESHA	10102	00000	-29.17339	26.83284
815	SELOSESHA	8953	00000	-29.17513	26.81627
816	SELOSESHA	9727	00000	-29.17849	26.81258
817	SELOSESHA	9730	00000	-29.17863	26.81325
818	SELOSESHA	12949	00000	-29.18056	26.82845
819	SELOSESHA	9232	00000	-29.17685	26.81684
820	SELOSESHA	9239	00000	-29.17673	26.81733
821	SELOSESHA	12225	00000	-29.20814	26.79201
822	SELOSESHA	12229	00000	-29.20867	26.79246
823	SELOSESHA	12234	00000	-29.20873	26.79178
824	SELOSESHA	3657	00000	-29.19892	26.80267
825	SELOSESHA	11826	00000	-29.16314	26.8238
826	SELOSESHA	3218	00000	-29.1944	26.81697
827	SELOSESHA	3223	00000	-29.19953	26.80189
828	SELOSESHA	7530	00000	-29.1624	26.81196
829	SELOSESHA	2495	00000	-29.19352	26.80952
830	SELOSESHA	7068	00000	-29.16145	26.8074
831	SELOSESHA	7072	00000	-29.16078	26.80685
832	SELOSESHA	6217	00000	-29.16472	26.78734
833	SELOSESHA	6637	00000	-29.17088	26.79295
834	SELOSESHA	6642	00000	-29.17011	26.79368
835	SELOSESHA	6647	00000	-29.17039	26.79296
836	SELOSESHA	5784	00000	-29.17021	26.78565
837	SELOSESHA	5795	00000	-29.167	26.78271
838	SELOSESHA	6223	00000	-29.16523	26.7872
839	SELOSESHA	5368	00000	-29.17389	26.77892
840	SELOSESHA	4511	00000	-29.19399	26.82565
841	SELOSESHA	4517	00000	-29.19341	26.825
842	SELOSESHA	4940	00000	-29.18162	26.80288
843	SELOSESHA	3653	00000	-29.1991	26.80388
844	SELOSESHA	704	00000	-29.19751	26.81391
845	SELOSESHA	713	00000	-29.1987	26.81571
846	SELOSESHA	8361	00000	-29.16563	26.80494
847	SELOSESHA	8364	00000	-29.16522	26.80596
848	SELOSESHA	8370	00000	-29.16451	26.80684
849	SELOSESHA	8378	00000	-29.16469	26.80586
850	SELOSESHA	6342	00000	-29.1685	26.79198
851	SELOSESHA	5476	00000	-29.17224	26.77939
852	SELOSESHA	2344	00000	-29.1909	26.80984
853	SELOSESHA	2349	00000	-29.19053	26.81051
854	SELOSESHA	3768	00000	-29.19859	26.80599
855	SELOSESHA	4197	00000	-29.19202	26.8244
856	SELOSESHA	7629	00000	-29.16219	26.81053
857	SELOSESHA	5879	00000	-29.16902	26.78567
858	SELOSESHA	5883	00000	-29.16837	26.78627
859	SELOSESHA	177	00000	-29.19918	26.82132
860	THABA 'NCHU	2747	00000	-29.20475	26.82654
861	THABA 'NCHU	6769	00000	-29.19504	26.84678
862	THABA 'NCHU	4394	00000	-29.22427	26.84366
863	THABA 'NCHU	4398	00000	-29.22352	26.84304
864	THABA 'NCHU	5923	00000	-29.18765	26.85229
865	THABA 'NCHU	2968	00000	-29.20908	26.82348
866	THABA 'NCHU	2971	00000	-29.20966	26.82335
867	THABA 'NCHU	3984	00000	-29.21902	26.83356
868	THABA 'NCHU	5993	00000	-29.18473	26.84522
869	SELOSESHA	941	00000	-29.20232	26.8128
870	SELOSESHA	7449	00000	-29.16561	26.81401

871	THABA 'NCHU	5569	00000	-29.18243	26.84436
872	SELOSESHA	2704	00000	-29.19485	26.80625
873	SELOSESHA	2709	00000	-29.19555	26.80585
874	SELOSESHA	2713	00000	-29.19571	26.80628
875	THABA 'NCHU	2253	00000	-29.20294	26.82819
876	THABA 'NCHU	4593	00000	-29.22897	26.83962
877	SELOSESHA	1899	00000	-29.19696	26.81046
878	THABA 'NCHU	3772	00000	-29.22352	26.83052
879	SELOSESHA	12159	00000	-29.20849	26.78999
880	SELOSESHA	10866	00000	-29.17983	26.82631
881	SELOSESHA	12705	00000	-29.17125	26.86341
882	SELOSESHA	11903	00000	-29.16508	26.82087
883	SELOSESHA	12307	00000	-29.20944	26.79257
884	SELOSESHA	11458	00000	-29.16073	26.81923
885	SELOSESHA	8862	00000	-29.17579	26.82401
886	SELOSESHA	4130	00000	-29.20152	26.80904
887	SELOSESHA	4554	00000	-29.19501	26.82537
888	SELOSESHA	3689	00000	-29.19988	26.80451
889	SELOSESHA	12774	00000	-29.17174	26.86701
890	SELOSESHA	12783	00000	-29.17146	26.86807
891	SELOSESHA	10244	00000	-29.17502	26.83339
892	SELOSESHA	10247	00000	-29.17477	26.83284
893	SELOSESHA	10677	00000	-29.1785	26.8277
894	SELOSESHA	12032	00000	-29.20386	26.78703
895	SELOSESHA	12035	00000	-29.20437	26.78689
896	SELOSESHA	11183	00000	-29.15976	26.81642
897	SELOSESHA	12046	00000	-29.2058	26.78709
898	SELOSESHA	10313	00000	-29.17326	26.82842
899	SELOSESHA	10318	00000	-29.17336	26.82638
900	SELOSESHA	10331	00000	-29.17414	26.82871
901	SELOSESHA	8729	00000	-29.17219	26.81401
902	SELOSESHA	9167	00000	-29.17708	26.82343
903	SELOSESHA	13073	00000	-29.17961	26.81177
904	SELOSESHA	11786	00000	-29.16078	26.82302
905	SELOSESHA	11792	00000	-29.16215	26.82416
906	SELOSESHA	8877	00000	-29.17534	26.82042
907	SELOSESHA	9734	00000	-29.17875	26.8125
908	SELOSESHA	10110	00000	-29.17357	26.83395
909	SELOSESHA	10548	00000	-29.17576	26.82634
910	SELOSESHA	10553	00000	-29.17624	26.82656
911	SELOSESHA	10558	00000	-29.17558	26.82556
912	SELOSESHA	8535	00000	-29.16836	26.80337
913	SELOSESHA	12950	00000	-29.18037	26.82853
914	SELOSESHA	12974	00000	-29.17114	26.81224
915	SELOSESHA	12979	00000	-29.1721	26.81079
916	SELOSESHA	12550	00000	-29.20725	26.79708
917	SELOSESHA	12555	00000	-29.20799	26.79712
918	SELOSESHA	9592	00000	-29.17905	26.82144
919	SELOSESHA	11877	00000	-29.16362	26.82203
920	SELOSESHA	3486	00000	-29.19782	26.80167
921	SELOSESHA	4089	00000	-29.20065	26.80934
922	SELOSESHA	12662	00000	-29.17176	26.86201
923	SELOSESHA	3231	00000	-29.19323	26.80567
924	SELOSESHA	11846	00000	-29.16287	26.82285
925	SELOSESHA	2504	00000	-29.19361	26.80996
926	SELOSESHA	2513	00000	-29.19427	26.80876
927	SELOSESHA	580	00000	-29.196	26.8139
928	SELOSESHA	1282	00000	-29.20524	26.816
929	SELOSESHA	1716	00000	-29.19735	26.81692
930	SELOSESHA	1719	00000	-29.19704	26.81647

931	SELOSESHA	832	00000	-29.20008	26.81139
932	SELOSESHA	846	00000	-29.20032	26.81161
933	SELOSESHA	7804	00000	-29.16567	26.81099
934	SELOSESHA	7812	00000	-29.16558	26.81065
935	SELOSESHA	8273	00000	-29.16646	26.80767
936	SELOSESHA	6910	00000	-29.16236	26.80326
937	SELOSESHA	7338	00000	-29.16649	26.81465
938	SELOSESHA	7347	00000	-29.16634	26.81584
939	SELOSESHA	6491	00000	-29.16528	26.78991
940	SELOSESHA	6495	00000	-29.16525	26.79024
941	SELOSESHA	6913	00000	-29.16282	26.80372
942	SELOSESHA	12656	00000	-29.16994	26.86146
943	SELOSESHA	3354	00000	-29.19822	26.80103
944	SELOSESHA	3358	00000	-29.19814	26.80083
945	SELOSESHA	3364	00000	-29.19757	26.8007
946	SELOSESHA	8827	00000	-29.17488	26.82077
947	SELOSESHA	5478	00000	-29.17249	26.77938
948	SELOSESHA	8830	00000	-29.17477	26.82009
949	SELOSESHA	4372	00000	-29.19316	26.8222
950	SELOSESHA	4378	00000	-29.19372	26.82284
951	SELOSESHA	5487	00000	-29.17188	26.7785
952	SELOSESHA	5915	00000	-29.16561	26.78417
953	SELOSESHA	3326	00000	-29.19682	26.80064
954	SELOSESHA	1547	00000	-29.20548	26.82308
955	SELOSESHA	1558	00000	-29.204	26.82341
956	SELOSESHA	3332	00000	-29.19709	26.80081
957	SELOSESHA	3337	00000	-29.1971	26.80021
958	SELOSESHA	8085	00000	-29.16787	26.81074
959	SELOSESHA	7168	00000	-29.1598	26.81214
960	THABA 'NCHU	3202	00000	-29.21268	26.83542
961	THABA 'NCHU	3205	00000	-29.21285	26.83604
962	THABA 'NCHU	1451	00000	-29.23682	26.82749
963	THABA 'NCHU	5936	00000	-29.1866	26.85032
964	THABA 'NCHU	4939	00000	-29.21448	26.82354
965	THABA 'NCHU	6778	00000	-29.19591	26.84702
966	THABA 'NCHU	3990	00000	-29.21829	26.83291
967	SELOSESHA	7908	00000	-29.16247	26.80844
968	SELOSESHA	7911	00000	-29.16204	26.80864
969	SELOSESHA	474	00000	-29.20177	26.81911
970	SELOSESHA	1382	00000	-29.20398	26.8225
971	THABA 'NCHU	5574	00000	-29.18246	26.84379
972	THABA 'NCHU	5580	00000	-29.18321	26.84375
973	THABA 'NCHU	5584	00000	-29.18308	26.84184
974	SELOSESHA	7466	00000	-29.16497	26.81355
975	THABA 'NCHU	2673	00000	-29.20951	26.83094
976	THABA 'NCHU	1789	00000	-29.23829	26.83077
977	SELOSESHA	1011	00000	-29.20235	26.81399
978	SELOSESHA	1017	00000	-29.2029	26.81422
979	SELOSESHA	1022	00000	-29.20228	26.81455
980	THABA 'NCHU	4199	00000	-29.2176	26.83686
981	THABA 'NCHU	5156	00000	-29.21614	26.83288
982	SELOSESHA	11291	00000	-29.15768	26.82203
983	SELOSESHA	12580	00000	-29.16891	26.85861
984	SELOSESHA	10416	00000	-29.17394	26.82683
985	SELOSESHA	12314	00000	-29.20878	26.79283
986	SELOSESHA	12318	00000	-29.2082	26.79306
987	SELOSESHA	10608	00000	-29.17746	26.82693
988	SELOSESHA	11041	00000	-29.18054	26.82307
989	SELOSESHA	3269	00000	-29.19555	26.8017
990	SELOSESHA	1308	00000	-29.20426	26.81914

991	SELOSESHA	1311	00000	-29.20466	26.81905
992	SELOSESHA	12385	00000	-29.21052	26.79329
993	SELOSESHA	12470	00000	-29.20828	26.79539
994	SELOSESHA	11630	00000	-29.16374	26.81895
995	SELOSESHA	10758	00000	-29.17819	26.82557
996	SELOSESHA	10763	00000	-29.17748	26.82472
997	SELOSESHA	10768	00000	-29.17852	26.82624
998	SELOSESHA	9173	00000	-29.17715	26.82269
999	SELOSESHA	9550	00000	-29.1784	26.81772
1000	SELOSESHA	9305	00000	-29.17677	26.81483

Development footprint¹ details:

No development footprint(s) specified.

Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area

No	EIA Reference No	Classification	Status of application	Distance from proposed area (km)
1	14/12/16/3/3/1/615	Solar PV	Approved	19.2
2	14/12/16/3/3/2/360	Solar PV	Approved	18.8
3	12/12/20/2514	Solar PV	Approved	7.8
4	14/12/16/3/3/2/391	Solar PV	Approved	20.6

Environmental Management Frameworks relevant to the application

No intersections with EMF areas found.

¹ "development footprint", means the area within the site on which the development will take place and includes all ancillary developments for example roads, power lines, boundary walls, paving etc. which require vegetation clearance or which will be disturbed and for which the application has been submitted.

Environmental screening results and assessment outcomes

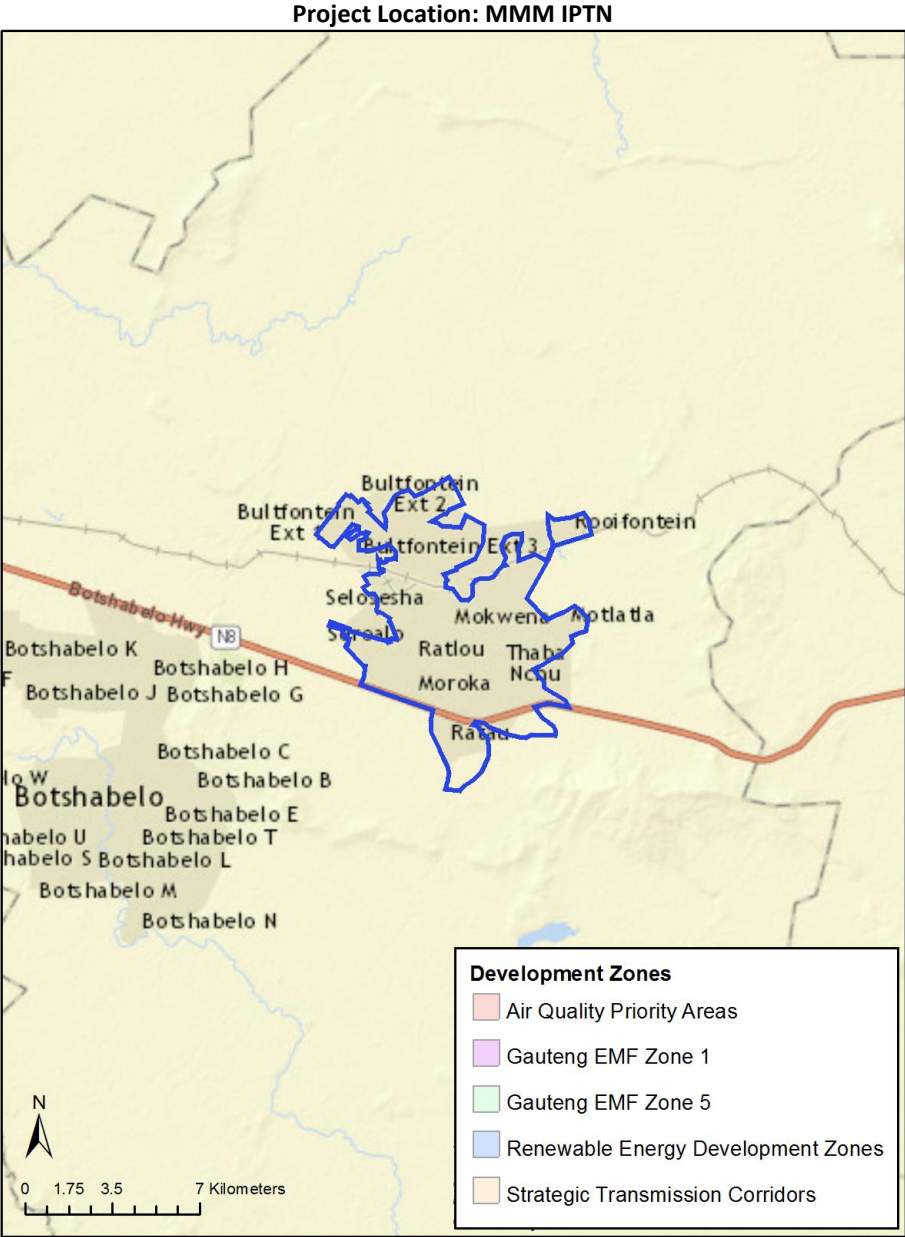
The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmental sensitive features on the site based on the site sensitivity screening results for the application classification that was selected. The application classification selected for this report is: Infrastructure|Transport Services|Roads|Public|Roads - Public.

Relevant development incentives, restrictions, exclusions or prohibitions

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to this site are indicated below.

No intersection with any development zones found.

Map indicating proposed development footprint within applicable development incentive, restriction, exclusion or prohibition zones



Proposed Development Area Environmental Sensitivity

The following summary of the development site environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme		X		
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme		X		

Civil Aviation Theme		X		
Paleontology Theme		X		
Defence Theme				X
Terrestrial Biodiversity Theme	X			

Specialist assessments identified

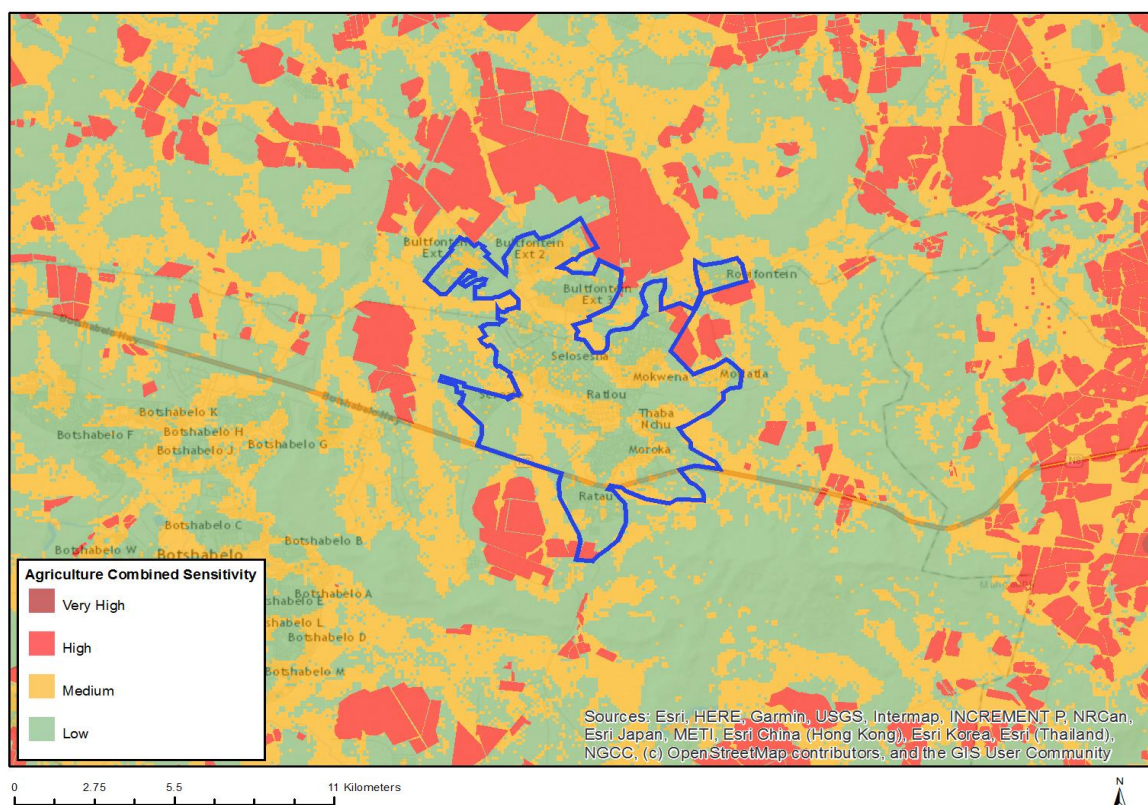
Based on the selected classification, and the environmental sensitivities of the proposed development footprint, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the site situation.

N o	Specialist assessment	Assessment Protocol
1	Agricultural Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/DraftAgricultureProtocol.pdf
2	Landscape/Visual Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
3	Archaeological and Cultural Heritage Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
4	Palaeontology Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
5	Terrestrial Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
6	Aquatic Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
7	Noise Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
8	Traffic Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
9	Geotechnical Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
10	Socio-Economic Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
11	Ambient Air Quality Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf

Results of the environmental sensitivity of the proposed area.

The following section represents the results of the screening for environmental sensitivity of the proposed site for relevant environmental themes associated with the project classification. It is the duty of the EAP to ensure that the environmental themes provided by the screening tool are comprehensive and complete for the project. Refer to the disclaimer.

MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

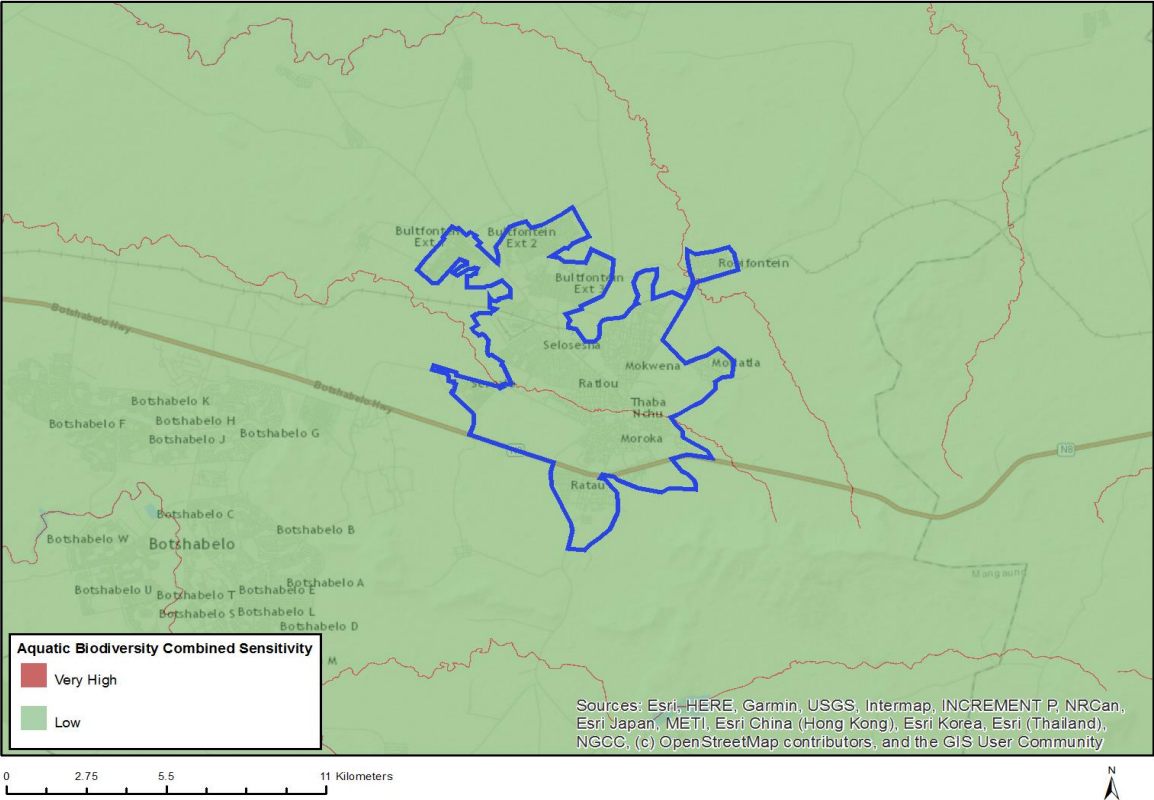


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Subsistence Farming; Land capability; 06. Low-Moderate/07. Low-Moderate/08. Moderate
High	Subsistence Farming; Land capability; 01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low
Low	Land capability; 01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low
Medium	Land capability; 06. Low-Moderate/07. Low-Moderate/08. Moderate

MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

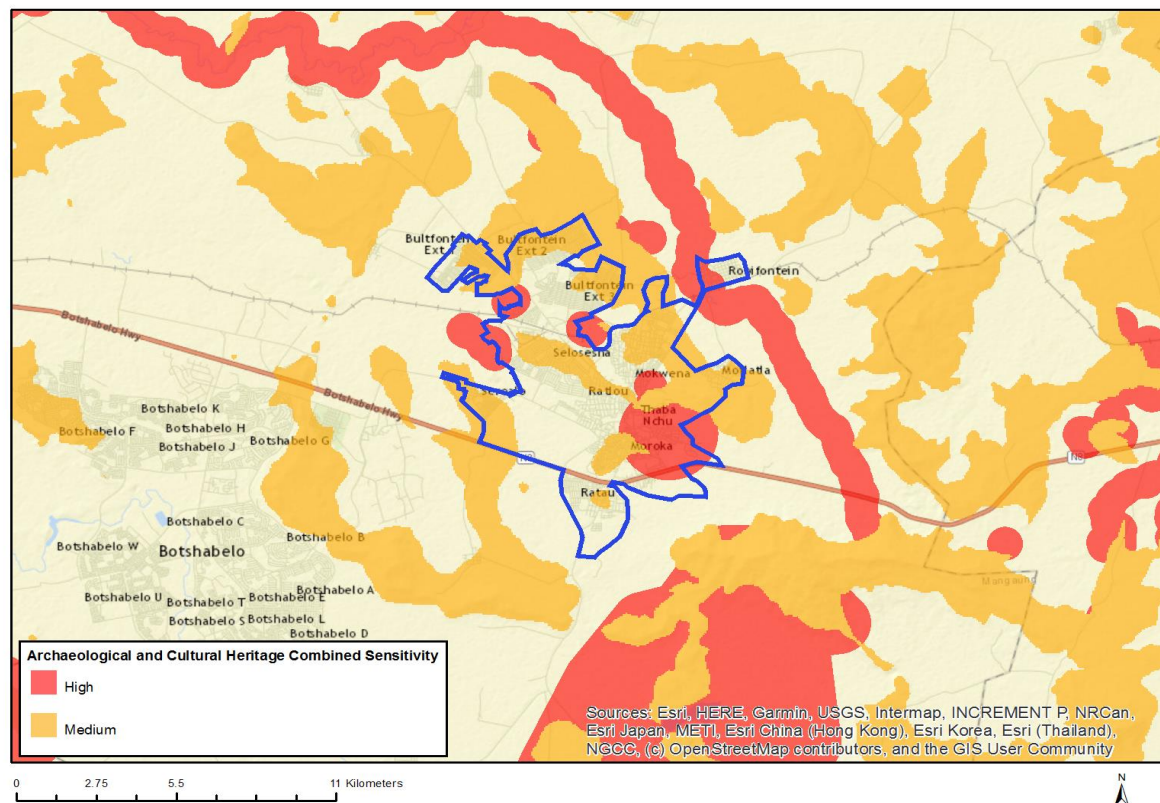


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity Areas
Very High	CBA,River,Korannaspruit
Very High	CBA,River,Sepane

MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

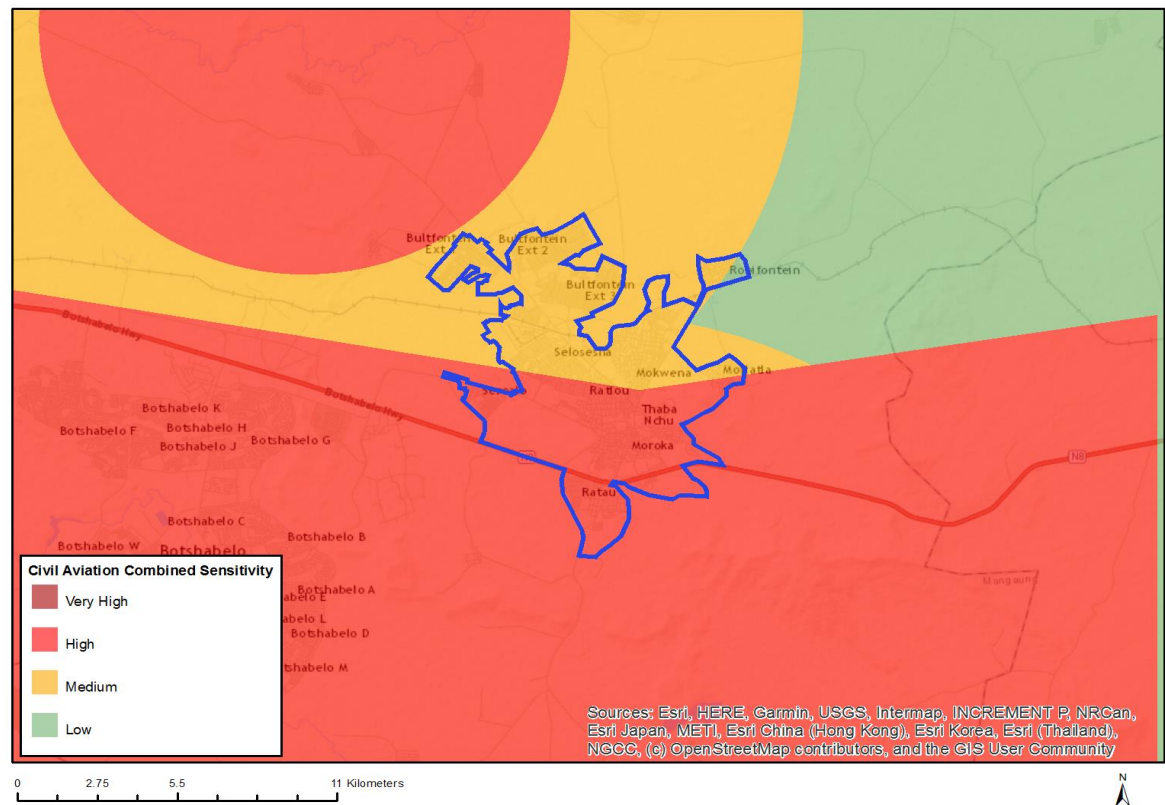


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Within 500 m of an important river
High	Within an important wetland
High	Within 500 m of an important wetland
High	Within 500 m of a heritage site
High	Within 500 m of a provincial heritage site
Medium	Mountain or ridge

MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY

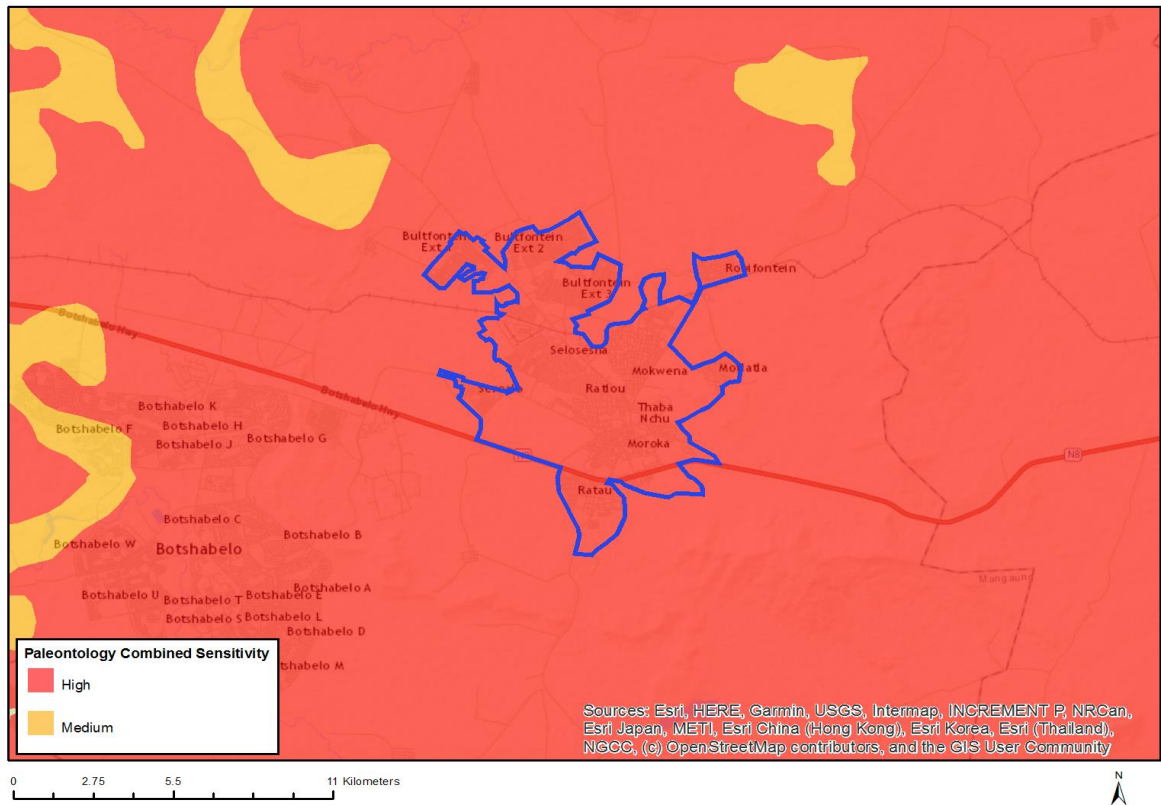


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Within 8 km of other civil aviation aerodrome
High	Dangerous and restricted airspace as demarcated
Low	Low sensitivity
Medium	Between 8 and 15 km of other civil aviation aerodrome

MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY

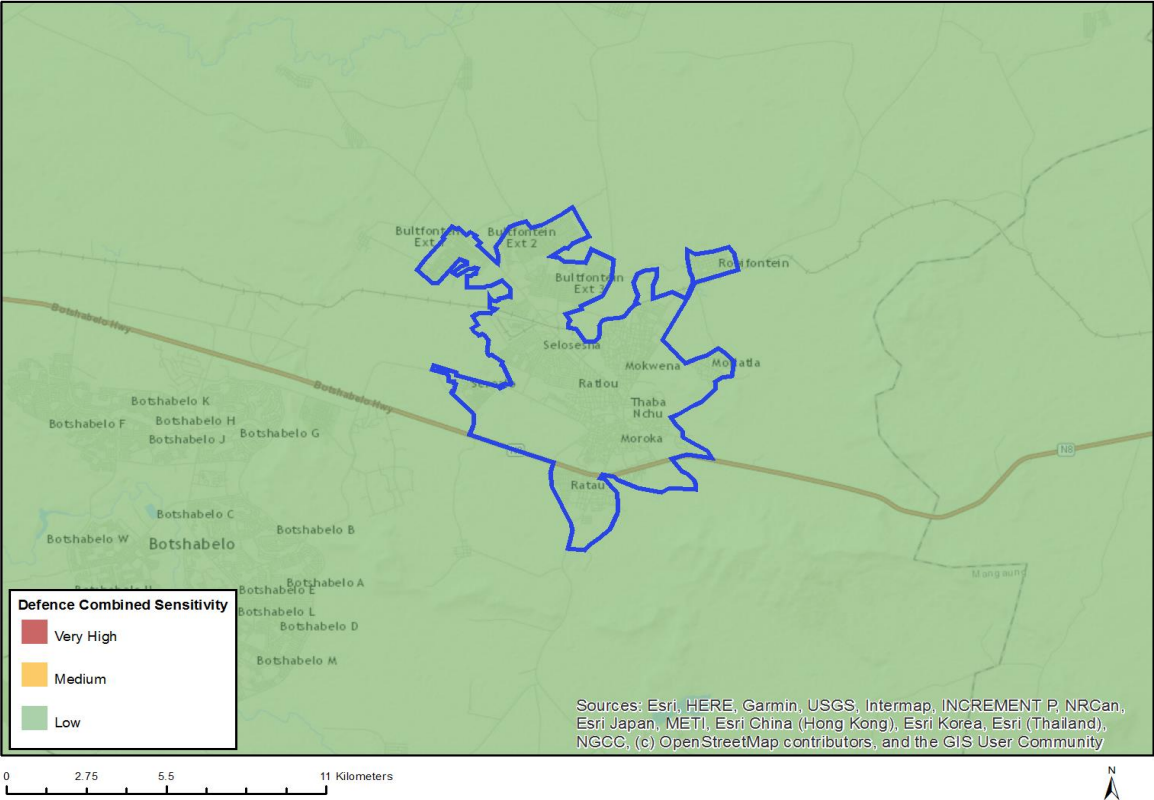


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Rock units with a high paleontological sensitivity

MAP OF RELATIVE DEFENCE THEME SENSITIVITY

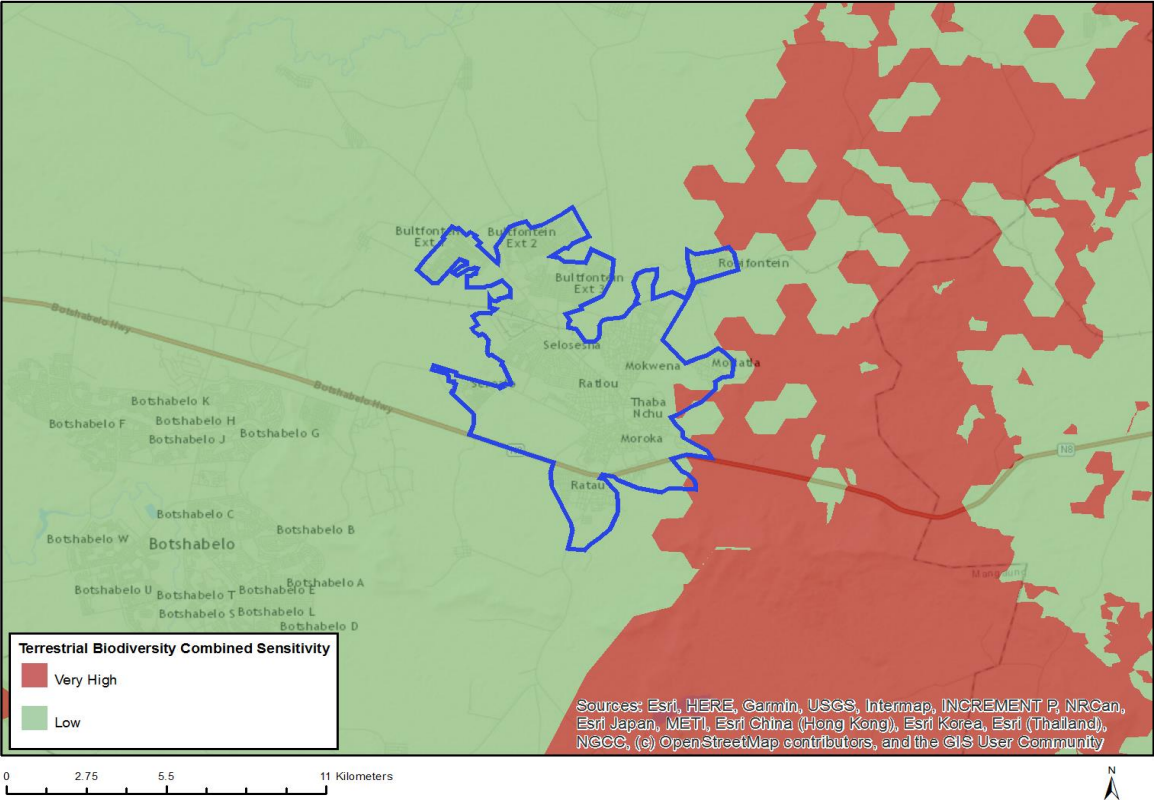


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Low	None
Very High	CBA, Protected area, FEPA, Focus area for PAES