DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

THE PROPOSED MATLAKENG EXT 11 TOWNSHIP ESTABLISHMENT AND MIXED USE DEVELOPMENT THAT IS TO BE SITUATED ON PORTION 2 AND THE REMAINDER OF THE FARM MOOIFONTEIN 480 ZASTRON RD SITUATED WITHIN THE JURISDICTION OF MOHOKARE LOCAL MUNICIPALITY WITHIN THE FREE STATE PROVINCE

Ref nr. EMS/9(i)(ii);10(i)(ii);12(vi)(x)(xii)(a);14;19;24(i);25;28(ii);15;2;4;10;12;14/20/05
NEAS ref nr. FSP/EIA/0000366/2020

Date of report: July 2021

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destea
department of
economic, small business development,
tourism and environmental affairs
FREE STATE PROVINCE

(For official use only)

File Reference Number:	
Application Number:	
Date Received:	

Environmental Impact Assessment in terms of the Environmental Impact Assessment Regulations, 2014, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

Kindly note that:

1. This **environmental impact assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 as amended and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **07 April 2017**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.

13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.
14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (.shp) for maps must be included in the electronic copy of the report submitted to the competent authority.

Prepared for:

MOK Development Consultants

On behalf of

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EXECUTIVE SUMMARY

This report serves as the Draft Environmental Impact Assessment (EIA) Report. The Free State Department of Economic Small Business Development; Tourism and Environmental Affairs (DESTEA) approved the Final Scoping Report and Plan of Study for EIA on 23 March 2021. A copy of the approval letter is attached as Appendix J. An extension of time to submit the Draft EIA was granted by DESTEA in terms of Regulation 3(7) of the National Environmental Management Act (NEMA); 1998 (Act 107 of 1998) on 23 June 2021 for a period of four (4) months. Please refer to Appendix J for the extension of time letter from DESTEA.

1. Introduction

Sapphire Environmental Consulting was appointed by MOK Development Consultants on behalf of the Free State Department of Human Settlements to undertake the full Scoping and Environmental Impact Assessment (EIA) Process for the proposed Matlakeng Ext 11 Township Establishment and Mixed Use Development that is to be situated on Portion 2 and the Remainder of the Farm Mooifontein 480 Zastron RD within the jurisdiction of the Mohokare Local Municipality within the Free State Province.

The proposed project is seeking to obtain an Environmental Authorization in terms of the National Environmental Management Act (NEMA); 1998 (Act 107 of 1998) and the EIA Regulations of 7 April 2017 promulgated in terms of Chapter 5 of the NEMA. The involved activities listed in terms of GN No. 327 (Listing Notice 1), GN No. 325 (Listing Notice 2) and GN No. 324 (Listing Notice 3) requires that a full Scoping and EIA process be followed.

Two phases form part of the Full Scoping and EIA. The first phase is the Scoping Phase and the second phase is the EIA Phase which is the detailed impact assessment phase. The first phase; Scoping Phase; is approved by the Free State DESTEA and the project is therefore now in the second phase; the EIA phase.

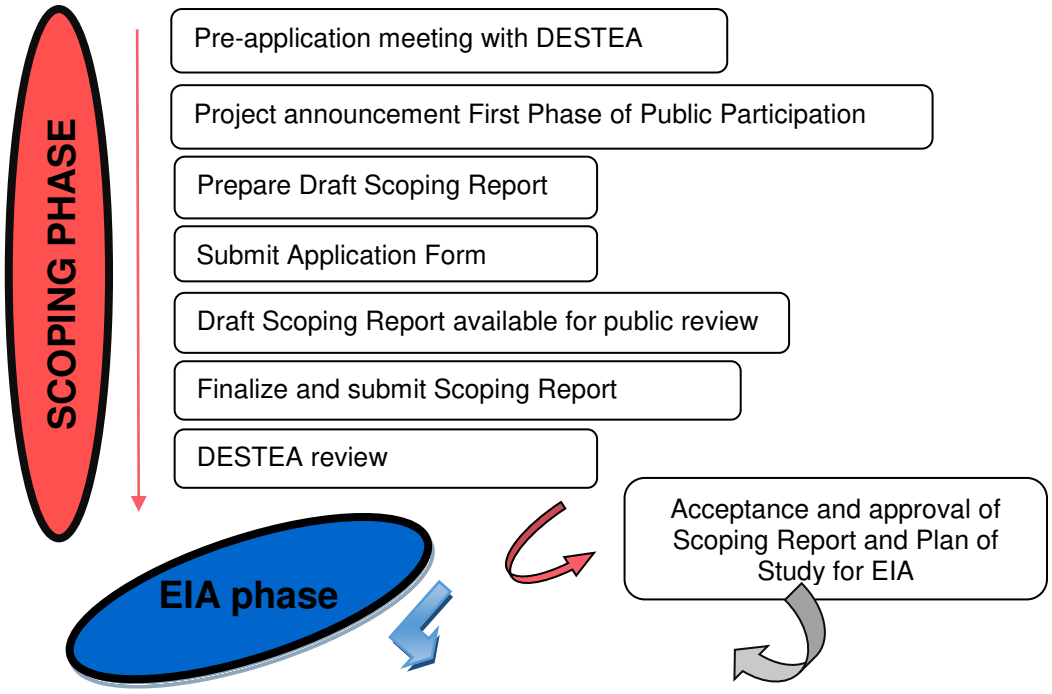
The objective of the Environmental Impact Assessment (EIA) Process is summarized below as taken from the Government Gazette; GN No. 326; 7 April 2017.

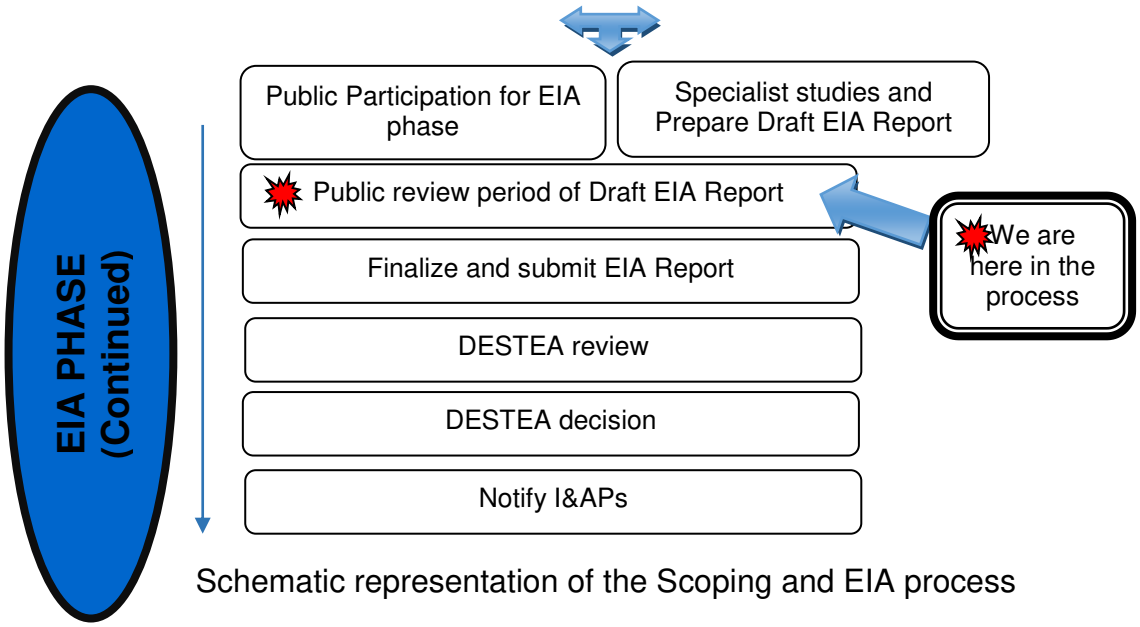
Objective of the EIA Process

1. The objective of the environmental impact assessment process is to; through a consultative process:
   (a) Determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responds to the policy and legislative context;

(b) Describe the need and desirability of the proposed activity; including the need and desirability of the activity in the context of the (preferred location) footprint on the approved site as contemplated in the accepted scoping report;
(c) Identify the location of the development footprint within the (preferred) approved site as contemplated in the accepted scoping report based on an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on the geographical; physical; biological; social; economic; heritage and cultural aspects of the environment;
(d) Determine the –
    (i) Nature; significance; consequence; extent; duration and probability of the impacts occurring to inform identified preferred alternatives; and
    (ii) Degree to which these impacts –
        (aa) can be reversed;
        (bb) may cause irreplaceable loss of resources; and
        (cc) can be avoided; managed or mitigated;
(e) Identify the most ideal location for the activity within the (preferred) development footprint of the approved site as contemplated in the accepted scoping report based on the lowest level of environmental sensitivity identified during the assessment;
(f) Identify; assess; and rank the impacts the activity will impose on the (preferred location) development footprint on the approved site as contemplated in the accepted scoping report through the life of the activity;
(g) Identify suitable measures to avoid; manage or mitigate identified impacts; and
(h) Identify residual risks that need to be managed and monitored.

An outline of the process follow below.





Schematic representation of the Scoping and EIA process

2. Project Description and location

The proposed Matlakeng Ext 11 is for a township establishment and mixed use development that will consist of residential 1 stands (comprising of high; medium and low density) for approximately 4 000 units; Business 1; Educational; Institutional; Religious Purposes; Municipal; Transportation; Open space 1 and Streets including the reticulation of services on 624,59 hectare of the total 792.734 hectare site.

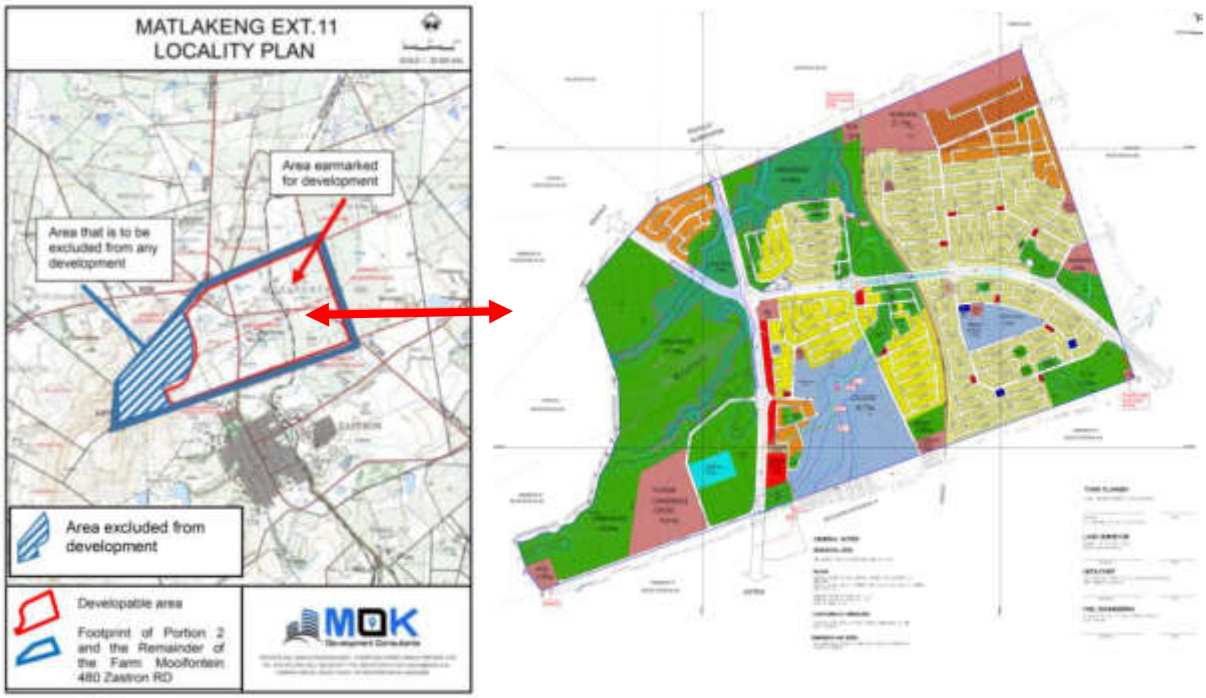


Figure 1: Locality map and Proposed Layout plan

Note should be taken that the boundary of Portion 2 and the Remainder of the Farm Mooifontein 480 Zastron RD measures 792,734 hectares in extent as can be seen in

blue on the locality map. The area earmarked for development is indicated in red on the locality map (left) as well as on the layout plan (right). The area that is earmarked for development measures 624,59 hectares in extent. Kindly note the developable area was indicated during the introduction of the project and first phase of public participation as 396,647 hectares which has changed due to the fact that the layout plan only became available at a later stage. From the locality map it can be seen that a large area (168,144 hectares) to the west is completely excluded from any development and not indicated on the layout plan. The preferred layout is enlarged on page 10 for ease of reference as well as in Appendix A and C.

The property is situated on Portion 2 and the Remainder of the Farm Mooifontein 480 Zastron RD. The R726 and Majozi Street traverses the site and basically cuts the site in two portions on either side of the road. The R26 is situated to the north west of the site with the Aasvoëlberg directly to the west of the site. The Farm Vogelenzang No. 349; Portion 1 of the Farm Vogelenzang Nol 349; the Farm Nellieshof No. 396; the Remainder of the Farm Hoffasdale No. 256 and the Farm Karina No. 406 forms the northern boundary of the site and Portion 1 of the Farm Mooifontein 480 RD forms the eastern boundary of the site. The southern boundary of the site is bordered by the Remainder of the Farm Verliesfontein No. 354 and Matlakeng x 10. The Town of Zastron is situated further away to the south of the site. The Remainder of the Farm Mooifontein 489 RD and Portion 2 of the Farm Mooifontein 480 RD forms the western boundary of the proposed development. Lesotho is situated further to the east of the site. A locality and aerial map is attached below.

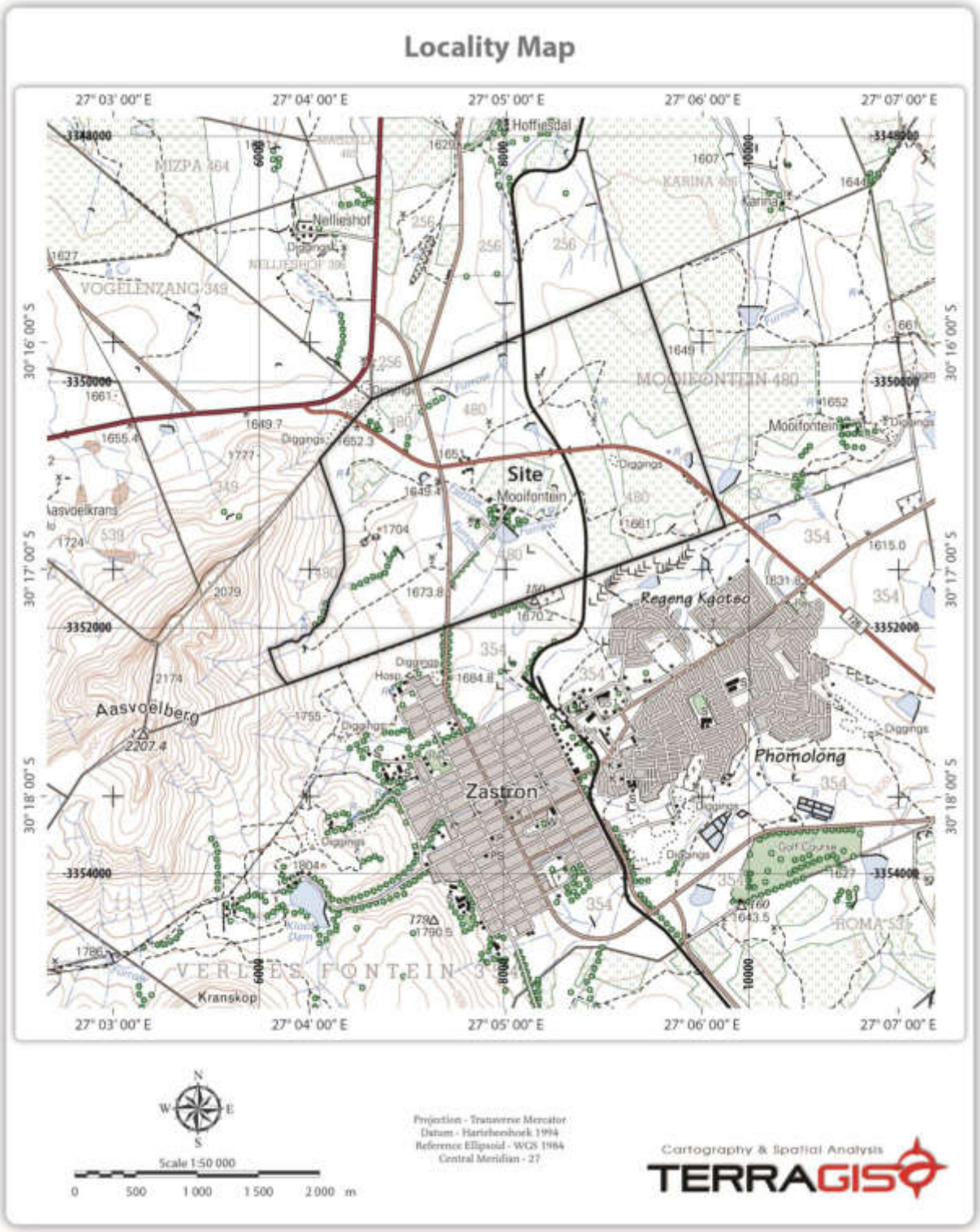


Figure 2: Locality Map

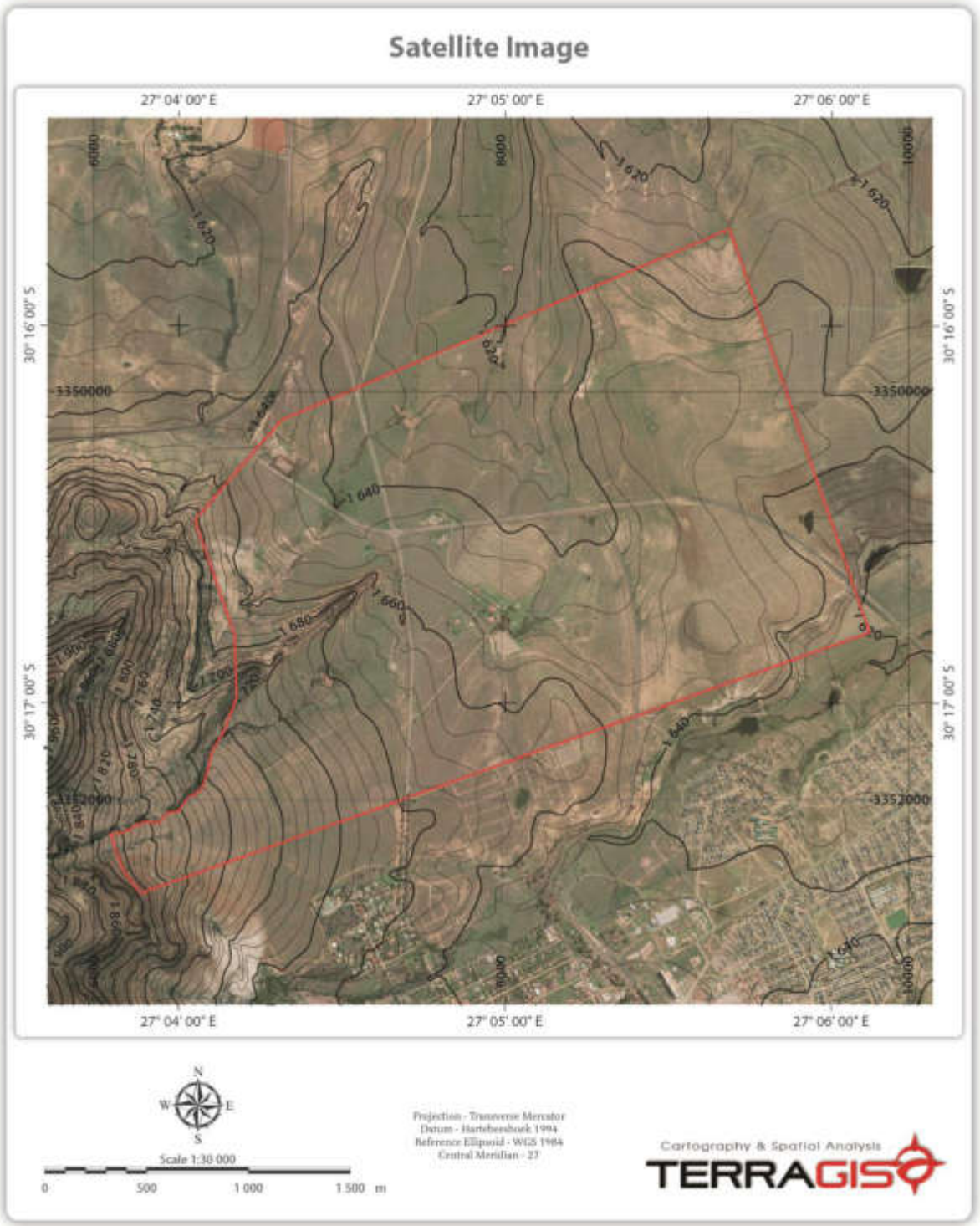


Figure 3: Aerial map

The study area is situated within the jurisdiction of Mohokare Local Municipality and falls within the Xhariep District Municipality within the Free State Province.

3. Site attributes

The study site is situated adjacent and to the east of the Aasvoëlberg which is also known as the Eye of Zastron. The famous "Eye" is a hole of 9 metres in diameter in a rocky crag. This mountain is regarded as the highest peak in the province and takes its name from the Cape Vulture (Gyps Coprotheres) which favours its cliffs for nesting. This site is the only one in the Orange Free State that has a colony of Cape Vultures nesting and breeding in the mountains. This area is a very important Afivaunal zone for the Cape Vultures and is currently under the management of VulPro.

The Average slope is given as 11.3% due to the fact that the landscape forms rocky cliff/valley to the western side of the Township development. The bulk of the development falls within low-moderately sloped areas, but the western side (Aasvoëlberg) classifies as a Class 1 Ridge (based on sensitivity and level of disturbance) is regarded as sensitive area. Another prominent feature that need careful planning and consideration with the establishment of sensitivity is the occurrence of the Cape Vulture Colony on the Aasvoëlberg. The Ecologist stated that a Class 1 Ridges have been prescribed buffers of 200 m, but this has already been included within the Vulture Conservation Area adjacent to the town of Zastron and trying to align layouts to this BGIS demarcation will enable a larger area of protection which is preferred.

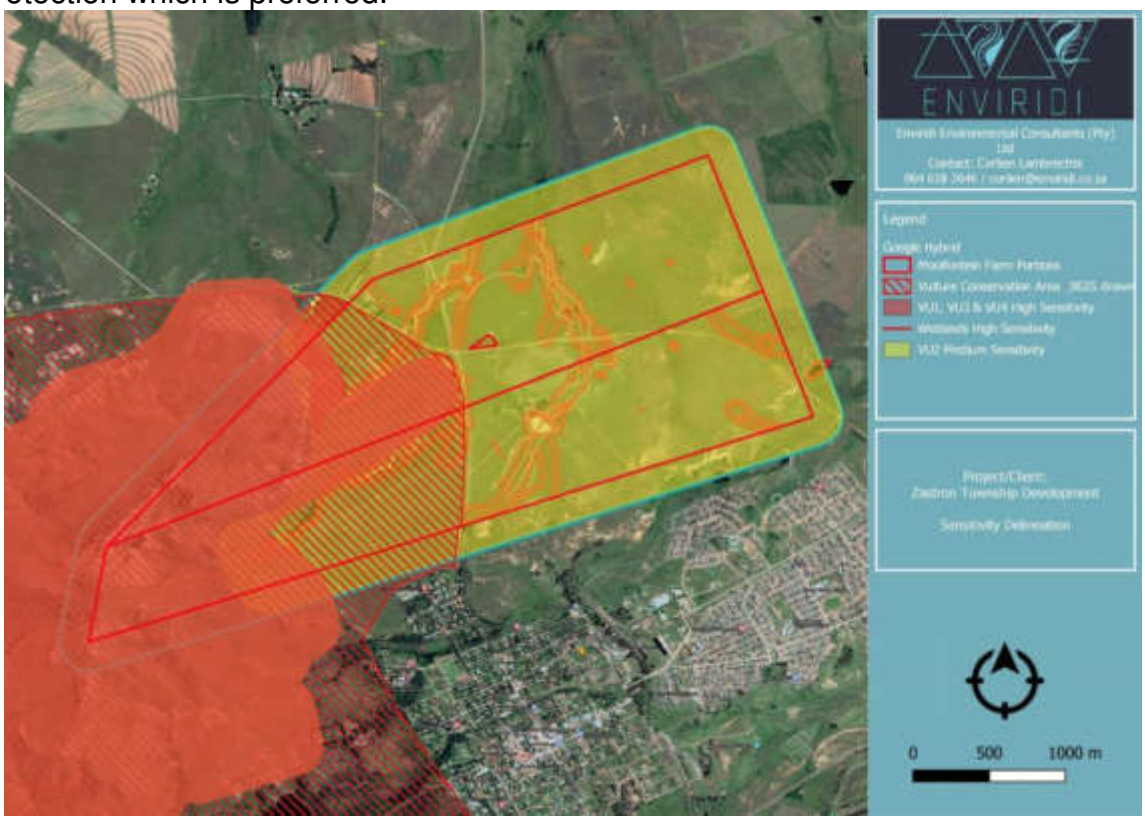


Figure 4: Sensitivity Delineation

According to the Ecological Study buffers of 40 – 50 km has been prescribed in literature for the establishment of Wind turbines and large-scale Electrical

infrastructure, while a 2 km buffer has been prescribed for roosting and nesting sites in edge matching guidelines (Escott & Lotter, 2012) and this approach seem to have been adapted and incorporated into the Free State Biodiversity Plan: Technical Report (2016) and associated ecological niche modelling conducted. This means that the Conservation plan includes the buffers required and has been included within the Ecological Report.

The East side of the mountain (Aasvoëlberg) has been delineated as Critical Biodiversity Areas (CBA1), which includes the western slope and it is also understood from the data gathered that the Cape Vulture is focussed on the outcrops and western sides and edge. The town of Zastron is directly adjacent to the new proposed development and it is recommended that the same conservation buffer be implemented for the project as for the town. This area to be utilised as guidance for very high sensitivity zone is shown within BGIS as a Vulture Conservation Area. The Tourism facility and Hospital are the only activities that slightly intercepts with the Vulture Conservation Area. It should be kept in mind that this area is only a conservation area and not a formally protected area and therefore the decision will remain with the Competent Authority (CA). The location of the tourism centre (although on the border within the Conservation Area) is ideally placed and should be incorporated in planning and focussed on the occurrence of the Vulture colony, coordination of regulated tours in consultation with VulPro and most importantly education regarding the Cape Vulture, its protection and continued conservation.

The project area furthermore falls across two (2) Vegetation Groups. Towards the western side is the Besemkaree Koppies Shrubland (Gh4), which is known to be Poorly Protected, but of Least Concern (LC). To the eastern border, the vegetation composition consists of the Zastron Moist Grassland, which is historically Not Protected and also of Least Concern (LC). Medium sensitivity was awarded to pasture grassland as these could easily recover to natural grassland and sensitivity remains intact.

High sensitivity was awarded to grassland, riverine (riparian) and Ridges from an Ecological point of view. Various non-perennial tributaries of the Klipspruit River are situated on the project site. According to the National Water Act, 1998 (Act No. 36 of 1998), riparian areas are classified as a water resource and are therefore considered to be sensitive. The riparian areas on site are denoted as having high sensitivity.

The wetlands and watercourses on the site was delineated by the Wetland specialist and is classified as high sensitivity and a 32 meter buffer should be applied around all wetlands and watercourses. The Engineers also determined the 1:50 and 1:100 year floodlines. It is incorporated on the layout plan and also within the Floodline Analysis Report in Appendix D. It will be necessary to divert and formalize watercourse 3 that is situated in the centre of the site. Should this be done and the storm water mitigation measures as per the Engineering Report be implemented the proposed development will not be affected by the 1:50 and 1:100 year flood lines. The erodibility of soils and proposer storm water management mitigation measures should be implemented pre-; during and post construction. The site is conserved suitable for

the proposed development from a geotechnical point of view; although cognisance of the geological constraints needs to be taken to ensure minimal adverse impacts on the development.

Rocky outcrops are situated on the south western corner which has a sensitivity. The majority of the site is underlain by mudrock; shale or sandstone associated with the Molteno; Elliot and Clarens Formations of the Karoo Supergroup; often intruded dolerite associated with the Jurassic Period. The site is not underlain by soluble rock and soft excavation conditions are mostly possible to depths well exceeding 2.00m with local variations. Localised shallower TLB refusal is due to sandstone boulders or shallow bedrock; and should also be anticipated near the mountain forming the western boundary of the site. Excavations may become instable for a variety of reasons; including in instances of loose consistence and or increased moisture contents; following prolonged exposure; during or after excavations. Excavation stability should be confirmed during construction; especially given the influence of shallow interflow and perched water systems on excavation stability. It will be required that a Phase 2 Geotechnical Investigation be carried out in accordance with the SANS 634:2012 prior to the NHBRC enrolment of the individual stands.

Structures older than 60 years are situated on the area earmarked for the proposed College. The existing houses will remain on the site to form part of the Motheo TVet College and therefore no Permit or Authorization will be required from FSHRA.

It will be required that Motheo College should take full responsibility for the preservation and upkeep of the heritage buildings and site and provide a methodical plan of execution.

4. Identification of alternatives

The identification of alternatives forms a critical step within the EIA process as it identifies various possible development options for a site with the main aim of modifying; where possible; the development to minimize the negative impacts on the environment. Various alternative options were considered for the proposed site.

The various alternatives considered are: Layout alternatives; Site alternatives; Technology Alternatives; Other (scheduling; demand; input; scale and design alternative) and the No-go alternative. The alternatives are discussed and summarized below.

a. Layout alternatives

Two different layout plans were considered during the Scoping phase of the proposed project. However; two additional layout plans were investigated and are included to form part of the EIA phase. Thus four (4) alternative layout plans are considered as part of the EIA report.

Preferred Layout plan:

The proposal (alternative 4) is for a township establishment and mixed use development that will consist of residential 1 stands (comprising of high; medium and low density); Business 1; Educational; Institutional; Religious Purposes; Municipal; Transportation; Open space 1; Streets including the reticulation of services on 624,59 hectare of the total 792.734 hectare site.

All four alternative layout plans that are considered and investigated within the EIA report comprises the same activities; however the positioning/ location of the various activities differs on all four layout plans.

Alternative four (the proposal) is regarded as the most suitable layout plan from an environmental and ecological point of view. This layout considers all ecological sensitivities (including Aasvoëlberg and the Cape Vultures); the geological features (rocky outcrops) as well as the wetlands and watercourses. It will also be noted that the area to the north west, directly adjacent to the Aasvoëlberg is kept vacant as this area is regarded as the Vulture Conservation area. The Conservation section of DESTEA and Mohokare Local Municipality had numerous discussions to declare this area as a Conservation area. The area to the south western corner also entails open spaces; however the Tourism Facility and the hospital to the east of the Tourism Facility are the only two activities planned in this area.

Considering all the sensitive features to the west of the site it is thought that access can be strictly controlled in a regulated manner with the Tourism Facility situated at this position of the site in a further attempt to protect this area as far as possible. VULPRO (who specifically focuses on protecting African Vultures) was also consulted to become part of the Tourism Facility to assist with educational programmes regarding the protection and continued conservation of the Cape Vultures to the local people as well as tourists.

Please refer to the Proposal - Alternative 4 layout plan below. (Refer to Annexure A for enlarged Maps).

Alternative 1, 2 and 3 Layouts contain the same uses/ activities as Alternative 4 Layout but with activities located at different positions.

Figure 5: Alternative 4 (Proposed) Layout Plan.

b. Site alternatives

A comment was received during the public participation process of the Scoping Phase stating: “Any development should be considered in the direction of the town’s current water source, namely the Montaqu dam. The supply lines for water have already been laid and redistribution of water could be done at a much lower cost, if you use these existing facilities.”

No site alternatives were considered for the proposed project as the properties under investigation are owned by the Mohokare Local Municipality. This project forms part of a government project and therefore no other site was considered for the proposed development.

c. Technology and Renewable energy alternative

The project entails the development of a Township Establishment and Mixed Use Development and therefore the most appropriate construction methods in terms of materials and equipment will be used during the construction phase. During the operational phase depending on the property owner and or retail owner and on what is available on the market; the most practical and possible standards to make use of energy efficient machinery and equipment will be encouraged for example energy saving light bulbs; energy saving fridges and office equipment (air conditioners) etc.

Energy saving techniques have been taken into consideration by the project Engineers and they encourage the developer to consider making use of energy saving methods. By considering energy saving methods the required capacity could be reduced by replacing electrical stove plates of each individual residential unit with gas plates; heating the water with solar or gas and using energy saving lights. By doing this the electrical maximum demand of an individual unit could be reduced significantly.

No other technology or renewable energy alternatives have been investigated.

d. No-go option

The no-go alternative means that the site remains in its current state. It will also mean that a new residential area; schools; hospital; shopping centre etc. will not be established if the no-go option is decided on. Therefore the need of the Free State Human Settlements Department in collaboration with the Xhariep District Municipality and Mohokare Local Municipality to address the backlog of housing will not be carried out and fulfilled. The housing backlog will then remain a priority over the next few years and should the no-go option be chosen it will only affect and delay the backlog of housing further. It could furthermore also add additional pressure on more vulnerable land situated further away from the town. In the long term the site might also attract illegal vagrants and illegal settlements that are not legally regulated.

In terms of service delivery should the no-go option be followed no additional pressure will be placed on the Mohokare Local Municipality and Xhariep District Municipality. It is known that there is a great lack of service delivery in the town of Zastron and that the system is currently under-capacitated. The Department of Water and Sanitation (DWS) in collaboration with the Mohokare Local Municipality is

currently busy upgrading its services to provide for the needs of the town of Zastron. With the planned new upgradings and infrastructure from Montagu Dam and the Orange River it is said that it will be sufficient to supply not only the needs of the town of Zastron but still have a surplus available that will be able to supply services to the additional proposed development.

Considering the natural environment consisting of certain areas with highly sensitive characteristics and features on the site, a vacant piece of land can easily attract illegal vagrants without any control of where they will reside and what damage they can do to the area. The site has many areas that are considered as wetland/ watercourses which need to be protected by all means. The Aasvoëlberg also houses the Cape Vultures and it is known from the Ecological Report that plants with medicinal value are present on the site. Currently it is known that people go up illegally in to the mountain to get hold of the medicinal plants as there is no controlled access, this action strips the mountain from medicinal species and important indigenous vegetation, harvesting faster than seasonal growth causing precious vegetation to become extinct.

It is also widely known that Vultures are sought after which in the African trade involves the poaching, trafficking, and illegal sale of vultures and vulture parts for bushmeat and for ritual and religious use, like traditional medicines. At this stage it seems that the Cape Vulture colony is expanding; however in the long term we have to ensure that this still will be the case.

Illegal dumping is another matter that needs to be recognized that can possibly take place on the site. Whereas with the planned proposed development which took all the sensitivities into consideration it will be possible to still protect and conserve the sensitive areas along with the proposed development adhering strictly to all the mitigation measures proposed in the report and exercising controlled access to the site and specifically to the most sensitive areas i.e. the Aasvoëlberg and wetlands/ watercourses.

The development option might be considered a better option in the long term than the no-go option. Should the no-go alternative be followed, no specific manner of protection and conservation of sensitivities on the site can be fully exercised and the possibility exists that the site can be deteriorated in the long run. Unless the Mohokare Local Municipality spends money to fence the sensitive areas in order to ensure that none of the mentioned activities takes place on the site then the no-go option might be a valid option. Therefore weighing the possible impacts of the no-go option it seems that this option is not considered the most feasible option for the site.

5. Details of the Applicant; Landowner; Environmental Assessment Practitioner (EAP) and the Professional Team of Specialists:

Applicant Details:	Free State Department of Human Settlements

	Contact Person: Advocate Tshepo Tsuaeli Physical address: OR Rambo Building; Cnr Margraff and St Andrew Streets; Bloemfontein Postal address: P.O. Box 211; Bloemfontein; 9301 Contact number: 051 403 3816
Landowner Details:	Mohokare Local Municipality Contact Person: Municipal Manager Mr. S. Selepe Physical address: Hoofstreet; Zastron Postal address: P.O. Box 20 Zastron 9950 Contact number: 051 673 9600
Environmental Assessment Practitioner (EAP):	Sapphire Environmental Consulting Contact Person: Ms Anè Agenbacht Reg. EAP (EAPASA) Contact number: 083 533 0420 Email address: sapphire.environmental@gmail.com Postal address: P.O. Box 1791; Wingate park; 0153
Details of Professional Team/ Specialists:	
Town Planner and Project Manager:	(MOK Development Consultants) Mr. Joseph Mokoena
Ecologist:	Ms. Corlien Lambrechts; Ms. Nicole Upton & Liezl Landman
Wetland Specialist:	Mr. Johan van der Waals
Heritage Consultant:	Ms. Leonie Marais Botes
Engineers – Services Report:	Mr. Leon Wentzel & Heinrich Rossouw
Floodline Analysis and Determination Report	Mr. Leon Wentzel & Heinrich Rossouw
Preliminary Engineering Geological Desktop Study	Mr. Leon Wentzel & Heinrich Rossouw

6. Services

The provision of basic services delivery is a critical problem in the town of Zastron currently. The Mohokare Local Municipality faces many challenges as they are

under-capacitated to address the current needs of the town Zastron. Several riots took place over the last two months in the town due to the lack of service delivery.

Xhariep District Municipality; Mohokare Local Municipality and the Department of Water and Sanitation are busy in attempting to address the challenges the town of Zastron faces. It should be noted that the proposed development will not be able to continue should this problem not be addressed.

6.1 Water:

Due to the magnitude of the proposed development various alternative water sources are considered to supply the proposed development with potable water. A total of 9 429.740kℓ of water per day is required to supply the proposed development with water.

A Pilot Groundwater Exploration Program and Groundwater Resource Assessment was conducted by Geovation (Pty) Ltd during April 2021. An estimated 147 999.769kℓ (m^3) per annum or between 405.4799 and 429.74kℓ (m^3) per day could be supplied from the proposed boreholes on the site or from the surrounding areas. Only 4.30% to 6.37% of the project water demand of the project can possibly be sustainably supplied from the groundwater sources. Between 9 and 14 boreholes with a yield of 0.5L/s will be required to supply this volume.

According to the Services Report conducted by Civil Consult Consulting Engineers a publication prepared by the Mohokare Local Municipality Technical Services Department from September 2018; states that water supply upgrades from Montagu Dam and possible upgrades to the Water Treatment Works were proposed. The Engineers could not verify the implementation of the upgrades at the time of the Services Report in June 2021.

The Orange River is located approximately 30 km east of the proposed development. According to telephonic feedback received from Mr. Anton Jones of the Department of Water and Sanitation (DWS); the DWS is busy with the installation of pipeline from the Orange River which will supply several rural areas with water. The installation of the pipeline should be completed by September 2021. The water from the Orange River will have to be purified to conform to the standards of the Department of Water and Sanitation (DWS) should it be used for human consumption. Water could be supplied to the proposed development raw water reservoir; Water Treatment Works (WTW) and small potable water reservoir to be located in the south eastern corner of the proposed development. The treated potable water will be pumped from the small potable reservoir to several larger reservoirs to be located at a high point in the south western corner of the proposed development.

6.2 Sewer:

The estimated sewerage flow for the proposed development is calculated at 7 287,200kℓ per day.

According to the Services Report it is proposed that an 8Mℓ (8 000kℓ) a day Waste Water Treatment Works (WWTW) be constructed in the south eastern corner of Erf 3988 (Public Open Space) of the proposed development. This portion of Erf 3988 will have to be separated from the original Erf; a new Erf number will have to be provided and the Erf will have to be earmarked for municipal services. It is furthermore proposed that a sewerage sump and sewerage pump station be constructed in the north eastern corner of Erf 3966 (Public Open Space) of the proposed development. Sewerage from the western portion of the proposed development will drain via an internal sewerage network to the proposed WWTW to be located in the south eastern corner of Erf 3988 of the proposed development.

Sewerage from the eastern portion of the proposed development will drain via an internal sewerage network to Erf 3966 where it will discharge into the proposed sewerage sump of the proposed sewerage pump station. From here the sewerage in the proposed sump will be pumped via a proposed sewerage rising main up to the proposed outfall sewer of the western portion of the proposed development where it will discharge. The treated effluent will conform to the special standards of the Department of Water and Sanitation. The Treated effluent will be discharged into the existing tributary of the Klipspruit intersecting the middle of the proposed development.

Accordingly it will not be necessary to apply for a Waste License for the Waste Treatment Works in terms of NEM:WA (Act 59 of 2008) Section 19(2) ; Category A(7) as well as Category B(4). Please refer to Annexure M of the Appendices.

6.3 Electricity:

The proposed development will be supplied with electricity from the Centlec Power Supply Network. Centlec will take over the network once the development is completed. They will then be responsible for the operation and maintenance of the network. The standards and specifications for materials and design prescribed by Centlec must be followed.

The electrical supply to the development will require the construction of a new 132/11kV Substation which will be constructed on a 100m x 100m servitude in favour of Centlec. The new 132/11kV substation will be supplied by constructing a new 132kV line from Zastron Municipal Substation.

The short-term electrical capacity requirement could possibly be accommodated by installing 11kV cables from the nearest MV ring network with spare capacity up to the border of the proposed development.

Due to the size of the development; it is envisaged that a minimum of three (3) primary satellite substations will have to be constructed within the development in order to distribute the 11kV throughout the development. The primary substations will be supplied form the 132/11kV substation with 240mm copper cables using a single contingency model (n-1).

6.4 Solid Waste:

The estimated volume of waste to be generated by the proposed development on a weekly basis is 2 160.08 m^3 per week. The solid waste will be collected and transported from the proposed development to the solid waste disposal site of the Mohokare Local Municipality. This will be done either by the Mohokare Local Municipality or by a Private Contractor.

It is also understood from the Mohokare Local Municipality as well as from the Local Residents of Zastron that the current landfill site needs to be upgraded. In order to avoid pollution to the current watercourse on the site we suggest this landfill problem be resolved prior to the commencement of this proposed development.

6.5 Storm water:

The Services Report done by Civil Consult Consulting Engineers confirmed that the storm water run-off from the proposed development will drain via internal storm water networks to the three tributaries of the Klipspruit intersecting the proposed development where the storm water run-off will be discharged above the 1:100 year flood lines of the three tributaries of the Klipspruit.

The existing dam located on Erf 3968 (College Erf) of the proposed development will be converted into an attenuation dam. The existing tributary of the Klipspruit intersecting the middle of the proposed development form the south to the north will be channelized and rerouted with a proposed 3 000mm x 3 000mm portal culvert. The proposed 3 000mm x 3 000mm portal culvert will be installed; in a northern direction within a proposed 16,0m wide road reserve; from the middle of the southern boundary of Erf 3966 (shopping centre erf) of the proposed development where it will discharge.

The attenuation dam will be designed to attenuate the post development 1:25 year run-off and the outflow will be the pre development 1:5 year run-off for the proposed development.

The attenuation dam outlet structure will discharge directly into a proposed 2100mm x 2100mm portal culvert which will be installed in northern direction within a proposed 20.0m wide road reserve up to and crossing the existing Provincial Road R726. From here the proposed 2100mm x 2100mm portal culvert will continue north within a proposed 20.0m wide road reserve up to Erf 3988 (Public Open Space) of the proposed development and one of the existing tributaries of Klipspruit where it will discharge.

The attenuation pond will be able to accommodate the post 1:50 year run-off.

The internal storm water system will be designed for a 1:5 year flood return period and a run-off coefficient of 80% (C=0.8) will be allowed for the proposed development.

The storm water outlet structures will cater for gabions and reno-mattresses at the outlets to minimize the possibility of erosion at the point of discharge.

6.6 Roads:

Access to the development will be gained directly from the Provincial Road R726 and Zastron ring road via several new intersection accesses and internal access roads. The new intersection accesses of Provincial Road R726 and Zastron ring road and the new internal access roads will be constructed according to the standards and specifications of the Free State Department of Police; Roads and Transport (FSDPT). The internal roads to the proposed development will be designed and constructed according to the standards and specifications of the Mohokare Local Municipality. Wayleave approval will be acquired from the FSDPRT to allow ingress and egress to the proposed development.

7 Public Participation

Public Participation forms a crucial part of the environmental process and allows all potential or registered I&APs; Stakeholders including the Competent Authority; a period of at least 30 days to submit comments on each of the phases of the project namely advertisement period; Scoping report; Plan of Study (PoS) for EIA; Environmental Management Programme (EMPr) and Environmental Impact Assessment (EIA) Report.

Many comments were received from the I&APs and Stakeholders during the Scoping Phase as well as during the public participation phase of the EIA. Questions were raised regarding the availability of services; the sense of place; impacts on the environment; Aasvoëlberg; fauna (specifically the Cape Vulture) and flora; security and safety of local residents; sense of place; economic impact; job creation and shortages. Please refer to Section C of this report for the full section on Public Participation.

The main aim of Public Participation is to ensure that a full range of I&APs and Stakeholders are notified and informed of the proposed development and be given a fair opportunity to comment and provide inputs regarding the proposed development throughout the process.

It is therefore also requested as part of this Draft EIA report that all registered I&APs; Stakeholders and the Competent Authority peruse this document and appendices; alternative layout plans and all alternatives investigated for the project and provide our office with your comments regarding the proposed development in order for our office to provide the Competent Authority with a well-executed document in order for them to be in a position to make an informed decision regarding the authorization of the Environmental Authorization for the proposed project.

8 Environmental Impact Assessment

The environmental impact assessment was conducted by means of considering all the phases of the project from the construction phase to the operational phase. The project activities were then identified by the environmental aspects and the environmental risk assessment in order to determine the significant environmental aspects. An impact matrix was used to determine the potential impact on the receiving environment which includes an objective evaluation of the impact and the mitigation measures. This impact assessment allows and enable the Environmental Assessment Practitioner (EAP) to provide an informed opinion of the proposed development.

9 Conclusion and way forward:

This report serves as the Draft Environmental Impact Assessment which is the last phase of the EIA process. The Environmental Management Programme (EMPr) and all specialist reports conducted for the proposed development will accompany the Draft EIA for perusal of all Stakeholders; Registered Interested and Affected Party Members as well as the Free State Department of Economic Small Business Development; Tourism and Environmental Affairs. The report will be circulated for a period of 30 days whereby comments needs to be submitted to the EAP. The EAP will then address all comments and make changes to the report where ever necessary in order to submit the Final Environmental Impact Assessment report for decision making regarding the Environmental Authorization.

The findings made by this EIA was done with the assistance of the public participation periods; impact assessment; mitigation measures and recommendations of the professional team and the specialist reports. It was found that the proposal – Alternative 4 was the best possible option and deemed to be the most feasible from an environmental; biophysical and socio-economical point of view. No significant fatal flaw could prevent the proposed Matlakeng Ext 11 Township Establishment and Mixed Use Development from continuing if all the mitigation measures as per this report and the EMPr be implemented and all sensitive areas be avoided during both the construction and operational phase of the project as well as that the necessary basic service delivery can be provided by Mohokare Local Municipality there seems to be no reason why this development should not continue.

TABLE OF CONTENTS

TABLES

FIGURES

Figure 28:	Conservation Plan

APPENDICES

APPENDIX A:	MAPS
APPENDIX B:	PHOTOGRAPHS
APPENDIX C:	FACILITY ILLUSTRATION(S)
APPENDIX D:	SPECIALIST STUDIES
Appendix D1:	Terrestrial Ecological Impact Assessment
Appendix D2:	Wetland Identification and Delineation Report
Appendix D3:	Heritage Impact Assessment
Appendix D4:	Services Report
Appendix D5:	Geotechnical Report
Appendix D6:	Traffic Impact Assessment
Appendix D7:	Geohydrological Report
Appendix D8:	Floodline Study
APPENDIX E:	PUBLIC PARTICIPATION
Appendix E1:	Proof of placement of relevant advert and notices
Appendix E2:	Written notices (email; registered mail; acknowledgement of receipt; etc.)
Appendix E3:	Comments & Response Report
Appendix E4:	Authorities and Organs of State written notification
Appendix E5:	List of registered I&APs
Appendix E6:	Correspondence and minutes of meetings
APPENDIX F:	IMPACT ASSESSMENT
APPENDIX G:	ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)
APPENDIX H:	DETAILS OF EAP AND EXPERTISE
APPENDIX I:	SPECIALIST'S DECLARATION OF INTEREST
APPENDIX J:	ADDITIONAL INFORMATION
Appendix J1:	Screening Report
Appendix J2:	Application form
Appendix J3:	Approval of the Scoping Report and Plan of Study for EIA
Appendix J4:	Extension of time letter from DESTEA
Appendix J5:	Confirmation letter from DESTEA regarding a Waste License
Appendix J6:	Mohokare Local Municipality letter
Appendix J7:	Mohokare Local Municipality IDP

ABBREVIATIONS

CA	Competent Authority
CBA	Critical Biodiversity Area
DEFF	Department of Environment; Forestry and Fisheries
DESTEA	Free State Department of Economic Small Business Development; Tourism and Environmental Affairs
DWS	Department of Water and Sanitation
EA	Environmental Authorization
EAP	Environmental Assessment Practitioner
EIA:	Environmental Impact Assessment
EMPr	Environmental Management Programme
ESA	Ecological Support Area
FSDPT	Free State Department of Police; Roads and Transport
GDARD	Gauteng Department of Agriculture and Rural Development
GN	Government Notice
I&APs	Interested and Affected Parties
IDP	Integrated Development Plan
NEMA	National Environmental Management Act
NEMBA	National Environmental Management: Biodiversity Act
NPAES	National Protected Areas Expansion Strategy
PoS	Plan of Study
PP	Public Participation
PPP	Public Participation Plan
SAHRA	South African Heritage Resources Agency
SANRAL	South African National Roads Agency Limited
SANS	South African National Standards
SANBI	South African National Biodiversity Institute
SDP	Spatial Development Plan
ToR	Terms of Reference
WUL	Water Use License
WULA	Water Use License Application

Section A: Activity information

Has a specialist been consulted to assist with the completion of this section? **YES** NO
If YES, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix I.

1. PROJECT DESCRIPTION

a) Describe the project associated with the listed activities applied for

The proposed Matlakeng Ext 11 is for a township establishment and mixed use development that will consist of residential 1 stands (comprising of high; medium and low density) for approximately 4 000 units; Business 1; Educational; Institutional; Religious Purposes; Municipal; Transportation; Open space 1; Streets including the reticulation of services on 624,59 hectare of the total 792.734 hectare site.

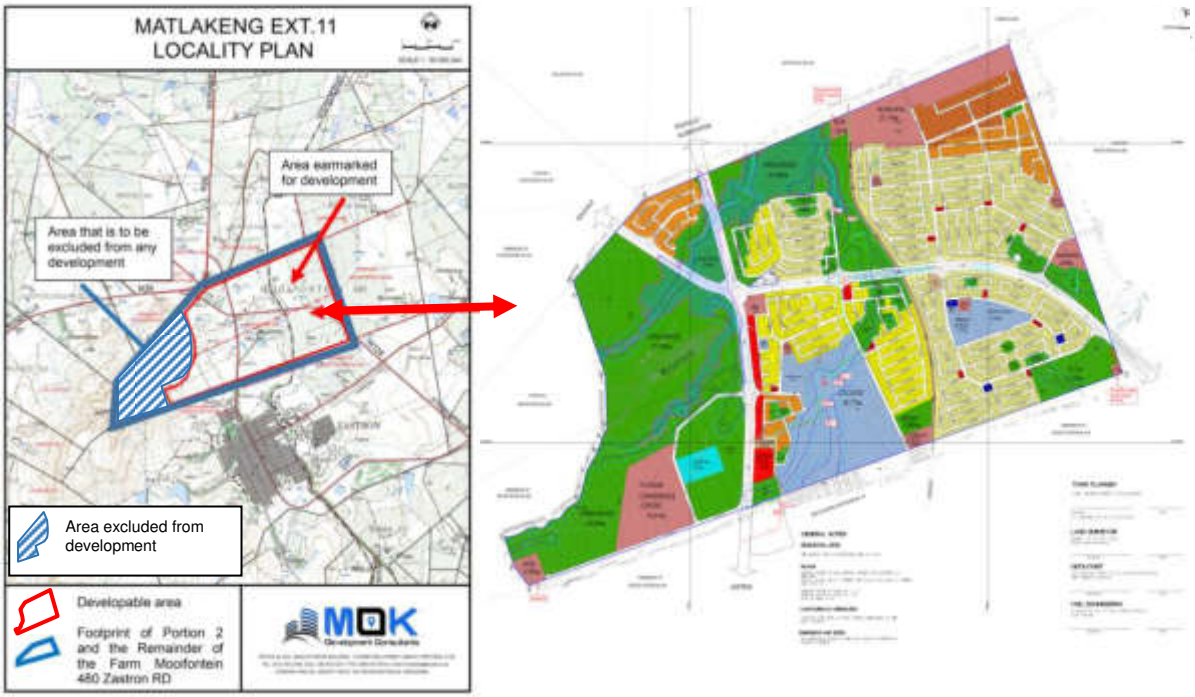


Figure 1: Locality map and Layout plan (Proposal – Alternative 4)

The property is situated on Portion 2 and the Remainder of the Farm Mooifontein 480 Zastron RD. The R726 traverses the site and basically cuts the site in two portions on either side of the road. The R26 is situated to the north west of the site with the Aasvoëlberg directly to the west of the site. The Farm Vogelenzang No. 349; Portion 1 of the Farm Vogelenzang Nol 349; the Farm Nellieshof No. 396; the Remainder of the Farm Hoffasdale No. 256 and the Farm Karina No. 406 forms the northern boundary of the site and Portion 1 of the Farm Mooifontein 480 RD forms the eastern boundary of the site. The southern boundary of the site is bordered by the Remainder of the Farm Verliesfontein No. 354 and Matlakeng x 10. The Town of Zastron is situated further away to the south of the site. The Remainder of the

Farm Mooifontein 489 RD and Portion 2 of the Farm Mooifontein 480 RD forms the western boundary of the proposed development. Lesotho is situated further to the east of the site. A locality and aerial map is attached below.

The study area is situated within the jurisdiction of Mohokare Local Municipality and falls within the Xhariep District Municipality within the Free State Province.

The proposed development will trigger listed activities from Listing Notice 1; 2 and 3 in GN 325; 326 and 327 of 7 April 2017.

A locality map; aerial and orientation map is attached below.

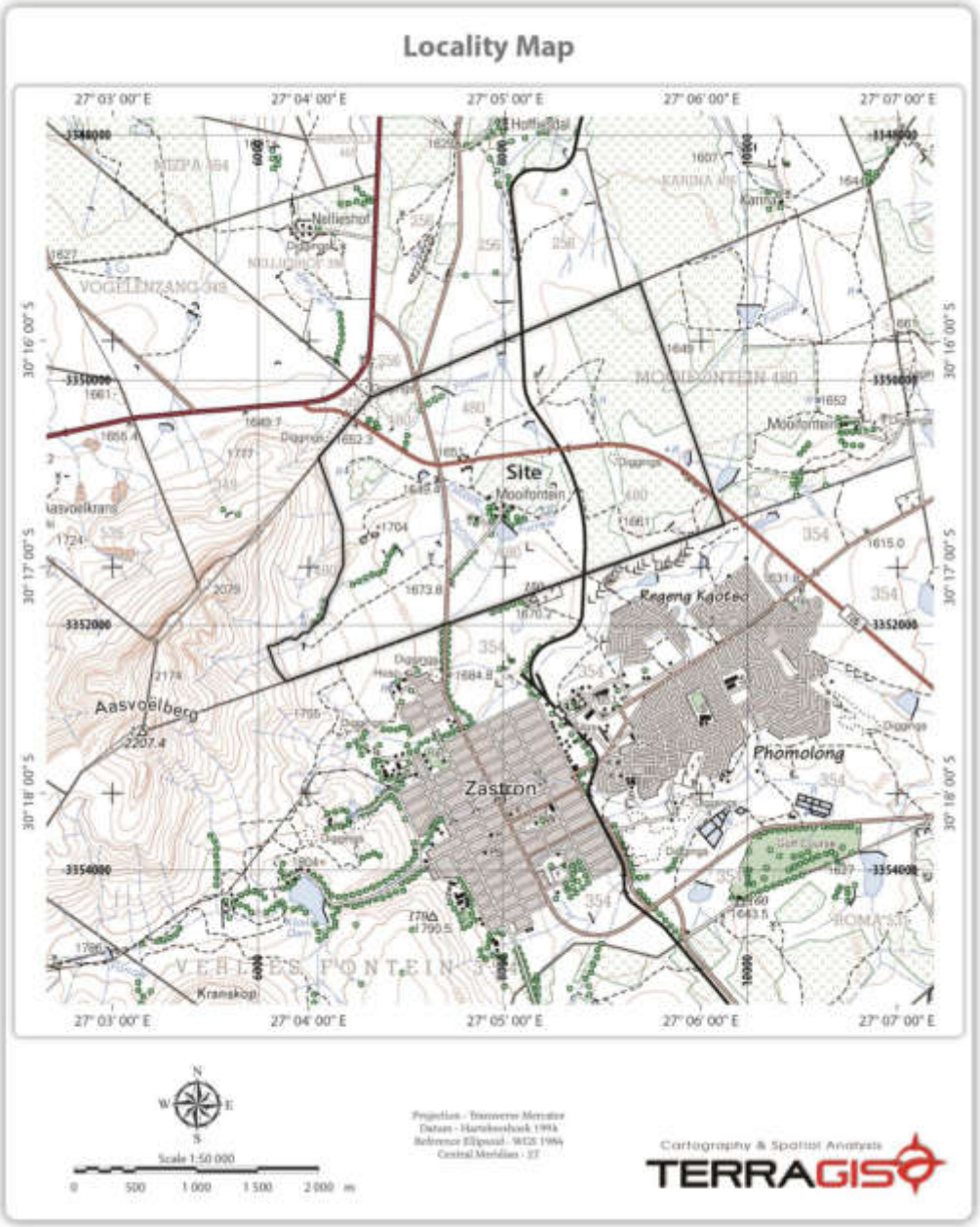


Figure 2: Locality Map

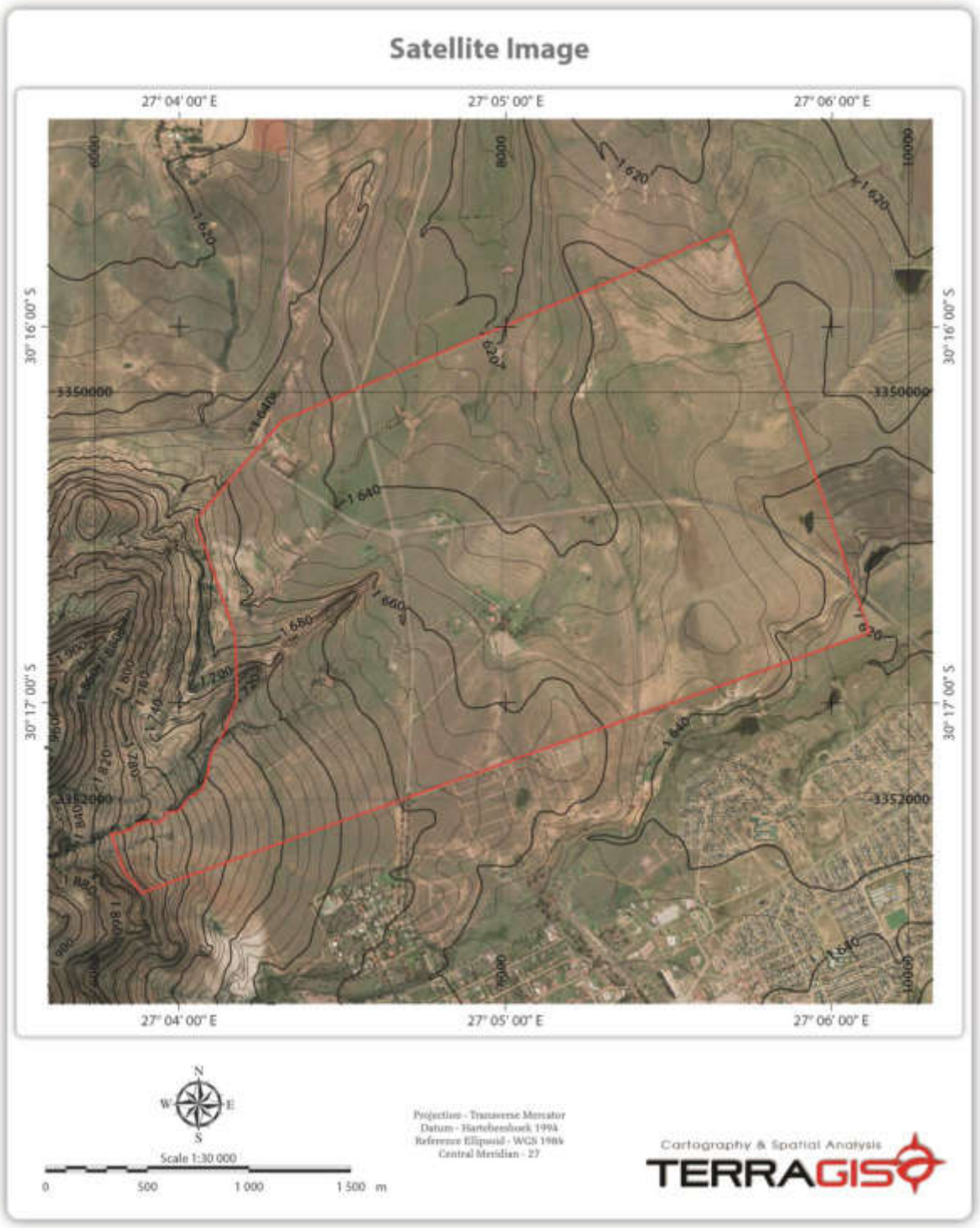


Figure 3: Aerial map

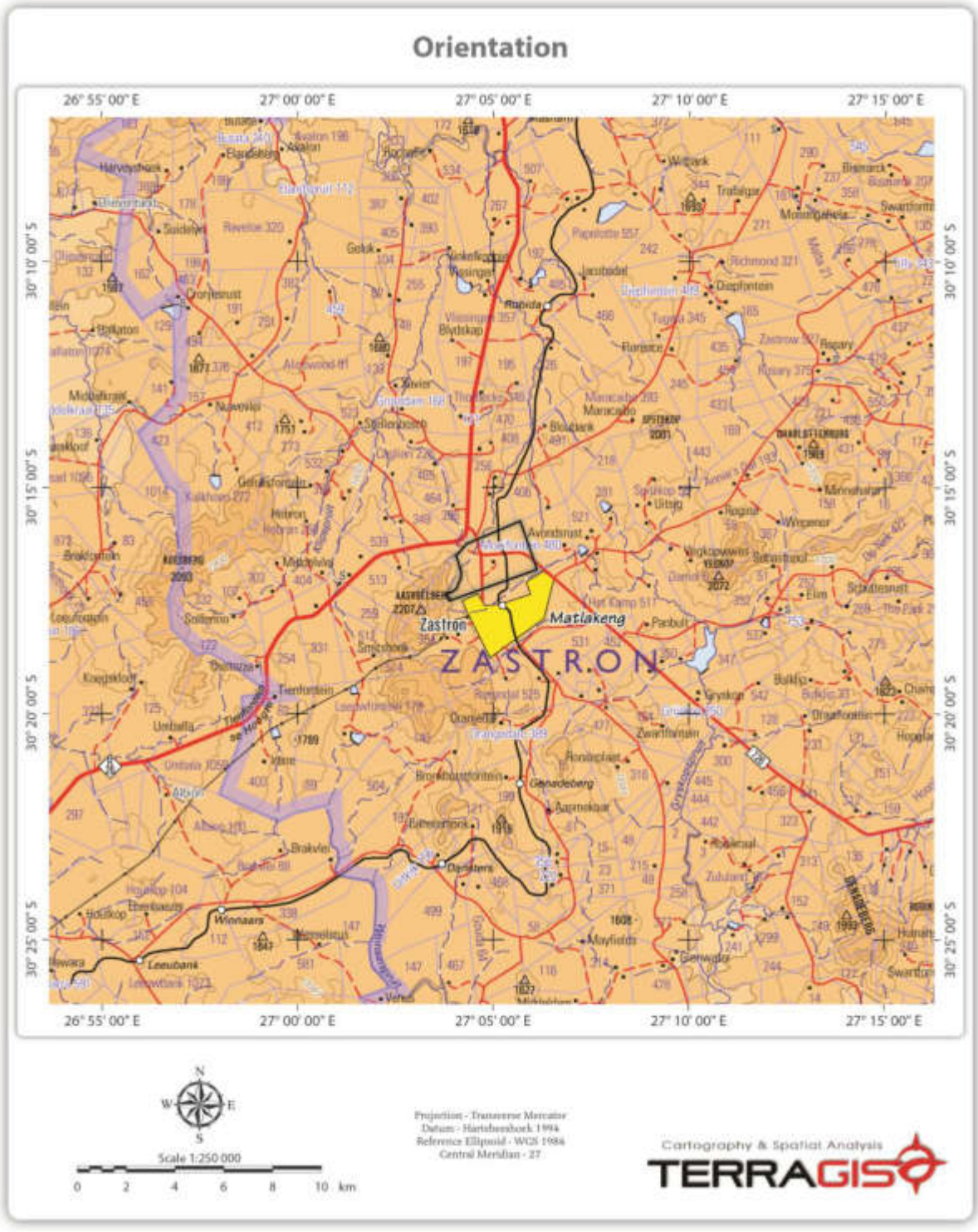


Figure 6: Orientation map

b) Provide a detailed description of the listed activities associated with the project as applied for

Table 1: Listed activities

Listed activity as described in GN 327,325 and 324	Description of project activity
Example: ***GN 327 Item xx xx): The construction of a bridge where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.***	***A bridge measuring 5 m in height and 10m in length, no wider than 8 meters will be built over the Orange river***
Listing Notice 1 (GN 324):	
Activity 9: The development of infrastructure exceeding 1 000 metres in length for the bulk transportation of water or stormwater – (i) With an internal diameter of 0,36 metres or more; or (ii) With a peak throughput of 120 litres per second or more; Excluding where – (a) Such infrastructure is for bulk transportation of water or storm water or storm water drainage inside a road reserve or railway line reserve; or (b) Where such development will occur within an urban area.	The length and size of the pipes to be used for both the water and stormwater will exceed the specified threshold and therefore this listed activity will be applicable for the proposed development. Specific sizes and lengths will be made available in the Engineering reports.
Activity 10: The development and related operation of infrastructure exceeding 1 000 metres in length for the bulk transportation of sewage; effluent; process water; waste water; return water; industrial discharge or slimes – (i) With an internal diameter of 0,36 metres or more; or (ii) With a peak throughput of 120 litres per second or more; Excluding where- (a) Such infrastructure is for the bulk transportation of sewage; effluent; process water; waste water; return water; industrial discharge or slimes inside a road reserve or railway line reserve; or (b) Where such development will occur within an urban area.	The length and size of the pipes to be used for the sewer will exceed the specified threshold and therefore this listed activity will be applicable for the proposed development. Specific sizes and lengths will be made available in the Engineering reports.
Activity 12: The development of – (i) Canals exceeding 100 square metres in size; (ii) Channels exceeding 100 square metres in size; (iii) Bridges exceeding 100 square metres in size; (iv) Dams; where the dam; including infrastructure and water surface area; exceeds 100 square metres in size; (v) Weirs; where the weir; including infrastructure and water surface area; exceeds 100 square metres in size; (vi) **Bulk storm water outlet structures exceeding 100 square metres in size**; (vii) Marinas exceeding 100 square metres in size; (viii) Jetties exceeding 100 square metres in size;	This activity is triggered by the proposed development as the bulk stormwater outlet structures will exceed 100 m² in size; buildings will exceed 100 m² in size and the infrastructure/ structures will have a physical footprint of 100 m² or more. Furthermore the area of development contains certain watercourse areas. The exact information will be obtained in the

(ix) Slipways exceeding 100 square metres in size; (x) **Buildings exceeding 100 square metres in size**; (xi) Boardwalks exceeding 100 square metres in size; or **(xii) Infrastructure or structures with a physical footprint of 100 square metres or more;** The development of – (i) Dams or weirs; where the dam or weir; including infrastructure and water surface area; exceeds 100 square metres; or (ii) Infrastructures with a physical footprint of 100 square metres or more; Where such development occurs – (a) **Within a watercourse**; (b) In front of a development setback; or (c) If no development setback exists; **within 32 metres of a watercourse; measured from the edge of a watercourse –** Excluding – (aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour; (bb) where such development activities are related to the development of a port or harbour; in which case activity 26 in Listing Notice 2 of 2014 applies; (cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014; in which case that activity applies; (dd) where such development occurs within an urban area; (or) (ee) where such development occurs within existing roads; or road reserves or railway line reserves; or (ff) the development of temporary infrastructure or structures where such infrastructure or structures will be removed within 6 weeks of the commencement of development and where indigenous vegetation will not be cleared.	Engineering report.
Activity 14: The development and related operation of facilities or infrastructure; for the storage; or for the storage and handling; of a dangerous good; where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.	During the construction phase dangerous goods will be used and stored on the site and the threshold will be exceeded and therefore this activity will be triggered during the construction phase of the project.
Activity 19: The infilling or depositing of any material of more than 5 cubic metres into; or the dredging; excavation, removal or moving of soil sand; shells; shell grit; pebbles or rock or more than 5 cubic metres from (i) a watercourse;	Numerous wetland/ watercourses are situated on the entire site. Roads; powerlines and pipelines will traverse certain wetland/ watercourse areas on the site.

(ii) The seashore; or (i) The littoral active zone; an estuary or a distance of 100 metres inland of the high-water mark of the sea or estuary; whichever distance is the greater – But excluding where such infilling; depositing; dredging; excavation; removal or moving – (a) Will occur behind a development setback; (b) Is for the maintenance purposes undertaken in accordance with a maintenance management plan; or (c) Falls within the ambit of activity 21 in this Notice; in which case that activity applies; (d) Occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or (e) Where such development is related to the development of a port or harbour; in which case activity 26 in Listing Notice 2 of 2014 applies.	Therefore this activity is triggered by the proposed development.
Activity 24: The development of a road – (i) A road for which an environmental authorization was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or **(ii) A road with a reserve wider than 13,5 meters; or where no reserve exists where the road is wider than 8 metres;** But excluding a road – (a) Roads which are identified and included in activity 27 in Listing Notice 2 or 2014; (b) Roads where the entire road falls within an urban area; or (c) Which is 1 kilometres or shorter.	The proposed access roads to the various portions of the Proposed Development will vary in widths of between 7.4m and 14.8m and will consist of asphalt surfaced roads with 300mm wide kerbs or 3.0m wide gravel shoulders. Therefore this activity will be triggered by the proposed development.
Activity 25: The development and related operation of facilities or infrastructure for the treatment of effluent; wastewater or sewage with a daily throughput capacity of more than 2 000 cubic metres but less than 15 000 cubic metres.	This activity will be triggered as the effluent to be treated will be approximately 8 000 m³ a day. No Waste License is however required in terms of the National Environmental Management: Waste Act (NEM:WA; Act 59 of 2008 - Section 19(2); Category A(7) as well as Category B(4).
Activity 28: Residential; mixed; retail; commercial; industrial or institutional developments where such land was used for agriculture; game farming; equestrian purposes or afforestation on or after 1 April 1998 and where such development: (i) Will occur inside an urban area; where the total land to be developed is bigger than 5 hectares; or (ii) Will occur outside an urban area; where the total land to be developed is bigger than 1 hectare; Excluding where such land has already been developed for	The property is currently used for the grazing of cattle and the land to be developed is larger than 1 hectares outside of the urban area. Therefore this activity is regarded as being applicable.

residential; mixed; retail; commercial; industrial or institutional purposes.	
Activity 30: Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act; 2004 (Act No. 10 of 2004).	This activity is listed as certain species of concern/ endangered species/ vegetation was found during the ecological site visit. Should these be removed the necessary permits needs to be obtained.
Activity 67: Phased activities for all activities – (i) Listed in this Notice; which commenced on or after the effective date of this Notice; or (ii) similarly listed in any of the previous NEMA notices; which commenced on or after the effective date of such previous NEMA Notices; where any phase of the activity may be below a threshold but where a combination of the phases; including expansions or extensions; will exceed a specified threshold; excluding the following activities listed in this Notice: 17(i)(a-d); 17(ii)(a-d); 17(iii)(a-d); 17(iv)(a-d); 17(v)(a-d); 20; 21; 22; 24(i); 29; 30; 31; 32; 34; 54(i)(a-d); 54(ii)(a-d); 54(iii)(a-d); 54(iv)(a-d); 54(v)(a-d); 55; 61; 62; 64; and 65 or (ii) listed as activities 5; 7; 8(ii); 11; 13; 16; 27(i) or 27(ii) in Listing Notice 2 of 2014 or similarly listed in any of the previous NEMA notices; which commenced on or after the effective date of such previous NEMA Notices; where any phase of the activity was below a threshold but where a combination of the phases; including expansions or extensions; will exceed a specified threshold.	This activity is not listed and will be excluded from the application for the proposed development. Phased Activities will probably take place in the future when and if the proposed development is approved. The reason for the exclusion of this activity is due to no phased activities that have taken place prior to this application for environmental authorization.
Listing Notice 2 (GN 325):	
Activity 6: The development of facilities or infrastructure for any process or activity which requires a permit or licence or an amended permit or license in terms of national or provincial legislation governing the generation or release of emissions; pollution or effluent; excluding – (i)Activities which are identified and included in Listing Notice 1 of 2014; (ii)Activities which are included in the list of waste management activities published in terms of section 19 of the National Environment Management Act: Waste Act; 2008 (Act No. 59 of 2008) in which case the National Environmental Management Waste Act; 2008 applied; (iii)the development of facilities or infrastructure for the treatment of effluent; polluted water; wastewater or sewage where such facilities have a daily throughput capacity of 2 000 cubic metres or less; or (iv)where the development is directly related to aquaculture facilities or infrastructure where the wastewater discharge	This activity will be listed as effluent will be generated by the development.

capacity will not exceed 50 cubic metres per day.	
Activity 11: The development of facilities or infrastructure for the transfer of 50 000 cubic metres or more water per day; from and to or between any combination of the following: (i)water catchments; (ii)water treatment works; or (iii)impoundments; excluding treatment works where water is to be treated for drinking water.	This activity will not be listed by this development however Mohokare Local Municipality and the Department of Water and Sanitation needs to obtain the relevant Environmental Authorizations to supply water from the Orange River and the Montagu Dam to the Town of Zastron and the proposed development. This will be a separate application from this project.
Activity 15: The clearance of an area of 20 hectares or more of indigenous vegetation; excluding where such clearance of indigenous vegetation is required for – (I) The undertaking of a linear activity; or (II) Maintenance purposes undertaken in accordance with a maintenance management plan.	More than 20 hectares of indigenous vegetation will be cleared for the proposed development.
Activity 25: The development and related operation of facilities or infrastructure for the treatment of effluent; wastewater or sewage with a daily throughput capacity of 15 000 cubic metres or more.	This activity is not listed and shall be removed from the listed activities in the application.
Listing Notice 3 (GN 327):	
Activity 2: The development of reservoirs; for bulk water supply excluding dams; with a capacity of more than 250 cubic metres. b. Free State i. In a protected area identified in terms of NEMPAA: excluding conservancies; ii. Outside urban areas: (aa) National Protected Area Expansion Strategy Focus areas; (bb) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (cc) Sites or areas identified in terms of an international convention; (dd) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ee) Core areas in biosphere reserves; or (ff) Areas within 10 kilometres from national; parks or world heritage sites or 5 kilometres form any other protected area identified in terms of NEMPAA or form the core area or a biosphere reserve; or iii. Inside urban areas: (aa) Areas zoned for use as public open space;	According to the Free State Conservation Plan certain areas on the site has been delineated as Critical Biodiversity 1; Ecological Sensitive Areas 1 and 2. A reservoir is planned to be situated in the south western corner and will occupies an estimated area of 2,36 hectares with a water storing capacity that will exceed 250 cubic metres.

(bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority; or zoned for a conservation purpose; or (cc) Areas within urban protected areas.	
Activity 4: The development of a road wider than 4 metres within a reserve less than 13,5 metres; b. Free State i. Outside urban area: (aa) A protected area identified in terms of NEMPAA; excluding disturbed area; (bb) National Protected Area Expansion Strategy Focus area; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an international convention; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; or (gg) Areas within 10 kilometres from national parks or world heritage sites of 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve; excluding disturbed areas; or ii. Inside urban areas: (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority of zoned for a conservation purpose; or (cc) Areas within urban protected areas.	According to the Free State Conservation Plan certain areas on the site has been delineated as Critical Biodiversity 1; Ecological Sensitive Areas 1 and 2. The roads that are to be constructed for the proposed development will exceed the threshold and will therefore trigger this activity.
Activity 10: The development and related operation of facilities or infrastructure for the storage; or storage and handling of a dangerous good; where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres. b. Free State i. Outside urban areas: (aa) A protected area identified in terms of NEMPAA; excluding conservancies; (bb) National Protected Area Expansion Strategy Focus Areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an international convention; (ee) Critical biodiversity areas as identified in systematic	According to the Free State Conservation Plan certain areas on the site has been delineated as Critical Biodiversity 1; Ecological Sensitive Areas 1 and 2. Certain products to be used and stored on site during the construction phase is regarded as dangerous goods and the amount to be stored on site will exceed the specified threshold.

biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; (gg) Areas within 10 kilometres form national parks or wold heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve; or (hh) Areas within a watercourse or wetland; or within 100 metres from the edge of a watercourse or wetland; or ii. Inside urban areas; (aa) Areas zoned for use as public open space; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose.	
Activity 12: The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. b. Free State i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a listed; within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; ii. Within critical biodiversity areas identified in bioregion plans; iii. On land; where; at the time of the coming into effect of this Notice or thereafter such land was zoned open space; conservation or had an equivalent zoning; or iv. Areas within a watercourse or wetland; or within 100 metres form the edge of a watercourse or wetland.	According to the Free State Conservation Plan certain areas on the site has been delineated as Critical Biodiversity 1; Ecological Sensitive Areas 1 and 2. More than 300 square meters of indigenous vegetation will be removed from the site.
Activity 14: The development of – (i) Canals exceeding 10 square metres ins size; (ii) Channels exceeding 10 square metres in size; (iii) Bridges exceeding 10 square metres in size; (iv) Dams; where the dam; including infrastructure and water surface area exceeds 10 square metres in size; (v) Weirs; where the weir; including infrastructure and water surface area exceeds 10 square metres in size; (vi) Bulk storm water outlet structures exceeding 10 square metres in size; (vii) Marinas exceeding 10 square metres in size; (viii) Jetties exceeding 10 square metres in size; (ix) Slipways exceeding 10 square metres in size; (x) buildings exceeding 10 square meters in size; (xi) Boardwalks exceeding 10 square metres in size; or (xii) Infrastructure or structures with a physical footprint of 10	According to the Free State Conservation Plan certain areas on the site has been delineated as Critical Biodiversity 1; Ecological Sensitive Areas 1 and 2. This activity will be triggered by the proposed site due to the presence of watercourses/ wetlands on site.

square metres or more; (i) Dams or weirs; where the dam or weir; (ii) Inclining infrastructure and water surface area exceeds 10 square metres; or (iii) Infrastructure or structures with a physical footprint of 10 square metres or more; Where such development occurs – (a) Within watercourse; (b) In front of a development setback; or (c) If no development setback has been adopted within 32 meters of a watercourse; measured from the edge of a watercourse Excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour. b. Free State i. Outside urban areas: (aa) A protected area identified in terms of NEMPAA: excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) World Heritage Sites; (dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (ee) Sites or areas identified in meters of an international convention; (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Core areas in biosphere reserves; or (hh) Areas with 10 kilometres from national parks or world heritage sites or 5 kilometres from another protected area identified in terms of NEMPAA or from the core area of a biosphere reserve; or ii. Inside urban areas: (aa) Areas zoned for use as public open space; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority; zoned for a conservation purpose.	

2. FEASIBLE AND REASONABLE ALTERNATIVES

"alternatives", in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

(a) the property on which or location where it is proposed to undertake the activity;
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity.

Describe alternatives that are considered in this application as required by Appendix 1 (3)(h) of GN 326, Regulation 2014 as amended. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

The determination of whether site or activity (including different processes, etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the, competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

The identification of alternatives should be in line with the Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004. Should the alternatives include different locations and lay-outs, the co-ordinates of the different alternatives must be provided. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

a) Site alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
	[redacted]	
A comment was received during the public participation of the Scoping Phase stating: "Any development should be considered in the direction of the town's current water source, namely the Montaqu dam. The supply lines for water have already been laid and redistribution of water could be done at a much lower cost, if you use these existing facilities." No site alternatives were considered for the proposed project as the properties under investigation is owned by the Mohokare Local Municipality. This project forms part of a government project and therefore no other site was considered for the proposed development.		
Alternative 2 - None		

Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3 - None		
Description	Lat (DDMMSS)	Long (DDMMSS)

In the case of linear activities:

Alternative:	**Latitude (S):**	**Longitude (E):**
Alternative S1 (preferred) • Starting point of the activity • Middle/Additional point of the activity • End point of the activity		
Alternative S2 (if any) • Starting point of the activity • Middle/Additional point of the activity • End point of the activity		
Alternative S3 (if any) • Starting point of the activity • Middle/Additional point of the activity • End point of the activity		

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

In the case of an area being under application, please provide the co-ordinates of the corners of the site as indicated on the lay-out map provided in Appendix A of this form.

b) Lay-out alternatives

Different layouts was considered as part of the proposed project. There are four different layout plans considered for the proposed development. All four alternatives has the same uses/ activities. The difference in the four layouts are mainly the location of different activities on the site. Alternative 4 (Proposed Layout Plan) considered all the sensitivities and characteristics of the entire site.

Alternative Layout 1		
Description	Lat (DDMMSS)	Long (DDMMSS)
Township Establishment and Mixed Use Development	30°16'40.68" S	27°04.47.47" E
Alternative 1 Layout plan:		

The Alternative 1 Layout Plan is for a township establishment and mixed use development that will consist of residential 1 stands (comprising of high; medium and low density); Business 1; Educational; Institutional; Religious Purposes; Municipal; Transportation; Open space 1; Streets including the reticulation of services on 624,59 hectare of the total 792.734 hectare site.

During the Scoping Phase this alternative Layout was regarded as the proposal; however with all the specialist inputs this layout is no longer regarded as the preferred layout as development activities are planned within highly sensitive areas. As can be seen on the layout plan below the section to the north eastern corner remains vacant for municipal uses; however the most sensitive areas to the west of the site adjacent to the Aasvoëlberg contains residential development. Therefore this proposal is no longer regarded as the most feasible layout plan.

Please refer to the Alternative 1 layout plan below. (Refer to Annexure A for enlarged Maps).

Figure 7: Alternative 1 Layout Plan.

The table below is an enlargement of the proposed land uses and sizes of Alternative 1 Layout.

Table 2: Land Use of Alternative 1

LAND USE					
ZONING	ERF NUMBERS	No. OF	AREA OF STANDS& STREETS	% OF AREA	REF.
RESIDENTIAL 1 (L/D) 2000m²	183 - 269	87	19,32	3,09	
RESIDENTIAL 1 (L/D) 600m²	1 - 182, 270 - 510 & 527 - 539	436	28,39	4,55	
RESIDENTIAL 1 (M/D) 450m² -500m²	540 - 1281	742	36,20	5,80	
RESIDENTIAL 1 (H/D) 350m²	1282-3901,511-526 & 3936-3939	2640	98,86	15,83	
BUSINESS 1	3902 - 3934 & 3940	34	7,33	1,17	
EDUCATION	3941 - 3946	6	52,00	8,32	
INSTITUTION	3947	1	1,93	0,31	
RELIGIOUS PURPOSES	3948 - 3950	3	0,68	0,11	
MUNICIPAL	3951 - 3964	14	97,75	15,65	
TRANSPORTATION	3965 - 3968	4	5,64	0,90	
OPEN SPACE 1	3969 - 4000 & 3935	33	168,86	27,03	
STREET			107,63	17,24	
TOTAL		4000	624,59	100%	

Alternative Layout 2

Description	Lat (DDMMSS)	Long (DDMMSS)
Township Establishment and Mixed Use Development	30°16'40.68" S	27°04.47.47" E

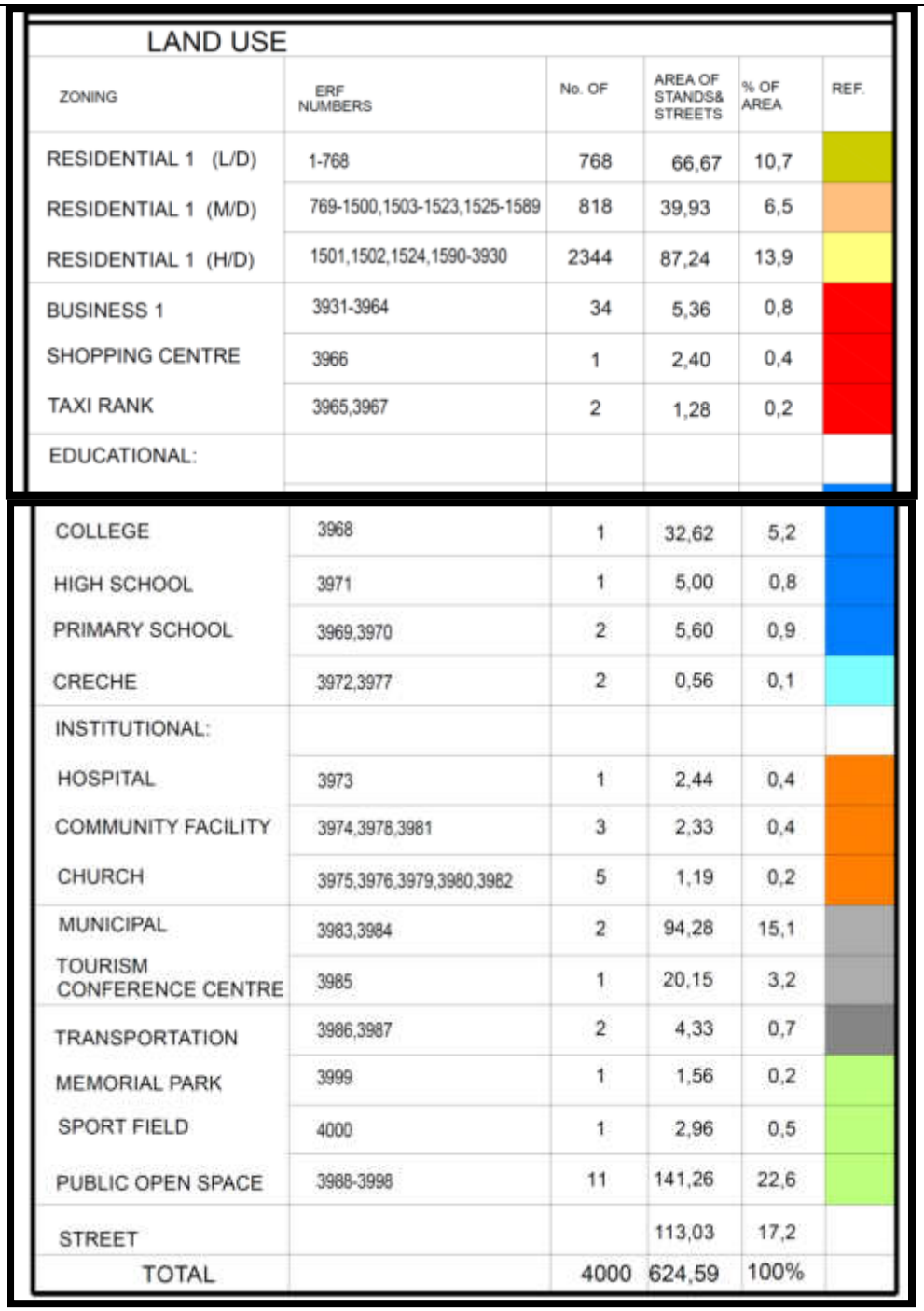
Alternative 2 Layout contains the same uses/ activities as Alternative 1 Layout but located at different positions. Alternative 2 has not incorporated any sensitive areas in terms of watercourses/ wetland areas and as can be seen development is planned within the wetland/ watercourses and within the 32 meter buffer of the wetlands. The layout also consists of development within the western side of the site which is regarded as ecological and geologically sensitive areas.

Please refer to the Alternative 2 layout plan below. (Refer to Annexure A for enlarged Maps).

Figure 8: Alternative 2 Layout Plan

The table below is an enlargement of the proposed land uses of Alternative 2 Layout.

Table 3: Land Use of Alternative 2



LAND USE

ZONING	ERF NUMBERS	No. OF	AREA OF STANDS& STREETS	% OF AREA	REF.
RESIDENTIAL 1 (L/D)	1-768	768	66,67	10,7	
RESIDENTIAL 1 (M/D)	769-1500,1503-1523,1525-1589	818	39,93	6,5	
RESIDENTIAL 1 (H/D)	1501,1502,1524,1590-3930	2344	87,24	13,9	
BUSINESS 1	3931-3964	34	5,36	0,8	
SHOPPING CENTRE	3966	1	2,40	0,4	
TAXI RANK	3965,3967	2	1,28	0,2	
EDUCATIONAL:					
COLLEGE	3968	1	32,62	5,2	
HIGH SCHOOL	3971	1	5,00	0,8	
PRIMARY SCHOOL	3969,3970	2	5,60	0,9	
CRECHE	3972,3977	2	0,56	0,1	
INSTITUTIONAL:					
HOSPITAL	3973	1	2,44	0,4	
COMMUNITY FACILITY	3974,3978,3981	3	2,33	0,4	
CHURCH	3975,3976,3979,3980,3982	5	1,19	0,2	
MUNICIPAL	3983,3984	2	94,28	15,1	
TOURISM CONFERENCE CENTRE	3985	1	20,15	3,2	
TRANSPORTATION	3986,3987	2	4,33	0,7	
MEMORIAL PARK	3999	1	1,56	0,2	
SPORT FIELD	4000	1	2,96	0,5	
PUBLIC OPEN SPACE	3988-3998	11	141,26	22,6	
STREET			113,03	17,2	
TOTAL		4000	624,59	100%	

Alternative Layout 3

Description	Lat (DDMMSS)	Long (DDMMSS)
Township Establishment and Mixed Use Development	30°16'40.68" S	27°04.47.47" E

The Alternative 3 Layout Plan also contains the same activities/ uses as Alternative 1 and 2. However on this layout the section between the R26 and the Aasvoëlberg to

the north western corner remains vacant and clear of any development. Development is still planned to a large extent on the south western corner with the Tourism Facility; Residential development and the hospital.

Figure 9: Alternative 3 Layout Plan

The table below is an enlargement of the proposed land uses of Alternative 3 Layout.

Table 4: Land Use of Alternative 3

LAND USE					
ZONING	ERF NUMBERS	No. OF	AREA OF STANDS& STREETS	% OF AREA	REF.
RESIDENTIAL 1 (L/D) 2000m²	138 - 206	69	15,24	2,44	
RESIDENTIAL 1 (L/D) 600m²	1 - 137, 207 - 259 & 3744 - 3907	354	22,80	3,65	
RESIDENTIAL 1 (M/D) 450m² -500m²	260 - 992	733	35,45	5,68	
RESIDENTIAL 1 (H/D) 350m²	993 - 3743	2751	102,90	16,47	
BUSINESS 1	3908 - 3941	34	7,21	1,15	
EDUCATION	3942 - 3947	6	52,00	8,32	
INSTITUTION	3948	1	3,28	0,53	
RELIGIOUS PURPOSES	3949 - 3951	3	0,68	0,11	
MUNICIPAL	3952 - 3963	12	64,99	10,41	
TRANSPORTATION	3964 - 3967	4	5,64	0,90	
OPEN SPACE 1	3968 - 4000	33	206,39	33,04	
STREET			108,01	17,30	
TOTAL		4000	624,59	100%	

Alternative Layout 4 (Proposal)

Description	Lat (DDMMSS)	Long (DDMMSS)
Township Establishment and Mixed Use Development	30°16'40.68" S	27°04.47.47" E

The Alternative 4 Layout Plan (Proposed Layout Plan) is for a township establishment and mixed use development and the proposed activities are exactly the same as all other three mentioned alternatives. The proposed development will consist of residential 1 stands (comprising of high; medium and low density); Business 1; Educational; Institutional; Religious Purposes; Municipal; Transportation; Open space 1; Streets including the reticulation of services on 624,59 hectare of the total 792.734 hectare site.

The area to the west of the R26 is regarded as the most sensitive area on the site as it contains the Aasvoëlberg on the west as well as some geological sensitive features (rocky outcrops) in the most south western corner. The Aasvoëlberg is also known to be ecological sensitive in terms of the flora and fauna (specifically referring to the Cape Vultures). Some other sensitive features on the site are the wetlands/ watercourses that are identified mainly in the centre and to the west of the site.

From the proposed layout below it is clear that relatively all the sensitive areas are excluded from the development. The only two activities included in the sensitive areas are the Tourism Facility and the Hospital. However the location of these two facilities are also considered as the least sensitive area from the high sensitive areas and it is situated further away from the Aasvoëlberg and closer to the R26.

Mainly all activities/ uses are planned on the eastern side of the R26 which is

considered to be the least sensitive from an ecological and geological point of view. It will be noted that watercourses/ wetlands are traversing the site mainly in the middle and to the west of the site. The area to the east of the site is considered least sensitive. A 32 meter buffer is applied around the wetlands/ watercourse areas; as per the recommendations within Wetland Delineation Report; and no development is planned within these buffers. This layout also considered the 1:50 and the 1:100 year floodlines.

Thus the proposal will mostly stay clear from any development within the identified sensitivities on the site and therefore is regarded as the proposal for the proposed development.

Figure 5: Alternative 4 (Proposal) Layout Plan

The table below is an enlargement of the proposed land uses of the Proposal - Alternative 4 Layout.

Table 5: Land Use of Alternative 4 - Proposal

LAND USE					
ZONING	ERF NUMBERS	No. OF	AREA OF STANDS& STREETS	% OF AREA	REF.
RESIDENTIAL 1 (L/D) 2000m²	138 - 206	69	14,03	2,26	
RESIDENTIAL 1 (L/D) 600m²	1 - 137, 207 - 259 & 3744 - 3907	354	22,80	3,65	
RESIDENTIAL 1 (M/D) 450m² -500m²	260 - 992	733	35,45	5,68	
RESIDENTIAL 1 (H/D) 350m²	993 - 3743	2751	102,90	16,47	
BUSINESS 1	3908 - 3941	34	7,21	1,15	
EDUCATION	3942 - 3947	6	52,00	8,32	
INSTITUTION	3948	1	4,11	0,66	
RELIGIOUS PURPOSES	3949 - 3951	3	0,68	0,11	
MUNICIPAL	3952 - 3963	12	51,10	8,18	
TRANSPORTATION	3964 - 3967	4	5,64	0,90	
OPEN SPACE 1	3968 - 4000	33	220,15	35,24	
STREET			108,52	17,38	
TOTAL		4000	624,59	100%	

c) Technology and Renewable energy alternatives

Alternative 1 (preferred alternative)

The project entails the development of a Township Establishment and Mixed Use Development and therefore the most appropriate construction methods in terms of materials and equipment will be used during the construction phase. During the operational phase depending on the property owner and or retail owner and on what is available on the marked; the most practical and possible standards to make use of energy efficient machinery and equipment will be encouraged for example energy saving light bulbs; energy saving fridges and office equipment (air conditioners) etc.

Energy saving techniques have been taken into consideration by the project Engineers and they encourage the developer to consider making use of energy saving methods. By considering energy saving methods the required capacity could be reduced by replacing electrical stove plates of each individual residential unit with gas plates; heating the water with solar or gas and using energy saving lights. By doing this the electrical maximum demand of an individual unit could be reduces significantly as shown in the two tables below.

Table 6: Estimated Maximum Demand with Conventional Electrical Appliances:

Estimated ADMD (After Diversity Maximum Demand) per Dwelling before Alternative Energy					
Appliance	**Quantity**	**Load/ Appliance (kVA)**	**Contribution to the Maximum Demand**	**Estimated Connected Load (kVA)**	**ADMD Load (kVA)**
Geyser 1	1	2	100%	2.0	0.7
Lights	12	0.06	70%	0.5	0.17
Heater	1	1.2	80%	1.0	0.3
Television	1	0.2	100%	0.2	0.07
Decoder	1	0.2	100%	0.2	0.07
Computer	1	0.35	40%	0.1	0.05
Stove Plates	4	1	70%	2.8	0.93
Oven	1	2.8	50%	1.4	0.47
Fridge	1	0.75	60%	0.5	0.15
Kettle	1	1.25	50%	0.6	0.21
Microwave	1	1.25	50%	0.6	0.21
Washing Machine	1	3	15%	0.5	0.15
Clothing Iron	1	0.85	10%	0.1	0.03
Total				**10.4**	**3.5**

Table 7: Estimated Reduced Maximum Demand with Solar and Gas Alternatives

Estimated ADMD per Dwelling (Gas stoves, Gas or Solar Geysers and Energy Saver Lights)					
Appliance	**Quantity**	**Load/ Appliance (kVA)**	**Contribution to the Maximum Demand**	**Estimated Connected Load (kVA)**	**ADMD Load (kVA)**
Geyser 1	0	2	100%	0.0	0.0
Lights	12	0.015	70%	0.1	0.04
Heater	1	1.2	80%	1.0	0.3
Television	1	0.2	100%	0.2	0.1
Decoder	1	0.2	100%	0.2	0.1
Computer	1	0.35	40%	0.1	0.0
Stove Plates	0	1	70%	0.0	0.0
Oven	1	2.8	50%	1.4	0.5
Fridge	1	0.75	60%	0.5	0.2
Kettle	1	1.25	50%	0.6	0.2
Microwave	1	1.25	50%	0.6	0.2
Washing Machine	1	3	15%	0.5	0.2
Clothing Iron	1	0.85	10%	0.1	0.03
Total				**5.3**	**1.8**

Table 8 below shows the total estimated reduced maximum demand of the Proposed Development if the above mentioned recommendations are implemented. The estimated capacity per dwelling can be reduced by one circuit breaker level from 3.5kVA per house to 2kVA per house to allow for a safety margin in the event that not all possible energy saving methods are implemented and to allow for extreme cases of simultaneous maximum demand of the dwellings. (Taken from Civil Consult Services Report; Please refer to Appendix D – Specialist Reports.

Table 8: Estimated Reduced Maximum Demand

Zoning	Proposed Development		
	No. of Stands / Floor Area (m²) / No. of Students / No. of Beds / No. of Seats / Land Area (ha)	Unit Load Assumption (kVA / Unit) (VA / m²)	Load (kVA)
Residential 1 (L / D)	108 Stands (2 000m²)	5	540.0
	660 Stands (600m²)	5	2 640.0
Residential 1 (M / D)	818 Stands (450m²)	3.5	2 045.0
Residential 1 (H / D)	2 344 Stands (350m²)	3.5	5 860.0
Business 1	32 160m²	60VA/m²	1 929.6
Shopping Centre	14 400m²	60VA/m²	864.0
College	163 100m² (1 student / 5m² Assumed = 32 620 students)	20VA/m²	3 262.0
High School	25 000m² (1 student / 5m² Assumed = 5 000 students)	20VA/m²	500.0
Primary School	28 000m² (1 student / 5m² Assumed = 5 600 students)	20VA/m²	560.0
Crèche	2 800m² (1 student / 5m² Assumed = 560 students)	20VA/m²	56.0
Hospital	12 200m² (1 bed / 10m² Assumed = 1 220 beds)	50VA/m²	610.0
Community Facility	11 650m²	20VA/m²	233.0
Church	5 950m² (1 seat / 1m² Assumed = 5 950 seats)	40VA/m²	238.0
Municipal	659 960m²	20VA/m²	13 199.2
Tourism Conference Centre	141 050m²	20VA/m²	2 821.0
Total			**35 357.8**

No other technology or renewable energy alternatives have been investigated.

Alternative 2

[redacted]

Alternative 3

[redacted]

d) Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)

Alternative 1 (preferred alternative)

Four (4) design alternatives were considered for the proposed development. These four design alternatives were designed and considered by the Town Planner and Applicant. The terrain and environmental constraints of the site as well as information obtained from the local community and the specialist team were taken into consideration with the current proposal being the result.

Alternative 2

[redacted]

Alternative 3

e) No-go alternative

The no-go alternative means that the site remains in its current state. It will also mean that a new residential area; schools; hospital; shopping centre etc. will not be established if the no-go option is decided on. Therefore the need of the Free State Human Settlements Department in collaboration with the Xhariep District Municipality and Mohokare Local Municipality to address the backlog of housing will not be carried out and fulfilled. The housing backlog will then remain a priority over the next few years and should the no-go option be chosen it will only affect and delay the backlog of housing further. It could furthermore also add additional pressure on more vulnerable land situated further away from the town. In the long term the site might also attract illegal vagrants and illegal settlements that are not legally regulated.

In terms of service delivery should the no-go option be followed no additional pressure will be placed on the Mohokare Local Municipality and Xhariep District Municipality. It is known that there is a great lack of service delivery in the town of Zastron and that the system is currently under-capacitated. The Department of Water and Sanitation in collaboration with the Mohokare Local Municipality is currently busy upgrading its services to provide for the needs of the town of Zastron. With the planned new upgradings and infrastructure from Montagu Dam and the Orange River it is said that it will be sufficient to supply not only the needs of the town of Zastron but still have a surplus available that will be able to supply services to the additional proposed development.

Considering the natural environment consisting of certain areas with highly sensitive characteristics and features on the site, a vacant piece of land can easily attract illegal vagrants without any control of where they will reside and what damage they can do to the area. The site has many areas that are considered as wetland/ watercourses which need to be protected by all means. The Aasvoëlberg also houses the Cape Vultures and it is known from the Ecological Report that plants with medicinal value are present on the site. Currently it is known that people go up the mountain to get hold of the medicinal plants as there is no controlled access.

It is also widely known that Vultures are sought after which in the African trade involves the poaching, trafficking, and illegal sale of vultures and vulture parts for bushmeat and for ritual and religious use, like traditional medicines. At this stage it seems that the Cape Vulture colony is expanding; however in the long term will this still be the case without any controlled protection or controlled access to the Aasvoëlberg?

Illegal dumping is another matter that needs to be recognized that can possibly take place on the site. Whereas with the planned proposed development which took all the sensitivities into consideration it will be possible to still protect and conserve the

sensitive areas along with the proposed development adhering strictly to all the mitigation measures proposed in the report and exercising controlled access to the site and specifically to the most sensitive areas i.e. the Aasvoëlberg and wetlands/ watercourses.

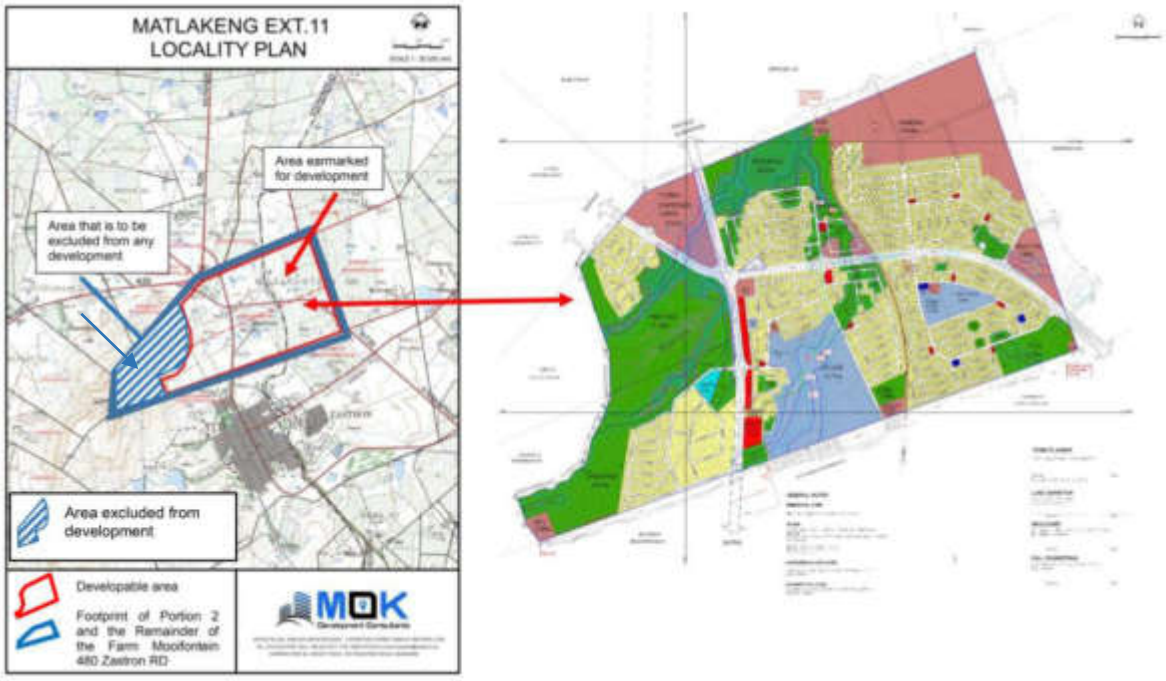
The development option might be considered a better option in the long term than the no-go option. Should the no-go alternative be followed, no specific manner of protection and conservation of sensitivities on the site can be fully exercised and the possibility exists that the site can be deteriorated in the long run. Unless the Mohokare Local Municipality spends money to fence the sensitive areas in order to ensure that none of the mentioned activities takes place on the site then the no-go option might be a valid option. Therefore weighing the possible impacts of the no-go option it seems that this option is not considered the most feasible option for the site.

Paragraphs 3 – 13 below should be completed for each alternative.

KINDLY NOTE THAT THE SECTION BELOW IS COMPLETED ONCE DUE TO THE FACT THAT ALL ALTERNATIVES ARE SIMILAR IN NATURE AND ONLY THE POSITIONING OF SOME USES/ ACTIVITIES DIFFERS.

3. PHYSICAL SIZE OF THE ACTIVITY

Note should be taken that the boundary of Portion 2 and the Remainder of the Farm Mooifontein 480 Zastron RD measures 792,734 hectares in extent as can be seen in blue on the locality map. The area earmarked for development is indicated in red on the locality map (left) as well as on the layout plan (right). The area that is earmarked for development measures 624,59 hectares in extent. Kindly note the developable area was indicated during the introduction of the project and first phase of public participation as 396,647 hectares which has changed due to the fact that the layout plan only became available recently. From the locality map it can be seen that a large area (168,144 hectares) to the west is completely excluded from any development and not indicated on the layout plan.



Locality Map | Layout plan (Alternative 4 - Proposal)

Figure 1: Locality map and Layout plan

a) Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:	**Size of the activity:**
Alternative A1[1] (preferred activity alternative)	**624,59 Ha** and not 396,647 Ha as previously indicated during the first phase of public participation

[1] "Alternative A.." refer to activity, process, technology or other alternatives.

Alternative A2 (if any)	**624,59 Ha** and not 396,647 Ha as previously indicated during the first phase of public participation
Alternative A3 (if any)	**624,59 Ha** and not 396,647 Ha as previously indicated during the first phase of public participation
Alternative A4 (if any)	**624,59 Ha** and not 396,647 Ha as previously indicated during the first phase of public participation

or, for linear activities:

Alternative:	**Length of the activity:**
Alternative A1 (preferred activity alternative)	
Alternative A2 (if any)	
Alternative A3 (if any)	

b) Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:	**Size of the site/servitude:**
Alternative A1 (preferred activity alternative)	792.734 Ha.
Alternative A2 (if any)	792.734 Ha.
Alternative A3 (if any)	792.734 Ha.
Alternative A4 (if any)	792.734 Ha.

4. SITE ACCESS

Does ready access to the site exist?	**NO**
If NO, what is the distance over which a new access road will be built	**To be confirmed.** **Expected to be:** **Access roads: 8.286km** **Other roads: 40.455km**

Describe the type of access road planned:

According to the Engineering Traffic Impact Master Plan conducted by Civil Consult Projects (Pty) Ltd in association with Infratrans (Pty) Ltd access to the development will be gained directly from:

- The proposed new intersection 6 off road R726;
- The proposed new Intersection 7 off road R726;
- The proposed new Intersection 8 off road R726;
- The proposed new Intersection 9 off road R726;
- The proposed new Intersection 10 off road R726;
- The proposed new Intersection 11 off Majozi Street; and
- The proposed new Intersection 12 off Majozi Street.

(Please refer to the Traffic Impact Master Plan under Appendix D for the plans of the new proposed intersections).

From the above proposed access positions it is noted that access positions are off existing class 2 and class 3 roads. In terms of access management requirements contained in the South African Road Classification and Access Management Manual access along a class 2 road is allowed at a spacing range of 800m +- 15% (680m – 920m); and at 600m +- 20% (480m – 720m) from class 3 roads. The figure below show the proposed access spacing for the access positions. (Traffic Impact Master Plan; Civil Consult Projects (Pty) Ltd in association with Infratrans (Pty) Ltd; November 2020).

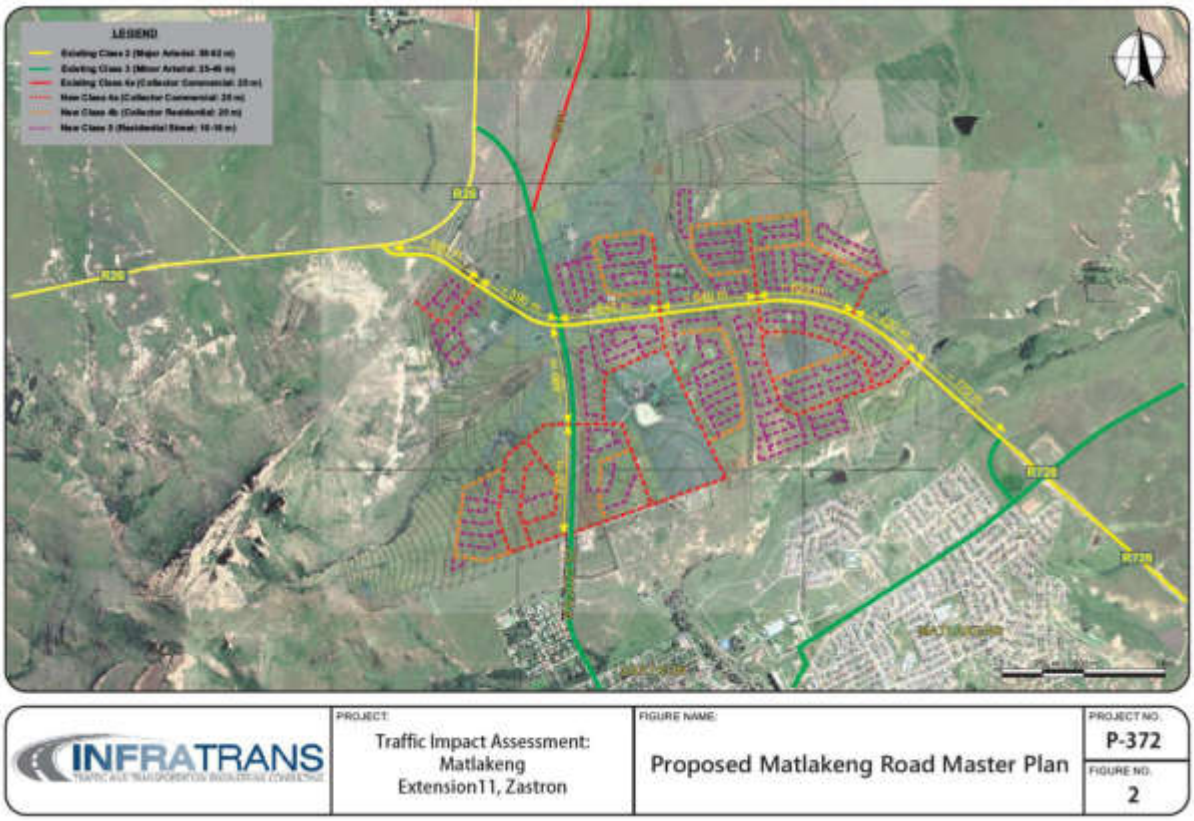


Figure 10: Road Master Plan

The proposed access intersection along Majozi Street are acceptable in terms of the above requirements. However; some of the proposed spacings along road R726 are slightly less than the required 680m (590-640m); with the spacing

between new Intersections 9 and 10 being 420m. Considering the extent and layout of the proposed township; as well as the constraints along the existing alignment of road R726; it is recommended that these new access positions proposed along road R726; it is recommended that these new access positions proposed along road R726 be accepted. These proposed spacings will not significantly affect traffic progression along this route and sight distances available at the proposed access points along road R726 are also not expected to be problematic. (Traffic Impact Master Plan; Civil Consult Projects (Pty) Ltd in association with Infratrans (Pty) Ltd; November 2020).

The proposed road upgrades are summarised in the table below:

Table 9: Proposed road upgrades due to development traffic

Intersection	Control/ Approach	Required upgrades
R726/ Majozi St (Intersection 1)	South	New shared through- and left-turn lane (60 m effective length)
	East	New shared through- and left-turn lane (60 m effective length)
	North	New shared through- and left-turn lane (60 m effective length)
	West	New shared through- and left-turn lane (60 m effective length)
R726/ Access 1 (Intersection 6)	South-west	New two-lane access road with left-turn slip lane.
	South-east	New exclusive left-turn lane (60 m effective length). New exclusive right-turn lane (60 m effective length)
	North-east	New two-lane access road with left-turn slip lane
	North-west	New exclusive left-turn lane (60 m effective length). New exclusive right-turn lane (60 m effective length)
	Control	New priority stop control (free-flow along road R726)
R726/ Access 2 (Intersection 7)	South	New two-lane access road
	East	New shared through- and left-turn lane (60 m effective length)
	North	New two-lane access road
	West	New shared through- and left-turn lane (60 m effective length)
	Control	New 4-way stop

Intersection	Control/ Approach	Required upgrades
R726/ Access 3 (Intersection 8)	South	New two-lane access road
	East	New shared through- and left-turn lane (60 m effective length)
	North	New two-lane access road
	West	New shared through- and left-turn lane (60 m effective length)
	Control	New 4-way stop
R726/ Access 4 (Intersection 9)	South-east	New shared through- and left-turn lane (60 m effective length)
	North-east	New two-lane access road
	North-west	New shared through- and left-turn lane (60 m effective length)
	Control	New 3-way stop
R726/ Access 5 (Intersection 10)	South-west	New two-lane access road
	South-east	New shared through- and left-turn lane (60 m effective length)
	North-west	New shared through- and left-turn lane (60 m effective length)
	Control	New 3-way stop
Majozi St/ Access 6 (Intersection 11)	South	New exclusive left-turn lane (60 m effective length).
	East	New two-lane access road
	North	New exclusive left-turn lane (60 m effective length).
	West	New two-lane access road
	Control	New 4-way stop
Majozi St/ Access 7 (Intersection 12)	South	New exclusive left-turn lane (60 m effective length).
	East	New two-lane access road
	North	New exclusive left-turn lane (60 m effective length).
	West	New two-lane access road
	Control	New 4-way stop

Public and Non-Motorized Transport Assessment:

A public transportation assessment was carried out as part of the study.

The Mohokare Local Municipality is simply too small to justify any formal large bus public transportation routes and services. As is common in rural South Africa's small towns; minibus taxis primarily fulfil this need for public transportation.

As this study represents a master plan study; a few general recommendations are made in terms of the proposed new township.

- All internal roads of the proposed township must be provided with a paved pedestrian walkway along at least one side of the road. These paved pedestrian walkways should be a minimum width of 1.5m;
- Provision has been made in the latest township layout for a formal taxi rank. A network of paved pedestrian walkways must proceed from this facility to serve

the whole township; and

- Formal minibus taxi stops must also be provided at strategic positions within the township. In regards to this point, it must be noted that the Guidelines for Human Settlement Planning and Design document elaborates on the White Paper on national transport policy in terms of acceptable walking distances to public transport facilities. It states that the White Paper has set a target to reduce this maximum walking distance to "less than about one kilometre". This is based on a walking time of 15 minutes. Therefore; the network of formal minibus taxis stops must be located such that this acceptable walking distance polity is satisfied.

(Traffic Impact Master Plan; Civil Consult Projects (Pty) Ltd in association with Infratrans (Pty) Ltd; November 2020).

According to the conclusions and recommendations of the Traffic Impact Assessment that forms part of the Services Report (Appendix D – Specialist Reports) the following key conclusions and recommendations of the study are presented below:

- It is estimated that the proposed new township will generate 3234 and 3470 external trips during the weekday AM and PM peak hours respectively.
- The study scope for this TMP is shown in Figure 3 of the Services Report and years of assessment for this study was taken as 2020 and 2025.
- New unclassified traffic surveys of all traffic movements were carried out at all study intersections during the weekday AM (06:00 – 09:00_ and weekday PM peak periods on Friday 4 September 2020. Analysis of the above traffic surveys yielded the weekday AM peak hour as 07:30-08:30 and the weekday PM peak hour as 16:30- 17:30. The weighted peak hour factor (PHF) for the surveyed intersections was calculated as ranging between 0.82 and 0.97 for the weekday AM peak and PM peak hours.
- A site visit to the study area was carried out on Friday; 4 September 2020 during the weekday AM and PM peak hours in order to observe the operational conditions of the existing traffic within the study area. Aspects regarding public transportation services and infrastructure and non-motorised transport was also focussed on during the site visit.
- In order to accommodate any possible latent rights; an annual background traffic growth factor of 3.0% was applied to the existing traffic volumes.
- Traffic flow analyses of all study intersections and for all applicable analysis scenarios yielded the requirement for upgrades at the existing R726/ Majozi Street intersection (Intersection 1) (see Table 12.1 and Drawing RUD001). New access intersections are also shown in Drawings RUD006 to RUD012.
- After significant analysis it was concluded that the impact of the COVID-19 crisis is negligible and should there be any uncertainty about this some of the study intersections could be surveyed again once traffic patterns are regarded as having stabilised. Should there be a significant difference between such post-COVID traffic surveys the analyses in this study can simply be revised.
- As this study represents a master plan study; a few general recommendations are made in terms of the public transportation and non-motorised transport as follows:
  - All internal roads of the proposed township must be provided with a paved

pedestrian walkway along at least one side of the road. These paved pedestrian walkways should be a minimum width of 1.5m.
  - Provision has been made in the latest township layout for a formal taxi rank (see Appendix). A network of paved pedestrian walkways must proceed from this facility to serve the whole township; and
  - Formal minibus taxi stops must also be provided at strategic positions within the township. In regards to this point; it must be noted that the Guidelines for Human Settlement Planning and Design (4) document elaborates on the White Paper on national transport policy in terms of acceptable walking distances to public transport facilities (chapter 5.2). It states that the White Paper has set a target to reduce this maximum walking distance to "less than about one kilometre". This is based on a walking time of 15 minutes. Therefore; the network of formal minibus taxis stops must be located such that this acceptable walking distance policy is satisfied.
- As this study is a traffic impact master plan; individual traffic impact assessments (TIA's) and site traffic assessments (STA's) will have to be carried out for each phase or individual internal development in accordance with the TMH 16; Volume 2; South African Traffic Impact and Site Traffic Assessment Standards and Requirements Manual (3); and
- The proposed new township Matlakeng Ext 11 to be situated on the remainder and Portion 2 of the Farm Mooifontein 380 in the Mohokare Local Municipality; Free State Province is supported from a traffic engineering perspective provided that the recommendations contained within this report are implemented.

(Traffic Impact Master Plan; Civil Consult Projects (Pty) Ltd in association with Infratrans (Pty) Ltd; November 2020).

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

5. LOCALITY MAP

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.). The map must indicate the following:

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s;)
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal

minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

6. LAYOUT/ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

- the property boundaries and numbers of all the properties within 50 metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and
- a north arrow.

7. SENSITIVITY MAP

The layout/route plan as indicated above must be overlain with a sensitivity map that indicates all the sensitive areas associated with the site, including, but not limited to:

- watercourses;
- the 1:100 year flood line (where available or where it is required by DWS);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

The sensitivity map must also cover areas within 100m of the site and must be attached in Appendix A.

8. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this report. It must be supplemented with additional photographs of relevant features on the site, if applicable.

9. FACILITY ILLUSTRATION

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

10. ACTIVITY MOTIVATION

Motivate and explain the need and desirability of the activity (including demand for the activity):

1. Is the activity permitted in terms of the property's existing land use rights?		**NO**	Please explain
A Township Establishment Application is in process at Council and an application was also lodged at the National and Provincial Department of Agriculture to obtain consent for the subdivision of the two portions in terms of the Agricultural Land Act; 1970 (Act 70 of 1970) for Township Establishment.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	**YES**		Please explain
The proposed development is in line with the Provincial Spatial Development Framework (PSDF) as it outlines the following: "addressing housing backlogs; eradication of informal settlements (squatting); service provision in line with provision of erven; township establishments; proclamations and transfers; shortage of land for residential development and investigation of future land and housing needs".			
(b) Urban edge / Edge of Built environment for the area		**NO**	Please explain
The study area for the proposed site falls outside of the Urban Edge.			
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	**YES**		Please explain
The proposed project is in line with the IDP and SDF of the Local Municipality and will not compromise the integrity of the existing approved and credible municipal IDP and SDF.			
(d) Approved Structure Plan of the Municipality	**YES**		Please explain
The proposed project is in line with the approved Structure Plan (Precinct Plan) of the Municipality as well as with all future planning for developments within the Municipal area. Please refer to the map of the proposed Zastron Structure Plan below.			

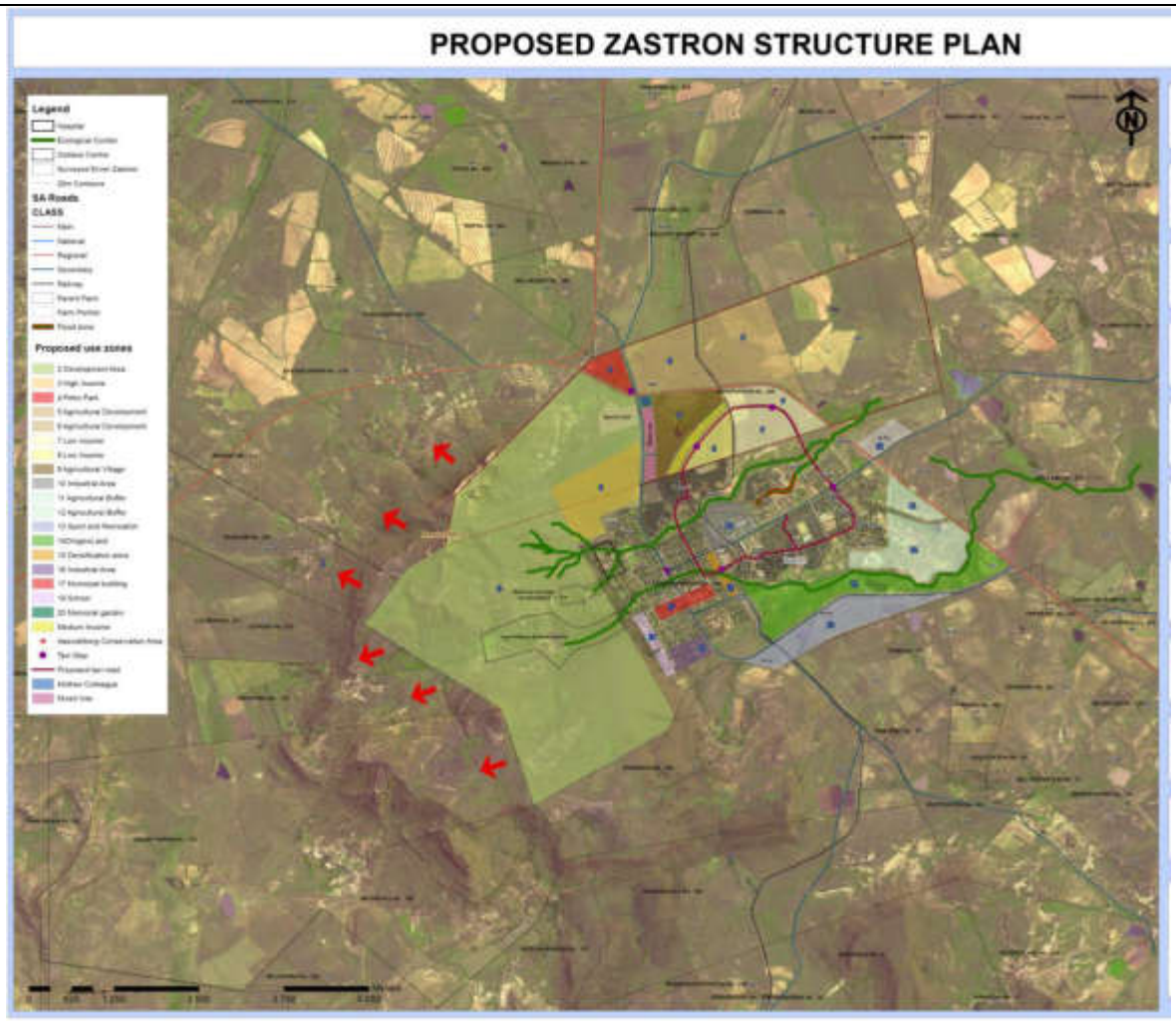


Figure 11: Zastron Structure Plan

(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)		**NO**	Please explain
The Department does not currently comprise of any Environmental Management Framework (EMF). There are therefore no guidelines which can be followed as per the EMF. However the Biodiversity Plans have been taken into consideration along with the Screening Report from the National Department of Environment; Forestry and Fisheries (DEFF). The proposed development will be designed in such a manner as to not compromise the integrity of any environmental management priorities in the area. Furthermore an Environmental Management Programme (EMPr) has been compiled and development guidelines are included in this report which will assist with promoting sustainable development.			
(f) Any other Plans (e.g. Guide Plan)		**NO**	Please explain
Other than the IDP; SDF; Precinct Plan and Master Plan for services we are not			

aware of any other plans available from the Local Municipality. The proposed project is in line with all the mentioned reports and plans.			
3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	**YES**		Please explain
The proposed project is in line with the 2020/2021 IDP and SDF and will comply with the projects and programmes as identified and stipulated as priority projects in this report.			
4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)	**YES**		**Please explain**
According to the 2020-2021 IDP a need is identified for the provision of housing within the Zastron area as they currently have an estimated backlog of 5000 units. A need of 5000 units translates to a land need of approximately 167ha. The IDP furthermore forms part of the larger need for housing provision from a national point of view. Therefore considering the land uses and the area available for development being situated on Municipal land the proposed project is in line with the future plans on a local and national level.			
5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Environmental Impact Assessment as Appendix I.)			**Uncertain/ To be confirmed/ Please explain**
It is understood from the local Residents in Zastron that service delivery is a critical problem and that the Mohokare Local Municipality faces many challenges as they are under-capacitated to address the current needs of the town Zastron. Several riots took place over the last two to three months in the town due to the lack of service delivery. It was noted from the outset and the first phase of the public participation that the local residents mentioned that service provision from the Local Municipality is a challenge in Zastron and that at certain times they do not have sufficient water for consecutive days in the town. It could be between two to three times a week. It was later said during the Public Participation of the EIA phase that water could at times be unavailable for 5 out of 7 days a week. During the public participation of the EIA phase and the preparation of the Draft EIA report many complaints were received regarding inadequate service delivery. Therefore alternative measures of service provision were investigated in an attempt			

to service the proposed project. The project Engineers had numerous telephonic and electronic (in the form of emails) communication with both the Local Mohokare Municipality as well as with the Department of Water and Sanitation. A Geohydrologist was also appointed to confirm the available capacity of water for a possible solution of utilizing borehole water for the proposed development. The following information is taken from the Engineering Services Report that is attached as Appendix D – Specialist Reports.

Xhariep District Municipality; Mohokare Local Municipality and the Department of Water and Sanitation are busy in attempting to address the challenges the town of Zastron faces.

- Water:

Due to the magnitude of the proposed development various alternative water sources are considered to supply the proposed development with potable water. A total of 9 429.740kℓ of water per day is required to supply the proposed development with water.

A Pilot Groundwater Exploration Program and Groundwater Resource Assessment was conducted by Geovation (Pty) Ltd during April 2021. An estimated 147 999.769kℓ (m^3) per annum or between 405.4799 and 429.74kℓ (m^3) per day could be supplied from the proposed boreholes on the site or from the surrounding areas. Only 4.30% to 6.37% of the project water demand of the project can possibly be sustainably supplied from the groundwater sources. Between 9 and 14 boreholes with a yield of 0.5L/s will be required to supply this volume.

According to the Services Report conducted by Civil Consult Consulting Engineers, a publication prepared by the Mohokare Local Municipality Technical Services Department from September 2018; states that water supply upgrades from Montagu Dam and possible upgrades to the Water Treatment Works were proposed. The Engineers could not verify the implementation of the upgrades at the time of the Services Report in June 2021.

The Orange River is located approximately 30 km east of the proposed development. According to telephonic feedback received from Mr. Anton Jones of the Department of Water and Sanitation (DWS); the DWS is busy with the installation of a pipeline from the Orange River which will supply several rural areas with water. The installation of the pipeline should be completed by September 2021. The water from the Orange River will have to be purified to conform to the standards of the Department of Water and Sanitation (DWS) should it be used for human consumption. Water could be supplied to the proposed development raw water reservoir; Water Treatment Works (WTW) and small potable water reservoir to be located in the south eastern corner of the proposed development. The treated potable water will be pumped from the small potable reservoir to several larger reservoirs to be located at a high point in the south western corner of the proposed development.

- Sewer:

The estimated sewage flow for the proposed development is calculated at 7 287,200kℓ per day.

According to the Services Report it is proposed that an 8Mℓ (8 000kℓ) a day Waste Water Treatment Works (WWTW) be constructed in the south eastern corner of Erf 3988 (Public Open Space) of the proposed development. This portion of Erf 3988 will have to be separated from the original erf; a new erf number will have to be provided and the erf will have to be earmarked for municipal services. It is furthermore proposed that a sewerage sump and sewerage pump station be constructed in the north eastern corner of Erf 3966 (Public Open Space) of the proposed development. Sewerage from the western portion of the proposed development will drain via an internal sewerage network to the proposed WWTW to be located in the south eastern corner of Erf 3988 of the proposed development.

Sewerage from the eastern portion of the proposed development will drain via an internal sewage network to Erf 3966 where it will discharge into the proposed sewerage sump of the proposed sewerage pump station. From here the sewerage in the proposed sump will be pumped via a proposed sewerage rising main up to the proposed outfall sewer of the western portion of the proposed development where it will discharge. The treated effluent will conform to the special standards of the Department of Water and Sanitation. The Treated effluent will be discharged into the existing tributary of the Klipspruit intersecting the middle of the proposed development.

- Electricity:

The proposed development will be supplied with electricity from the Centlec Power Supply Network. Centlec will take over the network once the development is completed. They will then be responsible for the operation and maintenance of the network. The standards and specifications for materials and design prescribed by Centlec must be followed.

The electrical supply to the development will require the construction of a new 132/11kV Substation which will be constructed on a 100m x 100m servitude in favour of Centlec. The new 132/11kV substation will be supplied by constructing a new 132kV line from Zastron Municipal Substation. Centlec will first have to apply for an Environmental Authorization from DESTEA.

The short-term electrical capacity requirement could possibly be accommodated by installing 11kV cables from the nearest MV ring network with spare capacity up to the border of the proposed development.

Due to the size of the development; it is envisaged that a minimum of three (3) primary satellite substations will have to be constructed within the development in order to distribute the 11kV throughout the development. The primary substations will be supplied from the 132/11kV substation with 240mm copper cables using a single contingency model (n-1).

- Storm water:

The Services Report done by Civil Consult Consulting Engineers confirmed that the storm water run-off from the proposed development will drain via internal storm water networks to the three tributaries of the Klipspruit intersecting the proposed development where the storm water run-off will be discharged above the 1:100 year flood lines of the three tributaries of the Klipspruit.

The existing dam located on Erf 3968 (College Erf) of the proposed development will be converted into an attenuation dam. The existing tributary of the Klipspruit intersecting the middle of the proposed development from the south to the north will be channelized and rerouted with a proposed 3 000mm x 3 000mm portal culvert. The proposed 3 000mm x 3 00mm portal culvert will be installed; in a northern direction within a proposed 16,0m wide road reserve; from the middle of the southern boundary of Erf 3966 (shopping centre erf) of the proposed development where it will discharge.

The attenuation dam will be designed to attenuate the post development 1:25 year run-off and the outflow will be the pre development 1:5 year run-off for the proposed development.

The attenuation dam outlet structure will discharge directly into a proposed 2100mm x 2100mm portal culvert which will be installed in northern direction within a proposed 20l0m wide road reserve up to and crossing the existing Provincial Road R726. From here the proposed 2100mm x 2100mm portal culvert will continue north within a proposed 20.0m wide road reserve up to Erf 3988 (Public Open Space) of the proposed development and one of the existing tributaries of Klipspruit where it will discharge.

The attenuation pond will be able to accommodate the post 1:50 year run-off.

The internal storm water system will be designed for a 1:5 year flood return period and a run-off coefficient of 80% (C=0.8) will be allowed for the proposed development.

The storm water outlet structures will cater for gabions and reno-mattresses at the outlets to minimize the possibility of erosion at the point of discharge.

- Roads:

Access to the development will be gained directly from the Provincial Road R726 and Zastron ring road via several new intersection accesses and internal access roads. The new intersection accesses of Provincial Road R726 and Zastron ring road and the new internal access roads will be constructed according to the standards and specifications of the Free State Department of Police; Roads and Transport (FSDPT). The internal roads to the proposed development will be designed and constructed according to the standards and specifications of the Mohokare Local Municipality. Wayleave approval will be acquired from the FSDPRT to allow ingress and egress to the proposed development.

- Solid Waste:

The estimated volume of waste to be generated by the proposed development on a weekly basis is 2 160.08 m^3 per week. The solid waste will be collected and transported from the proposed development to the solid waste disposal site of the Mohokare Local Municipality. This will be done either by the Mohokare Local Municipality or by a Private Contractor.

It is also understood from the Mohokare Local Municipality as well as from the Local Residents of Zastron that the current landfill site needs to be upgraded. It is of the highest regard that hygiene be up kept therefore the waste must be removed on a daily basis in a weekly schedule. The new township must be provided with ample refuse bins in and around parks; sport fields; townships; business center; schools; hospitals; churches; memorial park; taxi ranks; tourism areas; sidewalks and public buildings. It is noted from the comments received that the Municipality is unable to uphold the full service currently and therefore if they will not be able to provide services to the new development on a weekly basis the developer should provide a solution in this regard according to the standards of both the Municipality and Environmental Affairs.

Mohokare Local Municipality provided comments as follows: “The Municipality was and still is in the process of rehabilitating it’s landfill sites across its three towns, Zastron as its main offices. This has been embarked on with technical and financial assistance from both Provincial and National Department of Environmental Affairs since the past four years”.

During the Scoping phase of the project it was requested that Mohokare Local Municipality provide answers regarding the provision of services. Mohokare Local Municipality confirmed in a response to the provision of services as follows: “As per the Mohokare 30 years Infrastructure Masterplans; the following objectives have already been reached. It must be remembered that the planning and development will be in phases namely:

i. Upgrade of the 15km pipeline from Montagu dam to Zastron – pipe sizes were upgraded from 200mm to 315mm to accommodate the future development of Extension 10 and 11.
ii. Development of a new reservoir as per the Masterplan.
iii. Upgrade of the pumps are completed.
iv. Upgrade of the water treatment facility is ongoing in phases.
v. Sanitation – pipes have also been upgraded from 200mm to 315mm.
vi. Current capacity is 2,5 million litres.

Concerned community members can peruse the Final IDP 2020/21 (Attached as Appendix J: Additional Information for ease of reference) on the municipal web site for further information.
Https://www.mohokare.gov.za/documents/idp/FINAL%20IDP%202020-21.pdf

The proposed development will not be able to proceed should the necessary services be available to service the proposed development.

6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final EIA Report as Appendix I.)	**YES**		**Unsure** **Please explain**
Mohokare Local Municipality confirmed in a response to the provision of services as follows: "As per the Mohokare 30 years Infrastructure Masterplans; the following objectives have already been reached. It must be remembered that the planning and development will be in phases namely: i. Upgrade of the 15km pipeline from Motagu dam to Zastron – pipe sizes were upgraded from 200mm to 315mm to accommodate the future development of Extension 10 and 11. ii. Development of a new reservoir as per the Masterplan. iii. Upgrade of the pumps are completed. iv. Upgrade of the water treatment facility is ongoing in phases. v. Sanitation – pipes have also been upgraded from 200mm to 315mm. vi. Current capacity is 2,5 million litres. Concerned community members can peruse the Final IDP 2020/21 (Attached as Appendix J: Additional Information for ease of reference) on the municipal web site for further information. Https://www.mohokare.gov.za/documents/idp/FINAL%20IDP%202020-21.pdf"			
7. Is this project part of a national programme to address an issue of national concern or importance?	**YES**		**Please explain**
The proposed project is part of a national programme to address the issue of housing shortages within the Xhariep District Municipal area. The IDP further stated a backlog of 5 000 units within Zastron being in the greatest need for housing of approximately 5 000 units. They furthermore is in need of primary and secondary education; job creation and social amenities. The proposed development will address the need of the IDP to a certain degree as well as the national programme.			
8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)	**YES**	**NO**	Please explain
A section of the site is situated adjacent to the Aasvoëlberg which is regarded as a conservation and protected area (Vulture Conservation Area) and therefore planning should be done in such a manner to protect the environment whilst allowing development to continue in a sustainable manner. Rocky outcrops are also situated to the west of the proposed development. Watercourses/ wetlands are found to be present on various areas on the site. On the other hand the IDP and SDP mentioned that development is earmarked to the north of Matlakeng which is where the proposed site is situated. The location of the proposed project is then ideally situated in terms of the IDP and SDF.			

9. Is the development the best practicable environmental option for this land/site?	**YES**	NO	Please explain

The proposed site has characteristics that are still in a natural state but also characteristics of farming activities taking place. Some farm houses and outbuildings are situated almost central of the site with the existing Mooifontein Primary Farm School being located directly adjacent and to the north of to the R726. Across the road from the school is a small area with informal houses. A number of Head of Cattle are also grazing on the land with signatures of cultivation occurring mainly to the east; south and south-east of the site. A railway line traverses the site in a north to south direction.

The Aasvoëlberg; which can be regarded as a Class 1 Ridge; lies to the west of the site. This ridge is also known as the Vulture Conservation Area. The Vulture Colony/ Cape Vultures are also know for breeding and nesting on the outcrops and western sides and edge of the Aasvoëlberg. Characteristics of rocky outcrop areas are found to the west of the site and approximately six (6) different positions on the entire site consists of watercourses/ wetlands.

It is clear from the above that the site has several sensitive areas to consider; however the larger area is not situated on natural vegetation that has never been disturbed before as a large area of the site has been under agricultural activities that are utilized for animal grazing and it can be seen on the aerial photographs that the site has also been under crop production. The old farm houses will remain on the site and is earmarked for purposes of Motheo TVet College. Furthermore the town of Zastron is situated to the south of the site with the R26, R726 and a railway line intersecting or traversing the site and therefore the site is subject to edge effects.

Should the proposed development be implemented and managed correctly with adequate buffer areas with the conservation and protection of all sensitive areas by means of adhering to strict recommendations and mitigation measures by specialists and the professional team the site could be regarded as the best practicable environmental option available.

10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	**YES**		Please explain

If the project is planned correctly and all mitigation measures are adhered to and the necessary basic services are available to both the town of Zastron as well as for the proposed development, then the development benefits will outweigh the negative impacts.

11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	**YES**	**NO**	Please explain

This question has a twofold answer.

If the proposed development is approved it might set a precedent for similar activities in the area as previously mentioned that the housing backlog of the Municipality is estimated at 5 000 units. The proposed project only caters for 4 000

units.
The proposed development will entail a mixed use development consisting of many different facets other than residential for example shopping centre; taxi ranks; schools; hospital; churches; community facilities; tourism centre etc. and therefore it might take some time before the demand becomes so high that the proposed development is no longer able to serve the area. In this regard the proposed development might set a precedent for similar activities in the area. However, keeping in mind, service provision is regarded as one of the main concerns in the town of Zastron. Zastron is regarded as a water scares area; sanitation; waste removal and the provision of electricity is a challenge currently in the town. This town is also regarded as a tourism area with many attractions; sensitive ecology in terms of fauna and flora and therefore if the basic human needs in terms of water; sanitation; electricity etc. not be fulfilled it will not be able to set a president for future developments.

12. Will any person's rights be negatively affected by the proposed activity/ies?	**YES**	NO	Please explain

The answer to this question is yet again twofold.

The local residents might be negatively affected by the proposed development if the development is not planned; managed and executed properly. It will also be of the utmost importance that the development be properly maintained and serviced within the operational phase and throughout its lifespan. Should the development be neglected it can have numerous negative implications for the town of Zastron in the form of health issues; crime; additional pressure on services etc. The new development will pose a negative effect on businesses as many of the locals; tourists and people from neighbouring towns will tend to support the new shopping centre and businesses rather than the existing ones. This could pose a devastating negative effect on the residents of Zastron as it could mean job losses and businesses forced to close down.

There are also challenges and a lack of service provision in the town of Zastron at this stage and with the current capacity no surplus is available for the additional demand of the proposed development. If the new proposed upgrades are not effectively implemented the new proposed development will definitely have a negative effect on the town of Zastron.

On the other hand, considering it from the perspective of the new development it will be beneficial to the society in general as it will supply new houses; create numerous job opportunities and service provision to the new development. This new development will attract many local residents and people from neighbouring towns as well as tourists passing by.

In conclusion the new development will have positive and negative outcomes as discussed above.

13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?	**YES**	NO	Please explain
The proposed development will definitely comprise the urban edge as it is situated adjacent to the town of Zastron and would therefore form part of the town of Zastron.			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	YES	**NO**	Please explain
Even though this project contribute to housing and education it is not regarded as one of the 17 Strategic Integrated Projects (SIPS).			
15. What will the benefits be to society in general and to the local communities?			Please explain
As there is a backlog of 5 000 units and a waiting list for housing at the Mohokare Local Municipality within Zastron the proposed project will be beneficial to these people that will be relocated. Residents from Zastron's extension and surroundings will get a new hospital; shopping centre and might even attend the school and churches. Transport from taxi's will be easily available. It will also provide numerous employment opportunities.			
16. Any other need and desirability considerations related to the proposed activity?			Please explain
According to the Mohokare Social Study (Social Compact for a proposed Township Establishment in the Mohokare Local Municipality) it is written that the Free State Department of Human Settlements as the responsible authority for human settlements in the province has in response to this embarked on a vigorous effort to tackle the housing challenge it faces throughout its area of jurisdiction under the banner of "Upgrading of Informal Settlement Programme" (UISP) in collaboration with the Mohokare Local Municipality. In the Mohokare Local Municipality informal settlements having taken place in several places particularly in close proximity to the towns of Rouxville and Zastron. With Zastron town being the administrative capital of Mohokare Local Municipality and have the highest population; this area will likely attract more people. With the high population the town will experience increased economic and social challenges. According to the IDP (2020/2021), the growing urban population in the municipality necessitates careful planning to guide this growth in a sustainable and integrated manner. Furthermore two informal settlements of Ezibeleni and Refengkhotso are situated in the Mohokare Local Municipality which is one of the four local municipalities constituting the Xhariep District Municipality in the Free State Province. The Mohokare Local Municipality which covers an estimated 8 748,53 km² is served by three towns of Smithfield; Rouxville and Zastron. The two informal settlements of Ezibeleni and Refenghkhotso are situated on the outside of Zastron town. Whereas Ezibeleni informal settlement is located in Ward 5 about 5km's from the CBD close to road R26; Refengkhotso informal settlement is located in Ward 1 and 3 about 2,5km's from the CBD near road S2.			

The report furthermore outlines the strengths and opportunities as follows:

- The proposed site is large enough to accommodate the relocation of households from both informal settlements;
- Major arterial routes of Ralph Street and R276 provide potential for passing traffic; visual exposure; accessibility; convenience; etc.;
- The site is accessible to employment opportunity areas;
- The site is accessible to existing bulk services and main transport routes;
- The site is generally suitable for human habitation;
- The site is easily available as it is municipal-owned;
- Opportunity for proper planning;
- Opportunity for creation of a larger and better nodal point in the municipality.

17. How does the project fit into the National Development Plan for 2030?	Please explain

The purpose of the latter, in conjunction with the Free State Growth and Development Strategy (FS GDS), is to facilitate application of the National Development Plan Vision 2030 in the Free State by defining a place-specific spatial vision and direction around which to align the Provincial Strategic Growth and Development Pillars of the FS GDS. This is given effect by illustrating the desired future spatial patterns that provide for integrated, efficient and sustainable land-use throughout the province based upon the development of priorities as set in the FS GDS. In practical land-use terms, the FS PSDF provides guidance amongst others pertaining to what type of land use should be undertaken at any particular location. The FS PSDF is to serve as a framework and manual for integrated spatial planning and land-use management in accordance with the principles of sustainability and sustainable development. To this end, the FS PSDF focuses on amongst others on the following:

- Supporting the district and local municipalities in the preparation of their SDFs in terms of the Local Government: Municipal Systems Act 32 of 2000. Such support and guidance include the following:
  - Providing a standard spatial format for giving effect to, among others, the FS GDS and the associated development programmes and projects throughout the province.
- economic growth;
- social inclusion;
- efficient land development;
- minimal impact on public health,
- the environment and natural resources.

The proposed development is furthermore in line with the SDF and the IDP of the Mohokare Local Municipality and with the development plans being integrated into the National Development Plan. As per the Mohokare 30 years Infrastructure Masterplans; the following objectives have already been reached. It must be remembered that the planning and development will be in phases namely:

i. Upgrade of the 15km pipeline from Montagu dam to Zastron – pipe sizes were upgraded from 200mm to 315mm to accommodate the future development of Extension 10 and 11.
ii. Development of a new reservoir as per the Masterplan.

iii. Upgrade of the pumps are completed. iv. Upgrade of the water treatment facility is ongoing in phases. v. Sanitation – pipes have also been upgraded from 200mm to 315mm. vi. Current capacity is 2,5 million litres. Concerned community members can peruse the Final IDP 2020/21 (Attached as Appendix J: Additional Information for ease of reference) on the municipal web site for further information. Https://www.mohokare.gov.za/documents/idp/FINAL%20IDP%202020-21.pdf Therefore the proposed project fits in well with the National Development Plan.
18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.
The proposed development is in line with the SDP and IDP of Mohokare Local Municipality and people will be uplifted by means of the provision of houses and other amenities. Therefore the proposed development is regarded to be in line with the provincial and local planning and preliminary investigations have shown that with proper mitigation measures in place there should not be any detrimental environmental impacts that cannot be mitigated. The National Environmental Management Act (Act 107 of 1998) as amended; has been followed and the necessary specialists will be appointed and their mitigation measures and conditions will be incorporated.
19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.
The proposed development will promote sustainable development.

11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

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

Table 10: Applicable Legislation

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
The Constitution of the Republic of South Africa, Act 108 of 1996, Section 24 (Environmental Right)	The Constitution stipulates that everyone has the right to an environment that is not harmful to their health or well-being; and the right to have the environment projected, for the benefit of the present and future generations, through reasonable legislative	National	1996

	and other measures. The Constitution paved the way for environmental legislation in South Africa.		
National Environmental Management Act: (Act No. 107 of 1998 as amended)	The proposed development requires that a full Scoping and EIA be conducted as Listing Notice 1, 2 and 3 is triggered by the proposed development.	National and Provincial	27 November 1998
National Water Act (Act No. 36 of 1998)	A Water Use License will be required for the proposed development as watercourses are situated on and directly to the south of the site. It will also be required for the extraction of water from boreholes and treated effluent that will be discharged into the existing tributary of the Klipspruit intersecting the middle of the proposed development etc. A Water Use License Application (WULA) is in the process with the Department of Water and Sanitation (DWS) for consideration of the Water Use License. This application is still in its early stages.	National and Provincial	20 August 1998
National Environmental Management Biodiversity Act (Act No. 10 of 2004)	The National Environmental Management Biodiversity Act is applicable to the project as certain sections to the east; south and west of the site is	National	2004

	indicated as consisting of high sensitivity. The Ecological and Wetland Delineation reports are included as part of the EIA under Appendix D - Specialist Reports.		
National Forests Act; 1998 (Act No. 84 of 1998) (NFA)	The National Forest Act states that Forest trees or protected tree species may not be cut; disturbed; damaged; destroyed and their products may not be possessed; collected; removed; transported; exported; donated; purchased or sold – except under license granted by the Department of Agriculture; Forestry and Fisheries (DAFF).	National	1998
Guidelines on Red List Plant Species	These guidelines will form part of the proposed project.	Provincial	2006
Gauteng Department of Agriculture and Rural Development (GDARD) Ridges Policy	Even though this policy is mainly for Gauteng Province it is regarded as being applicable to use this policy to provide guidance on the ridge situated next to the site. The Aasvoëlberg is classified as a Class 1 Ridge in terms of the GDARD Ridges Policy. A 200 meter buffer should be applied around all Class 1 Ridges. This buffer has been incorporated on the proposed layout plan and most of the development is planned	Provincial	2001 as reviewed and updated in January 2004 and April 2006

	outside this buffer.		
National Environmental Management Protected Areas Act (Act No. 57 of 2003)	This act is applicable in determining if any part of the proposed site falls within a National Environmental Management Protected Area. The area is surrounded by National Protected Areas Expansion Strategy (NPAES) Focus Areas; namely Senqu Caledon; SAPAD Protected Areas; such as Diepfontein reserve (to the north east); Mayaputi Private Nature Reserve to the south west and Boschpoort Game Reserve to the far west. None of these are in close proximity or adjacent to the proposed development footprints.	National	2003
National Environmental Management Waste Act (Act No. 59 of 2009) as amended	The project will produce normal construction waste during the construction phase of the project. The contractor on site will be responsible to transport the generated waste to a registered landfill site. Any hazardous waste on site will be disposed of at a licensed hazardous waste landfill site. Solid waste during the operational phase will primarily be normal domestic waste; office	National	2009

	waste; waste from packaging (i.e. paper; plastic; tins; cardboard etc.) The Waste Water Treatment Plant that will be located in the south eastern corner of the site will treat 8 000kℓ a day. Accordingly it will not be necessary to apply for a Waste License in terms of NEM:WA (Act 59 of 2008) Section 19(2) ; Category A(7) as well as Category B(4). Please refer to Appendix J for a confirmation letter received from DESTEA. It will be necessary to obtain a Water Use License for the treated effluent that will be discharged into the existing tributary of the Klipspruit intersecting the middle of the proposed development. The Water Use License Application is pending at the Department of Water and Sanitation.		
National Waste Management Strategy; 28 January 2021	The National Waste Management Strategy is applicable to the proposed development.	National	28 January 2021
National Environmental Management Air Quality Act 2004 (Act 39 of 2004)	The emission that will be released during the construction phase will mostly be in the form of dust and smoke.	National and Provincial	2004
National Heritage Resources Act (Act No.	According to the Heritage Impact Study	National and Provincial	1999

43 of 1983)	the following findings were made. Structures older than 60 years are situated on the area earmarked for the College. The municipal cemetery is situated to the east of the site. Sub-surface archaeological and/ or historical deposits and graves are always a possibility. Care should be taken during any work in the entire area and if any of the above is discovered; an archaeologist/ heritage practitioner should be commissioned to investigate. The recommendations of the EMPr should be followed should any of the discoveries be made during the construction phase. The existing houses on the site will remain on the site to form part of the Motheo TVet College and therefore no Permit or Authorization will be required from FSHRA. It will be required that Motheo College should take full responsibility for the preservation and upkeep of the heritage buildings and site and provide a methodical		

	plan of execution.		
Conservation of Agricultural Resources Act (Act No. 43 of 1983)	This act is applicable as certain areas of the site is currently used for cattle grazing. However the Town of Zastron is situated to the south of the site and this proposed development can thus be regarded as an extension of the existing town.	National	1 June 1983
Environmental Management Framework	The Department does not have any Environmental Management Framework; however the Biodiversity of the site along with conservation and ecological sensitive areas are taken into consideration.	Provincial	2014
Occupational Health and Safety Act (Act No. 85 of 1993) and Occupational Health and Safety Amendment Act (Act No. 181 of 1993)	This act is applicable especially during the construction phase of the development.	National and Provincial	1993
Hazardous Substances Act (No. 15 of 1973)	Materials and liquids that will be used and stored on site during the construction phase can be regarded as hazardous and dangerous.		1973
Petroleum Products Act; 1997 (Act No. 120 of 1977)	Materials and liquids that will be used and stored on site during the construction phase can be regarded as hazardous and dangerous.	National	1997
The Deeds Registries Act (Act No. 47 of 1937)	The proposed sites belongs to the Mohokare Local	National and Provincial	1 September 1937

	Municipality.		
Spatial Planning and Land Use Management Act (SPLUMA) No. 16 of 2013	A township establishment application is in the process of obtaining the town planning rights for the proposed project.		2013
Xhariep Integrated Development Plan (IDP) 2018-2019	The development is in line with the Xhariep IDP.	Provincial	2018-2019
Zastron Final Integrated Development Plan (IDP) 2020-2021	The development is in line with the Zastron IDP.	Local	2020-2021
Zastron Urban Spatial Development Plan 2012	The proposed project is in line with the Zastron Urban Spatial Development Plan as the study area is indicated for development i.e. Residential (low; medium and high income); Mixed Use Development; Business 1; Shopping Centre; Taxi Rank; College; High School; Primary School; Crèche; Hospital; Community Facility; Church; Municipal; Tourism Conference Centre; Transportation; Memorial Park; Sport Field; Public Open Space; Streets and the reticulation of Services.	Local	2012

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase? **YES**

If YES, what estimated quantity will be produced per month?	**m3 to be confirmed**

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

During the construction phase the building rubble and solid construction waste (i.e. concrete; waste material; gravel, sand etc.) that cannot be used during this phase will be removed from the site and will be disposed of by an approved service provider at a licensed landfill site.

An approved waste disposal service provider will collect all hazardous waste on site and dispose of it at a licensed hazardous waste landfill site.

By the end of the contract all construction waste will be cleared from the site.

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

The solid waste (general waste) will be disposed of at the nearest licensed landfill site by a registered Contractor during the construction phase.

All hazardous waste will be directed to the nearest licensed hazardous waste landfill site.

Will the activity produce solid waste during its operational phase?	**YES**
If YES, what estimated quantity will be produced per month?	**2 160.08 m3 Per week**

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

Solid waste during the operational phase will primarily be domestic, office waste (i.e. paper; plastic; tins; cardboard etc.) and retail waste.

It is of the highest regard that hygiene be up kept therefore the waste must be removed on a daily basis in a weekly schedule. The new township must be provided with ample refuse bins in and around parks; sport fields; townships; business center; schools; hospitals; churches; memorial park; taxi ranks; tourism areas; sidewalks and public buildings. It is noted from the comments received from the local Residents that the Municipality is unable to uphold the full service currently and therefore if they will not be able to provide services to the new development on a weekly basis the developer should provide a solution in this regard according to the standards of both the Municipality and Environmental Affairs.

It was requested that the Mohokare Local Municipality confirm the way in which the solid waste will be handled. They responded as follows: “Mohokare Local Municipality was and still is in the process of rehabilitating its landfill sites across its three towns, Zastron as its main offices. This has been embarked on with technical and financial assistance from both Provincial and National department of environmental affairs since the past four years”.

In conclusion the collection of solid waste will be carried out by the Developer who might appoint a Private Company for this purpose if the Municipality is unable to

provide this service.

If the solid waste will be disposed of into a municipal waste stream, indicate which registered landfill site will be used.

The existing landfill site in Zastron that is situated on the Farm Verliesfontein No. 354 will be used. Please refer to the map below for ease of reference.

Figure 12: Position of Zastron landfill site

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

The waste will be picked-up by a Private Registered Contractor on a weekly basis and be discarded at the solid waste disposal site of Mohokare Local Municipality.

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

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA? **NO**

If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

Is the activity that is being applied for a solid waste handling or treatment facility? **NO**

If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	NO
If YES, what estimated quantity will be produced per month?	
Will the activity produce any effluent that will be treated and/or disposed of on site?	YES

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

During the Scoping Phase of the EIA Mohokare Local Municipality was requested to addressed some of the concerns received from the local community and the Municipalities response were as follows: "Upgrade of the water treatment facility is ongoing in phases and the sanitation pipes have also been upgraded from 200mm to 315mm with a current capacity of 2,5 million litres". We are thankful for the communication received from Mohokare Local Municipality

The natural topography divides the proposed development in a western portion and an eastern portion. The natural drainage pattern of the western portion of the proposed development is from the south west to the north east and the natural drainage pattern of the eastern portion of the proposed development is from the north west to the south east.

The Engineer suggested that an 8Mℓ (8 000kℓ) a day Waste Water Treatment Works (WWTW) be constructed in the south eastern corner of Erf 3988 (Public Open Space) of the Proposed Development. Erf 3899 will have to be separated from the original erf; a new erf number will have to be provided and the erf will have to be earmarked for municipal services. It is furthermore proposed that a sewerage sump and sewerage pump station be constructed in the north eastern corner of Erf 3966 (Public Open Space) of the Proposed Development.

Sewerage from the western portion of the Proposed Development will drain via an internal sewerage network to the proposed WWTW to be located in the south eastern corner of Erf 3988 of the Proposed Development. Sewerage from the eastern portion of the Proposed Development will drain via an internal sewerage network to Erf 3966 where it will discharge into the proposed sewerage sump of the proposed sewerage pump station. From here the sewerage in the proposed sump will be pumped via a proposed sewerage rising main up to the proposed outfall sewer of the western portion of the Proposed Development where it will discharge.

The treated effluent will confirm to the Special Standards of the Department of Water and Sanitation. The treated effluent will be discharged into the existing tributary of the Klipspruit intersecting the middle of the Proposed Development.

The layout plan indicates the position of the latter. Please refer to Appendix A and C for the layout plan.

Accordingly it will not be necessary to apply for a Waste License in terms of NEM:WA (Act 59 of 2008) Section 19(2); Category A(7) as well as Category B(4) for the treatment of 8 000kℓ/ day.

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

If YES, provide the particulars of the facility:

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

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

No reuse or recycling of waste water is considered for the proposed development.

The treated effluent will conform to the Special Standards of the Department of Water and Sanitation.

The treated effluent will be discharged into the existing tributary of the Klipsruit intersecting the middle of the proposed development.

The project Engineer did not find the option of reuse or recycling of the waste water for household use feasible. As it is thought that a dual system could possibly hold threats that can be fatal if for example a child accidently uses the untreated water for drinking water. On the other hand a single system was found to be very costly and will also not be feasible for the proposed development.

Therefore the Engineer suggests that the treated effluent will be discharged into the existing tributary of the Klipspruit rather than being recycled for reuse.

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other that exhaust emissions and dust associated with construction phase activities? **NO**

If YES, is it controlled by any legislation of any sphere of government?

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

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

The emission that will be released during the construction phase will mostly be in the form of dust. No emissions other than vehicle/ exhaust emissions will be generated during the operational phase.

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?	YES	NO

If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

Accordingly it will not be necessary to apply for a Waste License in terms of NEM:WA (Act 59 of 2008) Section 19(2); Category A(7) as well as Category B(4) for the treatment of 8 000kℓ/ day. Please refer to Appendix J for the confirmation letter received from DESTEA.

e) Generation of noise

Will the activity generate noise?		**NO** Only the permitted noise levels will be generated during the construction and operational phase
If YES, is it controlled by any legislation of any sphere of government?		

Describe the noise in terms of type and level:

During the construction phase the machinery that will be used for construction activities will generate noise pollution but with noise muffing devices on the machinery the noise levels can be significantly reduced.

During the operation phase the noise generated by the proposed project will be similar to that of normal households; retail; schools etc. The noise generated will be within the generally acceptable noise levels, between 45 to 65dB(A). South African Noise levels are measured; controlled and regulated by the following legislation:

- SANS 10103:2003 (SABS 0103)
- National Noise Control Regulations (now replaced by provincial regulations) and
- SANS 10117:2003.

13. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es):

Municipal	~~Water board~~	Groundwater	River,	~~Other~~	~~The activity will~~

			stream, dam or lake	~~not use water~~

Various alternative measures of water provision were investigated by the project Engineer.

Numerous comments were received from the local residents complaining that they do not have potable water readily available sometimes for 5 out of the 7 days within a week cycle.

However when the Mohokare Local Municipality was requested to addressed some of the concerns received from the local community the Municipality responded as follows: “Upgrade of the 15km pipeline from Montagu dam to Zastron – pipe sizes were upgraded from 200mm to 315mm to accommodate the future development of Extension 10 and 11 and the development of a new reservoir is planned as per the Masterplan and the upgrading of the pipes are completed”.

The Engineering Report conducted by Civil Consult Consulting Engineers; June 2021 states the following. Due to the magnitude of the proposed development various alternative water sources are considered to supply the proposed development with potable water. A total of 9 429.740kℓ of water per day is required to supply the proposed development with water.

A Pilot Groundwater Exploration Program and Groundwater Resource Assessment was conducted by Geovation (Pty) Ltd during April 2021. An estimated 147 999.769kℓ (m³) per annum or between 405.4799 and 429.74kℓ (m³) per day could be supplied from the proposed boreholes on the site or from the surrounding areas. Only 4.30% to 6.37% of the project water demand of the project can possibly be sustainably supplied from the groundwater sources. Between 9 and 14 boreholes with a yield of 0.5L/s will be required to supply this volume.

According to the Services Report, a publication prepared by the Mohokare Local Municipality Technical Services Department from September 2018; states that water supply upgrades from Montagu Dam and possible upgrades to the Water Treatment Works were proposed. The Engineers could not verify the implementation of the upgrades at the time of the Services Report in June 2021.

The Orange River is located approximately 30 km east of the proposed development. According to telephonic feedback received from Mr. Anton Jones of the Department of Water and Sanitation (DWS); the DWS is busy with the installation of a pipeline from the Orange River which will supply several rural areas with water. The installation of the pipeline should be completed by September 2021. The water from the Orange River will have to be purified to conform to the standards of the Department of Water and Sanitation (DWS) should it be used for human consumption. Water could be supplied to the proposed development raw water reservoir; Water Treatment Works (WTW) and small potable water reservoir to be located in the south eastern corner of the proposed development. The treated

potable water will be pumped from the small potable reservoir to several larger reservoirs to be located at a high point in the south western corner of the proposed development.

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

Kindly note that the water coming from the Montagu dam and Orange River will be supplied by the Local Mohokare Municipality. Therefore the water obtained from these sources will be regarded as a standard connection to an existing Municipal connection point.

Boreholes: Between 12 569.8769kℓ and 13 321.94kℓ litres per month

Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs? **YES**

If YES, please provide proof that the application has been submitted to the Department of Water Affairs.

A Water Use License Application is in process with the Department of Water and Sanitation (DWS). Please refer to correspondence for DWS below.

APPLICATION COMMUNICATION LOG

10/26/2020 2:38:42 PM Mr Pius Lerotholi --> Ms Anè Agenbacht : Application have been returned to you (WU18205)

Dear Ms Anè Agenbacht

The following application have been returned to you:

FREE STATE LOCAL GOVERNMENT AND HOUSING Matlakeng Ext 11 Township Establishment and Mixed Use Development (WU18205)

The reason for the return is as follows :

WATER USE LICENCE APPLICATION IN TERMS OF SECTION 40 OF THE NATIONAL WATER ACT, 1998 (ACT 36 of 1998)

The Department of Water and Sanitation has assessed your Pre Water Use Licence application enquiry. Please continue to apply for a Water Use Licence.

14. ENERGY EFFICIENCY

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

The proposed development will be supplied with electricity from the Centlec Power Supply Network. Centlec will take over the network once the development is completed. They will be responsible for the operation and maintenance of the network.

The electrical supply to the development will require the construction of a new 132/11kV Substation which will be constructed on a 100m x 100m servitude in favour of Centlec. The new 132/11kV Substation will be supplied by constructing a new 132kV line from Zastron Municipal Substation.

The short-term electrical capacity requirement could possibly be accommodated by installing 11kV cables from the nearest MV ring network with spare capacity up to the border of the Proposed development.

Due to the size of the development it is envisaged that a minimum of three (3) primary satellite substations will have to be constructed within the development in order to distribute the 11kV throughout the development. The primary substations will be supplied from the 132/11kV Substation with 240mm² copper cables using a single contingency model (n-1).

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

It is suggested by the Engineer due to the shortages of electrical capacity in South Africa and the focus on energy saving that all new developments make use of energy saving methods. The required capacity could therefore be reduced by replacing the electrical stove plates of each individual residential unit with gas plates; heating the water with solar or gas and using energy saving lights. By implementing the latter the electrical maximum demand of an individual unit could be significantly be reduced. Please refer to the two tables (Table 14.3.1 and 14.3.2) below showing the difference between the Conventional Electrical Appliances and Solar and Gas Alternatives as taken from the Engineering Services Report.

Table 6 – Conventional Electrical Appliances

Estimated ADMD (After Diversity Maximum Demand) per Dwelling before Alternative Energy					
Appliance	Quantity	Load/ Appliance (kVA)	Contribution to the Maximum Demand	Estimated Connected Load (kVA)	ADMD Load (kVA)
Geyser 1	1	2	100%	2.0	0.7
Lights	12	0.06	70%	0.5	0.17
Heater	1	1.2	80%	1.0	0.3
Television	1	0.2	100%	0.2	0.07
Decoder	1	0.2	100%	0.2	0.07
Computer	1	0.35	40%	0.1	0.05
Stove Plates	4	1	70%	2.8	0.93
Oven	1	2.8	50%	1.4	0.47
Fridge	1	0.75	60%	0.5	0.15
Kettle	1	1.25	50%	0.6	0.21
Microwave	1	1.25	50%	0.6	0.21
Washing Machine	1	3	15%	0.5	0.15
Clothing Iron	1	0.85	10%	0.1	0.03
Total				**10.4**	**3.5**

Table 7 – Solar and Gas Alternatives

Estimated ADMD per Dwelling (Gas stoves, Gas or Solar Geysers and Energy Saver Lights)					
Appliance	Quantity	Load/ Appliance (kVA)	Contribution to the Maximum Demand	Estimated Connected Load (kVA)	ADMD Load (kVA)
Geyser 1	0	2	100%	0.0	0.0
Lights	12	0.015	70%	0.1	0.04
Heater	1	1.2	80%	1.0	0.3
Television	1	0.2	100%	0.2	0.1
Decoder	1	0.2	100%	0.2	0.1
Computer	1	0.35	40%	0.1	0.0
Stove Plates	0	1	70%	0.0	0.0
Oven	1	2.8	50%	1.4	0.5
Fridge	1	0.75	60%	0.5	0.2
Kettle	1	1.25	50%	0.6	0.2
Microwave	1	1.25	50%	0.6	0.2
Washing Machine	1	3	15%	0.5	0.2
Clothing Iron	1	0.85	10%	0.1	0.03
Total				**5.3**	**1.8**

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

1. For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area, which is covered by each copy No. on the Site Plan.

Section B Copy No. (e.g. A): **0**

*****This section was completed only once as the alternatives are merely different layout plans with only a difference in the positioning of the various activities.***

2. Paragraphs 1 - 6 below must be completed for each alternative.

3. Has a specialist been consulted to assist with the completion of this section? **YES** | NO

If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

Table 11: Property description and physical address of Municipalities:

Property description/physical address:	**Province**	Free State
	District Municipality	Xhariep District Municipality

Local Municipality	Mohokare Local Municipality
Ward Number(s)	Ward 3
Farm name and number	Mooifontein 480 Zastron RD
Portion number	Portion 2 and the Remainder
SG Code	Remainder: F04300000000048000000 and Portion 2: F04300000000048000002

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

Current land-use zoning as per local municipality IDP/records:	Agriculture.

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

Is a change of land-use or a consent use application required? **YES**

1. TOPOGRAPHY

The proposed site is situated just outside the town of Zastron. The Aasvoëlberg which is famous for its "Eye"; a hole of 9 metres in diameter in a rocky crag; that is situated on the site; however this portion of land is excluded from development. This spectacular sandstone Mountain is a backdrop for the town of Zastron, in the South-Eastern Free State Province of South Africa. At 2207 m (approx. 7240 imperial feet), it is the highest peak in the province, and takes its name from the Cape vulture (Gyps Coprotheres) which favours its cliffs for nesting. It is the site of the only colony of Cape Vultures in the Orange Free State.

The estimated terrain elevation above sea level is 2182 metres. The topography of the site has variable slope; roughly form a localised high point in the west dipping initially steeply and becoming flatter towards the east and northeast. The fault region in the central and eastern parts have an average slope grading in the order of 3%. This is a stark contrast to the mountains in the western portion where slopes exceed 40% in gradient.

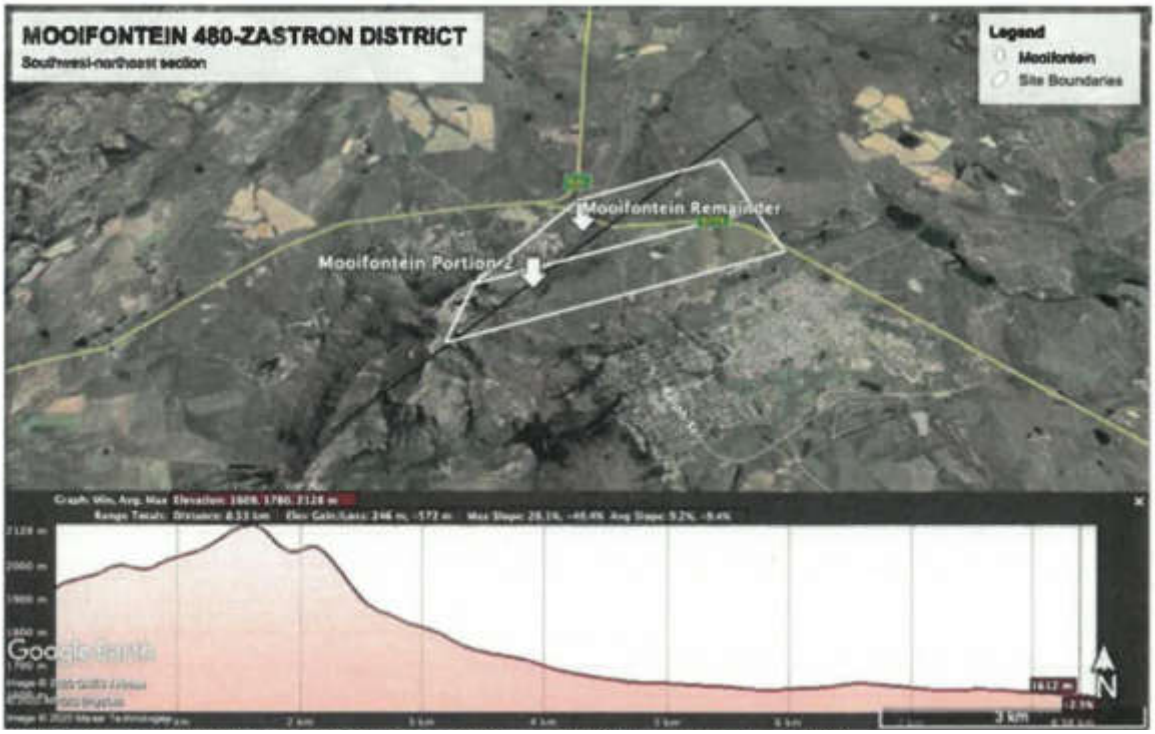


Figure 13: Southwest-northeast cross-section

This image is taken from the Geological Desktop Study conducted by Civil Consult Consulting Engineers; August 2020 under Appendix D5 of this report.

2. CLIMATE

The climate of Zastron is considered to be warm and temperate. The summers have good rainfall; while the winters have very little rainfall. The average annual temperature is 13.8 ºC with an annual rainfall of approximately 884 mm.

The driest month of the year falls within the month of July with approximately 14 mm of precipitation in July. Most of the precipitation falls during the month of January with an average of 151 m. January is found to be the warmest month with an average of 19.9 ºC and July the coldest month with an average temperature of 5.9ºC. Please refer to the graph below indicating the weather by month; climate graph and average temperature.

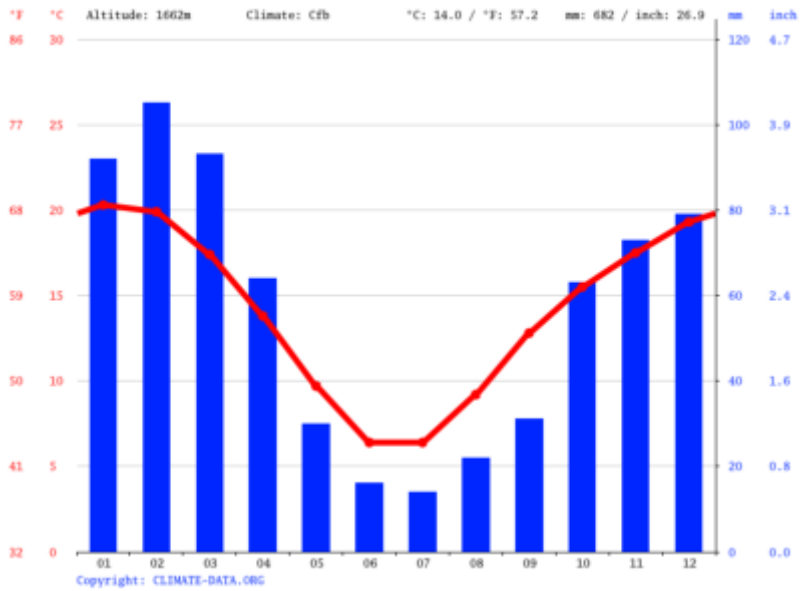


Figure 14: Zastron Climate Graph/ weather by month (above and below)

Table 12: Average temperatures per month

	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature °C (°F)	19.9 °C (67.8) °F	19 °C (66.1) °F	17.1 °C (62.8) °F	13 °C (55.5) °F	9.5 °C (49.2) °F	6.2 °C (43.2) °F	5.9 °C (42.5) °F	9 °C (48.1) °F	13.2 °C (55.7) °F	16 °C (60.9) °F	17.8 °C (64.1) °F	19.4 °C (67) °F
Min. Temperature °C (°F)	13.4 °C (56.1) °F	12.7 °C (54.9) °F	10.8 °C (51.4) °F	6.6 °C (44) °F	2.9 °C (37.2) °F	-0.5 °C (31.1) °F	-1.4 °C (29.6) °F	1 °C (33.8) °F	4.6 °C (40.3) °F	7.8 °C (46.1) °F	9.9 °C (49.9) °F	12.2 °C (53.9) °F
Max. Temperature °C (°F)	26.6 °C (79.9) °F	25.4 °C (77.8) °F	23.7 °C (74.7) °F	19.6 °C (67.3) °F	16.7 °C (62.1) °F	13.7 °C (56.7) °F	13.9 °C (57) °F	17.1 °C (62.7) °F	21.3 °C (70.4) °F	23.8 °C (74.9) °F	25.3 °C (77.5) °F	26.5 °C (79.7) °F
Precipitation / Rainfall mm (in)	151 (5.9)	132 (5.2)	120 (4.7)	75 (3)	30 (1.2)	20 (0.8)	14 (0.6)	25 (1)	24 (0.9)	72 (2.8)	95 (3.7)	126 (5)
Humidity(%)	57%	61%	62%	63%	60%	59%	53%	44%	36%	41%	45%	50%
Rainy days (d)	11	10	9	7	4	3	2	3	3	6	7	9

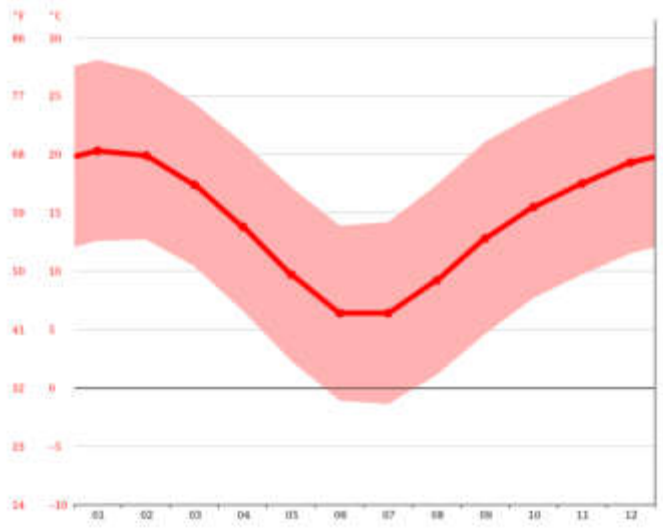


Figure 15: Zastron average temperature

3. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

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

Alternative S2 (if any):

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

Alternative S3 (if any):

4. LOCATION IN LANDSCAPE

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

2.1 Ridgeline	x	2.4 Closed valley		2.7 Undulating plain / low hills	x
2.2 Plateau		2.5 Open valley		2.8 Dune	
2.3 Side slope of hill/mountain	x	2.6 Plain	x	2.9 Seafront	
2.10 At sea					

5. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following?

	Alternative S1:		**Alternative S2 (if any):**		**Alternative S3 (if any):**	
Shallow water table (less than 1.5m deep)	YES	**NO**	YES	**NO**	YES	NO
Dolomite, sinkhole or doline areas	YES	**NO**	YES	**NO**	YES	NO
Seasonally wet soils (often close to water bodies)	**YES**	NO	**YES**	NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil	**YES**	NO	**YES**	NO	YES	NO
Dispersive soils (soils that dissolve in water)	**YES**	NO	**YES**	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)	**YES**	NO	**YES**	NO	YES	NO
Any other unstable soil or geological feature	YES	**NO**	YES	**NO**	YES	NO
An area sensitive to erosion	**YES**	NO	**YES**	NO	YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the

project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted.

The Wetland specialist and Geologist for the project was consulted to address this section in the report.

Accordingly the area appears to be within the D12D quaternary catchment; very near the watershed with the D24B quaternary catchment to the north. Regional drainage is eastward and southward towards the Orange River.

The site has a variable slope; roughly from a localized high point in the west dipping initially steeply and becoming flatter towards the east and northeast. The flat region in the central and eastern parts have an average slope gradient in the order of 3%. This is a stark contrast to the mountains in the western portion where slopes exceed 40% in gradient.

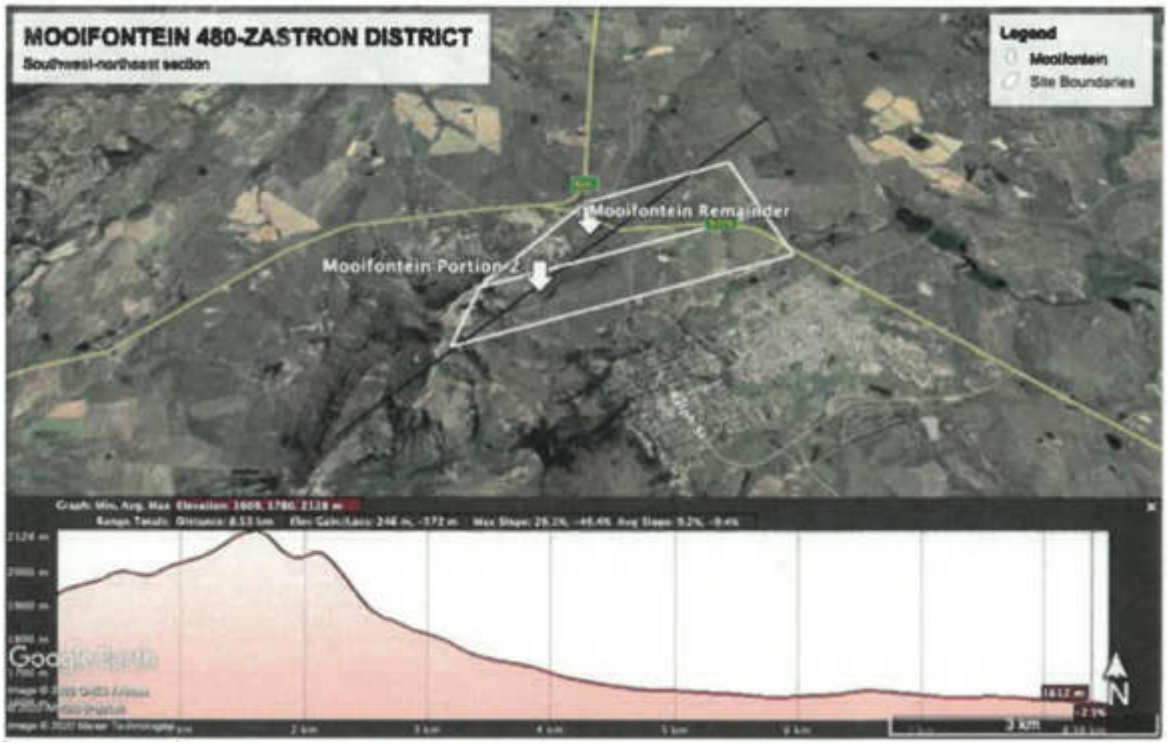


Figure 13: Southwest-northeast cross-section

According to the Regional geology the site is not underlain by dolomite or other soluble rock; and no specialist dolomite stability investigation is required.

No minerals or mining operations are indicated on or in close proximity of the site. Some faults are indicated in close proximity to the site. Surficial deposits of colluviam and/ or alluvium are indicated to overlie large portions of the site.

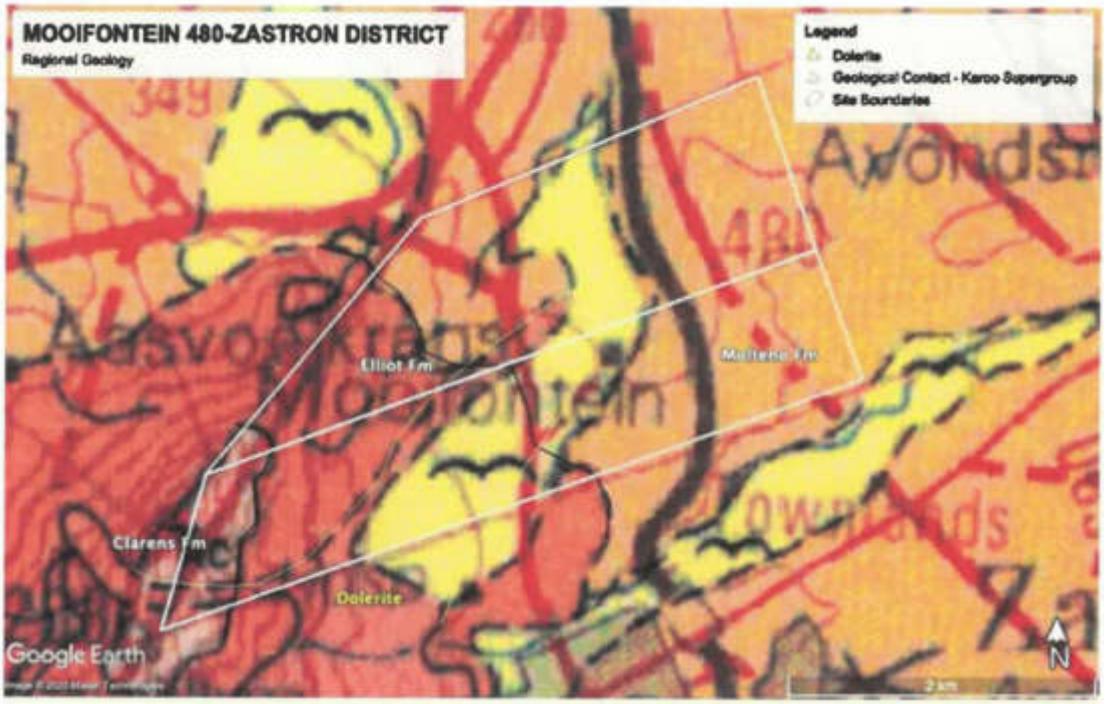


Figure 16: Regional Geology

The land type data for the site was obtained from the Institute for Soil Climate and Water (ISCW) of the Agricultural Research Council (ARC). The land type data is presented at a scale of 1:250 000 and entails the division of land into land types; typical terrain cross sections for the land type and the presentation of dominant soil types for each of the identified terrain units (in the cross section). The soil data is classified according to the Binomial System (MacVicar et al.; 197). The soil data was interpreted and re-classified according to the Taxonomic System (Soil Classification Working Group; 1991). The investigation site predominantly falls into the Db192 land type with a small section comprising the Ib99 land type in the west (Land Type Survey Staff; 1972 – 2006; figure 12 below). The Db192 land type is characterized by a bleached and yellow duplex soil dominated landscape with shallow sandy loam soil profiles overlying clay rich subsoils grading into underlying weathered sandstone; mudstone and shale.

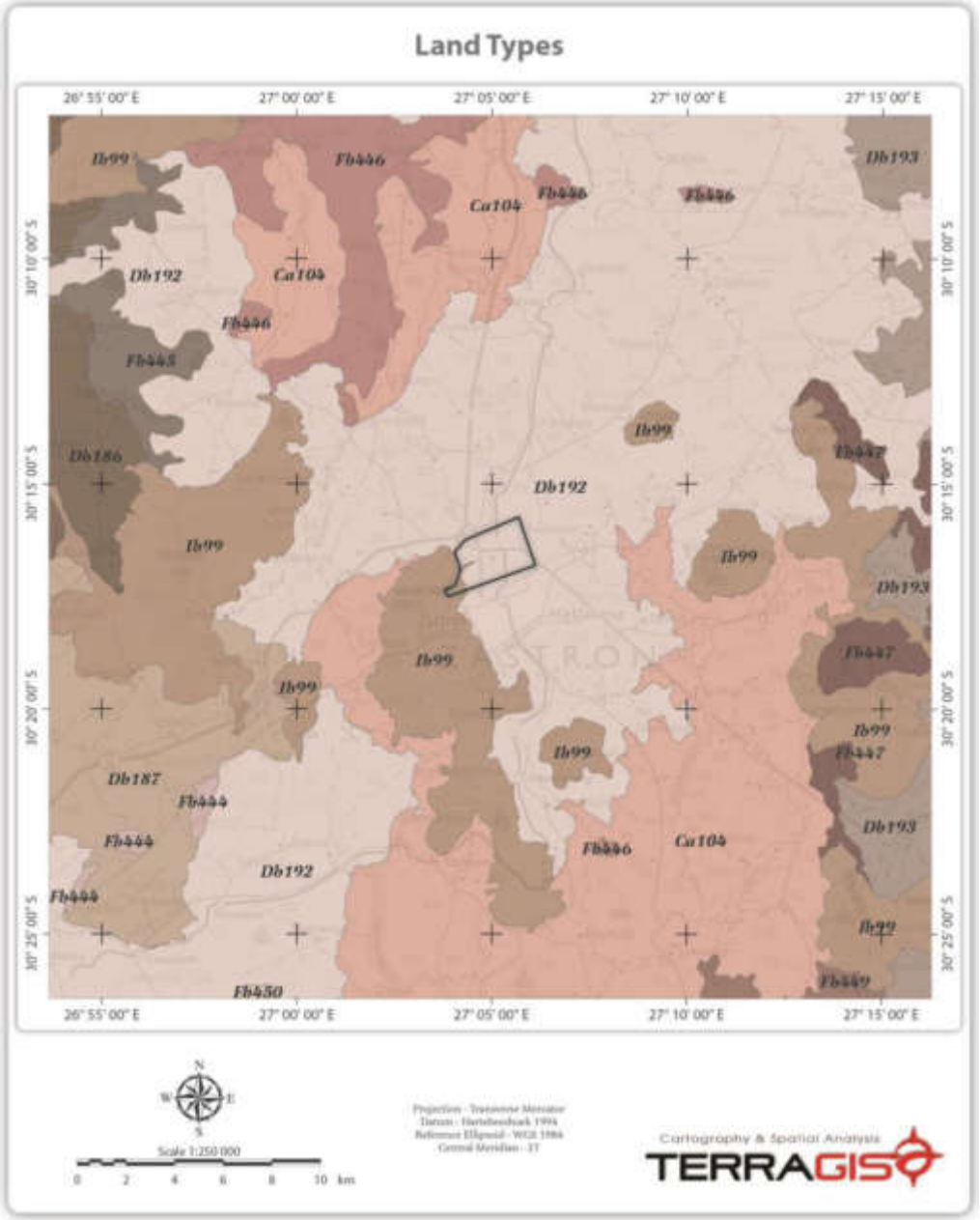


Figure 17: Land Type map

The geology of the site is characterized by the dominance of Molteno Formation sandstone; olive mudstone and dark grey shale in the eastern half. The western half consists of dolerite intrusions (Karoo Suite) and red and greenish mudstone and sandstone (Elliot Formation) with a large area being characterized by alluvium (Quaternary) (1:250 000 Geological Map of South Africa; Council for Geoscience).

The topography of the site and catchment is undulating to hilly with distinct drainage features in lower landscape positions and on hills (Figure 13 and 14 below).

Figure 18: Satellite image of the investigation area with contours (5m)

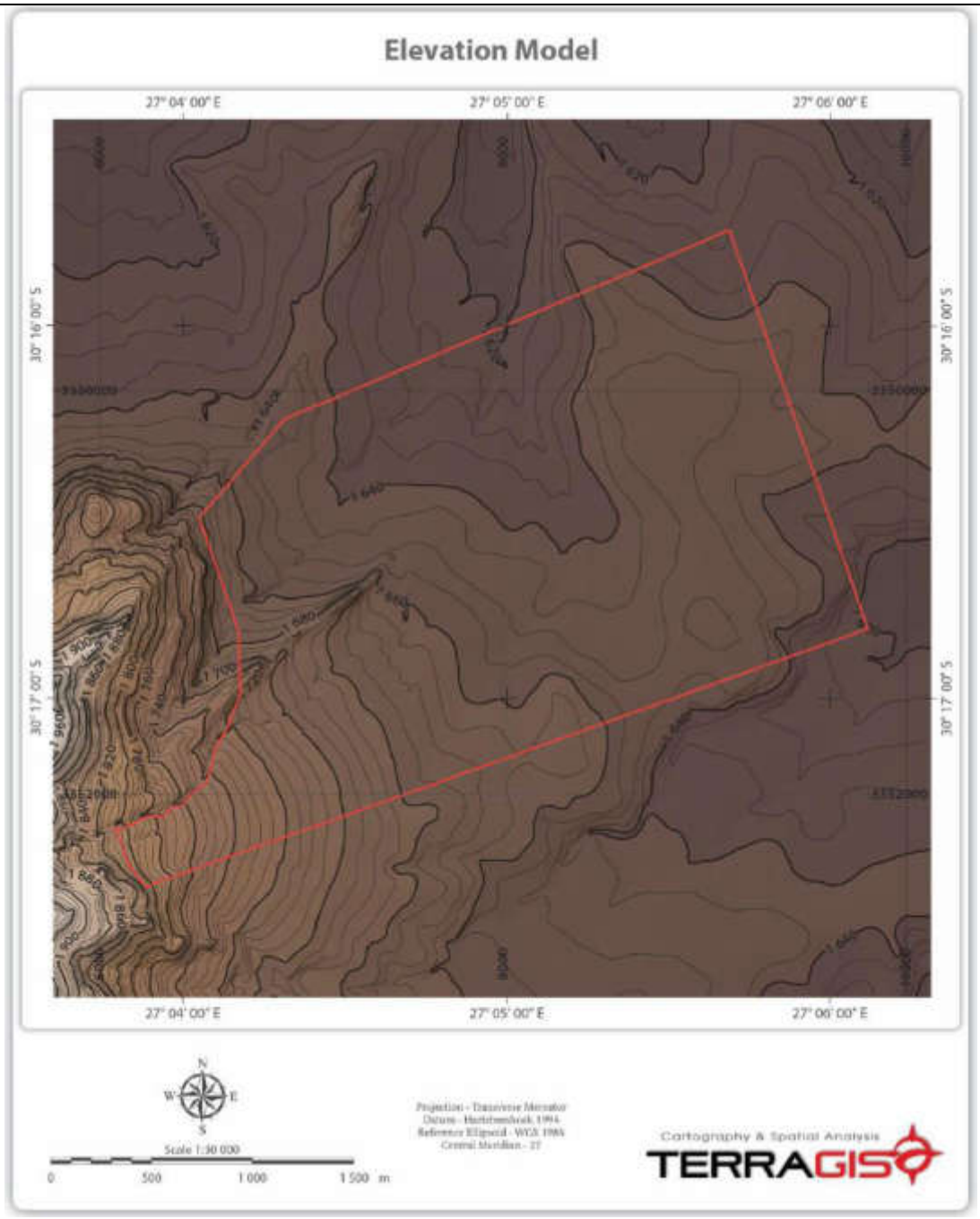


Figure 19: Digital elevation model (5m contours) of the investigation site (red polygon)

6. GROUNDCOVER

Indicate the types of groundcover present on the site. The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Natural veld -	Natural veld with	Natural veld with	Veld dominated

good condition[E]	scattered aliens[E]	heavy alien infestation[E]	by alien species[E]	
	Cultivated land		Building or other structure	Bare soil

If any of the boxes marked with an "[E] "is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.

7. SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites?

Perennial River	YES	NO	**UNSURE**
Non-Perennial River	**YES**	NO	UNSURE
Permanent Wetland	**YES**	NO	UNSURE
Seasonal Wetland	**YES**	NO	UNSURE
Artificial Wetland	YES	NO	**UNSURE**
Estuarine / Lagoonal wetland	YES	**NO**	UNSURE

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

The Wetland specialist and Engineer for the project was consulted to address this section in the report. Kindly note that all specialist reports are included under Appendix D – Specialist Reports.

The wetland identification and delineation of the site was determined by the context of drainage features. This was done by a thorough consideration of the geological; topographical; climatic; hydropedological and catchment context of the site. An aerial photograph interpretation exercise was conducted through the use of Google Earth images of the site. This data was used to obtain an indication of the drainage features' expression of wetland/ watercourse conditions; land cover and land use history. Detailed contours of the site were used to provide an indication of drainage depressions and drainage lines. From this data the terrain unit indicator was interpreted.

The soil form and wetness indicators were assessed on the site through a dedicated investigation within the context of the description of the Db192 land type.

<u>The Db192 Land Type Catena:</u>

The duplex catena of the Db192 land type; as found in the Zastron area; is characterised by soils with a fine to medium sandy loam surface horizon overlying a clay rich subsoil via an abrupt transition. The sandier material is often thick enough and bleached to yield an orthic A and E horizon overlying the high clay content prismacutani B horizon (Estcourt and Sterkspruit soil forms – Figure 15 below). The

materials under the prismacutanic B horizon is often a thick layer of unconsolidated material grading into sandstone/ shale/ mudstone saprolite. As bleaching of A horizons occur throughout the landscape wetland delineations based on bleached soil colours only overestimate the extent of the wetland. In lower lying landscape positions the A horizons may exhibit an increase in organic carbon content with a darker surface horizon colour and then also more pronounce mottling in subsoil horizons. The valley bottom positions are mostly characterised by eroded and incised watercourses with exposed streambed and occasionally sediment accumulation to form soil with stratified alluvium. The resultant wetland identification outcomes often flag seepage wetlands; due to the bleached surface soil colours; and distinct water courses in the incised areas of the landscape.

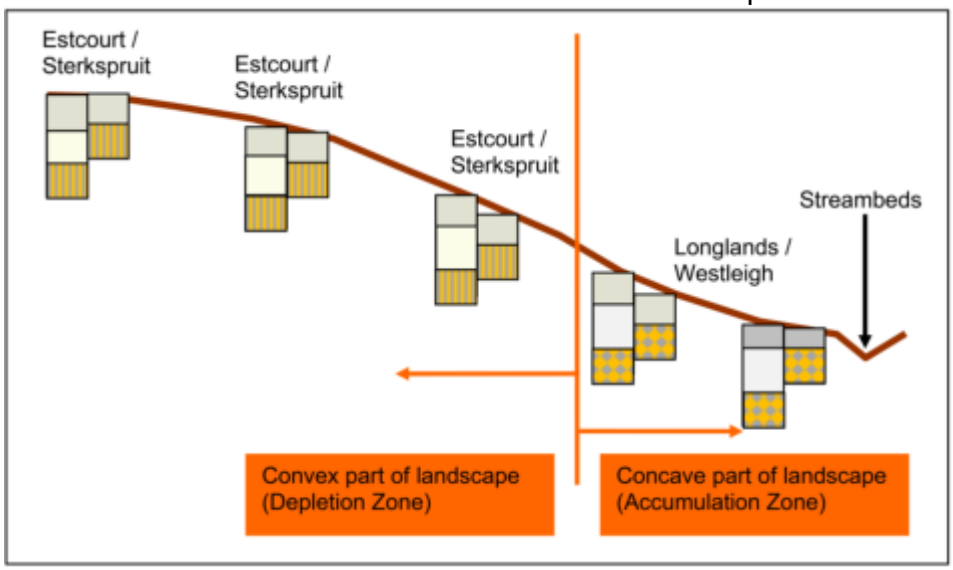


Figure 20: Schematic representation of the soils in the Db192 land type catena

The wetland/ watercourse areas on the site are indicated in the figure below.

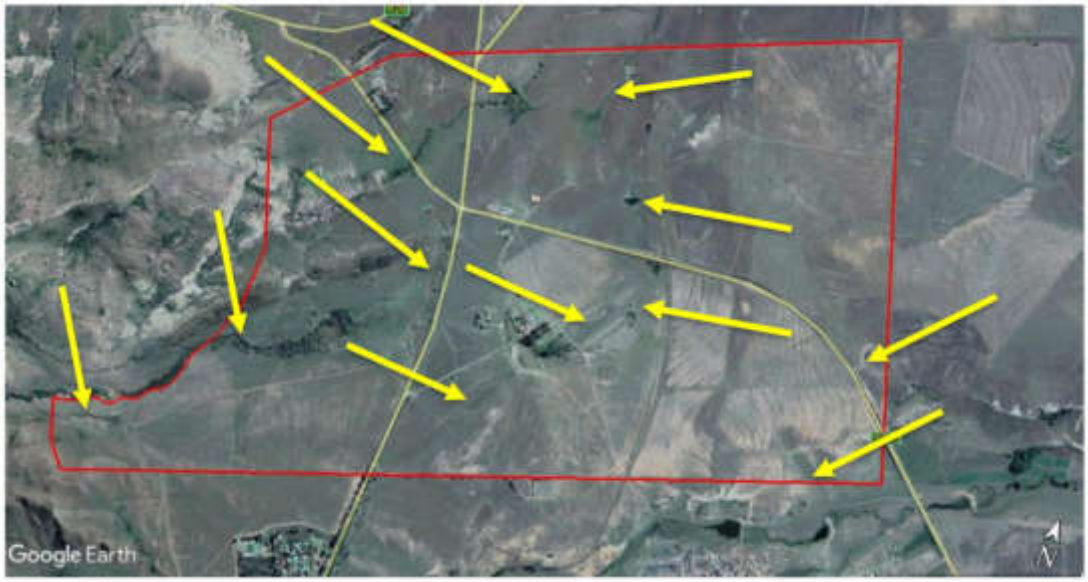


Figure 21: Wetlands/ watercourses identified on the site (yellow arrows)

From the 5m contour data (CD:NGI) a topographic wetness index (TWI) (Figure 17 below) was generated for the site. The resultant data was used to identify the various wetland and watercourse areas verified during the field survey phase.

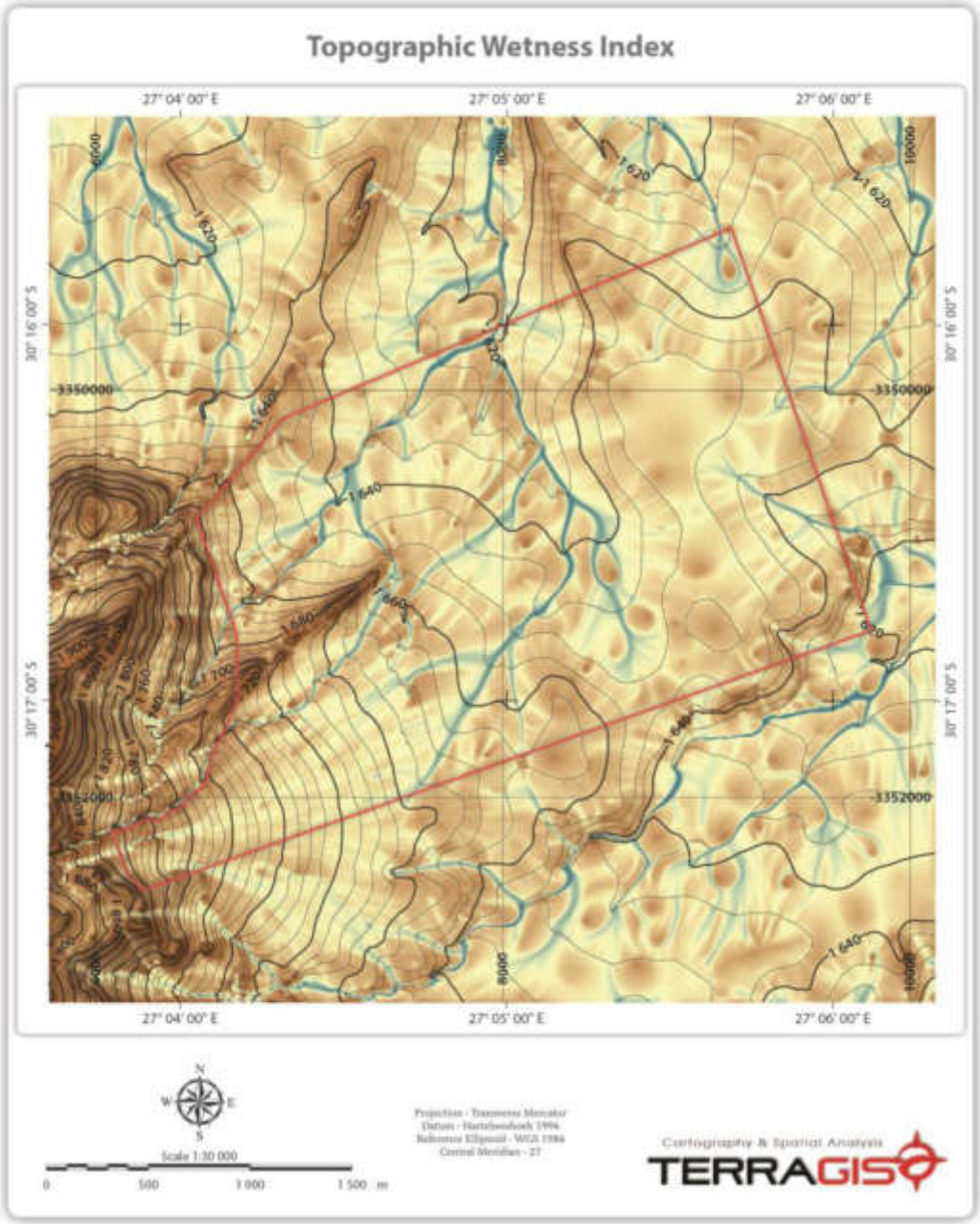


Figure 22: Topographic wetness index (TWI) of the investigation site based on 5m contours (CD:NGI)

The artificial modifiers on the site pertain mainly to the establishment of dams and an excavation channel/ donga on the western side of the road into Zastron town. The extent to which erosion on the site has altered the watercourses in the past century is not known.

The wetlands and watercourses on the site were identified predominantly through

topographic vegetation signatures. The resultant wetland delineation map is provided in Figure 23 with a 32 m buffer indicated around the wetlands.

A wetland delineation outcome; with a 32m buffer is provided. During the planning for and physical development of the site the erodibitility of the soils has to be taken into account. In this regard adequate planning has to be done for the mitigation of erosion during construction as well as storm water management post construction. The storm water management aspects are the responsibility of the town planners and engineers on the project and these have to be planned in line with current best practice in order to avoid degradation of the natural landscape and negative effects on structures and house.

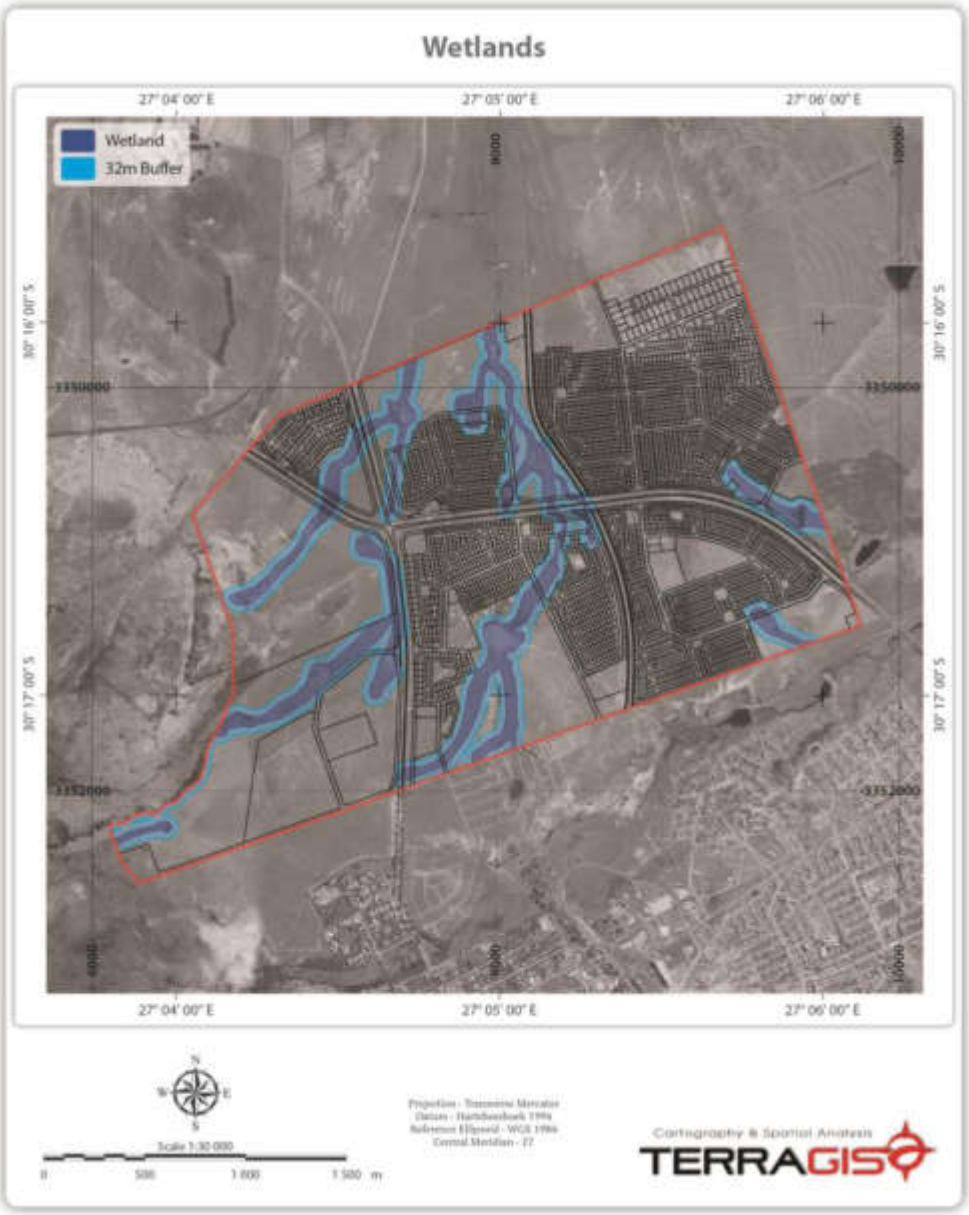


Figure 23: Wetland and watercourse delineation map for the investigation area.

The storm water on the site is discussed below.

The Services Report and the Floodline Analysis Report done by Civil Consult Consulting Engineers who confirmed that the storm water run-off from the proposed development will drain via internal storm water networks to the three tributaries of the Klipspruit intersecting the proposed development where the storm water run-off will be discharged above the 1:100 year flood lines of the three tributaries of the Klipspruit.

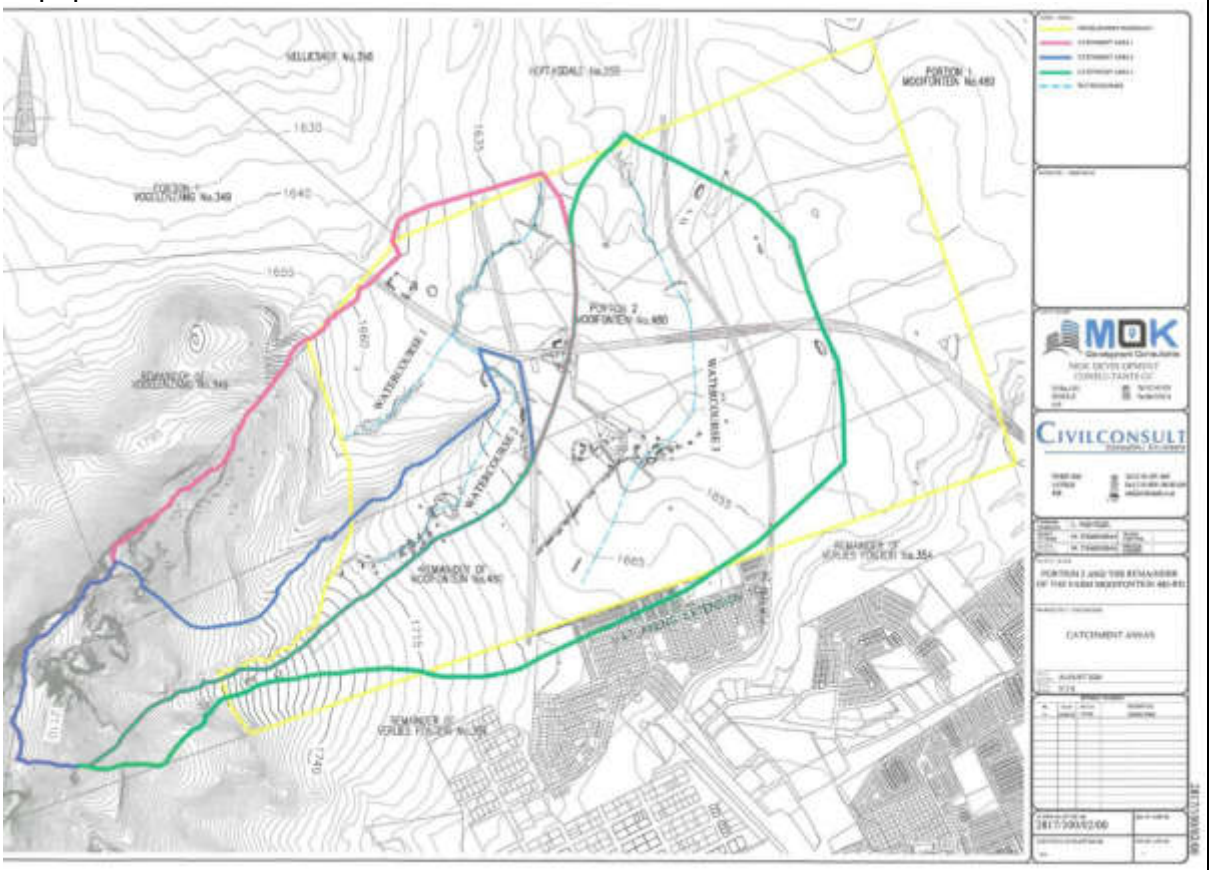


Figure 24: Catchment areas and the three watercourses on the site

The existing dam located on Erf 3968 (College Erf) of the proposed development will be converted into an attenuation dam. The existing tributary of the Klipspruit intersecting the middle of the proposed development form the south to the north will be channelized and rerouted with a proposed 3 000mm x 3 000mm portal culvert. The proposed 3 000mm x 3 00mm portal culvert will be installed; in a northern direction within a proposed 16,0m wide road reserve; from the middle of the southern boundary of Erf 3966 (shopping centre erf) of the proposed development where it will discharge.

The attenuation dam will be designed to attenuate the post development 1:25 year run-off and the outflow will be the pre development 1:5 year run-off for the proposed development.

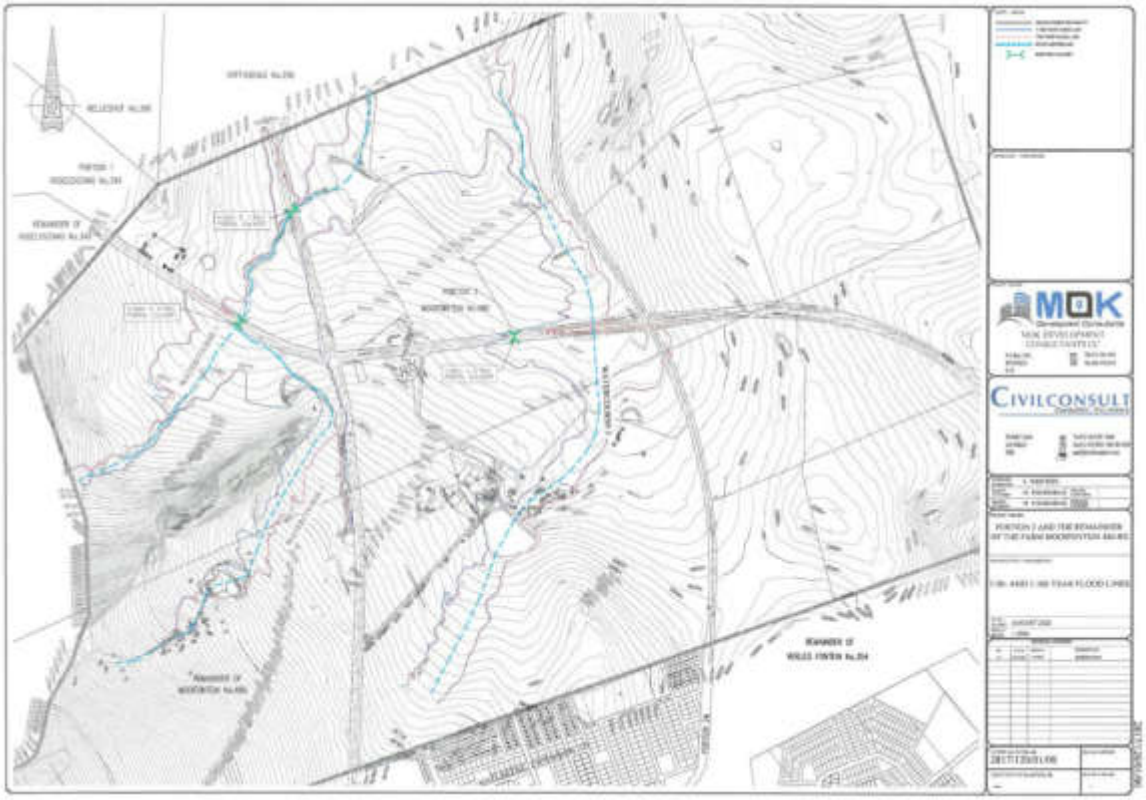


Figure 25: 1:50 and 1:100 year floodlines

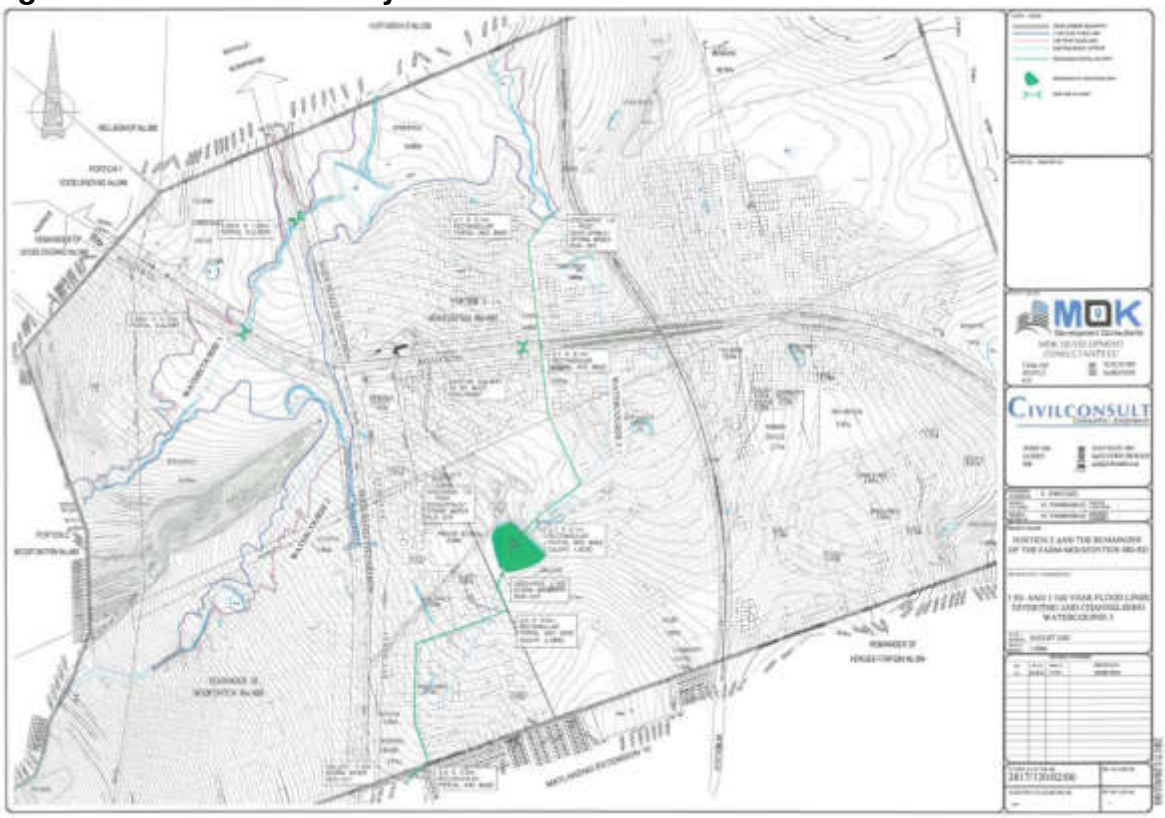


Figure 26: 1:50 and 1:100 year floodlines diverting and channelizing watercourse 3

The attenuation dam outlet structure will discharge directly into a proposed 2100mm x 2100mm portal culvert which will be installed in northern direction within a proposed 20l0m wide road reserve up to and crossing the existing Provincial Road R726. From here the proposed 2100mm x 2100mm portal culvert will continue north within a proposed 20.0m wide road reserve up to Erf 3988 (Public Open Space) of the proposed development and one of the existing tributaries of Klipspruit where it will discharge.

The attenuation pond will be able to accommodate the post 1:50 year run-off.

The internal storm water system will be designed for a 1:5 year flood return period and a run-off coefficient of 80% (C=0.8) will be allowed for the proposed development.

The storm water outlet structures will cater for gabions and reno-mattresses at the outlets to minimize the possibility of erosion at the point of discharge.

A Water Use License Application is in the process at the Department of Water and Sanitation as some Section 21 water uses of the National Water Act (Act 36 of 1998) will need to be registered for the handling of the storm water on the proposed site.

8. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

Natural area	**Dam or reservoir**	Polo fields
Low density residential	Hospital/medical centre	Filling station [H]
Medium density residential	**School**	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential[A]	**Church**	**Agriculture**
Retail commercial & warehousing	Old age home	**River, stream or wetland**
Light industrial	Sewage treatment plant[A]	**Nature conservation area**
Medium industrial [AN]	Train station or shunting yard [N]	**Mountain, koppie or ridge**
Heavy industrial [AN]	**Railway line [N]**	Museum
Power station	Major road (4 lanes or more) [N]	Historical building
Office/consulting room	Airport [N]	**Protected Area**
Military or police base/station/compound	~~Harbour~~	**Graveyard**
Spoil heap or slimes dam[A]	Sport facilities	**Archaeological site**
Quarry, sand or borrow pit	Golf course	Other land uses (describe)

If any of the boxes marked with an "N "are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

An existing railway line is located almost central of the site and traverses the site in a north-south direction. The layout is planned in such a manner to incorporate the railway line. No direct access is allowed to the Railway line from the proposed site. The site will be fenced off with boundary walls.

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

Does the proposed site (including any alternative sites) fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)	**YES**	
Core area of a protected area?		**NO**
Buffer area of a protected area?	**YES**	**NO**
Planned expansion area of an existing protected area?		**NO**
Existing offset area associated with a previous Environmental Authorisation?		**NO**

Buffer area of the SKA?		**NO**

If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A.

9. CULTURAL/HISTORICAL FEATURES

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

Structures older than 60 years are situated on the area earmarked for the proposed development. The municipal cemetery is situated to the east of the site.

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist:

In terms of the Heritage Impact Assessment it is confirmed that the site itself does not contain marked graves or burial grounds; but the municipal cemetery is situated directly east of the site earmarked for development.

Below is a photograph taken from the Heritage Impact Assessment that can be found under Appendix D4 of this report.

Photograph 12: Municipal cemetery situated directly east of the site earmarked for development

The possibility of graves not visible to the human eye always exists and this should be taken into consideration and all graves and cemeteries are of high significance and are protected by various laws. Legislation with regard to graves includes the National Heritage Resources Act (Act 25 of 1999) whenever graves are 60 years and older. Other legislation with regard to graves includes those when graves are exhumed and relocated; namely the Ordinance on Exhumations (no 12 of 1980) and the Human Tissues Act (Act 65 of 1983 as amended).

If sub-surface graves are discovered work should stop and a professional preferably an archaeologist contacted to assess the age of the grave; graves and to advice on the way forward.

Structures older than 60 years are situated in the area earmarked for development. The main residence has been significantly altered and the secondary dwelling portrays limited significance; the agricultural structures are also of limited cultural significance.

The recommendations of the Heritage specialist is as follows:

- Structures older than 60 years are the responsibility of the Provincial Heritage Authority of the said Province;
- Structures older than 60 years are protected by the National Heritage Resources Act; 1999 (Act no 25 of 1999); Section 34 (1) before demolition a Section 34 (1) demolition application must be submitted to the Free State Provincial Heritage Resources Authority (FSHRA) for approval/ comment;
- The discovery of subsurface archaeological and/ or historical material as well as graves must be taken into account in the EMPr;
- The municipal cemetery must be protected during construction activities; and
- Submit this report (HIA) as a Section 38 application to the relevant heritage authority for approval/ comment.

The existing houses on the site will remain on the site to form part of the Motheo TVet College and therefore no Permit or Authorization will be required from FSHRA.

It will be required that Motheo College should take full responsibility for the preservation and upkeep of the heritage buildings and site and provide a methodical plan of execution.

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

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

No permit or Authorization will be required from FSHRA as no building older than 60 years will be demolished. The existing houses (older than 60 years) will be utilized as part as the Motheo TVet College.

It will be required that Motheo College should take full responsibility for the preservation and upkeep of the heritage buildings and site and provide a methodical plan of execution.

10. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

Please provide details on the socio-economic character of the local municipality in which the proposed site(s) are situated.

Level of unemployment:

According to the Mohokare Local Municipalities IDP 2020 – 2021 the employment; occupation and income levels are as follows:

- About 73% of the population earn below R2300/month.
- Of the three main settlements; Zastron has the highest income levels.
- The highest unemployment rate is experienced in the three main settlements.
- The total economically active population declined between 2001 and 2011 by 8%.
- Initiatives should be created where manufacturing; wholesale and retail and community; social and personal services are grown as these are the sectors currently contributing the most to employment generation.
- The fastest growing sectors for GVA (average annual percentage growth) between 2001 and 2011 are:
  - Electricity gas and water (22.55%);
  - Manufacturing (10.39%) and
  - Finance; insurance; real estate and business services (9.98%)
- Similarly; the following tertiary sectors should also be supported as they are the highest sector contributors to e GVA or the area:
  - Finance; insurance; real estate and business services (25.53%);
  - Government services (17.24%); and Community; social and personal services (15.23%).
- The GVA of the municipality is mostly generated by the tertiary sector. This sector contributes 75.73% to the GVA; is currently growing and should be encouraged to grow.

Given the decline of the GVA contributions in primary sectors and a growth in the secondary and tertiary sectors; more emphasis from the former to the latter is observed in the economy. This has implications for the lower skill level employees who now need to improve their skills levels to stay competitive in the secondary and tertiary job markets; or look for work elsewhere.

Economic profile of local municipality:

The Mohokare Local Municipalities IDP 2020 – 2021 confirms the following:

- Property market patterns and growth pressures:
  - A decrease of 20,68% occurred in the number of new residential buildings over the period 2007 to 2008; after which activities decreased to zero in both 2009 and 2010. This is either due to no statistics reporting or a decline in

economic activities.

- ❖ There are improving levels of operating income. An increase in operating expenditure has occurred as well as the emergence of declining (negative) trends related to non-payment of property rates and service charges. These must be addressed in a proactive manner and positive payment trends should be reinforced (this is a proactive manner and positive payment trends should be re-enforced (this is a critical point and of utmost importance);
- ❖ The reliance on grants and subsidies decreased form 64% in 2010/2011 to 54% in 2011/ 2012 while actual operating income (as defined) increased by 60,63% over the same period;
- ❖ A large number of illegally built buildings are not being recorded in the municipal system.

➢ Tourism:

- ❖ Develop a tourism strategy for the municipality centring around the development of tourism potential of the resorts and lodges; heritage sites; nature reserves (Vulture Conservation Area. Tussen-die-Riviere and Oviston) and game lodges in the municipality.
- ❖ Encourage the development of the Maloti and Gariep tourism corridors and Friendly N6 Route and ensure that the municipality derives the maximum benefits from this route.

Level of education:

The IDP 2020-2021 of Mohokare Local Municipality confirmed the education as follows:

- ➢ In 2011 only 39.81% of the population completed education at levels higher than primary school.
- ➢ Higher levels of education are required. Only 3.77% of the population have a tertiary education and there is a Motheo satellite campus in Zastron.
- ➢ Ensure that new schools are erected in line with the NSDP principles; i.e. The Primary School is currently constructed in Matlakeng at Refengkgotso Location, but not completed.
- ➢ Transport opportunities; for example; cycleways; need to be provided to assist in providing learner access to cshools.
- ➢ Given the low education levels; skills development is needed to empower people to be employable and to generate their own income.
- ➢ There is an over provision of all types of educational facilities give the Education Standards; in each of the settlements. However; this assessment is not based on walking distances but is purely based on population thresholds.
- ➢ Given the need to access facilities with 1km walking distance; the following educational facilities are required in the following areas:
  - ❖ Primary Schools:
    - Zastron: south-east of Zastron (west of the railway line); and north of Matlakeng;
    - Rouxville: noen: and;
    - Smithfield: Smithfield town.
  - ❖ Secondary Schools:
    - Zastron: between Zastron and Matlakeng; and south of Matlakeng;

- Rouxville: none; and
- Smithfield: Mofulatshepe.

Please refer to the table below for an indication of the education level.

Table 13: Distribution of Population

Distribution of population aged 5 years and older by highest level of education and gender in Mohokare Local Municipality

Highest level of education	Gender		Total
	Male	Female	
No schooling	936	1075	2011
Grade 0	644	591	1235
Grade 1/Sub A/Class 1	601	620	1221
Grade 2/Sub B/Class 2	431	346	776
Grade 3/Standard 1/ABET 1	811	958	1769
Grade 4/Standard 2	807	1003	1810
Grade 5/Standard 3/ABET 2	855	924	1779
Grade 6/Standard 4	1080	1185	2265
Grade 7/Standard 5/ABET 3	908	1375	2283
Grade 8/Standard 6/Form 1	1241	1191	2431
Grade 9/Standard 7/Form 2/ABET 4/Occupational certificate NQF Level 1	1207	1260	2468
Grade 10/Standard 8/Form 3/Occupational certificate NQF Level 2	1120	1690	2810
Grade 11/Standard 9/Form 4/NCV Level 3/ Occupational certificate NQF Level 3	659	1232	1891
Grade 12/Standard 10/Form 5/Matric/NCV Level 4/ Occupational certificate NQF Level 3	3010	3115	6125
NTC I/N1	-	-	-
NTCII/N2	29	13	42
NTCIII/N3	20	-	20
N4/NTC 4/Occupational certificate NQF Level 5	47	69	116
N5/NTC 5/Occupational certificate NQF Level 5	14	116	129
N6/NTC 6/Occupational certificate NQF Level 5	13	40	53
Certificate with less than Grade 12/Std 10	16	-	16
Diploma with less than Grade 12/Std 10	-	19	19
Higher/National/Advanced Certificate with Grade 12/Occupational certificate NQF	51	69	120
Diploma with Grade 12/Std 10/Occupational certificate NQF Level 6	109	122	231
Higher Diploma/Occupational certificate NQF Level 7	70	112	182
Post-Higher Diploma (Master's	45	38	83
Bachelor's degree/Occupational certificate NQF Level 7	66	75	141
Honours degree/Post-graduate diploma/Occupational certificate NQF Level 8	-	72	72
Master's/Professional Master's at NQF Level 9 degree	32	-	32
PHD (Doctoral degree/Professional doctoral degree at NQF Level 10)	-	55	55
Other	34	-	34

Data source: Statistics South Africa, Community Survey 2016 (2016 municipal boundaries)

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R – To be confirmed
What is the expected yearly income that will be generated by or as a result of the activity?	R2–3 million
Will the activity contribute to service infrastructure?	**YES**
Is the activity a public amenity?	**YES**

How many new employment opportunities will be created in the development and construction phase of the activity/ies?	+- 70
What is the expected value of the employment opportunities during the development and construction phase?	R1 million
What percentage of this will accrue to previously disadvantaged individuals?	30%
How many permanent new employment opportunities will be created during the operational phase of the activity?	+- 40
What is the expected current value of the employment opportunities during the first 10 years?	R5 million
What percentage of this will accrue to previously disadvantaged individuals?	40%

11. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult http://bgis.sanbi.org or BGIShelp@sanbi.org. Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

a) Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)

Systematic Biodiversity Planning Category				**If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan**
Critical Biodiversity Area (CBA)	**Ecological Support Area (ESA)**	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	CBA1 has been delineated as part of the uppermost section of the Aasvoëlberg and is therefore Critical Biodiversity Area – no development has been delineated here.
				The footprint contains sections of ESA1; ESA2 and Other Natural Areas where the Natural grassland and riverine/ wetland areas are found based on grassland; wetland and mountainous habitat found.
				The areas delineated as degraded in the Conservation plan; is mostly pasture with dams and was found to be in a good condition and therefore has increased sensitivity.

b) Indicate and describe the habitat condition on site

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	9.5 %	VU1; VU3 and VU4 are all natural. (17ha _ 31ha + 36ha = 84ha of +-880ha)
Near Natural (includes areas with low to moderate level of alien invasive plants)	89.8 %	VU2 (Pasture) is also in a fairly good condition; but has impacts based on the fact that it is utilised as pasture. (791 ha)
Degraded (includes areas heavily invaded by alien plants)	- %	No areas are really degraded; it is a rural landscape with unique environmental features.
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	0.7 %	0.7% roads and community houses.

c) Complete the table to indicate:

(i) the type of vegetation, including its ecosystem status, present on the site; and
(ii) whether an aquatic ecosystem is present on site.

Besemkaree Koppies Scrubland (western section of Farms)

Terrestrial Ecosystems		Aquatic Ecosystems						
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical	Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
	Endangered							
	Vulnerable							
	Least Threatened	**YES**	NO	UNSURE	YES	**NO**	YES	**NO**

Zastron Moist Grassland – Bulk of the site and all activities

Terrestrial Ecosystems		Aquatic Ecosystems		
Ecosystem threat status as per the National Environmental Management:	Critical	Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial wetlands)	Estuary	Coastline
	Endangered			
	Vulnerable			
	Least			

Terrestrial Ecosystems		Aquatic Ecosystems						
Biodiversity Act (Act No. 10 of 2004)	Threatened	**YES**	NO	UNSURE	YES	**NO**	YES	**NO**

d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)

The project area falls across two (2) Vegetation Groups. Towards the western side is the Besemkaree Koppies Shrubland (GH4); which is known to be Poorly Protected; but of Least Concern (LC). To the eastern border; the vegetation composition consists of the Zastron Moist Grassland; which is historically Not Protected and also of Least Concern (LC).

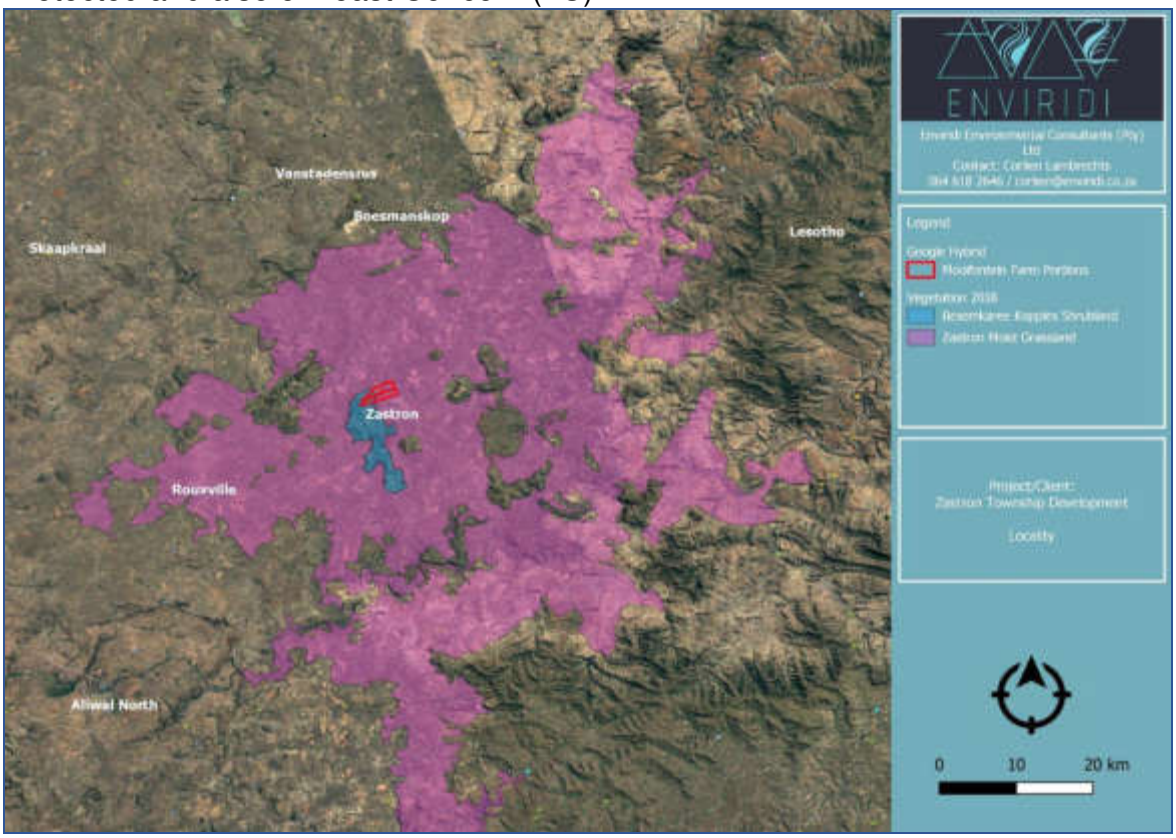


Figure 27: Vegetation Groups applicable to the Matlakeng Ext 11 Township Development

Besemkaree Koppies Scrubland (Gh4)

The Besemkaree Koppies Schrubland ecosystem is distrbed in the Northern Cape; Free State and Eastern Cape Provinces; on plains of Eastern Upper Karoo (between Richmond and Middelburg in the south and the Orange River) and within dry grasslands of the southern and central Free State. Extensive dolerite-dominated landscapes along the upper Orange River belong to this unit as well. Extending northwards to Fauresmith in the northwest and to the Wepener District in the northeast.

Vegetation & Landscape Features: The ecosystem is characterised by slopes of koppies; butts and tafelbergs covered by two-layered karroid shrubland. The lower (closed-canopy) layer is dominated by dwarf small-leaved shrubs and; especially in precitipation-rich years; also by abundant grasses; while the upper (loose canopy) layer is dominated by tall shrubs; namely R*hus erosa; R. burchellii; R. ciliata; Euclea crispa* subsp*. Ovata; Diospyros austro-acricana* and *Olea eurpaea* subsp*. Acricana.*

Geology &Soils: Dolerite koppies and sills embedded within Karoo Supergroup sediments. The dolerite dykes and sills are igneous intrusions that are the result of extensive volcanic activity; which accompanied the break-up of Godwana in the Jurrasic. In places the slopes of mesas and butts carrying this vegetation type have a mixed geology where dolerites occur together with sandstones and mudstones of the Ecca and Beaufort Groups. Fb land type covers almost 60% of the area; followed by Ib.

A list of expected common and dominant species in undisturbed vegetation includes the following (those with a "d" are considered to be dominant) (Mucina and Rutherford; 2006):

- **Trees:** *Cussonia paniculata; Ziziphus mucronata.*
- **Shrubs:** *Diospyros austro-africana (*d); *Euclea crispa* subsp. *Ovate (*d); *Chrysocoma ciliate (*d)*; Amphiglossa triflora; Aptosimum elongatum; Asparagus striatus; Diospyros pallens; Eriocephalus ericoides; E. spinescens; Europs empetrifolius; Felicia filifolia* subsp. *Filifolia; F. muricata; Helichrysum dregeanum; H. luciliodes; Hermannia multiflora; H. vestita; Lantana rugosa; Limeum aethiopicum; Lycium cinereum; Melolobium candicans; M. microphylium; Nenax microphylia; pegoletia retrofracta; Pentzia globosa; Rhygozum obovatum; Selago saxatilis; Stachys linearis; S. rugosa; Sutera halimifolia; Wahlenbergia albens; Aloe bromii; Chasmatophyllum musculinum; C. verdoorniae; Cotyledon orbiculata var. dactylopsis; Pachypodium succulentum.*
- **Graminoids:** Aristida adscensionis (d); A. congesta (d), A. diffusa (d), Cenchrus ciliaris (d), Cymbopogon caesius (d), Cynodon incompletes (d), Digitaria eriantha (d), Eragrostis curvula (d), E. lehmanniana (d), Heteropogon contortus (d), Setaria lindenbergiana (d); Themeda triandra (d); Tragus koelerioides (d); Cymbopogon pospischilii; Enneapogon scoparius; Eragrostis chloromelas; E. obtuse; Eustachys paspaloides; Fingerhuthia afriacana; Hyparrhenia hirta; Sporobolus fimbriatus.
- **Herbs:** Corvolvulus sagittatus; Dianthus caespitosus subsp. Caespitosus; Gazania krebsiana subsp. Krebsiana; Hibiscus pusillus; Indigofera alternans; I. rhytidocarpa; Lepidium africanum subsp. Aficanum; Pollichia campestris; Argyrolobium lanceolatum; Albuca setosa; Asplenium cordatum; Cheilanthes bergiana; C. eckloniana; Freesia andersoniae; Haemanthus humilis subsp. Humilis; Oxalis depressa; Pellaea calomelanos; Aloe grandidentata; Crassula nudicaulis; Duvalia caespitose; Euphorbia pulvinata; Huernia piersii; Stapelia grandiflora; S. olivacea; Tridentea gemmiflora.

Endemic Taxa

- **Small Tree:** Cussonia sp. Nov (P.J. du Preez 3666 BLFU).

- **Succulent Shrubs:** Euphorbia crassipes; Neohenricia sibbettii; N. spiculata.

Zastron Moist Grassland
Distributed through the Eastern Cape and Free State Provinces and Lesotho; in the surrounds of Zastron; extending just short of Van Stadensrus (north) to Mohales Hoek (north-east) and Rouxville (west). A narrow corridor extends south towards Jamestown and Dordrecht. The ecosystem is characterised by undulating plains; broken in places due to sandstone outcrops forming extensive terraces. This vegetation type is a mosaic of sweet and sour grassland communities interspersed with rock outcrops capped with dolerite and supporting Gh 4 Besemkaree koppies Shrubland; or capped by sandstone and supporting Gm 5 Basotho Montane Shrubland.

Vegetation & Landscape Features: Undulating plains; broken in places due to sandstone outcrops forming extensive terraces. These plains bear a mosaic of moist open sour grassland with affinity to Gm 4 Eastern Free State Sandy Grassland; on elevated areas above sandstone outcrops and Gm 3 Eastern Free State Clay Grassland in low-lying eroded areas as well as mudstone outcrops.

Geology & Soils: Relatively deep sandy layer over the sandstone layers of the Tarkastad Subgroup (Molteno and Eliot Formations) of the Beaufort Group (Karoo Supergroup). Typical soils forms present on these sandstone terraces are Clovelly and Avalon. Clayey soils; which were formed by weathering and leaching processes; are concentrated in low-lying drainage lines; valley bottoms and depressions. Db land type dominates; with typical soil forms such as Estourt and Oakleaf forms present. Fb and Ca land types or minor importance.

A list of expected common and dominant species in undisturbed vegetation included the following (those with a “d” are considered to be dominant) (Mucina and Rutherford; 2006):

- **Graminoids:** *Aristida congesta (d); Cymbopogon pospischilii (d); Digitaria argyrograpta (d); Eragrostis chloromelas (d); Microchloa caffra (d); Setaria sphacelata (d); Themdeda triandra (d); Andropogon appendiculatus; Brachiaria serrate; Cynodon incompetus; Cyperus obtusiflorus var. obtusiflorus; Elionurus muticus; Eragrostis capensis; E. curvula; E. lehmanniana; E. plana; E. racemosa; Festuca scabra; harpochloa falx; Heteropogon contortus; Panicum gilvum; Sporobolus africanus; Tetrachne dregei; Trichoneura grandiglumis; Triraphis andropogonoides.*
- **Herbs:** *Berkeheya onopordifolia var. onopordifolia; Dianthus thunbergii; Gazania krebsiana subsp. Krebsiana; Helichrysum rugulosum; Hermannia depressa; Limeum argute-carinatum; nolletia ciliaris; Salvia stenophylla; Senecio erubescens var. crepidifolius; Trichogyne paronychiodes; Wahlenbergia denticulate; Moraea pallida.*
- **Shrubs:** *Helichrysum dregeanum (d); Anthospermum rigidum subsp. Pumilum; Chrysocoma ciliate; Felicia muricata; Helichrysum asperum var. albidulum; H. niveum; Selago saxatilis; Senecio burchellii.*

Endemic Taxon:

- Geophytic Herb: *Dierama jucundum.*

The NBA 2011 does not correspond with the latest NBA 2018 in all aspects; however; the development does not fall within any Threatened Ecosystem. Both NBA 2011 and NBA 2018 have shown the area as Not Threatened; either excluded or of Least Concern. From the Free State Conservation Plan; several areas have been delineated; such as CBA1; ESA1; and Other Natural Areas associated with the Aasvoëlberg; and ESA2 and Degraded areas associated with the agricultural town and residential activities.
The closest IBA lies to the far Western direction; known as the Upper Orange River IBA; and is more than 75km away. It should be noted that another very important Avifaunal zone has been identified as Aasvoëlberg; and falls within the property; but has not delineated for development; however; it has been included in this report based on its importance. The site is home to the *coprotheres* (Cape Vulture) breeding colonies and is currently under the management of VulPro (Vulture Projects).

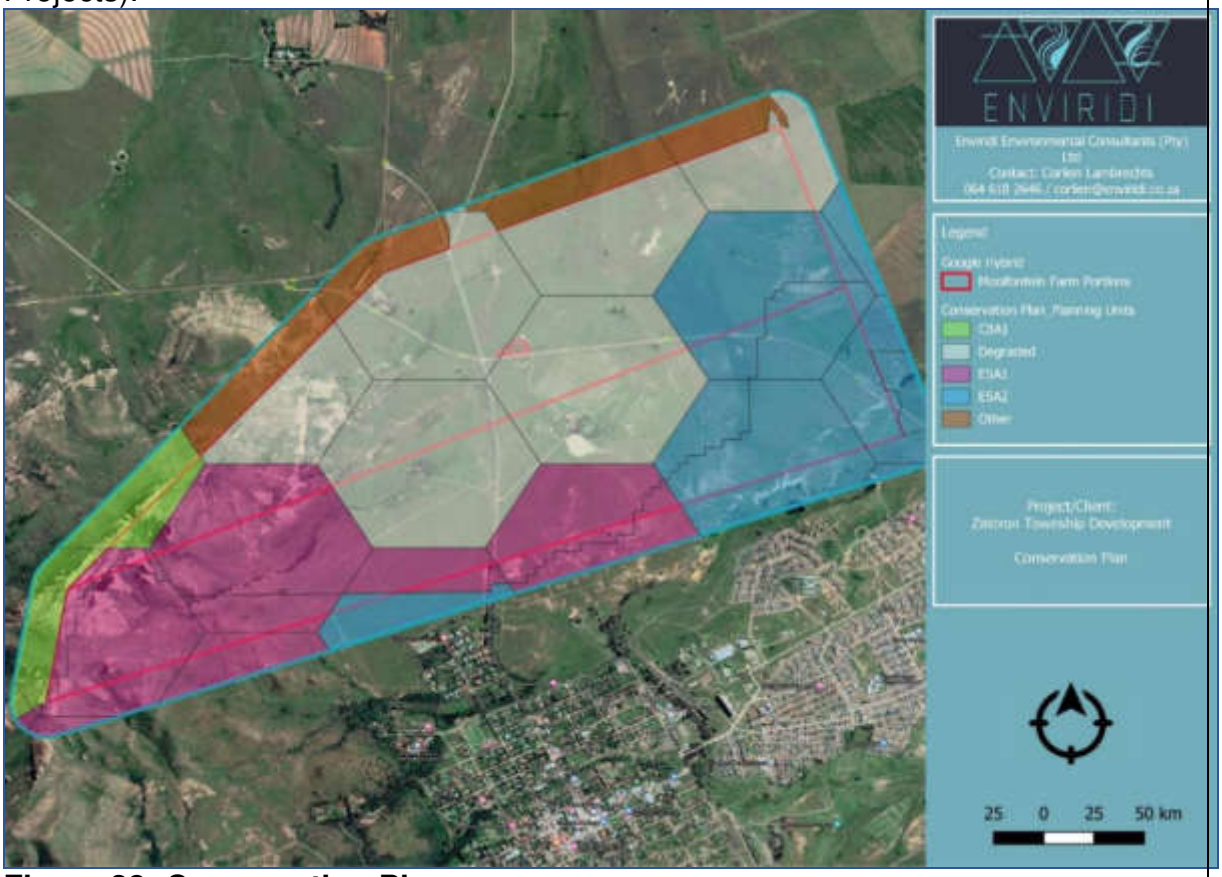


Figure 28: Conservation Plan

The area is surrounded by NPAES Focus Areas; namely Senqu Caledon; SAPAD Protected Areas; such as Diepfontein Reserve (to the North East); Mayaputi Private Nature Reserve to the South west and Boschpoort Game Reserve to the far west. However; none of these are in close proximity or adjacent to the development footprints.

It is requested that Mohokare Local Municipality in collaboration with the Conservation section of DESTEA confirm if the section closest to the Aasvoëlberg is situated within the proposed expansion of the conservation area. Please consider the proposed layout and provide our office with comments in this regard.

Alien Invasive Plant Species:

Invasive and exotic species tent to increase in disturbed environments (DEA & DMR; 2013). Therefore; the construction and operational phases of developments can increase the spread and growth of invasive species. Of the 18 exotic plant species recorded for the QDS; six (6) species are listed as alien and invasive plant species in NEMBA; 2004 (Act 10 of 2004).

Scientific name	Common name	NEMBA AIP Category
Datura stramonium	Common thorn apple	1b
Echium plantagineum	Patterson's curse	1b
Melia azedarach	Seringa	1b
Nicotiana glauca	Wild tobacco	1b
Rosa rubiginosa	Eglantine	1b
Sorghum halepense	Johnson grass	1b

Category 1 is the strictest category of species and none of these species are allowed to occur and/or become established on any land area except for the use of a biological control reserve. They possess characteristics that are harmful to humans, animals or the environment. Category 1b is described in NEMBA, 2004 (Act 10 of 2004) as invasive species that may not be owned, imported into South Africa, grown, moved, sold, given as a gift or dumped in a waterway. Category 1b species are major invaders that may need government assistance to remove.

Medicinal Species:

Twelve (12) species were found to possibly occur on site that have medicinal uses. These plants are important from a cultural perspective and are used for traditional/ cultural purposes. Traditional medicine in South Africa is an important practice on which seventy two percent of the Black African population relies; that accounts for 26.6 million consumers (Mander *et al*. 2007). Approximately 133 000 people are employed in the trade of traditional medicine; especially rural woman (Mander *et a*l; 2007).

Scientific name	Common name
Aloe ferox	Bitter aloe
Arctotis arctotoides	Botterblom
Datura stramonium	Common thorn apple
Diospyros lycioides	Bluebush
Helichrysum nudifolium	Hottentot's tea
Heteromorpha arborescens	Parsley tree
Melianthus comosus	Honey flower
Pelargonium sidoides	Black pelargonium
Ranunculus multifidus	Common buttercup
Rhamnus prinoides	African Dogwood

Rumex lanceolatus	Common Dock
Searsia dentata	Nana-berry

Fauna Assessment and Species lists compiled:
Mammals:
3027AC recorded a total of twenty-one (21) species of which two (2) have a red listed status.

Family	Scientific name	Common name	Red list category
Bovidae	*Kobus leche*	Lechwe	Near Threatened (2017)
Equidae	*Equus zebra hartmannae*	Hartmann's Mountain Zebra	Vulnerable A3bcd (IUCN, 2019)

All these species are likely to occur within the larger regional area.

The Lechwe is adapted to a habitat of marshlands, swamps and shallowly inundated floodplains of up to 500 mm deep. Within this habitat, Lechwe browse on the lush green aquatic and semi-aquatic grasses. This implies that the habitat available on the Mooifontein and specifically in association with the Aasvoëlberg and river system which has its origins there, could be possible habitat to support the Lechwe. However, it is generally expected that within Southern Africa the Red Lechwe is found only in the Okavango swamps in Botswana and the Linyanti swamps of the Caprivi Strip, Namibia. It is interesting in the fact that the Lechwe, although Near Threatened and a SCC, is also listed on the NEMBA Alien and Invasive Species list (Department of Environmental Affairs (NEMBA), 2016) as an invasive mammal.

The Hartmann's mountain zebra and Cape mountain zebra are the only two mountain zebra subspecies. The Mountain zebra (both subspecies) is classified as Vulnerable in the IUCN Red List of Threatened Species. Mountain zebra are non-territorial and gregarious, living in breeding herds that consist of a breeding stallion with 3-4 mares and their foals. Bachelor herds have a clear social hierarchy and may be joined by non-breeding fillies for brief periods. These zebras are diurnal with their most active periods being after dawn, later in the morning and then late afternoon. The section to the western border includes suitable mountainous habitat but is not designated for development.

According to information from the residents in the area, the following species also occur within the area:

Family	Scientific name	Common name	Red list category
Chrysochloridae	*Chrysochloridae*	Golden Moles	Various categories depending on species
Bovidae	*Pelea capreolus*	Grey rhebuck	Near Threatened & ToPs Protected
Bovidae	*Redunca fulvorufula*	Mountain rhebuck	Endangered & ToPs Protected
Felidae	*Leptailurus serval*	Serval	Least Concern & ToPs Protected
Hyaenidae	*Hyaena brunnea*	Brown Hyena	Near Threatened (2015)

			& ToPs Protected

These will all be associated with the Aasvoëlberg and the development does not intercept with the Aasvoëlberg itself, which is explained throughout the document and also please refer to the Sensitivity section, where a rather large buffer (specifically associated with the Vulture Conservation Area has been recommended.

Avifaunal:
A section of the farms is shown to occur within the Vulture Conservation Area, also referred to as Aasvoëlberg (BGIS, 2020).
Combined hundred and eighteen (118) species have been recorded for the combined specific pentads 3015_2700 from the data collected within the Southern African Bird Atlas Project 2 (SABAP2). Approximately hundred and fifty (150) species occur in the wider Zastron area as reported from the National museum (I&AP correspondence) of which several species are grassland specialists.

Sixteen (16) species of conservation concern could occur within the area associated with the development.

Family	Scientific Name	Regional	Global
Eagle, Verreaux's	*Aquila verreauxii*	VU	LC
Harrier, Black	*Circus maurus*	EN	EN
Korhaan, Blue	*Eupodotis caerulescens*	LC	NT
Secretarybird, Secretarybird	*Sagittarius serpentarius*	VU	VU
Vulture, Cape	*Gyps coprotheres*	EN	EN
Woodpecker, Ground	*Geocolaptes olivaceus*	LC	NT
Family	**Scientific Name**	**Regional**	**Global**
Bustard, Ludwig's	*Neotis ludwigii*	EN	EN
Pipit, African Rock	*Anthus crenatus*	NT	LC
Crane, Blue – could also possibly occur	*Anthropoides paradiseus*	NT	VU

Butterflies:
3027AC had historic recordings for butterflies within this region, of which none of the eleven (11) species has a SCC status as per the National Red Data List (South Africa Butterfly Conservation Assessment - SABCA 2013).

Other Invertebrates:
No historic recordings for Lacewing, Dungbeeltes or Scorpions within this region are provided on the SANBI database. Only two (2) species of spiders, both of the family Theraphosidae, have been recorded. This is a misrepresentation of the invertebrate community expected at the development site and most sensitive species will likely be associated with the mountainous area itself.

Reptiles:
A total of eight (8) reptilian species, with no species listed as SCC.
Amphibians:
3027AC recorded a total of nine (9) amphibian species, with no species listed as

SCC.

Summary of sensitivities on the site:

The Average slope of the site is given as 11.3% due to the fact that the landscape forms rocky cliff/valley to the western side of the Township development. The bulk of the development falls within low-moderately sloped areas, but the western side (Aasvoëlberg) classifies as a Class 1 Ridge (based on sensitivity and level of disturbance) is regarded as sensitive area. Another prominent feature that need careful planning and consideration with the establishment of sensitivity is the occurrence of the Cape Vulture Colony on the Aasvoëlberg. The Ecologist stated that a Class 1 Ridges have been prescribed buffers of 200 m, but this has already been included within the Vulture Conservation Area adjacent to the town of Zastron and trying to align layouts to this BGIS demarcation will enable a larger area of protection which is preferred.

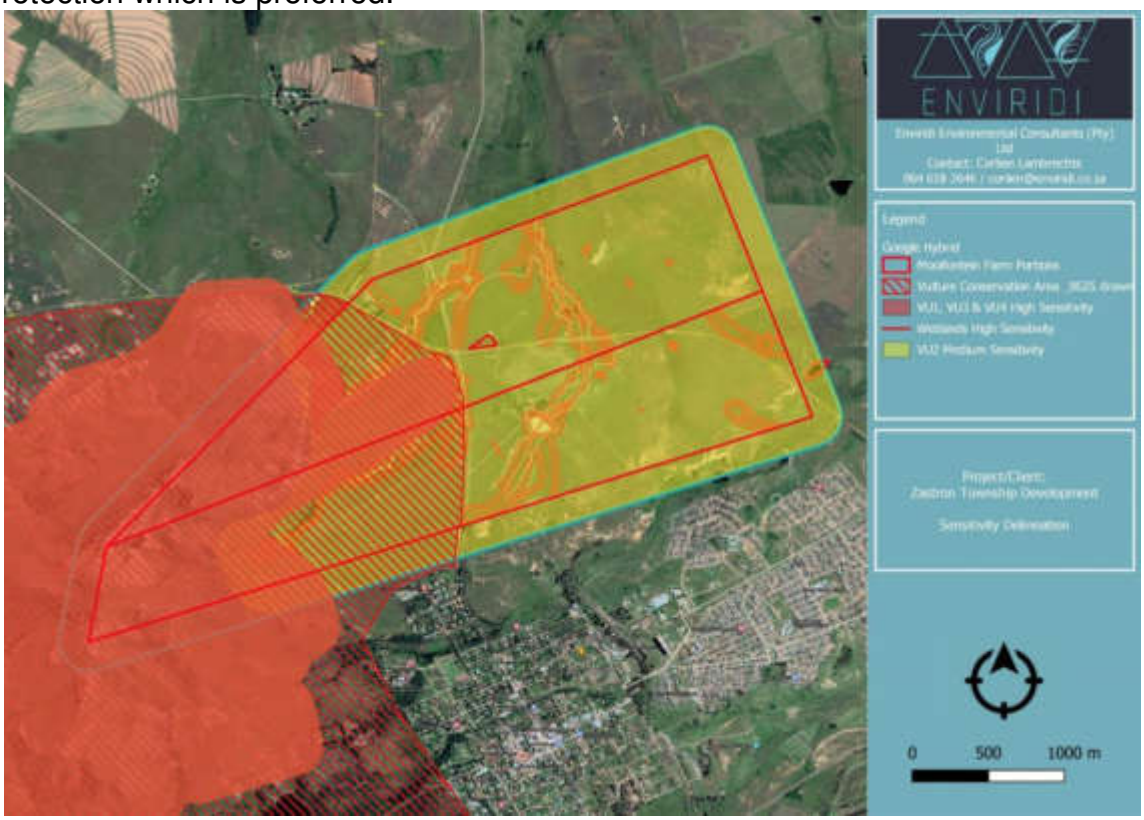


Figure 4: Sensitivity Delineation

According to the Ecological Study buffers of 40 – 50 km has been prescribed in literature for the establishment of Wind turbines and large-scale Electrical infrastructure, while a 2 km buffer has been prescribed for roosting and nesting sites in edge matching guidelines (Escott & Lotter, 2012) and this approach seem to have been adapted and incorporated into the Free State Biodiversity Plan: Technical Report (2016) and associated ecological niche modelling conducted. This means that the Conservation plan includes the buffers required and has been included in the sections as delineated in **Error! Reference source not found.** of the Ecological Report.

The East side of the mountain (Aasvoëlberg) has been delineated as Critical Biodiversity Areas (CBA1), which includes the western slope and it is also understood from the data gathered that the Cape Vulture is focussed on the outcrops and western sides and edge. The town of Zastron is directly adjacent to the new proposed development and it is recommended that the same conservation buffer be implemented for the project as for the town. This area to be utilised as guidance for very high sensitivity zone is shown within BGIS as a Vulture Conservation Area. The Tourism facility and Hospital are the only activities that slightly intercepts with the Vulture Conservation Area. It should be kept in mind that this area is only a conservation area and not a formally protected area and therefore the decision will remain with the Competent Authority (CA). The location of the tourism centre (although on the border within the Conservation Area) is ideally placed and should be incorporated in planning and focussed on the occurrence of the Vulture colony, coordination of regulated tours in consultation with VulPro and most importantly education regarding the Cape Vulture, its protection and continued conservation.

The faunal investigation provides a description of the ecological diversity in terms of species identification as well as the occurrence of threatened/ sensitive species that is dependent on available habitat. During the ecological desktop analysis; it was determined that several Red Data species were listed on the South African National Biodiversity database (SANBI) for the QDS that encompass the specific area. These consisted of Avifaunal species and possible red-listed mammals associated with grassland and riverine areas on the property.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Table 14: Advertisement and Notice

Publication name	Volksblad and Mohokare Rekord	
Date published	Mohokare Rekord: 2 and 9 April 2021 And Volksblad: 29 March 2021	
Site notice position	**Latitude**	**Longitude**
	30°16'31.75" S	27°04'46.88" E
	30°16'32.38" S	27°04'39.68" E
	30°16'33.44" S	27°04'38.54" E
	30°16'20.59" S	27°04'15.15" E
	30°16'31.87" S	27°04'57.18" E
	30°18'08.32" S	27°05'06.90" E
	30°18'13.60" S	27°04'54.27" E
Date placed	29 March 2021	

Include proof of the placement of the relevant advertisements and notices in Appendix E1.

2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 41(2)(e) and 41(6) of GN 326

Notice boards were erected on various positions on the site where it was thought most visible and practical for people passing by. Notice boards were also erected at the Head Office of Mohokare Local Municipality as well as the second Office of Mohokare Local Municipality that is situated on the corner of Reichenberg Street and Hoofd Street. Notices were placed in both the Volksblad and Mohokare Rekord newspapers. Flyers were distributed to neighbouring and pre-identified interested and affected parties although it was kept to a bare minimum due to the Covid Regulations and practising of social distancing. Many of the directly adjacent property owners (and properties within a 100 meter radius of the site) details were obtained by means of Windeed searches during the Scoping Phase of the project and therefore the contacts were already on our I&AP database. These details were used to inform the I&APs of the public participation of the EIA process by means of email correspondence. Please refer to **Appendix E** for proof of public participation.

Key stakeholders (other than organs of state) identified in terms of Regulation 41(2)(b) of GN 326

Table 15: Key Stakeholders

Title, Name and Surname	Affiliation/ key stakeholder status/ Farm name
Mr. Ryno Please refer to the Comments and Response report under Appendix E	VULPRO
	Endangered Wildlife Trust
	WESSA
Mr. Dave Hayter	Control Biodiversity Officer: Grade A Protected Areas Development and Support Programmes Free State Department of Economic and Small Business Development, Tourism and Environmental Affairs (DESTEA)
Ernst Retief and Melissa Lewis **Birdlife**	Birdlife South Africa
Neighbouring Property Owners:	
Aasvoëlkrans Trust Cornelius Francois Smith	Hoffasdale 256 Zastron Rd
Cornelius Francois Smith	Aasvoëlkrans 539 Zastron Rd
D&A Bekker Trust	Portion 1 of Mooifontin 480 Zastron RD
Mohokare Local Municipality	Portion 39 of Verliesfontein 354 Zastron RD

Norman Papenfus Transnet Freight Rail BLM	Erf 561 in Zastron
Norman Papenfus Transnet Freight Rail BLM	Portion 24 Verliesfontein 354 Zastron Rd
Nederduitse Gereformeerde Kerk Zastron Douglas Mac Kay	Belfast 513 Zastron Rd
Koot Klopper	Vogelenzang 349 Zastron Rd
Koot Klopper	Portion 1 of Vogelenzang 349 Zastron Rd
Hermanus Wilhelm Botha	Nellieshof 396 Zastron Rd
Engela Petronella Labuschagne\ Kobus van Wyk	Karina 406 Zastron Rd
Petrus Struwig	Nell's Restaurant
Tania van Tonder	Highlands Guest House
Johan Bestel Charmaine Smith	Quest Filling Station
Julis Buloai	Taxi Management
Elzabè van Aswegen	Guesthouse
Aliziwe	Samuel Johnson School
Samantha Landman Matsoso M.W.	Vultures Lodge
M.G. Voyiya	SAPS Zastron

The legal availability of emails and telephone numbers can be obtained if necessary as this is excluded with regards of the Protection of Personal Information Act (POPI Act); Act 4 of 2013 which came into effect on the 1st of July 2021.

Include proof that the key stakeholder received written notification of the proposed activities as Appendix E2. This proof may include any of the following:

- e-mail delivery reports;
- registered mail receipts;
- courier waybills;
- signed acknowledgements of receipt; and/or
- or any other proof as agreed upon by the competent authority.

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

PLEASE NOTE: The comments below is a summary of all the comments received during the EIA phase and the Public Participation phase of the project. A response is given to all concerns in an attempt to address the concerns as far as possible. All the comments received during the EIA phase is included in the Comments and Response report that can be found under Appendix E – Public Participation number 4B – Comments and Response report.

Comments were received from the following parties:

- Transnet;
- Sasol Gas;
- VULPRO;
- Endangered Wildlife Trust;
- AfriForum; and
- Numerous Registered I&AP's.

Table 16: Summary of issues raised by I&APs

Summary of main issues raised by I&APs	Summary of response from EAP
HEALTH AND MEDICAL:	
How will the existing health and medical system accommodate the new development?	A new hospital is planned as part of the proposed development. An area of approximately 1,93 hectares are reserved on the proposed layout plan for a hospital facility.
SAFETY AND SECUITY:	
Will additional police force members be appointed to accommodate the growing population? Crime is reality as unemployment figures soars in the town of Zastron!	It is suggested that more policing would be needed for the new planned township which will result in stability and protection of the people.
There should be as little entrances into the Ext 11 as possible from any main road to avoid any accidents and fatalities and I think this should be securely fenced off.	We are in agreement with you regarding limiting the entrances to the site as well as fencing the site off properly. We previously commented the following during the Scoping Phase: "In general a Traffic Impact Assessment addresses specific criteria related to new developments which includes construction of new roads; upgradings; roundabouts; new traffic signals; pedestrian safety and walkways to mention a few. Pedestrian safety is almost always regarded as one of the main concerns for new developments and the safety of the pedestrians are addressed within this report.
Numerous complaints were received regarding the uproar and unrest that took place in the town of Zastron due to a lack of service delivery.	The lack of service delivery is a very real and critical challenge in the town of Zastron. The proposed development will not be able to continue should the basic services i.e. water; sewer; electricity; waste removal (on a weekly basis); roads etc. in the town of Zastron not be addressed. According to the Mohokare

	Local Municipality in a letter dated 26 November 2020 they confirmed they have reached the objectives of the Mohokare 30 years Infrastructure Masterplan. It was also mentioned that the development will take place in phases namely: • Upgrade of the 15 km pipeline from Motagu dam to Zastron – pipe sizes were upgraded from 200mm to 315mm to accommodate the future development of the Extension 10 and 11. • Development of a new reservoir as per the Masterplan. • Upgrade of the pumps are completed. • Upgrade of the water treatment facility is ongoing in phases. • Sanitation – pipes have also been upgraded from 200mm to 315mm. • Current capacity is 2,5 million litres. • Concerned community members can peruse the Final IDP 2020/21 on the municipal website for further information. (https://www.mohokare.gov.za/documents/idp/Final%20IDP202020-21.pdf). Due to the site of this document it is not attached as one of the Appendixes of this report. Our office can also make it available by means of WeTansfer on request. We are also aware that Mohokare Local Municipality in collaboration with the Department of Water and Sanitation are busy addressing the water situation as it is mentioned in the Engineering Services report dated June 2021 that Mr. Anton Jones from the Department of Water and Sanitation confirmed that DWS is busy with the installation of pipelines from the Orange River which will supply several rural areas with water. The installation of the pipeline should be completed by September 2021. Another publication prepared by Mohokare Local Municipality Technical Services Department from September 2018; water supply upgrades from Motagu Dam and possible upgrades to the Water Treatment Works were proposed. It is however unsure if these upgrades were implemented as the Engineer could not confirm the latter with the Mohokare Local Municipality.

	If the Mohokare Local Municipality can deliver basic services to the local community of Zastron as per the measures mentioned above the unrest in the town will most definitely be minimized significantly and by supplying adequate basic services to the local community it will be possible to continue with the proposed development.
SERVICES **General:**	
• Basic Service delivery by the municipality is already a problem; how will that affect further service delivery? • I don't believe our municipality has the facilities and capacity to run this extension in the proper manner. • The Town of Zastron is deteriorating every single day. Nothing is being maintained or rehabilitated as there is no funds available. • This municipality is so bad, that it is just incomprehensible that they want to increase the area that will need service delivery. • AfriForum is against the proposed development. Firstly the Municipality should attend to the service delivery problems at hand before taking on other projects that will only put more strain on service delivery. • I am against the project for the following reasons. The Zastron infrastructure on basic	The lack of service delivery is a very real and critical challenge in the town of Zastron. The proposed development will not be able to continue should the basic services i.e. water; sewer; electricity; waste removal (on a weekly basis); roads etc. in the town of Zastron not be addressed. According to the Mohokare Local Municipality in a letter dated 26 November 2020 they confirmed they have reached the objectives of the Mohokare 30 years Infrastructure Masterplan. It was also mentioned that the development will take place in phases namely: • Upgrade of the 15 km pipeline from Motagu dam to Zastron – pipe sizes were upgraded from 200mm to 315mm to accommodate the future development of the Extension 10 and 11. • Development of a new reservoir as per the Masterplan. • Upgrade of the pumps are completed. • Upgrade of the water treatment facility is ongoing in phases. • Sanitation – pipes have also been upgraded from 200mm to 315mm. • Current capacity is 2,5 million litres. • Concerned community members can peruse the Final IDP 2020/21 on the municipal website for further information. (https://www.mohokare.gov.za/documents/idp/Final%20IDP202020-21.pdf). Due to the site of this document it is not attached as one of the Appendixes of this report. Our office can also make it available by means of WeTansfer on request.

services like water and sanitation is not adequate for the development. Majority of the citizens of Zastron have JOJO tanks and pressure pump at our houses as the Local Municipality do not have the capacity to provide water constantly. • Mohokare Municipality is already not coping with delivering any services whatsoever, now we are increasing the area that is supposed to receive services. I live in Hospital rd (very close to the above mentioned extension) and I do not have water supply for about 5 out of 7 days in a week. I had to get a tank and pressure pump and the pump only kicks in when the pressure is too low. Fascinating that my pump kicks in all the time – meaning the pressure is just too low to give high enough flow • I work as a healthcare provider at our local clinic and hospital in Zastron. We many days have challenges with watersupply at the clinic and rely on the municipality to bring water for our water tank on site, as we have pipes but no water connection to the reservoir. HOW CAN WE DEVELOP A NEW AREA IF OUR EXISTING COMMUNITY IS NOT SUPPORTED AND FUNTIONAL?	We are also aware that Mohokare Local Municipality in collaboration with the Department of Water and Sanitation are busy addressing the water situation as it is mentioned in the Engineering Services report dated June 2021 that Mr. Anton Jones from the Department of Water and Sanitation confirmed that DWS is busy with the installation of pipelines from the Orange River which will supply several rural areas with water. The installation of the pipeline should be completed by September 2021. Another publication prepared by Mohokare Local Municipality Technical Services Department from September 2018; water supply upgrades from Motagu Dam and possible upgrades to the Water Treatment Works were proposed. It is however unsure if these upgrades were implemented as the Engineer could not confirm the latter with the Mohokare Local Municipality. If the Mohokare Local Municipality can deliver basic services to the local community of Zastron as per the measures mentioned above the unrest in the town will most definitely be minimized significantly and by supplying adequate basic services to the local community it will be possible to continue with the proposed development.

• Ten years ago there were plans that a reservoir should be built in the orange river for the Zastron district, it never happened. Thereafter a water pipeline would have been built to supply Zastron from the orange river that also fell through. This development is not viable for Zastron as there are no water, no electricity, no sewage and no managed garbage disposal in Zastron as it is at this stage. • All sewer and water services should be in place prior to any person/land owner /beneficiary of a property can construct or erect any shack there on. These services must be fully functional.	
We have also had protests by the community recently regarding extreme poor service delivery. Where will the funds come from to develop this project if there is limited or NO funds to ensure effective services currently never mind maintenance in such a way that the existing town has minimum acceptable standards for humane living. Please find photos attached of protests. Concerns currently are: • Reliable and legal electricity supply;	Thank you for the photos of the protest actions of the community regarding poor service delivery. Kindly note that this proposed development will not be able to continue if the necessary services are not available. We will make it a recommendation for inclusion in the Environmental Authorization for DESTEA to consider in their decision making process. Please also refer to the above paragraph as it also addresses this concern.

• Sustainable water supply; • Refuse removal and maintenance of existing structures and resources; • Development of existing areas that still remains without bacis services e.g. Roads, sewerage, electricity	
Lack of basic facilities and planning will lead to hygiene and health issues.	It is of the highest regard that hygiene be up kept therefore the waste must be removed on a daily basis in a weekly schedule. The new township must be provided with ample refuse bins in and around parks; sport fields; townships; business center; schools; hospitals; churches; memorial park; taxi ranks; tourism areas; sidewalks and public buildings. It is noted from the comments received that the Municipality is unable to uphold the full service currently and therefore if they will not be able to provide services to the new development on a weekly basis the developer should provide a solution in this regard according to the standards of both the Municipality and Environmental Affairs. It was requested that Mohokare Local Municipality comment on this question. The Comments obtained from the Mohokare Local Municipality regarding waste is as follows: "This communication serves to confirm that Mohokare Local Municipality was and still is in the process of rehabilitating it's landfill sites across its three towns, Zastron as its main offices. This has been embarked on with technical and financial assistance of both Provincial and National department of environmental affairs since the past four years". It is advised that the Municipality along with the Department of Water and Sanitation provide education training sessions to residents and students on water preservation; health; safety; hygiene and conservation.
Water:	
• Problem are experienced with water meters	It was thought best to obtain comments from the Mohokare Local Municipality to

for many years already. It keeps spilling even though it's not used. Borehole water is used to supply the water needs. So many conversations end up with no solution or results. It was mentioned that the valve on the municipal side that is turned off does not lock and a certain part needs to be ordered but that is where it stopped. • If one looks at the water supply, which is constantly interrupted, it goes beyond my mind that any consideration is given to expansion of a town where the water supply is not even sufficient for the current amount of people in the town. Days go by that there is no water available. Some people had to incur extra expenses to set up tanks so that water could be stored, when water was unavailable, just to be able to wash and make food. Not everyone can do it. After all, water is crucial. • First and for most no one can live without running water supply, without electricity maybe but water is essential for all. At the moment there are some days 3 to 5 days the town does not have any running water supply due to infrastructure that are not looked after, tools not available to repair broken equipment, pipes etcetera.	address the concerns raised regarding the infrastructure. The comments we received from the Municipality are provided below: As per the Mohokare 30 years Infrastructure Masterplans; the following objectives have already been reached. It must be remembered that the planning and development will be in phases. i. Upgrade of the 15 km pipeline from Montagu dam to Zastron – pipe sizes were upgraded from 200mm to 315 mm to accommodate the future development of Extension 10 and 11. ii. Development of a new reservoir as per the Masterplan; iii. Upgrade of the pumps are completed; iv. Upgrade of the water treatment facility is ongoing in phases; Due to the magnitude of the proposed development various alternative water sources are considered to supply the proposed development with potable water. A total of 9 429.740kℓ of water per day is required to supply the proposed development with water. A Pilot Groundwater Exploration Program and Groundwater Resource Assessment was conducted by Geovation (Pty) Ltd during April 2021. An estimated 147 999.769kℓ (m^3) per annum or between 405.4799 and 429.74kℓ (m^3) per day could be supplied from the proposed boreholes on the site or from the surrounding areas. Only 4.30% to 6.37% of the project water demand of the project can possibly be sustainably supplied from the groundwater sources. Between 9 and 14 boreholes with a yield of 0.5L/s will be required to supply this volume. According to the Services Report conducted by Civil Consult Consulting Engineers; a publication prepared by the Mohokare Local Municipality Technical Services Department from September 2018; states that water supply upgrades

For how long are they busy with pipe lines to supply more water only to realize there is no pumps available to run it? How will this municipality supply 4000 units and a business of fresh clean running water? In this time of Covid pandemic hygiene is a big essential. • Over the last few years the location and the town is sitting day's without water, how will there be provided for the new extension with 4 000 households on. • The Mohokare Local Municipality is struggling to keep up with service delivery demands for the existing community it serves. Water and sanitation, refuse removal, water supply, potholes, landfill site, etc. are just a few of the services that the Municipality is not delivering on at an acceptable standard as set out by the law. • At the moment there is inadequate water supply to the residents of Zastron and Ext. 10 Township. We therefore know that the Municipality will not be able to deliver adequate water supply to the newly proposed Ext. 11 Township. • I am having a borehole at my house, 12 years ago I tested the water and the bacterial level was 6 times higher than the	from Montagu Dam and possible upgrades to the Water Treatment Works were proposed. The Engineers could not verify the implementation of the upgrades at the time of the Services Report in June 2021. The Orange River is located approximately 30 km east of the proposed development. According to telephonic feedback received from Mr. Anton Jones of the Department of Water and Sanitation (DWS); the DWS is busy with the installation of a pipeline from the Orange River which will supply several rural areas with water. The installation of the pipeline should be completed by September 2021. The water from the Orange River will have to be purified to conform to the standards of the Department of Water and Sanitation (DWS) should it be used for human consumption. Water could be supplied to the proposed development raw water reservoir; Water Treatment Works (WTW) and small potable water reservoir to be located in the south eastern corner of the proposed development. The treated potable water will be pumped from the small potable reservoir to several larger reservoirs to be located at a high point in the south western corner of the proposed development. Kindly note that the proposed development will not be able to continue without the provision of services.

normal level. • How will the drinking water problem be addressed? Our dam is too small to handle more people. The water purification plant cannot handle the current need of water. Will it be addressed? • 30% of the week the people relying on clean municipal water have no water or the water is brown & undrinkable. Mohokare's reply on waterpipes that are leaking is usually that they don't have the supplies and money to fix the leakages. The funds ran out. • Currently the municipality is unable to provide clean drinking water for the existing populated areas. Where will the additional water come from. • Zastron already has a water supply problem - especially, but not only in that area. The proposed development will probably only exacerbate the problem.	
The new development lies in the water catchment area of a large agricultural area. We have registered our water rights and adhere strictly to regulations. The new development could irreparably pollute our water source. How will water usage be monitored?	It is of the highest regard that hygiene and sanitation be up kept therefore the waste must be removed on a daily basis in a weekly schedule. The new township must be provided with ample refuse bins in and around parks; sport fields; townships; business centre; schools; hospitals; churches; memorial park; taxi ranks; tourism areas; sidewalks and public buildings. It is noted from the comments received that the Municipality is unable to uphold the full service currently and therefore if they will not be able to provide services to the new

	development on a weekly basis the developer should provide a solution in this regard according to the standards of both the Municipality, Environmental Affairs and Water and Sanitation. It is advised that the Municipality along with the Department of Water and Sanitation provide education training sessions to residents and students on water preservation. This project is in the process of obtaining the national Water License to which they will be accountable and regarded.
I anticipate that provision of water and sanitation will be difficult over such an extended area. Specifically if you look at the current water cleaning facility's position. The planned extension of the stock feeding kraal was stopped due to a shortage of water. Supplying water for this project will be much more daring. Actually this area is a water scarce area. Any development should be considered in the direction of the town's current water source, namely the Montaque dam. The supply lines for water have already been laid and redistribution of water could be done at a much lower cost, if you use these existing facilities.	It is suggested: "that provision of water and sanitation will be difficult over such an extended area. Specifically if you look at the current water cleaning facility's position. The planned extension of the stock feeding kraal was stopped due to a shortage of water. Supplying water for this project will be much more daring. Actually this area is a water scarce area. Any development should be considered in the direction of the town's current water source, namely the Montaqu dam. The supply lines for water have already been laid and redistribution of water could be done at a much lower cost, if you use these existing facilities." It is our suggestion that the Department should take this into consideration.
Sanitation (Sewage):	
All sewer and water services should be in place prior to any person/land owner /beneficiary of a property can construct or	The proposed development will be a formal settlement with building rules and restrictions that need to be adhered to.

erect any shack there on. These services must be fully functional.	The proposed development will not be able to commence or continue if services are not available. It is furthermore suggested that the Free State Department of Economic and Small Business Development, Tourism and Environmental Affairs (DESTEA) make this a recommendation of the Environmental Authorization.
There is a huge problem with sewerage in this area close to the hospital. It blocks very regularly and overflows for weeks before it gets sorted out. The hospital always receive the blame for flushing down things that they are not supposed to – hospitals have very strict rules – I do not think it is that. The sewerage system in our area is so old and clogged with tree roots.	The Municipality and the Department of Health should be consulted and the current problem should be brought under their attention. As for the Engineer suggested that a sewage sump & pump station be constructed in the south eastern corner of the proposed development and Waste Water Treatment Works to the northern boundary of the proposed development. The Layout plan indicates the position of the latter.
The letter states that new waste water, sewerage reservoir would be in place for the new extension 11 but then why is the older extension (shown on your card as Phomolong) as to date without proper running water and sewerage reservoir?	The Mohokare Local Municipality should answer the question regarding the current state of Phomolong. However, thank you for this comment. We are taking it into consideration. As mentioned previously the new proposed Matlakeng Ext 11 development will not be able to commence or continue if service provision is not available. The Engineer suggested that a sewage sump & pump station be constructed in the south eastern corner of the proposed development and Waste Water Treatment Works to the northern boundary of the proposed development. The Layout plan indicates the position of the latter. (Layout attached for ease of reference).
• In the current Locations the drain water is running above the street in front of the shacks and rdp houses, it is repeatedly reported but never fixed. How will the new extension with 4 000 household improve	The Municipality and the Department of Health should be consulted and the current problem should be brought under their attention. As for the Engineer suggested the estimated sewerage flow for the proposed development is calculated at 7 287,200kℓ per day.

this. • The sewage work of the Mohokare Municipality is completely dysfunctional. The plant is at a standstill and huge amounts of raw sewage is being discharged. This is a huge concern for AfriForum. If the Municipality cannot manage the amount of raw sewage it receives at the moment, how will it deal with the extra 4 000 houses it plans to develop? • The proposed area for development is situated a long way from the sewage works which is on the other side of town. It is impractical to build a new development so far from the sewage works. • Sanitation is a problem and Zastron do not have the capacity to deal with it optimally and now we want to increase the problem. • Will the sewerage system be done well, not like the problem in Reflekhotso that are leaving people staying in sewerage? • The same applies to sewage. Manholes are constantly overflowing and drains into the Montagu dam. With additional residential developments the situation will only worsen.	According to the Services Report it is proposed that an 8Mℓ (8 000kℓ) a day Waste Water Treatment Works (WWTW) be constructed in the south eastern corner of Erf 3988 (Public Open Space) of the proposed development. This portion of Erf 3988 will have to be separated from the original erf; a new erf number will have to be provided and the erf will have to be earmarked for municipal services. It is furthermore proposed that a sewerage sump and sewerage pump station be constructed in the north eastern corner of Erf 3966 (Public Open Space) of the proposed development. Sewerage from the western portion of the proposed development will drain via an internal sewerage network to the proposed WWTW to be located in the south eastern corner of Erf 3988 of the proposed development. Sewerage from the eastern portion of the proposed development will drain via an internal sewerage network to Erf 3966 where it will discharge into the proposed sewerage sump of the proposed sewerage pump station. From here the sewerage in the proposed sump will be pumped via a proposed sewerage rising main up to the proposed outfall sewer of the western portion of the proposed development where it will discharge. The treated effluent will conform to the special standards of the Department of Water and Sanitation. The Treated effluent will be discharged into the existing tributary of the Klipspruit intersecting the middle of the proposed development.
Waste Removal:	
• No service delivery is available in terms of	It is of the highest regard that hygiene be up kept therefore the waste must be

domestic waste as the trucks are always broken. We are paying R200 a week for a private person to take our waste to the landfill site. • Rubbish has only been removed three or four times this whole year!!! (It is supposed to be picked up weekly). • The garbage dropping point is so full people is dropping garbage all closer to the living areas, or just in their streets under a bridge so no rain water can run away how will more garbage influence this. • The refuse removal service no longer exists. It is an absolute disgrace to see how dirty the town and the surroundings are. We still have to pay the Municipality for refuse removal, which does not happen, and then also pay private people/ contractors to remove our refuse. It costs us a lot of money extra for a service to be rendered and not happening. It also poses a health risk if the Municipality does not remove the refuse, therefore some people get private people/ contractors to prevent it. How will the extension of the town harm the environment if services cannot be provided with the existing size of the town? • Refuse removal is not done on a daily basis. People have to remove the refuse	removed on a daily basis in a weekly schedule. The new township must be provided with ample refuse bins in and around parks; sport fields; townships; business centre; schools; hospitals; churches; memorial park; taxi ranks; tourism areas; sidewalks and public buildings. It is noted from the comments received that the Municipality is unable to uphold the full service currently and therefore if they will not be able to provide services to the new development on a weekly basis the developer should provide a solution in this regard according to the standards of both the Municipality and Environmental Affairs. The estimated volume of waste to be generated by the proposed development on a weekly basis is 2 160.08 m^3 per week. The solid waste will be collected and transported from the proposed development to the solid waste disposal site of the Mohokare Local Municipality. This will be done either by the Mohokare Local Municipality or by a Private Contractor. It is also understood from the Mohokare Local Municipality as well as from the Local Residents of Zastron that the current landfill site needs to be upgraded. Comments obtained from the Mohokare Local Municipality regarding waste is as follows: "This communication serves to confirm that Mohokare Local Municipality was and still is in the process of rehabilitating it's landfill sites across its three towns, Zastron as its main offices. This has been embarked on with technical and financial assistance of both Provincial and National department from environmental affairs since the past four years".

themselves or get an external contractor to do so. The Municipality is failing to deliver this service and will also fail to deliver this service to the newly proposed Ext. 11 township; • The landfill site is also a big concern and is not being managed in an environmentally friendly manner. At the moment the landfill site poses a serious health and environmental threat to the surrounding community. Residents and the Municipality has started dumping outside the landfill site alongside the road to avoid going into the site. The landfill site does not comply with any environmental management legislation and therefore it will be impossible for the Municipality to handle the refuse for the new development. • There are no waste removal in the township, which is a huge problem. Matlakeng looks like a dumping site, how will it be addressed?	
Roads:	
My concern is about the local municipality that does not currently have funding to get equipment or employees, contractors to fix the main road. Through Zastron To Sterkspruit, it is full of	We take note of your comment. During the Scoping phase our answer to your question was as follows: The Municipality responded as follows: "The Municipality understands the concerns of the general public in this regard. Different stakeholders will be engaged with in terms of certain financial assistance:

holes which is a sore eye and feeling for visitors passing through Town, how will this then be provided for a new extension, and if there is funds for that why must the Main Town Business Area be left behind.	i. Provincial Government in terms of the Department of Human Settlements; ii. Private developers in terms of the development of the low density areas; iii. Government assistance in terms of FLISP along with private developers; iv. Better implementation of the Indigent policy".
The roads in the town are in a precarious condition. Holes are sometimes closed, only to be reopened with movement of vehicles within a week or two. People's vehicles are being damaged due to the condition of the roads. If the existing roads can not be maintained, what will it be like if the town is expanded?	Seeing that the proposed development becomes an extension of Zastron it is advised that the streets of Zastron be upgraded along with this development.
• The road at the property is the main entrance to Zastron. How will the municipality ensure pedestrian safety? • Developing a town across four tarred roads would eventually require building more round about, tarred roads, at a very high cost. • The roads of the existing town Zastron is in such bad shape that our vehicles are getting damaged.	Access to the development will be gained directly from the Provincial Road R726 and Zastron ring road via several new intersection accesses and internal access roads. The new intersection accesses of Provincial Road R726 and Zastron ring road and the new internal access roads will be constructed according to the standards and specifications of the Free State Department of Police; Roads and Transport (FSDPT). The internal roads to the proposed development will be designed and constructed according to the standards and specifications of the Mohokare Local Municipality. Wayleave approval will be acquired from the FSDPRT to allow ingress and egress to the proposed development.
Municipal:	
Prepaid water meters have been installed in some households, but still do not work after months. The meters are leaking, but no one	Mohokare Local Municipality will have to answer the question regarding the prepaid water meters. As mentioned previously no development will be able to continue if the

can get their hands on the repairs. The contractors are accused by the Municipality, but no solution is offered. How will issues be resolved with more homes?	necessary services are not available.
When the municipality neglect their duties, what recourse will we have?	When Municipalities neglect their duties it is the residence prerogative to lodge their complaints to the ruling party of the day.
Electrical:	
• Does Zastron have sufficient electrical supply? • The power supply is also inadequate. There are many days where the power is so weak, that one's devices e.g. a microwave, amongst other things, does not work adequately. With an additional load of people who are using the power, there will be more days that we will be without power. • There are no money on Centlecs side to properly fix electricity problems. • Eskom cannot even supply RSA with enough electricity but there is another development plan for 4000 more households in Zastron. • How will the electricity need be addressed with the current situation at ESKOM, there is not sufficient electricity resources as it is!	The proposed development will be supplied with electricity from the Centlec Power Supply Network. Centlec will take over the network once the development is completed. They will then be responsible for the operation and maintenance of the network. The standards and specifications for materials and design prescribed by Centlec must be followed. The electrical supply to the development will require the construction of a new 132/11kV Substation which will be constructed on a 100m x 100m servitude in favour of Centlec. The new 132/11kV substation will be supplied by constructing a new 132kV line from Zastron Municipal Substation. The short-term electrical capacity requirement could possibly be accommodated by installing 11kV cables from the nearest MV ring network with spare capacity up to the border of the proposed development. Due to the size of the development; it is envisaged that a minimum of three (3) primary satellite substations will have to be constructed within the development in order to distribute the 11kV throughout the development. The primary substations will be supplied form the 132/11kV substation with 240mmcopper cables using a single contingency model (n-1). According to the project Engineer a new Substation will need to be constructed

	to supply electricity to the proposed development. Centlec will have to apply for an Environmental Authorization. The proposed development will not be able to proceed should the necessary services be available to service the proposed development. This should be made a condition of the Environmental Authorization.
Fire:	
Will the municipality adhere to the rules and regulations on fire safety as Mooifontein is a fire hotspot.	It is requested that Mohokare Local Municipality comment on this.
There should be sufficient firebreaks between municipal and commercial farmland as well as fences.	It is advised that there should be sufficient firebreaks between municipal and commercial farmland as well as fences.
ECOLOGICAL **General:**	
• According to my knowledge the mountain area is regarded as a conservation area? What purpose does this serve? • It is really sad that such a development is considered. No Residential development or any extension is allowed within a conservation area. This area adjacent to the Aasvoëlberg is a conservation area. • As an individual from the Zastron I am a	The proposed development does not fall within any protected area. All sensitive areas and buffer areas found to be on site will be excluded from development. All buffers are indicated on the layout plan. Please refer to the proposed Layout plan (Alternative 4) under Appendix A and C. The ecological sensitive areas and the conservation area are indicated on the ecological maps under Appendix C and the Ecological Study can be found under Appendix D – Specialist reports. Furthermore Mohokare Local Municipality and the Conservation Section of the Free State Department of Economic Small Business Development; Tourism and Environmental Affairs (DESTEA) are in the process of determining the conservation area of the Aasvoëlberg. In a letter from Mohokare Local Municipality dated 26 November 2020 (Appendix J) it was stated that Council

concerned resident of the Mohokare local municipality. My concern is regarding the possible development in a sensitive area on the Aasvoëlberg conservation area. The fauna and flora is in a delicate balance that will be seriously disturbed with any residential development. The vulture colony is the one Cape vulture colony in the Free State and they are currently happily staying at the mountain after a long absence. The current situation is perfectly balanced in their favour and I ask that this not be disturbed. I am one of the very concerned parties, one of the features that makes Zastron so unique is our colony of Cape vultures that are endangered and that will be expelled if this development goes ahead in this specific site which is adjacent to Aasvoëlberg mountain previous mentioned as a reserve by the municipality to be protected? How will it be protected if man lives next to the mountain, making fires, hunting, open access to a supposedly protected area that should be protected against these acts. The neighbouring property owners	approved the joint working relationship between the municipality and DESTEA in terms of the process of determination of the conservation area at Aasvoëlberg in line with the Spatial Planning Categories (SPCC) as set out in the Mohokare Spatial Planning and Land Use Management Bylaw; 2015. It was requested and still is requested that both Mohokare Local Municipality and the Conservation Section of DESTEA comment on the layout plan as to indicate whether the current proposed layout falls within the planned protected area. No comments were received during the Scoping Phase and it is once again requested that both competent authorities provide comments in this regard.

face trespassers frequently stealing fencing, hunting and scavenging without much consequences. How will we protect these birds if there is a community living under the mountain.	
• The farmland on the left hand of the road when you leave Zastron in the northern direction, is a nature reserve and there are vultures in this mountain. They have only returned fairly recently and it is extremely bad for the environmental situation in our town. • Environmental factors The new proposed Matlakeng Ext. 11 township development will have a negative impact on the environment. The proposed area for this development is in a sensitive ecosystem with plenty of fauna and flora that will be disrupted by human activity. Also the proposed area is in a nature conservation area and therefore we cannot allow this township to be developed in the proposed area. Rare Cape vulture species can be found in the Aasvoël mountains and they will leave the area if it is disturbed by human ctivities. Therefore the proposed township cannot be	The conservation of the vultures is a priority and various parties who are specialists in the field have been consulted to assist us and confirm the impact that the proposed development will have on the vultures. Numerous parties namely VULPRO; Wildlife Endangered Trust; WESSA as well as the Conservation Section of DESTEA are requested to comment on the layout plan. From the information obtained from the public; professional team and all the Specialist reports all sensitivities on the site have been taken into consideration whilst preparing the layout plan. As can be seen with the proposed Layout Plan (Alternative 4) all the sensitivities are excluded from development as far as possible. The only activities situated on sensitive areas are the Tourism facility as it is regarded to complement the Aasvoëlberg and can act as a buffer by protecting the sensitive areas to the west of the site with strict and controlled access to these areas. The hospital is also situated within this area however it is situated adjacent to the Tourism Facility and next to the road which from an Ecological point this location can be regarded as the least sensitive and will have the least impact if it is located in this specific area. Inputs were also gathered from the Ecologist that are in line with the above mentioned. The development does not include the mountain (Aasvoëlberg) although it is in proximity. The Cape Vulture has been accommodated and included in the report

developed there. • Our interest in the EIA process for the proposed Matlakeng Ext 11 project results from our concern for the Cape Vulture colony on Aasvoëlberg. We have been monitoring the colony for a number of years and believe that the development will affect the vultures negatively. As you know, Cape Vultures are critically endangered due to various reasons. In our community it was mainly due to eating poisoned carcasses as well as noise from the shooting range adjacent to their breeding site. These practices had devastating effects on the Cape Vulture population in the area in the past. They disappeared from our area during the '90s. In early 2014 – as you can see from the attached articles – they started coming back. This was mainly as a result of education, information and the cessation of shooting and noise at the range. Representatives from Vulpro (https://vulpro.com) visited our town in 2014 and were overjoyed at the establishment of a breeding colony. Local enthusiasts have	as well as management and suggestion of close cooperation with VulPro to ensure the birds do not come to harm. The reality is that the occurrence areas do not intercept with the township development and the idea behind the township is also the development of the Tourism Centre to promote awareness and education as well as including the community in natural aspects associated with the Zastron area. The buffer area as proposed by BGIS (South African National Biodiversity Institute (SANBI)'s Geographical Information System has an area which is delineated as a Vulture Conservation Area and the only section that falls within this buffer already delineated and included within the reports; is the Tourism section and a hospital; of which the bulk of the buffer has been delineated as "Open Space". Regardless of this; the Sensitivity in the report has been reflected and given as Very-High and High for all areas in close proximity of the mountainous area (including the natural grassland found) and Medium for the pasture; since it could also be utilized by birds and animals dependent on grassland and were found to be in good condition.

been keeping a close eye on the population in the intervening years and last week between 350 and 400 were counted. Many breeding pairs are on nests at the moment. All in all this is a fantastically positive conservation effort. We believe that expansion of Matlakeng on the mountain side of the R726 will have a devastating effect of this precious natural heritage as well as the unique and diverse ecology of the area. There was a move towards declaring the whole of Aasvoëlberg a bewarea, but the wheels of government in the Free State turn very slowly. DESTEA was part of this initiative and recognised the need for conservation of the sensitive mountainside.	

Two attachments with documents regarding the Cape Vultures and the return of the Cape Vultures were attached to the email (Please refer to Appendix E – Public Participation for the attachments) as well as to the Comments and Response report under Appendix E.

Response:
We like to thank you for the information regarding the Cape Vultures. We take note of it and have forwarded your comments to the project Ecologist.

Thank you for the excerpt from an article written in April 2014 regarding the return of the Cape Vultures. It was an interesting article and we are glad that from 2014 the numbers of breeding pairs/ community have increased. We will do our utmost best with

the assistance of the local residents; various parties (VulPro; Endangered Wildlife Trust; Conservation section of DESTEA; project Ecologist etc.) to protect the Cape Vultures as far as possible. You will note that the latest layout (Proposal – Alternative 4 layout plan) have taken cognisance of the Cape Vultures and we are trying to stay clear from them as far as possible and also considering mitigation measures in an attempt for solutions for them not to be electrocuted.	
We comment on behalf of VulPro, a Vulture Conservation Group situated in the North West Province of South Africa. Adjacent to the property proposed for development, approximately 1-2 km away, is a well-established Cape Vulture colony, home to ~ 200 pairs and one of only a few colonies left in the Free State. They are thus vulnerable to disturbance and require all the protection they can get. Cape Vultures are endemic to southern Africa and are listed as Endangered in South Africa. Presently there are only ~ 9400 mature individuals left globally, with the majority of them found in South Africa (~ 8800 mature individuals). All this despite the fact that vultures play an essential role in our ecosystem by ridding the landscape of carcasses, and avoiding the spread of communicable diseases. The proposed mixed-use development on the adjacent property will intensify two of the main threats to Cape Vultures that have been described by many authors such as Ogada et al. (2016). This particular colony will most likely slowly decline if the proposed mixed-use	We are grateful for the comments coming from VulPro as we are also concerned about the vultures and their protection as far as possible. We were hoping that you could perhaps consider our mitigation and management measures and assist us wherever possible by perhaps also becoming more involved with the planned Tourism facility. You will see that a few recommendations were made in the Scoping Report that was previously circulated to all I&APs and Stakeholders for comments. The paragraph that was included in the Scoping Report is inserted below for ease of reference. It is recommended from an environmental point of view that the tourism facility be located as close as possible to the Vulture Conservation area. It is furthermore recommended that it should be incorporated in the planning with the main focus on the occurrence of the Vulture colony; other sensitive fauna and flora species; coordination of regulated tours in consultation with VulPro (who specialises in saving Africa's vultures through rehabilitation; research and education as well as implementing VulPo captive breeding progammes); education regarding the Cape Vulture; it's protection and continued conservation. It is furthermore suggested that specific attention should also be towards intervention against the use in traditional medicine and education to alleviate the possible impact. The development does not include the mountain (Aasvoëlberg) although it is in proximity. The Cape Vulture has been accommodated and included in the report as well as management and suggestion of working in close cooperation with VulPro to ensure the birds do not come to harm. The reality is that the occurrence areas do not intercept with the township development and the idea behind the township is also the development of the Tourism Centre to promote awareness and education as well as including the community in natural aspects associated with the Zastron area.

development goes ahead. The increased economic pressure, experienced by every South African, will increase the illegal trade of vultures for their use in traditional medicine or their economic value in the pet trade industry (Ogada et al. 2016). Colonies present an easy opportunity for illegal harvesting as chicks sit in the nest, vulnerable to any potential threats on the cliff face. While the threat of illegal harvesting exists whether the proposed development is erected or not, the threat is heightened by the increased proximity of human settlements (Lhoest et al. 2020). Presently, the east of South Africa is a hotspot for the illegal harvesting of vultures (McKean et al. 2013), and thus to aggravate an already sensitive area would be highly unrecommended. Furthermore, the proposed mixed-used development will lead to increased infrastructure, such as power lines, close to the colony. Power lines are shown to impact these birds negatively through power line electrocution and collisions (Howard et al. 2020), especially around colonies (Aspenström et al. In Press; Bromfield et al. In Press). Power lines pose a huge threat to vultures in Africa (Ogada et al. 2016), and therefore it is not recommended to add power lines to the landscape surrounding vulture	The buffer area as proposed by BGIS (South African National Biodiversity Institute (SANBI)'s Geographical Information System has an area which is delineated as a Vulture Conservation Area and the only section that falls within this buffer already delineated and included within the reports; is the Tourism section some residential areas and a hospital; of which the bulk of the buffer has been delineated as "Open Space". Regardless of this; the Sensitivity in the report has been reflected and given as Very-High and High for all areas in close proximity of the mountainous area (including the natural grassland found) and Medium for the pasture; since it could also be utilized by birds and animals dependent on grassland and were found to be in good condition. The development does not include the mountain (Aasvoëlberg). The benefit of the large buffers proposed and taking cognizance of the Vulture Conservation Area; these birds and any other utilizing the sensitive areas will by default be protected to a very large extent; because the mountainous area is where the most sensitive species and endemic species will find refuse; habitat and has been marked as very high sensitivity within the reports. We would like to ask you to peruse it as well as the Ecological Report and make suggestions and recommendations to be considered for inclusion within the Final EIA report. Specifically consider the various layout plans (especially the proposal – Alternative 4) and provide us with your comments and thoughts in this regard. Discussions took place with both the Electrical Engineer and the Ecologist to obtain information on how they will address this critical aspect of vultures being electrocuted by power lines as this is already a concern and taking place in and around the town of Zastron. It was discussed that most of the lines/ cables will

colonies. Therefore as a Vulture Conservation Group, we urge the careful consideration of the proposed mixed use development as this could potentially lead to the extinction of one of the last colonies left in the Free State Province of South Africa. In order to protect the Cape Vultures of the Free State, we need to avoid any development that could potentially negatively impact this keystone species.	be underground. Alternative measures are also investigated to ensure where power lines are above ground that they will be vulture friendly. At this stage nothing is final and no formal agreements has been made as the project is still in its early phases however it is in consideration and under discussion. It is also recommended that the following recommendations from the Ecological report be considered by the project Engineers and the applicant. It is also recommended that this be made a condition in the EA: • All existing pylons and overhead lines need to be replaced or retro-fitted; on a carefully prioritized basis; and new infrastructure needs to be designed and routed; to minimize the risks from electrocution and collisions. • The electrical infrastructure which normally forms part of the residential development; should investigate the use of insulators to be placed on conductors to prevent the bird from touching the conductor while landing or taking off and thus reducing the risk of an electric shock. The length of the isolators is adapted to size of large birds of prey; such as the Vultures present in the area. Popular mitigation measures (Dixon; 2017) include: ➢ Methods for mitigation: Insulation: ❖ Existing high-risk electricity infrastructure can be retrofitted with insulation materials to prevent bridging between live cables or between cables and grounded hardware. Insulation can be fitted to conductor wires and insulators supporting the cables or to the grounded crossarms. Insulating materials need to be of appropriate specification for the voltage and the regional environment of the power line; and must be correctly installed by competent engineers. Insulation fitted retrospectively requires monitoring and maintenance to ensure that it continues to function effectively. ➢ Methods for mitigation: Perch deterrents and deflectors:

	❖ Electrocution rates can potentially be reduced by deterring birds from perching in dangerous positions on power distribution lines. Some deterrents; such as rotating mirrors; are aimed at deterring birds from perching nearby; while others; such as spikes; act as physical barriers to prevent birds perching close to live cables. Deterrent methods can differ in their efficacy; and inappropriate placement may even increase electrocution risk. It is important to ensure that the chosen deterrent or deflector is appropriate for the specific circumstance; is correctly installed; and that a programme of monitoring and maintenance is in place. ➢ Methods for mitigation: Reconfiguration (Preferred): ❖ Retrofitted mitigating such as insulation covers and perch deflectors are best regarded as temporary until a permanent solution can be installed. ❖ Consequently; the best option is to reconfirm the hardware of a power line to a "bird safe" design that minimizes the risk of electrocution. Simple reconfiguration can take the form of changing jumper wires so that they pass under the crossarm rather than over it; and switching from upright pin insulators to suspended chain insulators. ❖ Reconfiguration is not necessarily a more expensive option as it requires no further maintenance beyond that normally scheduled for the line. Furthermore; there are no additional outage risks that can be associated with retrofitted mitigation such as insulation covers. However; it must be noted that certain equipment cannot be reconfigured e.g.; transformers; regulators and capacitors; which require insulating materials to be used. ➢ Prevention: Ensure all new power infrastructure is bird safe ❖ The risk of bird electrocution should be a core consideration when selecting hardware configurations for electricity distribution lines. Key elements are: ✓ To ensure that the phase cables are spaced far enough apart to reduce the risk of large birds touching both simultaneously (1.8 m is

	recommended for Vultures); ✓ Preferably use of non-conducting materials for support structures; such as wooden poles or fiber-reinforced composite crossarms and ✓ On grounded structures; such as reinforced concrete poles with metal crossarms; phase cables should be suspended from chain insulators rather than supported by upright pin insulators. Additional bird safe alternatives include using insulated cables and burying cables underground. We have also recently seen an article "Science Snippets: Powerline Markers prevent collisions in Blue Crane but not Ludwig's Bustards" done on a study conducted by Wildlife Endangered Trust. This study proved that line marking reduces power line collision mortality for large terrestrial birds; but of bustards, in the Karoo; South Africa. Ornithological Applications conducted by Shaw JM; TA Reid; BK Gibbons; M Pretorius; AR Jenkins; R Visagie; MD Michael and PG Ryan; 2021. The link for the article is below: (https://www.ewt.org.za/sp-apr-2021-science-snippets-powerline-markers-prevent-collisions-in-blue-cranes-but-not-ludwigs-bustards/?fbclid=IwAR0W90QfeWhJPTTlekHbRZ5eR-ahu5p0gWly2pPWoMUGyI1ryHRXdzQ0Sag) Further recommendations are made by the Ecologist regarding the protection and welfare of the Vultures namely: 1. Relevant to the trade in Cape Vulture body parts in the traditional health industry; Mander et al. (2007) call for an intervention strategy to be developed that addresses the following primary areas of action: ➢ Reduce consumption/ demand for vultures through an awareness-building campaign targeting public consumers and current role-players in the trade; ➢ Change/ create policy to improve regulation of the vulture trade;

	➢ Improve policing and enforcement for better regulation of the vulture trade; ➢ Improve understanding of the vulture trade to allow more focused interventions; including research and monitoring of the use of trade of vultures. 2. Firm steps must be maintained to confirm that the food provided at "vulture restaurants" if these are applicable to the Aasvoëlberg site and is free from toxins harmful to the birds. 3. The scourge of poisoning needs to be combated by the rigorous investigation and prosecution of all such instances; as well as the maintenance of ongoing and high-profile education and publicity campaigns emphasizing the causes and consequences of such incidents. The legal penalties need to be severe enough to act as material deterrents. 4. Careful monitoring of the potential use of diclofenac and other non-steroidal anti-inflammatory drugs (NSAIs) which is lethal to Gyps vultures; is required for the cattle farmers as observed in the areas and no unregulated/ unchecked carcasses should be provided unless approved by VulPro. Ensure awareness amongst all staff; contractors and visitors to site to not needlessly harm or hinder animals or damage flora that is endemic and serve as habitat for the animals inhabiting the area.
Other endangered species of birds lives in bushes/shrubs growing in and around the mountain, as it is the existing community visits the mountains to make fire wood, already affecting this area, how much more if an entire development should resume.	With the Proposed Layout plan (Alternative 4) we attempt to keep the area adjacent to the Aasvoëlberg vacant with strict controlled access by the proposed Tourism Facility. No other development is planned adjacent to the mountain. It will be noted that the Residential development is also situated to the east of the road. Therefore the road also acts as a buffer between the proposed Residential Development and the Aasvoëlberg in an attempt to further protect the mountain area with all the sensitive fauna and flora species and other sensitive features. The Ecologists took all fauna and flora species into consideration during their site survey and report writing. You will note that the Ecological Report will be

	attached to the Draft EIA as an appendix. Please peruse this report along with the Draft EIA once available for more detail in this regard.
We have in the past experienced veld fires around the mountain, and it remains the responsibility of the farmers community to extinguish these fires. How much more will the fire risk be with a community living under the mountain? Will the municipality be able to fight fires in order to protect this area.	During the Scoping phase of the project we suggested the following: "It is advised that there should be sufficient firebreaks between municipal and commercial farmland as well as fences". Furthermore it is requested that the Municipality address this concern.
Please refer to the recent magazine article in LANDBOU WEEKBLAD regarding the Red falcon specie that visits our mountain annually, we have a risk to do permanent and long-lasting damage to our fauna and flora if we are not aware of these factors.	Thank you for the information regarding the article in the Landbou Weekblad. This article was also forwarded to the project Ecologist.
The mountain area is also housing a lot of wild animals and some of them is very scares and unique to the area. With the development their natural habitat will be disturbed and I am highly against it. We first need to look at alternatives for the wild life.	Noted. The development does not include the mountain (Aasvoëlberg) although it is in proximity. We also consider the protection of all fauna and flora at all cost as far as possible. The Ecologist done a thorough site visit followed by an Ecological Report which is attached as Appendix D – Specialist reports.
Hydrology/ Wetlands/ Watercourse:	
The area has plenty of underground water channels that will be polluted if sewage is not managed properly	Noted. We agree with your comment and strict measures should be in place to ensure that this does not happen. This development will have to comply with all rules; regulations and legislation according to law. All Authorizations; Licenses and Approvals should strictly adhered to. Please refer to the Geotechnical and Hydrology sections of this report under Section B number 5 and number 7 on Pages 97 to 101 and Pages 102 to 107.
Some of the houses in the Refeng Khotso	Noted. Please refer to the Services section in the report under Section A number

section were built below the waterline and is flooded every time it rains. Now we want to build new infrastructure in the same area.	12 to number 14 on Pages 82 to 92.
ECONOMICAL:	
Ultimately our town is going to suffer financially, there is already a major push back to not pay rates & taxes due to no service delivery, how will our municipality afford to run an additional township in its current position?	This proposed development will be a formal settlement with building rules and restrictions that need to be adhered to. The Mohokare Local Municipality commented that they understand the concerns regarding the affordability of a new development. Different Stakeholders will be engaged with in terms of certain financial assistance: (i) Provincial Government in terms of the Department of Human Settlements; (ii) Private developers in terms of the development and the low density areas; (iii) Government assistance in terms of FLISP along with private developers; (iv) Better implementation of the Indigent policy.
4000 units would mean at least 8000 new residents entering Matlakeng town where would they get employed? As our children of Matlakeng must already look for work out of town as there is no work opportunities available.	The proposed new development will create a number of new employment opportunities for example: policing; teachers; municipal workers; doctors; nurses; cleaning staff; admin staff; retailers and wholesalers only to mention some of the employment opportunities that will be made available.
• The image of our town and ultimately the businesses and willingness of outside consumer to visit our town could be affected. • With the current situation of the infrastructure like water roads, water and sanitation it will be very difficult to draw investors to the area. • For residential purposes we do how ever	Noted. Upgrading of infrastructure are discussed under the Services section above. Noted.

see problems coming the towns way. 4000 units is not a small new addition to the already struggling community.	
To take away the land it will not benefit our community as they use the land for farming purposes and now we want to decrease their land for grazing of their animals. This is the only income for most of the farmers. We are going through an economic crisis and we cannot take the income of the people for a plan which have the ability to be a disaster. We cannot play with people's lives and incomes.	Noted. We are taking your comment into consideration and will discuss this with the applicant and Municipality and see if and how we can incorporate an area for the animals to still graze on a portion of the land if at all possible.
SENSE OF PLACE:	
Can we not find residential space near to our current township where services are already accessible?	Your comment is noted. However; the site under investigation belongs to the Mohokare Local Municipality which only makes sense that they would use property they already own. Alternative solutions are investigated by the Engineer for service delivery for the proposed project in order to ensure the proposed project will have the necessary services available. It should also be noted that other alternatives are investigated by the Town Planners. All layout plans will be included in the Draft EIA. Please comment on this once the Draft EIA report is in circulation for comments. Thank you for your suggestion. We will take it into consideration.
According to me the town has enough land available for the current residents to be occupied sufficiently.	Your comment is noted. However, according to the Final Intergraded Development Plan (IDP) 2020/21 of Mohokare Local Municipality this project forms part of a national programme to address the housing shortages within the Xhariep District Municipal area. The IDP further stated a backlog of 5 000 units

	within Zastron being in the greatest need for housing of approximately 5 000 units. (A copy of the Final IDP 2020/21 can be obtained on the municipal website for further information. https://www.mohokare.gov.za/documents/idp/FINAL%20IDP%202020-2021.pdf)
This will become an unsightly entrance to the town of Zastron.	This proposed development will be a formal settlement with building rules and restrictions that need to be adhered to. Mohokare Local Municipality commented in their letter dated 26 November 2021 (please refer to Appendix I) on this question and confirmed that the low income development as well as the middle income- and business sites will be regulated in terms of what may be built as well as the appearance; form and functions of each structure.
Would it not be a more viable option to extend to the East across the Sterkspruit tar road.	At the corner where the R726 crosses the R26 entrance to Zastron; where the old farm cemetery is located; a park will be established as to beautify the entrance and respect the burial site. From the entrance from Wepener; on the right-hand side; will be little development as to keep most of nature intact. The conservation area is important to the municipality and a relationship has already been established between DESTEA and the municipality. The next step will be: i. Determine the conservation area boundaries; ii. Committee of interested parties to be established.
And if this goes' through, this will be done at the ENTERANCE of the town which all visitors for new business passes could it be taken in consideration to maybe include a concrete wall along the side of the road Both Sides for the shacks not to visible to the potential investors to Zastron. That the Entrance of the town could be a neat and impressive entrance and for the safety of	This proposed development will be a formal settlement with building rules and restrictions that need to be adhered to. Mohokare Local Municipality commented on this question and confirmed that the low income development as well as the middle income- and business sites will be regulated in terms of what may be built as well as the appearance; form and functions of each structure. At the corner where the R726 crosses the R26 entrance to Zastron; where the

those households kids that always run over the road from one location to another to play.	old farm cemetery is located; a park will be established as to beautify the entrance and respect the burial site. From the entrance from Wepener; on the right-hand side; will be little development as to keep most of nature intact. The conservation area is important to the municipality and a relationship has already been established between DESTEA and the municipality. The next step will be: i. Determine the conservation area boundaries; ii. Committee of interested parties to be established. We are in agreement with you regarding limiting the entrances to the site as well as fencing the site off properly. We previously commented the following during the Scoping Phase: "In general a Traffic Impact Assessment addresses specific criteria related to new developments which includes construction of new roads; upgradings; roundabouts; new traffic signals; pedestrian safety and walkways to mention a few. Pedestrian safety is almost always regarded as one of the main concerns for new developments and the safety of the pedestrians are addressed within this report."
OTHER:	
The informal housing is also a sore eye. Homes are being erected; with no water supply; power; sewerage or streets available. This is unacceptable; but is allowed.	Noted.
I sincerely hope that the extensions will be reconsidered and that the best for the current residents of the once beautiful town will be carefully considered.	Noted.
Our town is a stop for consumers going to Eastern Cape (Sterkspruit) let's not create an	This proposed development will be a formal settlement with building rules and restrictions that need to be adhered to.

environment that is not welcoming and allow individuals to have access to close our town which is so close to our main road.	Mohokare Local Municipality commented to this question and confirmed that the low income development as well as the middle income- and business sites will be regulated in terms of what may be built as well as the appearance; form and functions of each structure. At the corner where the R726 crosses the R26 entrance to Zastron; where the old farm cemetery is located; a park will be established as to beautify the entrance and respect the burial site. From the entrance from Wepener; on the right-hand side; will be little development as to keep most of nature intact. The conservation area is important to the municipality and a relationship has already been established between DESTEA and the municipality. The next step will be: i. Determine the conservation area boundaries; ii. Committee of interested parties to be established.
My question is if they cannot maintain the current town how will they be able to handle a new township? My honest opinion is that it will only be a matter of time before the new town looks like the old one.	Noted. This development will have to comply with all legislation and regulations and will also be regulated in terms of what may be built as well as the appearance; form and functions of east structure. Furthermore all options are considered regarding the infrastructure. Should the basic services not be the proposed development will not be able to continue.
If there is any unrest in our town it is extremely easy to close down the three entry routes into town as all three are going to be surrounded by shacks on both sides. This means that the risk for save entry and exit deteriorates with this extension.	Noted. The proposed development should be fenced off. The proposed development is for a mixed use development and the residential factor will consist of low; medium and high cost housing. This proposed development will be a formal settlement with building rules and restrictions that need to be adhered to.

It seems that the plans were supposed to be for medium income housing – which does not mean shacks!!!!!!!!!!! This decision was pushed through at a time of political significance.	Mohokare Local Municipality commented on this question and confirmed that the low income development as well as the middle income- and business sites will be regulated in terms of what may be built as well as the appearance; form and functions of each structure.
AfriForum is a civil rights organisation with the main purpose of protecting the constitutional rights of its members and the communities to which these members belong. We are acting on behalf of our members in Zastron and surrounding communities, who gave us the mandate to address this particular issue in the Mohokare Local Municipality. AfriForum is against the proposed development of the Matlakeng Ext. 11 township establishment	Your comments are noted. Noted.
I would like to represent the EWT (Endangered Wildlife Trust) and register as an interested and affected party for the Matlakeng Ext 11 proposed Township Establishment and Mixed Use Development. Please confirm whether I can do this through you and what the next steps are?	Thank you so much for your email and enquiry. We hereby register you as an Interested and Affected Party (I&AP) for the proposed Matlakeng Ext 11 development. The 30 day EIA public participation phase expired on 30 April 2021. There after the Draft Environmental Impact Assessment (EIA) report will be circulated for a 30 day comment period to all registered I&APs for perusal and comments once it is finalized and ready for distribution. We encourage you to please peruse the Draft EIA report once it is available and please provide our office with your inputs and comments.

	Please do not hesitate to contact our office should you have any further queries. We will gladly assist where we can.
NOT AFFECTED/ IN SUPPORT OF THE PROJECT:	
For us as residents of Zastron town we are excited about the new Business opportunity coming to town. This will help so many families that do not have any form of income at the moment.	Noted.
No objection against the abovementioned application as Sasol Satellite Operations will NOT BE AFFECTED. This wayleave is valid for 12 months. Thank you for your co-operation in submitting this request	Thank you for your email. We take note of your letter and comment.
Transnet pipeline servitudes are not affected by the proposed work/ installations/ excavations/ connection/ road/ upgrade/ development/ etc. as depicted on your locality and/ or project/ site layout plans. This wayleave authorizations is valid for thirty six (36) months from today's date – 30 March 2021.	Noted.
I will gladly support the project if the existing problems in Zastron is fixed first.	Noted.

4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the Draft Scoping Report is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to the Final BAR as Appendix E3.

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Table 17: Authorities and Organs of State as key stakeholders

Authority/Organ of State	Contact person (Title, Name and Surname)
Free State Department of Economic Small Business Development; Tourism and Environmental Affairs (DESTEA)	Vakalisa Hlazo
Xhariep District Municipality	Mr. Tshepo Moselesele
Mohokare Local Municipality	Ms. Emmerentia Meades
Department of Water and Sanitation (DWS)	Mr Vernon Blair
Department of Rural Development and Land Reform	Mr Momelezi Twantwa
Department of Agriculture and Rural Development	Mr M Thabethe
Free State Department of Heritage	Ms Ntando PZ Mbatha
Free State Department of Economic, Small Business Development, Tourism and Environmental Affairs	
Department of Rural Development and Land Reform	
Council for Geo-Science	
SAHRA Free State Department of Sport; Arts; Culture and Recreation	
PHRAG	
Eskom	Mr. Xolisa Songcaka
Centlec	Mamello Mpholo
SANRAL	Lethu Dlanjwa
DMR	Ms. Mmadikeledi Malebe

Spoornet	
PetroSA	
Transnet Pipelines	Thami Hadebe
Sasol	S Reyneke
Department of Human Settlements	
Department of Land Claims – Rural Development	Baloi Malebo/ Saila Ramaleho Magezi Mhlanga

The legal availability of emails and telephone numbers can be obtained if necessary as this is excluded with regards of the Protection of Personal Information Act (POPI Act); Act 4 of 2013 n which came into effect on the 1st of July 2021.

Include proof that the Authorities and Organs of State received written notification of the proposed activities as appendix E4.

In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State.

6. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for any activities (linear or other) where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub-regulation to the extent and in the manner as may be agreed to by the competent authority.

Proof of any such agreement must be provided, where applicable. Application for any deviation from the regulations relating to the public participation process must be submitted prior to the commencement of the public participation process.

A list of registered I&APs must be included as appendix E5.

Copies of any correspondence and minutes of any meetings held must be included in Appendix E6.

Please note: Comments were received from Stakeholders on the Draft Scoping Report. Their comments are recorded in the table below.

Table 18: Comments received on the Draft and Final Scoping Report

Comments/Issues raised	Environmental Assessment Practitioners (EAP) Response
According to the Geoscience Amendment Act (GAA); 16 of 2010; Council for Geoscience (CGS) is required to advise local; provincial and national authorities in respect of geology on the basis of the available/ information presented to CGS. GAA: 16 of 2010 also state that CGS must evaluate geotechnical (dolomite stability) reports to ensure safe and judicious land use. Township applications/ establishments are the responsibility of the municipalities and they should be contacted in this regard. Therefore; CGS will no longer issue formal comments on township applications as this falls outside our mandate; except if requested; issuing a map-clip indicating the type of geology underlying the area of interst. This letter reflects the view and approach of the CGS with respect to township applications. Development on dolomite requires that a dolomite stability investigation must be conducted as it is required in terms of SANS 1936/ NHBRC Home Building Manual 2015 and that the competent person should be given an opportunity to evaluate the suitability of the site for the proposed land use. If you have any further queries; please do not hesitate to contact this office.	Thank you for your letter and comments it is noted. We will forward your letter to the Geotechnical Engineer.
Please would it be possible for you to send me an electronic copy of the scoping report; preferably via “filegooi” as our	Thank you for your email.

systems generally reject any links to Drpobox.	I am unfamiliar with filegooi but will do my utmost best to forward the file to you in this programme. If I struggle I will contact you. Alternatively I can forward it to you by means of WeTransfer? Will you be able to receive it in this manner?
Thanks for the response. I will try and download the file from dropbox first. If I struggle; I will contact you and we then try another platform. Mr. Dave Hayter confirmed receipt of the report telephonically.	Thank you so much Dave really appreciate it. We just want to confirm if you received the Draft Scoping Report via dropbox?
Your wayleave application for environmental process dated 01 December 2020 has reference. Transnet pipeline servitudes are not affected by the proposed work/ installations/ excavations/ connections/ construction/ road upgrade/ development/ ect as depicted on your Locality and/ or Project/ Site Laout Plans. This wayleae authorization is valid for thirty six (36) months from today's date – 01 December 2020.	Noted. Thank you.
The Department of Water and Sanitation: Free State Region acknowledges the above mentioned project and has no objection towards it; however; take note of the following comments: It is recommended that a Geohydrological Report be included as a supporting document in order to: - Provide adequate information regarding the upstream	Thank you for your comments. A Geohydrological Report will form part of the Environmental Impact Assessment (EIA) phase and this report will be forwarded to you along with the Draft EIA report for perusal and comment.

and downstream gradient of the boreholes and the groundwater table if boreholes are considered as an additional water supply. The report will further discover the groundwater quality or any water resource are affected. - According to figure 16; watercourse or wetlands are identified on various areas within the proposed site; therefore; a Geohydrolgical Report will assist in providing detailed information on areas located within the wetlands or flood lines. The Department would like to advice that in a case where boreholes are considered as an additional water resource with the construction of a reservoir; a water use authorization application must be considered in terms of Section 21 (a) & (b) of the National Water Act (Act No. 36 of 1998); which states that (a) Taking water from a water resource; (b) Storing water; In Conclusion; the Department will provide comments when the mentioned above document is provided.	
The above-mentioned document dated 30/11/2020 refers. Based on the information submitted; this District has the following comments: 1. The National Environmental Management Principles; inter alia; state that "Environmental Management must be integrated; acknowledging that all elements of the environment are linked and interrelated; and it must take into	1. Noted

account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option "as "the option that provides the most benefit or causes the least damage to the environment as a whole; at a cost acceptable to society; in the long term as well as in the short term". Taking these Principles into consideration:	
1.1 The "no-go" option must at all times include the consideration of the "no-go" option as a baseline against which all other alternatives must be measured. The option of not implementing the activity must always be assessed and to the same level of detail as the other feasible and reasonable alternatives.	1.1 Noted
1.2 In addition; alternatives identified should not only be limited to site. Alternatives may include design; layout and others such as renewable energy.	1.2 Noted
2. Draft Environmental Management Programme	2. Noted
2.1 Recommendations made in the Draft Environmental Management Programme should be implemented and adhered to.	2.1 Noted
3. Services	3. Noted
3.1 The report should clearly inform the competent authority how services such as water supply, solid waste removal; effluent discharge and storm water management will be provided and managed; this includes; most importantly; the management of hazardous waste. Should these be provided by the municipality; there should be confirmation of such a capacity by the municipality.	3.1 Noted. It will be included within the EIA report.

3.2 It is recommended that the applicant consider including the development of a new landfill site in the township establishment plans as the current landfill site in Zastron is licensed for closure and decommissioning. In light of this, a different landfill site might have to be considered for waste disposal during the construction phase.	3.2 It will not be possible to include a landfill site as part of this application. However a separate application can be lodged at DESTEA. Your comment will be forwarded to the Engineers; Local Municipality as well as the Applicant.
4. Public Participation Process	4. Noted.
4.1 Concerns raised during Public Participation Process should be addressed adequately.	
5. Climate change: Energy efficiency/ water saving	5. Noted
5.1 In terms of minimizing the consumption of scarce environmental resources such as water; fuel; building materials; mineral resources; electricity and land and as part of the efforts to reduce the effects of climate change; you are encouraged to identify energy efficient technologies (e.g. the use of low voltage or compact fluorescent lights instead of incandescent globes; maximizing the use of solar heating; etc.) that could be implemented for the proposed development.	5.1 Thank you for the comment. We will take it into consideration and your comment will be forwarded to the Applicant; Engineer and Developer.
5.2 Considering that South Africa is a water scarce country and that many catchments in the Free State are already water stressed; you are further encouraged to consider implementing the use of water saving devices and technologies (e.g. dual flush toilets; low-flow shower heads and taps, etc.) for the proposed development and the management of storm water; the capture and use of rainwater from gutters and roofs; use of locally indigenous vegetation	5.2 Thank you for the comment. We will take it into consideration and your comment will be forwarded to the Applicant; Engineer and Developer.

during landscaping. 5.3 During the construction phase; the amount of dust emissions needs to remain within the allowed limits according to the National Dustfall Control Regulations. 6. You are further reminded of your general duty of care and the remediation of environmental damage; Section 28(1) of NEMA specifically states that "Every person who causes; has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring; continuing or recurring; or; in so far as such harm to the environment is authorized by law or cannot reasonably be avoided or stopped; to minimize and rectify such pollution or degradation of the environment." This municipality awaits a copy of the Environmental Impact Assessment Report.	5.3 It is recommended that the developer adhere to the National Dustfall Control Regulations and ensure the amount of dust emission remain within the allowed limits. 6. The developer and contractors on site should implement measures to take reasonable measures to prevent pollution or degradation from occurring; continuing or recurring; or; in so far as such harm to the environment is authorized by law or cannot reasonably be avoided or stopped; to minimize and rectify such pollution or degradation of the environment. A copy of the Environmental Impact Assessment Report will be made available for perusal once it is available.
The Mohokare Municipality hereby confirm that it has received the EIA Scoping Report on Ext 11; Matlakeng for its perusal. The Municipality waits in anticipation for the reports not part of this document and will reserve comments on the Final EIA report.	Noted. Thank you.
The Department of Economic; Small Business Development; Tourism and Environmental Affairs (DESTEA) – "The Department" hereby acknowledges receipt of your final scoping report on 2 February 2021; for the above-mentioned project.	Thank you for the approval letter of the Scoping Report. DESTEA's comments are noted.

The final scoping report is hereby accepted and you are advised to carry on with the task schedule in your plan of study for EIA (POS). Reasons for acceptance: The Scoping Report was reviewed and deemed to be in compliance with the requirements of the Regulations as contemplated in Chapter 4 of GNR 326 of the 2014 (NEMA) EIA Regulations as amended. Also take note of the following: In the Final EIA reports; please include the minutes for the meetings held during public participation process. In view of the above; you may proceed with undertaking the EIA as well as the tasks contemplated in the Plan of Study for EIA accordingly. Please also note that you may be asked to appoint specialists to conduct specialized processes; should the need to do so be identified by the Competent Authority during the process. Furthermore; a site visit will be arranged for a time that will be convenient for both parties when the Final EIA repot has been submitted to the Department. Furthermore; the activity applied for may not commence prior to an Environmental Authorization being granted by this Department.	

In terms of the regulation 45 of EIA regulations of 2014 as amended; this application will lapse if the applicant or the EAP on behalf of Applicant fails to meet any of the time frames prescribed in terms of these Regulations; after having submitted the application; unless an extension has been granted in terms of regulation 3(7).	

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014 as amended and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

Provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed. This impact assessment must be applied to all the identified alternatives to the activities identified in Section A(2) of this report.

During the EIA Phase the primary environmental issues were identified by means of analysing the project activities; components; various layout plans; potential impacts; environmental sensitivities; feedback and comments received from I&APs; desktop analysis; research of existing information and historical data available as well as a site visit by the Environmental Assessment Practitioner (EAP) and Specialists.

The identified issues are grouped into different categories namely: Terrestrial ecology; wetland/ aquatic; provision of services; geology and soils; socio-economic; cultural and heritage and agriculture of the project. The following methodology was used to determine the impacts.

IMPACT RATING METHODOLOGY

The significance of each impact identified will be assessed according to the following variables (evaluation components):

SIGNIFICANCE is the product of probability and severity. Probability describes the likelihood of the impact actually occurring, and is rated as follows:

PROBABILITY

PROBABILITY		
IMPROBABLE	LOW POSSIBILITY OF IMPACT TO OCCUR EITHER BECAUSE OF DESIGN OR HISTORIC EXPERIENCE.	RATING = 1
PROBABLE	DISTINCT POSSIBILITY THAT IMPACT WILL OCCUR.	RATING = 2
HIGHLY PROBABLE	MOST LIKELY THAT IMPACT WILL OCCUR.	RATING = 3
DEFINITE	IMPACT WILL OCCUR, IN THE CASE OF ADVERSE IMPACTS REGARDLESS OF ANY PREVENTION MEASURES.	RATING = 4

The ***SEVERITY FACTOR*** is calculated from the factors given to "intensity" and "duration". Intensity and duration factors are awarded to each impact, as described below.

The ***INTENSITY FACTOR*** is awarded to each impact according to the following method:

INTENSITY FACTOR		
LOW INTENSITY	NATURAL AND MAN-MADE FUNCTIONS NOT AFFECTED.	FACTOR 1
MEDIUM INTENSITY	ENVIRONMENT AFFECTED BUT NATURAL AND MAN-MADE FUNCTIONS AND PROCESSES CONTINUE.	FACTOR 2
HIGH INTENSITY	ENVIRONMENT AFFECTED - NATURAL OR MAN-MADE FUNCTIONS ARE ALTERED TO THE EXTENT THAT IT WILL TEMPORARILY OR PERMANENTLY CEASE OR BECOME DYSFUNCTIONAL.	FACTOR 3

DURATION is assessed and a factor awarded in accordance with the following:

DURATION		
NONE		FACTOR 0
SHORT TERM	<1 TO 5 YEARS	FACTOR 1
MEDIUM TERM	5 TO 15 YEARS	FACTOR 2
LONG TERM	IMPACT WILL ONLY CEASE AFTER THE OPERATIONAL LIFE OF THE ACTIVITY, EITHER BECAUSE OF NATURAL PROCESS OR BY HUMAN INTERVENTION	FACTOR 3
PERMANENT	MITIGATION, EITHER BY NATURAL PROCESS OR BY HUMAN INTERVENTION, WILL NOT OCCUR IN SUCH A WAY OR IN SUCH A TIME SPAN THAT THE IMPACT CAN BE CONSIDERED TRANSIENT	FACTOR 4

The ***SEVERITY RATING*** is obtained from calculating a severity factor, and comparing the severity factor to the rating in the table below. For example:

THE SEVERITY FACTOR	=	INTENSITY FACTOR X DURATION FACTOR
	=	2 X 3
	=	6

A ***SEVERITY FACTOR*** of six (6) equals a severity rating of medium severity (rating 3) as per table below:

RATING	**FACTOR**
LOW SEVERITY (RATING 2)	CALCULATED VALUES 0 TO 4
MEDIUM SEVERITY (RATING 3)	CALCULATED VALUES 5 TO 8
HIGH SEVERITY (RATING 4)	CALCULATED VALUES 9 TO 12
VERY HIGH SEVERITY (RATING 5)	CALCULATED VALUES 13 TO 16
SEVERITY FACTORS BELOW 3 INDICATE NO IMPACT	

A SIGNIFICANCE RATING IS CALCULATED BY MULTIPLYING THE SEVERITY RATING WITH THE PROBABILITY RATING.

The ***SIGNIFICANCE RATING*** should influence the development project as described below:

SIGNIFICANCE RATING		
LOW SIGNIFICANCE	CALCULATED SIGNIFICANCE RATING 0 TO 4	POSITIVE IMPACT AND NEGATIVE IMPACTS OF LOW SIGNIFICANCE SHOULD HAVE NO INFLUENCE ON THE PROPOSED DEVELOPMENT PROJECT.
MEDIUM SIGNIFICANCE	CALCULATED SIGNIFICANCE RATING >5 TO 8	POSITIVE IMPACT: SHOULD WEIGH TOWARDS A DECISION TO CONTINUE NEGATIVE IMPACT: SHOULD BE MITIGATED TO A LEVEL WHERE THE IMPACT WOULD BE OF MEDIUM SIGNIFICANCE BEFORE PROJECT CAN BE APPROVED.
HIGH SIGNIFICANCE	CALCULATED SIGNIFICANCE RATING 9 AND MORE	POSITIVE IMPACT: SHOULD WEIGH TOWARDS A DECISION TO CONTINUE, SHOULD BE ENHANCED IN FINAL DESIGN. NEGATIVE IMPACT: SHOULD WEIGH TOWARDS A DECISION TO TERMINATE PROPOSAL, OR MITIGATION SHOULD BE PERFORMED TO REDUCE SIGNIFICANCE TO AT LEAST MEDIUM SIGNIFICANCE RATING.

To follow now is the impacts for Alternative 1; Alternative 2; Alternative 3; Proposal - Alternative 4 and the No-Go option. The alternatives are based on layout alternatives.

Table 19: Impact Assessment

Potential Impact:	Proposal; Alternatives or No-go Alternative	Probability factor	Intensity Factor	Duration	Severity factor	Severity rating	Significance rating
CONSTRUCTION PHASE:							
Ecological – Fauna and Flora							
Activities within the Aasvoël Conservation Area.	Alternative 1	4	3	4	5	12	High
	Alternative 2	4	3	4	5	12	High
	Alternative 3	3	2	4	3	8	Medium
	Proposal – Alternative 4	2	2	4	3	8	Medium
	No-go Alternative	4	1	4	2	4	Low
Utilization; poisoning; capturing of Vultures for utilization in the traditional medicine trade.	Alternative 1	4	3	4	4	12	High
	Alternative 2	4	3	4	4	12	High
	Alternative 3	3	3	4	4	12	High
	Proposal – Alternative 4	2	3	4	4	12	High
	No-go Alternative	4	3	4	4	12	High
Degradation and destruction of ecosystems and natural habitat.	Alternative 1	4	3	4	4	12	High
	Alternative 2	4	3	4	4	12	High
	Alternative 3	4	3	4	4	12	High
	Proposal – Alternative 4	4	3	4	4	12	High
	No-go Alternative	3	1	1	2	1	Low

Potential Impact:	**Proposal; Alternatives or No-go Alternative**	**Probability factor**	**Intensity Factor**	**Duration**	**Severity factor**	**Severity rating**	**Significance rating**
Heavy machinery and vehicles will have an impact on the animals that use the area as a habitat.	Alternative 1	4	3	1	2	3	Low
	Alternative 2	4	3	1	2	3	Low
	Alternative 3	4	3	1	2	3	Low
	Proposal – Alternative 4	4	3	1	2	3	Low
	No-go Alternative	4	0	0	2	0	Low
Ecological - Flora: 1. Loss, destruction and or eradication of critically endangered/ endangered plant species; 2. Harvesting of traditional medicinal plant species. 3. Plant species of conservation concern may potentially be impacted upon due to development and related activities. 4. Impacts may lead to increase of invasive species or introduction of such from the outside areas and may change the vegetation structure and composition of this unit. 5. Possible impacts associated with additional road creation to reach some development points. May cause unnecessary damage to the natural grassland vegetation and habitats and include edge effects. 6. The increase in vegetation damage and/ or clearance may also lead to the spread of alien invasive species and damage to habitat.	Alternative 1	4	3	1	2	3	Low
	Alternative 2	4	3	1	2	3	Low
	Alternative 3	3	3	1	2	3	Low
	Proposal – Alternative 4	3	3	1	2	3	Low
	No-go Alternative	3	1	0	2	0	Low
Topography							
Possible impacts on the ridge.	Alternative 1	4	2	4	3	8	Medium
	Alternative 2	4	2	4	3	8	Medium
	Alternative 3	3	2	4	3	8	Medium
	Proposal – Alternative 4	3	2	4	3	8	Medium
	No-go Alternative	4	2	4	3	8	Medium
Impacts on the natural environment due to bulk earthworks (deep cuttings; excavations	Alternative 1	4	3	1	2	3	Low
	Alternative 2	4	3	1	2	3	Low

Potential Impact:	Proposal; Alternatives or No-go Alternative	Probability factor	Intensity Factor	Duration	Severity factor	Severity rating	Significance rating
etc.); increased movement; traffic and large machinery that cause changes to the topography of the site.	Alternative 3	4	3	1	2	3	Low
	Proposal – Alternative 4	4	3	1	2	3	Low
	No-go Alternative	1	1	0	2	0	Low
Visual impact - The contractor's site camp; site offices; construction vehicles etc. could potentially have a negative visual impact on the neighbouring properties and residents.	Alternative 1	4	3	4	4	12	High
	Alternative 2	4	3	4	4	12	High
	Alternative 3	4	3	4	4	12	High
	Proposal – Alternative 4	4	3	4	4	12	High
	No-go Alternative	1	1	0	2	0	Low
Hydrology/ Wetland/ Watercourses:							
Degradation and destruction of wetlands; watercourses and all riverine areas	Alternative 1	3	3	4	4	12	High
	Alternative 2	4	3	4	4	12	High
	Alternative 3	3	3	4	4	12	High
	Proposal – Alternative 4	3	3	4	4	12	High
	No-go Alternative	3	2	4	3	8	Medium
Potential impact on natural grassland and wetland/ aquatic associated terrain. Impacts downstream water resources due to spillages and pollution	Alternative 1	3	3	4	4	12	High
	Alternative 2	4	3	4	4	12	High
	Alternative 3	3	3	4	4	12	High
	Proposal – Alternative 4	3	3	4	4	12	High
	No-go Alternative	3	2	1	2	2	Low
Increased storm water run-off volumes and velocity.	Alternative 1	4	3	1	2	3	Low
	Alternative 2	4	3	1	2	3	Low
	Alternative 3	4	3	1	2	3	Low
	Proposal – Alternative 4	4	3	1	2	3	Low
	No-go	2	1	0	2	0	Low

Potential Impact:	**Proposal; Alternatives or No-go Alternative**	**Probability factor**	**Intensity Factor**	**Duration**	**Severity factor**	**Severity rating**	**Significance rating**
	Alternative						
Geology and Soils:							
Disturbance to rocky outcrops	Alternative 1	4	2	4	3	8	Medium
	Alternative 2	4	2	4	3	8	Medium
	Alternative 3	3	2	4	3	8	Medium
	Proposal – Alternative 4	3	2	4	3	8	Medium
	No-go Alternative	4	2	4	3	8	Medium
Disturbance of surface geology and exposed surfaces for development foundation.	Alternative 1	4	3	1	2	3	Low
	Alternative 2	4	3	1	2	3	Low
	Alternative 3	4	3	1	2	3	Low
	Proposal – Alternative 4	4	3	1	2	3	Low
	No-go Alternative	1	1	0	2	0	Low
Soil erosion; loss of topsoil; deterioration of soil quality.	Alternative 1	4	3	1	2	3	Low
	Alternative 2	4	3	1	2	3	Low
	Alternative 3	4	3	1	2	3	Low
	Proposal – Alternative 4	4	3	1	2	3	Low
	No-go Alternative	1	1	0	2	0	Low
Soil pollution.	Alternative 1	4	3	1	2	3	Low
	Alternative 2	4	3	1	2	3	Low
	Alternative 3	4	3	1	2	3	Low
	Proposal – Alternative 4	4	3	1	2	3	Low
	No-go Alternative	2	1	1	2	1	Low
Compaction of soil.	Alternative 1	4	3	1	2	3	Low
	Alternative 2	4	3	1	2	3	Low
	Alternative 3	4	3	1	2	3	Low

Potential Impact:	Proposal; Alternatives or No-go Alternative	Probability factor	Intensity Factor	Duration	Severity factor	Severity rating	Significance rating
	Proposal – Alternative 4	4	3	1	2	3	Low
	No-go Alternative	1	1	0	2	0	Low
Earthworks - small scale.	Alternative 1	4	3	1	2	3	Low
	Alternative 2	4	3	1	2	3	Low
	Alternative 3	4	3	1	2	3	Low
	Proposal – Alternative 4	4	3	1	2	3	Low
	No-go Alternative	1	1	1	2	1	Low
Air Quality:							
Dust and air pollution – Excessive dust pollution can be caused during the construction phase of the proposed development should it take place during the dry and windy seasons.	Alternative 1	4	3	1	2	3	Low
	Alternative 2	4	3	1	2	3	Low
	Alternative 3	4	3	1	2	3	Low
	Proposal – Alternative 4	4	3	1	2	3	Low
	No-go Alternative	1	1	1	2	1	Low
Historical and Cultural:							
The potential impact of the proposed development on archaeological, paleontological and heritage remains	Alternative 1	3	2	1	2	2	Low
	Alternative 2	3	2	1	2	2	Low
	Alternative 3	3	2	1	2	2	Low
	Proposal – Alternative 4	3	2	1	2	2	Low
	No-go Alternative	1	1	0	2	0	Low
Services and Infrastructure:							
Provision of infrastructure and services.	Alternative 1	4	3	4	4	12	High
	Alternative 2	4	3	4	4	12	High
	Alternative 3	4	3	4	4	12	High
	Proposal – Alternative 4	4	3	4	4	12	High

Potential Impact:	**Proposal; Alternatives or No-go Alternative**	**Probability factor**	**Intensity Factor**	**Duration**	**Severity factor**	**Severity rating**	**Significance rating**
	No-go Alternative	1	1	0	2	0	Low
Traffic.	Alternative 1	4	3	4	4	12	High
	Alternative 2	4	3	4	4	12	High
	Alternative 3	4	3	4	4	12	High
	Proposal – Alternative 4	4	3	4	4	12	High
	No-go Alternative	1	1	0	2	0	Low
Vehicular access and movement of construction vehicles.	Alternative 1	4	3	1	2	3	Low
	Alternative 2	4	3	1	2	3	Low
	Alternative 3	4	3	1	2	3	Low
	Proposal – Alternative 4	4	3	1	2	3	Low
	No-go Alternative	1	1	0	2	0	Low
Access routes	Alternative 1	4	3	4	4	12	High
	Alternative 2	4	3	4	4	12	High
	Alternative 3	4	3	4	4	12	High
	Proposal – Alternative 4	4	3	4	4	12	High
	No-go Alternative	1	1	0	2	0	Low
Storm water	Alternative 1	4	3	1	2	3	Low
	Alternative 2	4	3	1	2	3	Low
	Alternative 3	4	3	1	2	3	Low
	Proposal – Alternative 4	4	3	1	2	3	Low
	No-go Alternative	2	1	0	2	0	Low
Waste:							
Waste handling	Alternative 1	4	3	2	3	6	Medium
	Alternative 2	4	3	2	3	6	Medium
	Alternative 3	4	3	2	3	6	Medium

Potential Impact:	**Proposal; Alternatives or No-go Alternative**	**Probability factor**	**Intensity Factor**	**Duration**	**Severity factor**	**Severity rating**	**Significance rating**
	Proposal – Alternative 4	4	3	2	3	6	Medium
	No-go Alternative	2/3	1	1	2	1	Low
Aesthetics; landscape character and sense of place:							
Aesthetics; landscape character and sense of place.	Alternative 1	4	3	4	4	12	High
	Alternative 2	4	3	4	4	12	High
	Alternative 3	4	3	4	4	12	High
	Proposal – Alternative 4	4	3	4	4	12	High
	No-go Alternative	1	1	0	2	0	Low
Noise	Alternative 1	4	3	2	3	6	Medium
	Alternative 2	4	3	2	3	6	Medium
	Alternative 3	4	3	2	3	6	Medium
	Proposal – Alternative 4	4	3	2	3	6	Medium
	No-go Alternative	1	1	0	2	0	Low
Socio-economic:							
Increased temporary jobs during construction	Alternative 1	4	3	2	3	6	Medium
	Alternative 2	4	3	2	3	6	Medium
	Alternative 3	4	3	2	3	6	Medium
	Proposal - Alternative 4	4	3	2	3	6	Medium
	No-go Alternative	0	0	0	2	0	Low
Optimization of the local economy	Alternative 1	4	3	4	4	12	
	Alternative 2	4	3	4	4	12	
	Alternative 3	4	3	4	4	12	
	Proposal – Alternative 4	4	3	4	4	12	
	No-go Alternative	0	0	0	2	0	Low

Potential Impact:	**Proposal; Alternatives or No-go Alternative**	**Probability factor**	**Intensity Factor**	**Duration**	**Severity factor**	**Severity rating**	**Significance rating**
Safety and Security.	Alternative 1	4	3	2	3	6	Medium
	Alternative 2	4	3	2	3	6	Medium
	Alternative 3	4	3	2	3	6	Medium
	Proposal – Alternative 4	4	3	2	3	6	Medium
	No-go Alternative	0	1	4	2	4	Low
Safety on site	Alternative 1	3	3	2	3	6	Medium
	Alternative 2	3	3	2	3	6	Medium
	Alternative 3	3	3	2	3	6	Medium
	Proposal – Alternative 4	3	3	2	3	6	Medium
	No-go Alternative	1	1	0	2	0	Low
OPERATIONAL PHASE:							
Ecological – Fauna and Flora							
Electrocution of Vultures due to overhead powerlines.	[redacted]	4	3	3	4	9	High
Utilization; poisoning; capturing of Vultures for utilization in the traditional medicine trade;		4	3	3	4	9	High
Topography							
Possible impacts on the Ridge	[redacted]	4	3	3	4	9	High
Bulk earthworks that caused deep cuttings and high embankments as well as local changes to the topography		4	3	3	4	9	High
Hydrology:							
Storm water – drainage and flow. Modification to drainage patterns caused by development. Consentrated storm water at certain area cause increase to the velocity of flow in one area and reduction at another area that contributes to soil erosion; sedimentation and flooding etc.	[redacted]	4	3	3	4	9	High

Potential Impact:	Proposal; Alternatives or No-go Alternative	Probability factor	Intensity Factor	Duration	Severity factor	Severity rating	Significance rating
Geology and Soils:							
Geological features and rocky outcrops.		4	3	3	4	9	High
Soil erosion; loss of topsoil and soil quality.		4	3	3	4	9	High
Structures possible collapsing due to geotechnical constraints.		4	3	3	4	9	High
Soil pollution.		4	3	3	4	9	High
Air Quality:							
Dust and air pollution due to the impact of adjacent land uses on the development.		2	2	3	3	6	Medium
Historical:							
Destruction of cultural/ heritage sites and buildings.		2	2	3	3	6	Medium
Infrastructure and Services:							
Provision of basic services.		4	2	3	3	6	Medium
Pressure on existing infrastructure and services.		4	2	3	3	6	Medium
Waste:							
Waste.		4	2	3	3	6	Medium
Pressure on existing services of waste removal.		4	2	3	3	6	Medium
Pressure on existing landfill site.		4	2	3	3	6	Medium
Aesthetics; landscape and sense of place							
Visual impact on the built environment.		4	2	3	3	6	Medium
Noise.		4	2	3	3	6	Medium
Socio-economic:							
Job creation/ opportunities.		4	3	3	4	9	High
Safety and Security.		4	3	3	4	9	High
Destruction of cultural/ heritage buildings and sites.		4	2	3	3	6	Medium

In the table below is a description and comparison of the potential impacts, significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the construction phase for the various alternatives of the proposed development. This also includes an assessment of the significance of all impacts.

The suitability and feasibility of all proposed mitigation measures is included in the assessment of significant impacts. This was achieved through the comparison of the significance of the impact before and after the proposed mitigation measure is implemented. Mitigation measures identified as necessary have been included in an EMPr. Impacts are mostly associated with the Construction phase and where applicable to the Operational phase it has been indicated as such.

Table 20: Impact Significance Rating
Alternative 1; Alternative 2; Alternative 3; Alternative 4; Cumulative Impacts and Operational Phase

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:
Ecological – Fauna and Flora:			
Proposal – Alternative 4			
The onset of activities within the Aasvoël Conservation Area; even peripherally; should be avoided or managed very strictly. The Tourism Center located there is ideally placed as the aim will be to educate; improve awareness; incorporate community awareness into the Tourism activities associated with the Cape Vulture Colony. VulPro which is currently associated with the management of this colony should be closely consulted and incorporated into the planning and educational programmes to ensure no impacts reach the colony. Specific focus will not only create awareness and provide education; but also to ensure the prevention of utilization; poisoning; capturing of Vultures for utilization in the traditional medicine trade; as many traditional harvesting practices were seen during the ecological field assessment; specifically community members digging out	**Medium to High**	• The development areas should be well demarcated and contractors should not enter into the adjacent areas. • The perimeter of the township development should be aimed to prevent access to the Aasvoëlberg and associated Vulture colony. Strict management; punishment or reporting programmes should be implemented to ensure this is enforced. • No carcasses or vulture feeding opportunities should be created or allowed by the local residents; which will interfere with the VulPro site and also possibly lead to poisoning of the creatures. • A community liason office and officers (or as part of the tourism center) should exist which will monitor community interventions; prevent; report incidents. Monetary awards should be offered to encourage information brought to light (if any) on the illegal harvesting of the Vultures in the area and ensure prosecution is enforced if necessary.	**Medium to low**

plants on the ridges. This will extend to include the utilsation of Vultures if utmost care is not taken. However; considering the fact that communities already stay in the area; it could be assumed that impacts are already occurring The increase in housing will likely intensify this aspect and VulPro should be consulted as to if and how they are currently affected.		• VulPro should be consulted and their input obtained to ensure all management prescribed in the EMPr is aligned with and supplementary to support their conservation efforts. Education programmes and incorporating tours or viewing at set times and possibly as a tourism attraction for the area should be investigated; which will ensure education; conservation and the possibility of financial support for both the community and VulPro (which is a volunteer organization). • To minimize potential impacts to animal species; animals (wildlife and domestic animals) may under no circumstances be handled; removed; killed or interfered with by the Contractor; his employees; his Sub-Contractors or his Sub-Contractors' employees. • Ideally; the entire western section (on the western side of the road) should be fenced off with strict access control or access control managed and granted through the Tourism center proposed in this area; which will allow regulated access to the mountainous areas and only as part of the allowed activities (tourism attraction; viewing and educational workshops; etc.) • Community involvement and projects (added benefit work creation) could also stimulate awareness and swing the favour towards conservation instead of illegal harvesting. All of these aspects should be closely discussed with VulPro; and DESTEA (Free State Environmental Affairs) to ensure the best way forward.	
Alternative 1:			
Impacts same as the Proposal – Alternative 4 above except this layout has development activities situated within the Aasvoëlberg Conservation area.	**High**	• The same as above. • Activities should stay clear of the sensitive ecological areas to the west of the site as well as within the Vulture Conservation area.	**High**
Alternative 2:			
Impacts same as the Proposal – Alternative 4 above.	**High**	• The same as above. • Activities should stay clear of the sensitive ecological areas to the west of the site as well as within the Vulture Conservation	**High**

		area.	
Alternative 3:			
Impacts same as the Proposal – Alternative 4 above except this layout has development activities situated within the Aasvoëlberg Conservation area..	**Medium to high**	• The same as above. • Activities should stay clear of the sensitive ecological areas to the west of the site as well as within the Vulture Conservation area.	**Medium to High**
Proposal - Alternative 4:			
Development related activities may lead to the loss of floral species of conservation concern. Twenty-four (24) floral species listed for the area are classified as species of conservation concern and may potentially occur on the project footprint. Three (3) plant SCC were confirmed to occur within the project footprint. Development and related activities could impact on the sensitive habitats situated in and around the development footprint. The majority of areas designated as sensitive in terms terrestrial biodiversity have been incorporated into the open space planning for the development which significantly mitigates impacts to sensitive areas.	**Medium to high**	• All footprint areas should remain as small as possible. This can be achieved by fencing footprint areas to contain all activities within designated areas. • Areas designated as high sensitivity should remain incorporated into the open space planning of the development. • A survey for SCC species on the project footprint area should be undertaken by a suitably qualified specialist prior to the start of construction. • If any SCC are encountered within the subject property in the future; the following should be ensured: • If any threatened species will be disturbed; ensure effective relocation of individuals to suitable offset areas or within designated open space on the subject property. • All rescue and relocation plans should be overseen by a suitably qualified specialist • Obtain relevant permits/ consent; if applicable; for each protected or endangered floral species identified within the proposed development area that will be destroyed. • Human and vehicle movement should be restricted from taking place in sensitive habitats. Areas to be fenced if necessary.	**Low to medium**
Proposal - Alternative 4:			
The onset of activities might result in impacts to the natural environment due to increased movement; traffic and large machinery to the area. Heavy machinery and vehicles might result in compaction of the soil and	**Medium**	• The development areas should be well demarcated and contractors should not enter into adjacent areas. • Access to certain development areas need to be planned wisely; avoiding aquatic terrain and other sensitive features.	**Low to medium**

destruction of vegetation habitat which in turn will also impact on the animals that use the area as habitat. The natural grassland areas and wetland/ aquatic associated terrain will especially be negatively impacted if not managed well. Construction will result in increase of potentially destructive movement within the designated area. Impacts may lead to the increase of invasive species or introduction of such from the outside areas and may change the vegetation structure and composition of this unit. These species may also compete with indigenous species and will degrade the veld condition by making it unfeasibly for other land-uses such as grazing and agriculture.		Unmanaged development is not ideal as it will increase the expected impact on the natural grassland vegetation type and will destroy the aquatic habitats and change the soil indefinitely. • To minimize potential impacts to animal species; animals (wildlife and domestic animals) may under no circumstances be handled; removed; killed or interfered with by the Contractor; his employees; his Sub-Contractors or his Sub-Contractors' employees. • Continuous rehabilitation of the area should occur; immediate closure of trenches and excavation areas and spreading of topsoil. Re-vegetation practices may be required to ensure success and seed mixes should match the surrounding vegetation structures. • Prevent activities from impacting on the multiple riverine area/ drainage lines identified during the field visit. These were ephemeral but will facilitate the movement of water during rainfall events. • All activities should stay clear of the area identified which may be the origin of a river within the Aasvoëlkrans. This may also signal the shallow depth of the groundwater table within some areas and should be kept in mind within close proximity of the identified zones.	
Proposal - Alternative 4:			
The possible impacts associated with additional road creation which will be required to reach some of the current development points and may cause unnecessary damage to the natural grassland vegetation and habitats and include edge effects. The increase in vegetation damage and/ or clearance may also lead to the spread of alien invasive species and damage to habitat. Planning should be done accordingly and roads and access routes implemented first to streamline movement across the site avoiding multiple routes created in natural zones (and those areas proposed for green zones or open space)	**Medium**	• Ensure awareness amongst all staff; contractors and visitors to site to not needlessly damage flora. • To minimize potential impacts to animal species; animals (wildlife and domestic animals) may under no circumstances be handled; removed; killed or interfered with by the Contractor; his employees; his Sub-Contractors or his Sub-Contractors' employees.	**Low to medium**

which could have been avoided.			
Cumulative impacts:			
Incremental losses and fragmentation of habitat in terms of the fauna and flora.	**Medium to Low**	• Prevent contamination of the surrounding environmental and impacts to the natural environment and the highly sensitive Aasvoëlberg endemic plants and Cape Vulture population.	
Tourism attraction and educational involvement of the community members with the Vulture colony. If not successfully managed it could lead to the gradual decline in the Vulture colony and eventually disappearance as worst-case scenario.	**Medium to High**	• Strict and close management; punishment and or reporting programmes should be implemented to ensure access to the Aasvoëlberg is only allowed by controlled access. VULPRO should assist with management measures and educational programmes at the Tourism facility. • A community liaison office and officers (or as part of the tourism center) should exist which will monitor community interventions; prevent; report incidents. Monetary awards should be offered to encourage information is brought to light (if any) on the illegal harvesting of the Vultures in the area and ensure prosecution is enforced if necessary. • VULPRO should be consulted and their input obtained to ensure all management prescribed in the EMPr is aligned with and supplementary to support their conservation efforts. Education programmes and incorporating tours or viewings at set times and possibly as a tourism attraction for the area should be investigated; which will ensure education; conservation and the possibility of financial support for both the community and VULPRO (which is a volunteer orgination).	**Medium to low**
Carcasses and vulture feeding.	**High**	• No carcasses or vulture feeding opportunities should be created or allowed by the local residents; which will interfere with the VULPRO site and also possibly lead to poisoning of the creatures.	**Medium to Low**
Operational Phase			
Electrocution of Vultures due to overhead powerlines.	**High to Medium**	• Electrical infrastructure should be placed underground where possible. • The electrical infrastructure which normally forms part of the residential development; should investigate the use of insulators to be placed on conductors to prevent the bird	**Medium**

		from touching the conductor while landing or taking off and thus reducing the risk of an electric shock. The length of the isolators is adapted to the size of large birds of prey; such as the Vultures present in the area. Popular mitigation measures (Dixon; 2017) include: • Insolation: Existing high-risk electricity infrastructure can be retrofitted with insulation materials to prevent bringing between live cables or between cables and grounded hardware. Insulation can be fitted to conductor wires and insulators supporting the cables or to the grounded crossarms. Insulating materials need to be of appropriate specifications for the voltage and the regional environment of the power line; and must be correctly installed by the competent engineers. Insulation fitted retrospectively requires monitoring and maintenance to ensure that it continues to function effectively. • Perch deterrents and deflectors: Electrocution rates can potentially be reduced by deterring birds from perching in dangerous positions on power distribution lines. Some deterrents; such as rotating mirrors; are aimed at deterring birds from perching nearby; while others; such as spikes; act as physical barriers to prevent birds perching close to live cables. Deterrent methods can differ in their efficacy; and inappropriate placement may even increase electrocution risk. It is important to ensure that the chosen deterrent or deflector is appropriate for the specific circumstance; is correctly installed; and that a programme of monitoring and maintenance is in place. • Reconfiguration (preferred): ➢ Retrofitted mitigation such as insulation covers and perch deflectors are best regarded as temporary until a permanent solution can be installed. ➢ Consequently; the best option is to reconfigure the hardware of a power line to a “bird safe” design that minimizes the risk of electrocution. Simple	

		reconfiguration can take the form of changing jumper wires so that they pass under the crossarm rather than over it; and switching form upright pin insulators to suspended chain insulators. ➢ Reconfiguration is not necessarily a more expensive option as it requires no further maintenance beyond that normally scheduled for the lien. Furthermore; there are no additional outage risks that can be associated with retrofitted mitigation such as insulation covers. However; it must be noted that certain equipment cannot be reconfigured e.g. transformers; regulators and capacitors; which require insulating materials to be used. • Prevention: Ensure all new power infrastructure is bird safe. ➢ The risk of bird electrocution should be a core consideration when selecting hardware configurations for electricity distribution lines. Key elements area: ❖To ensure that the phase cables are spaced far enough apart to reduce the risk of large birds touching both simultaneously (1.8m is recommended for Vultures); ❖Preferably use of non-conducting materials for support structures; such as wooden poles or fibre-reinforced composite crossarms and ❖On grounded structures; such as reinforced concrete poles with metal crossarms; phase cables should be suspended from chain insulators rather than supported by upright pin insulators. Additional bird safe alternatives include using insulated cables and burying cables underground. ➢ Additional details have also been discussed in AEWA Conservation Guidelines (AEWA Conservation Guidelines; 2012).	
Utilization; poisoning; capturing of Vultures for utilization in the traditional medicine trade.	**High to Medium**	• Reduce consumption/ demand for vultures through an awareness-building campaign targeting public consumers and current roleplayers in the trade; • Change/ create policy to improve regulation of the vulture	**Medium to Low**

		trade; • Improve policing and enforcement for better regulation of the vulture trade; • Improve understanding of the vulture trade to allow more focused interventions; including research and monitoring of the use and trade of vultures. • Firm steps must be maintained to confirm that the food provided at "vulture restaurants' if these are applicable to the Aasvoèlberg site and is free from toxins harmful to the birds. • The scourge of poisoning needs to be combatted by the rigorous investigation and prosecution of all such instances; as well as the maintenance of ongoing and high-profile education and publicity campaigns emphasizing the causes and consequences of such incidents. The legal penalties need to be severe enough to act as material deterrents. • Careful monitoring of the potential use of diclofenac; and other non-steroidal anti-inflammatory drugs (NSAIs) which is lethal to Gyps vultures; is required for the cattle farmers as observed in the areas and no unregulated/ unchecked carcasses should be provided unless approved by VULPRO. • No injured animals should be handled by the community under any circumstance. Clear protocol should be developed on the matter.	
Invasive plant species may increase during the operational phase of the project. This will mostly take place in the remaining natural areas. Removal of these species is an ongoing process and if not managed regularly could result in severe changes and competition in plant communities.	**High to Medium**	• Regular management of invasive plant species should be enforced to ensure none of these species are removed.	**Medium to Low**
Harvesting from the natural environment (presumable for traditional medicines)	**HIgh**	• Strict controlled entrance to the Aasvoëlberg and the rocky outcrops towards the western side of the site should be enforced.	**Medium to Low**
Topography			
Proposal – Alternative 4; Alternative 1; Alternative 2; Alternative 3			

Possible impact on ridge.	**Medium to High**	• Construction site should be clearly demarcated and the sensitive areas on the site should be fenced off. The ridge area should be fenced off and no access should be allowed to the ridge.	**Medium to Low**
• Impacts on the natural environment due to bulk earthworks (deep cuttings; excavations etc.); increased movement; traffic and large machinery that cause changes to the topography of the site.	**Medium to Low**	• Stockpiles should not be allowed to exceed 2 meters high. • Construction area; access roads and sensitive areas should be clearly demarcated and fenced off in order not to disturb any sensitive areas or wetland/ watercourse areas.	**Medium to Low**
Visual impact - The contractor's site camp; site offices; construction vehicles etc. could potentially have a negative visual impact on the neighbouring properties and residents.	**High**	• The contractors and managers should identify, prior to the construction phase; an area on the site that is demarcated for the site camp. • Storage facilities, elevated tanks and other temporary structures on site shall be located such that they have a little visual impact on the adjacent farms as possible. • Lighting on the construction site shall be pointed downwards and away from oncoming traffic and nearby houses. • Special attention shall be given to the screening of highly reflective materials on site. • If screening is being used, this must be moved and re-erected as the work front progresses. • The site must be kept clean to minimize the visual impact of the site.	**Low**
Cumulative Impacts:			
Possible impacts on ridge.	**High**	• Access to the ridge should not be allowed. Sensitive areas to be fenced off.	**Medium to Low**
Visual impacts due to cut and fill and clearance of vegetation. Possible destruction of rocky outcrops and Aasvoëlberg.	**High to Medium**	• The site should only be cleared where construction activities are to take place. Suggested that the development will be constructed in phases and there for clearance of site to be done in phases. • If erosion occurs on the site proper erosion control measures should be implemented and executed.	**Medium to Low**
Operational Phase:			
Possible impacts on ridge.	**High**	• No access to the ridge should be allowed unless it is in a controlled manner under supervision of the Tourism Facility.	**Medium to Low**

Bulk earthworks: Deep excavation; cutting and filling that leads to changes in the topography of the site.	**Not significant**	• None	**None**
Hydrology:			
Proposal – Alternative 4			
The possible impacts on the area if activities commence and impacts the riverine areas; the ridge and possible wetlands. Sensitivity and buffer zones have been delineated and all activities should stay outside these demarcated zones.	**High**	• Move positions to fall outside the high sensitivity zones (100m buffer of drainage lines) or license these positions in terms of Section 21 (c) and (i) in terms of the National Water Act; 1998 (Act 36 of No 1998). These areas will then be subjected to the appropriate rehabilitation of riparian zones and ecological rehabilitation in terms of vegetation to ensure habitat stays favorable for species that may have specialized niches that depend on these aquatic systems. • To minimize potential impacts to animal species; animals (wildlife and domestic animals) may under no circumstances be handled; removed; killed or interfered with by the Contractor; his employees; his Sub-Contractors or his Sub-Contractors' employees or any other party associated with the drilling activities. • Adhere to all management and mitigation measures as prescribed within the wetland specialist report (and other specialist reports) and Environmental Management Programme. • Prevent impacts from reaching downstream water resources by ensuring no spillage and proper handling of infrastructure during removal. • Continuous rehabilitation of the area should occur in accordance with the Water Use License; as well as monitoring as prescribed. • Ensure proper storm water management and that it remains functioning by regular inspection and maintenance.	**Medium to Low**
Degradation/ destruction of wetland and riverine area. A 32 meter buffer area is proposed around any wetland/ watercourse present on the site.	**High**	• The construction phase should be carried out with caution in order to avoid any degradation or destruction of the wetlands/ watercourses on the site. The manager and contractors on site as well as the appointed ECO shall	**Medium**

		ensure that all measures are in place to ensure that no storm water; soil; pollution; spillages etc. enter into the watercourses/ wetlands. • Adequate storm water mitigation should be implemented throughout the construction site in order to prevent large pulses in storm water; • Sediment generation should be prevented through adequate housekeeping during the construction phase. • Sediment containment structures should be in place throughout the site to prevent accumulation in the wetland/ watercourse area.	
Increased storm water run-off volumes and velocity	**Low**	• Adequate surface water management and water harvesting and storage on site will arrest any negative impacts of the development structures on the wetland area. • Adequate storm water mitigation throughout the construction site in order to prevent large pulses in storm water; • Sediment containment structures should be in place throughout the site to prevent accumulation in the wetland area. • It will be necessary to implement temporary storm water management measures during the construction phase as the clearing of vegetation will cause the volume and run-off storm water to increase. • The temporary storm water measures will ensure that the storm water is collected; filtrated and discharged in the correct manner; • Temporary cut off drains and berms shall be used to capture storm water and promote infiltration during construction; • Earth, stone and rubble must not be placed in storm water channel; • Storm water outfalls shall be designed to reduce flow velocity and avoid soil erosion.	**Low**
Alternative 1:			
The impacts are the same as above.	**High**	• Please refer to the mitigation measures above.	**Medium to**

			Low
Alternative 2:			
The impacts are the same as above.	**HIgh**	• Please refer to the mitigation measures above. • No development will be allowed to take place within the wetland/ watercourse areas or within the 32m buffer.	**Medium to Low**
Alternative 3:			
The impacts are the same as above.	**High**	• Please refer to the mitigation measures above.	**Medium**
Cumulative impacts:			
Destruction of wetland/ watercourse areas. Impacts on the health of the downstream system	**High**	• Prevent pollution to the system before it is allowed to re-enter the wetland catchment or system; • Adhere to strict storm water attenuation planning and implementation to protect the wetland from impacts due to storm water release into the wetland; • Wetlands/ watercourses should be inspected on a regular basis to ensure no harmful practices occur on the site; and • All activities should be avoided in restricted areas and possible wetland zones after construction.	**Medium**
Operational Phase:			
Drainage patters are modified by developments. Storm water can be concentrated in a certain area which increase the velocity of the flow in one area but reduction of flow in another area. This leads to soil erosion; sedimentation; flooding etc. and the channel downstream can be modified.	**High**	• Adhere to the storm water management plan once approved by the Mohokare Local Municipality; • The necessary storm water measures should be implemented prior to the construction phase; • Storm water systems should be inspected on a regular basis; • No storm water shall be allowed to be focused in one specific area and be released directly within the wetland/ watercourse areas. Storm water to be attenuated into an attenuation dam outlet structure that will discharge directly into a proposed 2100mm x 2100mm portal culvert which will be installed in northern direction within a proposed 200m wide road reserve up to the and crossing the existing Provincial Road R726. From here the proposed 2100mm x 2100mm portal culvert will continue north within a proposed 20.0m wide road reserve up to Erf 3988 (public Open	**Medium to Low**

		Space) of the proposed development and one of the existing tributaries of Klipspruit where it will discharge. The attenuation pond will be able to accommodate the post 1:50 year run-off. The internal storm water system will be designed for a 1:5 year flood return period and a run-off coefficient of 80% will be allowed for the proposed development. The storm water outlet structures will cater for gabions and reno-mattresses at the outlets to minimize the possibility of erosion at the point of discharge.	
Geology and Soils:			
Disturbance to rocky outcrops	**Medium**	• The rocky outcrops should be clearly demarcated and fenced off. No construction activity should take place within this area.	**Medium to Low**
Disturbance of surface geology and exposed surfaces for development foundation.	**Low**	• The time that stripped areas are exposed shall be minimized wherever possible. • Top soiling and re-vegetation shall commence immediately after the completion of an activity to prevent soil erosion and emergence of AIPs. • Storm water control and wind screening shall be undertaken to prevent soil loss from the site.	**Low**
Disturbance to the subsurface geological layers.	**Low**	Due to the nature of the impacts, not much can be done to mitigate the impact, only the severity can be managed. Mitigation and management for affecting geology is to ensure that removal of soil is kept to a minimum. Removal of soil should only be in areas where infrastructure will be established and must be clearly demarcated before and during construction.	**Low**
Soil erosion; loss of topsoil; deterioration of soil quality.	**Low**	• When the topsoil is removed for excavation purposes it should be stored separately from any other subsoil and or any stockpiled materials. The excavated soils should be stockpiled immediately on the demarcated area on the site. The topsoil should then be used at a later stage (after the construction phase) for purposes of landscaping and or rehabilitation purposes.	**Low**

		• The stripping of vegetation during preliminary activities and earthworks on site greatly increases the risk of erosion. • Uncontrolled soil erosion may cause siltation and pollution of water bodies and result in the loss of valuable topsoil.	
Soil pollution	**Low**	• Areas susceptible to soil and water pollution should be avoided as far as possible. • All polluted soil and water should be remediated immediately. • All hazardous substances should be handled with the necessary and appropriate care in order to avoid any spillages. • Vehicles and equipment shall be kept in good working condition and should be maintained in proper working order, in order to limit gaseous emissions, pollution and should be free from oil and hydraulic fluid leaks, etc. • If construction vehicles are maintained or if any leaks occur drip trays should be used and should be emptied on a regular basis to prevent overflows. • All chemicals; hazardous liquids and fuels shall be kept and stored in a bunded area that are enclosed and secure.	**Low**
Compaction of soil	**Low**	Undertake construction activities only in areas where required. Cross areas with machinery as little as possible (work effectively). Make use of existing access roads.	**Low**
Earthworks - small scale	**Low**	All excavation activities for any purpose whatsoever should be preceded by selective stripping and stockpiling of vegetative (humus) and soil materials in the order of their horizons as found on site, for the purpose of replacement in the appropriate horizon order, after the completion of construction. These activities should include: - Trenching for the installation of services (e.g. electricity), - Foundations, - Access road construction, - Site clearance, - Borrow pits, and - Yards or lay-down areas or any other areas affecting the	**Low**

		natural environment. Replacement and rehabilitation should be progressive with construction and not left until the end. Temporary topsoil stockpiles should be seeded, or protected in a manner acceptable to the environmental planner, so as to avoid erosion by rain or wind. Stockpiled topsoil and sub-soils should be protected from contamination e.g. by fuel spillages etc.	
Alternative 1; Alternative 2 and Alternative 3:			
Please refer to the Proposal above.	**Medium to Low**	Mitigation measures are the same as above.	**Low**
Cumulative Impacts:			
• Soil erosion; loss of topsoil and soil quality. • Soil pollution and contamination on the site as well as combined activities surrounding the site.	**Medium**	• Proper erosion control measures should be implemented and maintained. • Landscaping areas should be maintained properly. • All cleared areas should be landscaped and replaced with indigenous species as soon as possible. • Soil pollution is not expected with the land uses applied for. • If small spillages occurred during the construction phase it can easily be mitigated through adherence to the mitigation measures within the EMPr.	**Low**
Operational phase:			
Soil pollution.	**Low to Medium**	All spillages from hazardous materials and fuels should be prevented as far as possible in order to avoid permeable surfaces.	**Low**
Soil erosion; soil quality and loss of topsoil.	**Low to Medium**	• Proper erosion control measures should be implemented and maintained. • All cleared areas during the construction phase should be landscaped and indigenous species should preferably be used. • Landscaping areas should be maintained throughout the life span of the project.	**Low**

Air Quality:			
Proposal – Alternative 4			
Dust/ Air Pollution. Excessive dust pollution can be caused during the construction phase of the proposed development should it take place during the dry and windy seasons.	**Low**	Dust pollution can be minimized by regular damping down of working areas, especially during the dry and windy seasons, in order to minimize and/ or avoid dust pollution that can cause a nuisance to adjacent properties and residents.	**Low**
Alternative 1; Alternative 2 and Alternative 3:			
Same as above.	**Low**	Same as above.	**Low**
Cumulative Impacts:			
Dust/ Air Pollution.	**Low**	The mitigation measures in the EMPr should be strictly adhered to in order to minimize dust as far as possible.	**Low**
Operational Phase:			
Dust/ Air Pollution.	**Low**	If all areas are landscaped as soon as possible dust will be significantly minimized and be at an acceptable level.	**Low**
Historical and Cultural:			
Proposal – Alternative 4; Alternative 1; Alternative 2 and Alternative 3:			
The potential impact of the proposed development on archaeological, paleontological and heritage remains.	**Low**	• Should any burials, fossils or other historical material be encountered during construction, work must cease immediately and HWC must be contacted. It is however not expected as the site is already disturbed by buildings and other infrastructure. • Attention is drawn to the following measures listed below should any of the developer's permanent employees; its subsidiaries; contractors and subcontractors and services providers find any heritage or archeological artefacts etc. ★ If during the construction phase; of this project; any person employed by the developer; one of its subsidiaries; contractors and subcontractors; or service provider; finds any artefact of cultural significance or heritage site; this person must cease work at the site of the find and report this find to their immediate supervisor; and through their supervisor to the senior on-site manager. ★ It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find; and confirm the extent of the work stoppage in the area. ★ The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify the FSHRA.	**Low**

Prior to demolition of any structures older than 60 years a demolition application in terms of Section 34(1) of the National Heritage Resources Act; 1999 (Act no 25 of 1999) should be submitted to the Free State Provincial Heritage Resources Authority (FSHRA) for approval and or comment.	**Low**	- An approval will be obtained from FSHRA prior to demolition of any buildings older than 60 years.	**Low**
Cumulative Impacts:			
The potential impact of the proposed development on archaeological, paleontological and heritage remains. If construction workers are not informed or trained they might take heritage resources without seeing any harm by doing so.	**Low**	• Recommendations of the Heritage Impact Assessment should be adhered to.	**Low**
Operational Phase:			
Destruction of heritage and or cultural sites.	**Low**	• Contractors on site should be educated and trained in order not to remove any heritage objects from the site as a permit is needed from the South African Heritage Resources Agency (SAHRA).	**Low**
Services and Infrastructure:			
Proposal – Alternative 4; Alternative 1; Alternative 2 and Alternative 3:			
Provision of infrastructure and services.	**High**	• Development cannot commence without the necessary service provision and confirmation of services; • All the necessary upgrades and connections should be undertaken by the applicant; and • Service Agreement should be reached between the Applicant and Mohokare Local Municipality.	**Medium to high**
During the construction phase; traffic volumes will increase along the approach roads which may result in vehicle/ pedestrian collisions and degrade the road condition.	High to medium	- Residents/ neighbouring property owners should be made aware of the presence of construction vehicles through highly visible signage. - Construction vehicles; wherever possible; should be limited to low volume periods; - Road conditions should be recorded prior to construction vehicles - Making use of the roads and any damage caused by construction vehicles should be repaired immediately.	**Low**

Traffic.	**High**	• Increased activity and traffic at the property including the delivery of materials and team movements should be strictly limited to working hours.	**Low**
Vehicular access and movement of construction vehicles.	**Low**	• The following mitigatory measures are deemed necessary to ensure safe and efficient traffic flow to and from the site, during construction: • Posting of relevant traffic signage where construction will take place (to inform motorists of construction vehicles); • Adequate parking shall be provided on site, to accommodate construction vehicles; and • No vehicles should be parked in any public road reserve, at any time.	**Low**
Access routes.	**High**	• Sound environmental principles must be followed in terms of construction access to the site. • All roads for construction access must be planned and approved ahead of construction activities. • No trees/ shrubs/ groundcover may be removed or vegetation stripped without prior permission of the Project Manager/ ECO • Movement of vehicles and machinery around the site must be restricted to within the work zone demarcated during site establishment (and maintained throughout construction). • No vehicles or machinery shall be allowed whatsoever to traverse any wetland or watercourse. A 32 meter boundary around all wetland and watercourses shall be clearly marked and fenced off in order to be kept out off at all times. • Should it be necessary to traverse any wetland/ watercourse area during the construction phase the ECO shall be contacted immediately and prior to any activities taking place within these areas. The ECO shall then discuss the matter with the competent authority in order to obtain temporary approval for such activity should it be unavoidable to traverse these restricted areas. • Contractors shall ensure that access roads are maintained in	**Low**

		good condition by attending the potholes, corrugations and storm water damage as soon as these develop. • If necessary, staff must be employed to clean surfaced roads adjacent to construction sites where materials have been split. • Unnecessary compaction of soils by heavy vehicles must be avoided; construction vehicles must be restricted to demarcated access, haulage routes and turning areas. • Cognizance of vehicle weight/ dimensions must be taken when using access constructed out of certain materials. E.g. Paved surfaces/ cobbled entranceways.	
Storm water	**Low**	• Storm water measures should be in place prior to any other activities take place on the site. • Additional storm water measures should be put in place to ensure the sensitive areas are not affected.	**Low**
Cumulative Impacts:			
Additional pressure will be added on the existing infrastructure and services. Services are already stressed and under enormous pressure as the current capacity cannot provide in the needs of the existing town.	**High**	The development can only continue if the necessary services are available.	**Low**
Operational Phase:			
Additional pressure on the existing infrastructure and service delivery.	**High**	• Development cannot commence without the necessary service provision and confirmation of services; • All the necessary upgrades and connections should be undertaken by the applicant; and • Service Agreement should be reached between the Applicant and Mohokare Local Municipality.	**Low**
Waste:			
Waste handling.	**Medium**	• Waste should be dealt with according to the three "R's" namely reduce; reuse and recycle. • Contractors should remove all waste generated by themselves during construction and it should be disposed of at a registered landfill site. Waste material will be kept in designated areas.	**Low**

General substance and materials - Handling of general waste	**Medium**	• The excavation and use of rubbish pits on site is forbidden. • Burning of waste is forbidden. • A designated and fenced area must be allocated for waste sorting and disposal. • Individual bins/ skips for different types of waste (e.g. “household” type refuse, building rubble, etc.) shall be provided. • Refuse must be placed in the designated skips/ bins which must be regularly emptied. These shall remain within demarcated areas and shall be designed to prevent refuse from being blown out by wind. • Littering on site is forbidden and the site shall be cleared of litter at the end of each working day. • Recycling is to be encouraged by providing separate receptacles for different types of waste and making sure that staff are aware of their uses.	**Low**
Disposal of Waste	**Medium**	• All waste must be removed from the site and transported to a registered landfill site. • Construction rubble shall be disposed of in pre-agreed, demarcated spoil dumps that have been approved.	**Low**
Contractors’ yards and maintenance of construction camp	**Medium**	• A material delivery and storage area should be demarcated in co-ordination with the contractor. Material should not be brought onto a site prematurely, which could result in additional areas being cleared or affected. • The construction camp must be maintained in good order throughout the construction phase. • The construction camp is to remain fenced and secured for the duration of the construction phase. Perimeter fencing is to include a shadecloth barrier that prevents visual nuisance, dust movement and any waste/ litter in the construction camp area from being blown out. • The Contractor must attend to drainage of the camp site to avoid standing water and/ or soil erosion. • The contactor shall ensure that his camp and parking areas	**Low**

		are kept clean and tidy at all times. • The contractor to appoint someone to ensure that at the end of each day, all litter throughout the site is picked d up and placed in the bins provided.	
Mixing cement	**Medium**	Where cement and concrete, etc. is mixed on site, this shall be done in specified areas on concrete aprons or on protected plastic linings and provision shall be made to contain spillage or overflows onto soils.	**Low**
Mixing of chemicals	**Medium**	The mixing of any paints, solvents, sealants, adhesives, chemicals or other noxious materials shall only be undertaken in designated areas on concrete aprons that have spillage control channels and separate storage areas. The mixing of materials shall not be permitted in the general areas of the site. All surplus or waste materials are to be removed from the site. All these operations shall only be allowed on site under strict observations of the manufacturers' instructions.	**Low**
Storage areas	**Medium**	Materials Safety Data Sheets (MSDSs) shall be readily available on site for all chemicals and hazardous substances to be used on site. Where possible and available, MSDSs shall additionally include information on ecological impacts and measures to minimize negative environmental impacts during accidental releases or escapes. Hazardous storage and refueling areas must be bunded with an impermeable liner to protect groundwater quality. Bunded areas must have a capacity of at least 150% of the volume of the container storing the substance. Bunded areas to be constructed of concrete blocks lined with suitably dense plastic sheeting. Refueling/ hazardous material decanting areas can be protected with a portable metal sheet having a lip on all sides sufficiently high to contain potential spillages. Fuel and oil storage tanks must meet relevant specifications and be stored on an impermeable base with an oil tight bund. Fuel tanks shall be elevated so that leaks may be easily detected. Spills in bunded areas must be cleaned up, removed and	**Low**

		disposed of safely from the bunded area as soon after detection as possible to minimize pollution risk and reduced bunding capacity. Storage areas containing hazardous substances/ materials must be fenced, clearly demarcated and required signs displayed. These areas are to be kept under lock and key. Fire prevention facilities must be present at all storage facilities and be easily accessible at all times. Staff dealing with these materials/ substances must be aware of their potential impacts and follow the appropriate safety measures. Contractors shall submit a method statement and plans for the storage of hazardous materials and emergency procedures to the ECO and Project Manager for approval prior to brining the materials on site.	
General substance and materials - Storage areas.	**Medium**	• Choice of location for storage areas must take into account prevailing winds and general on-site topography. • Storage areas must be designated, demarcated and fenced if necessary. • Storage areas shall be secure so as to minimize the risk of crime. They shall also be safe from access by children/ animals etc. • Fire prevention facilities must be present at all storage facilities.	**Low**
Disposal of Hazardous Substances and materials	**Medium**	• Hazardous waste disposal must be carried out by an approved hazardous waste contractor. • Waste from chemical toilets shall be disposed of regularly and in a responsible manner by a registered chemical waste contractor. Care must be taken to avoid contamination of soils and water, pollution and nuisance to adjoining areas. Certificates of disposal to a licensed wastewater treatment works required.	**Low**
Builder's rubble being dumped on neighbouring properties.	**Medium to High**	No dumping of builder's rubble will be allowed outside the boundaries of the site or on neighbouring properties. A specific area on site should be allocated for the building rubble to be	**Low**

		collected by a registered contractor in order to cart it to a registered landfill site.	
Cumulative Impacts:			
Waste. If Waste is not properly handled and disposed of it could lead to many environmental problems such as soil contamination; surface and ground water pollution etc.	**Medium to High**	Waste should be dealt with according to the three "R's" namely reduce; reuse and recycle.	
Operational Phase:			
Waste.	**High to Medium**	• All waste needs to be separated at source; • Waste should be removed either by the Council or by a private contractor on a weekly basis. • Waste yards need to be provided.	**Low**
Aesthetics; Landscape character and sense of place:			
Proposal – Alternative 4; Alternative 1; Alternative 2 and Alternative 3			
Aesthetics; landscape character and sense of place.	**High**	The Site Manager and Contractors shall locate the site camp at the least visible position on the site in order to further minimize the negative impact onto the neighbouring properties as far as possible. Temporary storage sites must be least visible from the neighbouring properties as far as possible. The site camp and the rest of the site shall at all times be kept neat and tidy and waste will be removed from the site on a regular basis.	**Low**
Noise	**Medium**	• Noise will be created in the form of general construction noise i.e. earthwork machinery and other applicable tooling used for the establishment of the proposed development. • Construction work shall only take place from 6:00 am to 18:00 pm during week days and from 7:00 am to 14:00 pm on a Saturday. No construction work shall take place on Sundays and public holidays. • Construction vehicles are to be fitted with standard silencers prior to the beginning of construction. • Equipment that is fitted with noise reduction facilities (e.g.	**Low**

		Side flaps, silencers etc.) will be used as per operating instructions and maintained properly during site operations. • Machinery and vehicles are to be kept in good working order for the duration of the project to minimize noise nuisance to neighbors. • At least 24 Hours' notice of particularly noisy activities and blasting activities must be given to residents/ businesses adjacent to the construction site.	
Cumulative Impacts:			
Noise will be generated by the proposed development.	**Medium**	Noise levels to be kept within the acceptable noise limits and shall comply with the SANS recommended noise levels.	**Low**
Operational Phase:			
Noise.	**Medium**	Noise levels to be kept within the acceptable noise limits and shall comply with the SANS recommended noise levels.	**Low**
Socio-Economic:			
Proposal – Alternative 4; Alternative 1; Alternative 2 and Alternative 3:			
Increased temporary jobs during construction	**Positive**	Local contractors, employing or seeking to employ local (historically disadvantaged) individuals from the region who are suitably qualified, should get preference.	**Positive**
Optimization of the local economy	**Positive**	Where appropriate, use should be made of labour intensive construction methods. Local workers and emerging contractors should be used if at all possible.	**Positive**
Safety and Security.	**Medium**	• Potentially hazardous areas such as trenches are to be demarcated and clearly marked with appropriate signage/ danger tape/ mesh. • Lighting on site is to be set out to provide maximum security and to enable easier policing of the site, without creating a visual nuisance to local residents or businesses. • Flammable materials shall be stored as far as possible from adjacent farms and areas prone to veld fires. • Firefighting equipment shall be present on site at all times as per OHSA.	**Low**
Safety on site	**Medium**	The implementation of an Occupational Health and Safety management system should be required of all contractors.	**Low**

		Safety measures and work procedures/ instructions should be communicated to all construction workers. First aid facilities shall be on hand at all times. Medical screening of employees shall take place. The contractor shall implement adequate and mandatory safety precautions relating to all aspects of the operation. Warning and advisory signage should also be implemented (also with regards to vehicular movement along public roads).	
Security	**Medium**	• The construction site shall be fenced off; • No worker shall be allowed on the adjacent properties; • No workers shall be allowed to stay on the construction site.	**Low**
Cumulative Impacts:			
Visual. • Landscape can be partially altered by the clearing of vegetation on the site. Areas can remain with areas of bare soil. • Construction machinery can have a visual impact although it is for a short duration.	**Medium**	All areas cleared on the site shall be landscaped or re-vegetated on the construction phase has finished and rehabilitation shall take place wherever necessary	**Low**
Noise.	**Medium**	Noise levels shall be kept within the SANS acceptable levels at all times.	**Low**
Operational Phase:			
Job creation.	**Positive**	Work opportunities will be available on a temporary and permanent basis.	**Positive**
Safety and Security.	**Medium**	• The development will need to comply with building regulations and will be regulated in terms of what may be built as well as the appearance of the structures. • The entire development should be fenced off and fences shall be upkept by the Mohokare Local Municipality.	**Low**
Visual.	**Medium**	All areas cleared on the site shall be landscaped or re-vegetated on the construction phase has finished and rehabilitation shall take place wherever necessary.	**Low**
Noise.	**Medium**	Noise levels shall be kept within the allowed SANS levels.	**Low**

A complete impact assessment in terms of Regulation 19(3) of GN 326 must be included as Appendix F.

2. ENVIRONMENTAL IMPACT STATEMENT

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

Proposal: Alternative D — Alternative 4

Figure 5: Proposal - Alternative 4 Layout plan

The proposed site has characteristics that are still in a natural state but also characteristics of farming activities taking place. Some farm houses and outbuildings are situated almost central of the site with the existing Mooifontein Primary Farm School being located directly adjacent and to the north of the R726. Across the road from the school is a small area with informal houses. A number of Head of Cattle are also grazing on the land with signatures of cultivation occurring mainly to the east; south and south-east of the site. A railway line traverses the site in a north to south direction.

It is clear from the above that the site has several sensitive areas to consider; however the larger area is not situated on natural vegetation that has never been disturbed before as a large area of the site has been under agricultural activities that are utilized for animal grazing and it can be seen on the aerial photographs that

the site has also been under crop production. Furthermore the town of Zastron is situated to the south of the site with Majozi Street and the R726 cutting through the centre of the site and a railway line intersecting/ traversing the site and therefore the site is subject to edge effects.

1. Ecological:

The Aasvoëlberg; which can be regarded as a Class 1 Ridge; lies to the west of the site. This ridge is also known as the Vulture Conservation Area. The map below indicates the sensitive areas (Vulture Conservation Area (the red lines) and Class 1 Ridge (red area)). The Vulture Colony/ Cape Vultures are also known for breeding and nesting on the outcrops and western sides and edge of the Aasvoëlberg. Characteristics of rocky outcrops are also found on certain areas of the site with various areas on the entire site consisting of watercourses/ wetlands.

The comments received from the Conservation section of DESTEA and Mohokare Local Municipality; they have been in discussion for some time to proclaim the area to the west as a Conservation area however it has not yet been done. We requested both these authorities to provide our office with comments in this regard.

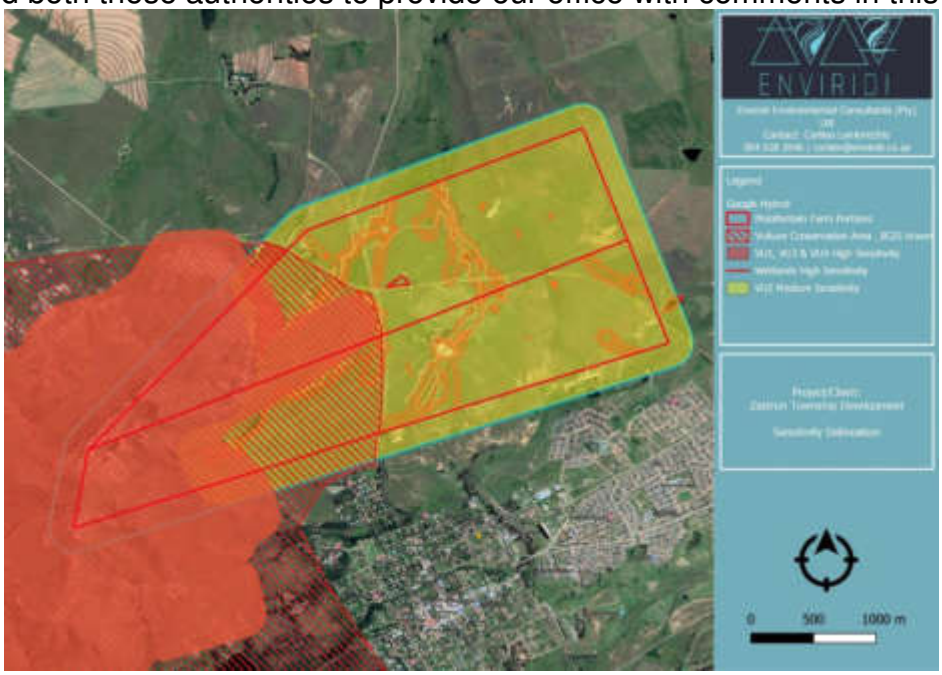


Figure 4: Sensitivity Delineation

The inclusion of a tourism facility in the layout plan is considered ideal and it is suggested that it be located as close as possible to the Vulture Conservation area. According to the project Ecologist with this proposed layout plan the Tourism facility as well as the Hospital falls within the Vulture Conservation area.

It is recommended that the Tourism facility be incorporated in the planning with the main focus on the Vulture colony; other sensitive fauna and flora species; coordination of regulated tours in consultation with VulPro (who specialises in saving Africa's vultures through rehabilitation; research and education as well as

implementing VulPo captive breeding progammes); education regarding the Cape Vulture; it's protection and continued conservation. It is furthermore suggested that specific attention should also be given towards intervention against the use in traditional medicine and education to alleviate the possible impact.

With this alternative the Tourism facility is separated from the Hospital site by a road (newly planned). This road will also act as a buffer from the Hospital site towards the sensitive characteristics found to the west of the entire development. The placement of the Tourism facility in this area is done so in order to protect and manage the sensitive areas and to have full control over this area by means of regulated access to the western side. All other uses are situated on the eastern side of Majozi Street and the R726. This layout plan will have the least ecological impact and from an ecological point of view with the proper mitigation measures in place the ecological impact can be mitigated to acceptable levels.

2. Topography:

All four alternatives will result in the disturbance of the topography of the site. The proposal (Alternative 4) and Alternative 3 will have a slight lower impact in terms of topography than with Alternative 1 and 2. The only activities taking place to the south western corner is the Hospital and the Tourism Facility. The Tourism Facility will work in close cooperation with VULPRO to ensure the conservation of the sensitive areas situated to the west of the entire development. The impact on the topography with this proposal can be mitigated to acceptable levels and therefore the Proposal is regarded as having the least impact on the topography of the site.

3. Hydrology/ Wetland/ Watercourses:

The wetlands/ watercourses are considered with this layout plan and the 32 meter buffer is applied. If all mitigation measures are followed the impact should be low on the hydrology. However care should be taken that no downstream surface water bodies are affected during either of the construction or operational phase.

4. Geology and Soils:

The impact on Geology and Soils are similar with most of the alternatives. During the construction phase all the alternatives will disturb the surface geology and suitably designed foundations will be required. Machinery and vehicles on the site could probably result in the spillages of petroleum and other lubricants. Erosion and soil disturbance are also considered to have an impact on the quality of the soils. If all the mitigation measures are followed the impact will be minimized significantly to an acceptable level.

5. Air Quality:

The Air Quality will be the same with all four alternatives. Dust and air pollution will be created during the construction phase of the project. With the necessary mitigation measures applied the air quality will be within acceptable levels.

6. Historical and Cultural:

The historical and cultural impacts will remain the same for all alternatives. The

existing farm houses and kraal was found to have historical value; however it will not be demolished as it will be used as part of the development and specifically for Motheo TVET College. No other cultural or historical features of significance were found during the site visit of the Heritage Consultant. However should any artefacts; graves etc. be discovered a suitable qualified Heritage Consultant/ Archaeologist should be consulted and the necessary measures should be followed as per the mitigation measures of the EMPr.

It will be required that Motheo College should take full responsibility for the preservation and upkeep of the heritage buildings and site and provide a methodical plan of execution.

7. Services and Infrastructure:

Provision of services is a major concern currently in the town of Zastron and if the necessary basic service provision is not available the proposed development will only add additional pressure on the provision of services which is currently not readily available and overstressed. The current capacity cannot supply the town's needs. If the Xhariep District Municipality; Mohokare Local Municipality in collaboration with the Department of Water and Sanitation are unable to supply basic services the proposed development will not be able to continue. It is understood that Xhariep District Municipality; Mohokare Municipality in collaboration with the Department of Water and Sanitation are in the process of addressing these challenges. The impact of services remains high at this stage until the necessary service provision can be supplied by the mentioned authorities.

8. Waste:

The existing landfill site of Zastron needs to be upgraded by the Mohokare Local Municipality. It is required that this takes place prior to the operational phase of the proposed development.

9. Aesthetics; landscape character and sense of place:

The proposed development will be regulated by Mohokare Local Municipality in terms of what may be built as well as the appearance; form and function of each structure. The Mohokare Local Municipality stated at the corner where the R726 crosses the R26 Entrance to Zastron; where the old farm cemetery is located; a park will be established to beautify the entrance and respect the burial site. From the entrance from Wepener; on the right-hand side; will be little development to keep most of nature intact. The conservation area is important to the municipality and a relationship has already been established between DESTEA and the municipality. It is suggested that the development be aesthetically pleasing and needs to blend in well with the surrounding environment. The proposal – Alternative 4 is regarded as the best option in terms of the sense of place this alternative is the preferred alternative from an environmental and ecological point of view.

10. Socio-economic:

All four alternatives will have a positive impact during both the construction and

operation phase of the development as it will create numerous job opportunities on a temporary and permanent basis.

In conclusion taking all the factors into consideration it is regarded that the Proposal – Alternative 4 is the best option for the proposed development from a biophysical; social; institutional; economic and environmental point of view as it took all sensitivities and characteristics of the site into consideration. By accessing all the adverse and beneficial impacts of the proposal and the alternatives; it is clear that the proposal will have the least impacts to be mitigated whilst still addressing the backlog of housing within the Mohokare Local Municipality. If all the mitigation measures are adhered to and the basic services are available to both the town of Zastron and the proposed development then there is no reason why the proposed development could not continue.

Alternative A – Alternative 1

Figure 7: Alternative 1 Layout plan

Alternative 1 layout incorporates residential uses to the far west (north west and south west) of the site. These residential uses fall within the buffer of the Vulture Conservation area; the Class 1 Ridge and are in close proximity to the rocky

outcrops. The impacts for Alternative 1 are discussed below.

1. Ecological:

The Aasvoëlberg; which can be regarded as a Class 1 Ridge; lies to the west of the site. This ridge is also known as the Vulture Conservation Area. The map below indicates the sensitive areas (Vulture Conservation Area; Rocky Outcrops and Class 1 Ridge) in red. The Vulture Colony/ Cape Vultures are also known for breeding and nesting on the outcrops and western sides and edge of the Aasvoëlberg. Characteristics of rocky outcrops are also found on certain areas of the site with approximately six (6) different positions on the entire site consisting of watercourses/ wetlands.

The inclusion of a tourism facility in the layout plan is considered ideal and it is suggested that it be located as close as possible to the Vulture Conservation area. It is furthermore recommended that it should be incorporated in the planning with the main focus on the occurrence of the Vulture colony; other sensitive fauna and flora species; coordination of regulated tours in consultation with VulPro (who specialises in saving Africa's vultures through rehabilitation; research and education as well as implementing VulPo captive breeding progammes); education regarding the Cape Vulture; it's protection and continued conservation. It is furthermore suggested that specific attention should also be towards intervention against the use in traditional medicine and education to alleviate the possible impact.

With this alternative the Tourism facility is separated by a road from the western side of the site which is regarded as the most sensitive area of the entire site. This area should be protected and managed and it is thought best that the Tourism facility should be situated on the western side of the road (Majozi Street and the R726) in order to have full control over this area to regulate access. As can be seen on the layout plan residential areas are currently situated on the far western side (to the north west and south west of the site) and west of the Majozi Street and the R726. It is not regarded as the best option for the site from an ecological point of view. Access to the Ridge and protected Vultures will be too easy and control over these areas will be difficult. Even with the appropriate mitigation measures in place the ecological value of the site remains high with this alternative layout.

2. Topography:

All four alternatives will result in the disturbance of the topography of the site. However with this alternative it might be higher due to the residential uses planned within the Vulture Conservation area; buffer of the Class 1 Ridge as well as directly adjacent to the rocky outcrops. Disturbances to these areas are inevitable with this layout. Therefore the impact on the topography with this alternative remains high even with mitigation measures in place as the risk for destruction in these areas remains high.

3. Hydrology/ Wetland/ Watercourses:

The wetlands/ watercourses are considered with this layout plan and the 32 meter buffer needs to be applied. If all mitigation measures are followed the impact

should be low on the hydrology. However care should be taken that no downstream surface water bodies are affected during either of the construction or operational phase.

4. Geology and Soils:

The impact on Geology and Soils are similar with most of the alternatives. During the construction phase all the alternatives will disturb the surface geology and suitably designed foundations will be required. Machinery and vehicles on the site could probably result in the spillages of petroleum and other lubricants. Erosion and soil disturbance are also considered to have an impact on the quality of the soils. If all the mitigation measures are followed the impact will be minimized significantly to an acceptable level. However with this alternative residential uses are situated directly adjacent to the rocky outcrops which could potentially have a very negative effect due to the possible damage and destruction of these areas if not handled with caution.

5. Air Quality:

The Air Quality will be the same with all four alternatives. Dust and air pollution will be created during the construction phase of the project. With the necessary mitigation measures applied the air quality will be within acceptable levels.

6. Historical and Cultural:

The historical and cultural impacts will remain the same for all alternatives. The existing farm house was found to have historical value; however it will not be demolished as it will be used as part of the development and specifically for Motheo TVET College. No other cultural or historical features of significance were found during the site visit of the Heritage Consultant. However should any artefacts; graves etc. be discovered a suitable qualified Heritage Consultant/ Archaeologist should be consulted and the necessary measures should be followed as per the mitigation measures of the EMPr.

7. Services and Infrastructure:

Provision of services is a major concern currently in the town of Zastron and if the necessary basic service provision is not available the proposed development will only add additional pressure on the provision of services which is currently not readily available and overstressed. The current capacity cannot supply the town's needs. If the Xhariep District Municipality; Mohokare Municipality in collaboration with the Department of Water and Sanitation are unable to supply basic services the proposed development will not be able to continue. It is understood that Xhariep District Municipality; Mohokare Municipality in collaboration with the Department of Water and Sanitation are in the process of addressing these challenges. The impact of services remains high at this stage until the necessary service provision can be supplied by the mentioned authorities.

8. Waste:

The existing landfill site of Zastron needs to be upgraded by the Mohokare Local Municipality. It is suggested that this takes place prior to the proposed development

becoming operational.

9. Aesthetics; landscape character and sense of place:

The proposed development will be regulated by Mohokare Local Municipality in terms of what may be built as well as the appearance; form and function of each structure. The Mohokare Local Municipality stated at the corner where the R726 crosses the R26 Entrance to Zastron; where the old farm cemetery is located; a park will be established to beautify the entrance and respect the burial site. From the entrance from Wepener; on the right-hand side; will be little development to keep most of nature intact. The conservation area is important to the municipality and a relationship has already been established between DESTEA and the municipality. It is suggested that the development be aesthetically pleasing and needs to blend in well with the surrounding environment. The residential areas situated on the western side of Majozi Street will be less feasible than the proposal – Alternative 4. Therefore in terms of the sense of place this alternative is not the preferred alternative from an environmental and ecological point of view.

10. Socio-economic:

All four alternatives will have a positive impact during both the construction and operation phase of the development as it will create numerous job opportunities on a temporary and permanent basis.

Alternative 1 layout above incorporates residential uses within the most sensitive area of the site and no adherence is given to buffer areas around the Aasvoëlberg; Vulture Conservation area and the rocky outcrops. Therefor this alternative is not considered to be the best layout and option for the proposed development and from an ecological and environmental point of view this alternative is not recommended.

Alternative B - Alternative 2

Figure 8: Alternative 2 Layout plan

Alternative 2 layout is similar in nature to that of Alternative 1 except that this layout has not considered the watercourses/ wetlands and therefore more residential units were planned in the central area of the development and a larger area is left open for purposes of municipal uses in the north-eastern side of the development which is actually regarded as the least sensitive area of the site.

The impacts for this layout is exactly the same as Alternative 1 except for development planned within the wetlands/ watercourses. Therefore this alternative is also not considered feasible and from an environmental and ecological point of view not recommended.

Alternative C – Alternative 3

Figure 9: Alternative 3 Layout Plan

The layout for Alternative 3 is similar in nature to the Proposal – Alternative 4. However with this layout the south western corner contains additional Residential activities along with the Tourism Centre and the Hospital. The other difference between this layout and the proposal (Alternative 4) is that the Residential uses surrounding the Hospital in the south western corner with this layout is moved to the far north east corner of the site (which is the least sensitive area of the site) on the proposed layout plan.

With this Layout the new planned road creates a separate pocket for the Hospital and the Residential activities. The road furthermore separates these two facilities from the Tourism centre and the watercourse/ wetland which creates a further buffer from the sensitive areas.

All other impacts of this layout will be exactly the same as that of the Proposal (Alternative 4). This layout plan is considered to be the second best option as it has considered most of the sensitivities on the site. However as with the Proposal the residential area; Hospital and Tourism facility is still situated within the buffer area of the Vulture Conservation area but due to the fact that the wetland/ watercourse as well as the new planned road separates the activities from the remainder of the site to the west of Majozi street and the new planned road providing access to these three activities it seems that this area is situated further away from Aasvoëlberg. The reason for the positioning of the Tourism Facility is that it can assist with

access control to the sensitive areas found on the site which is the Aasvoëlberg; the Vulture Colony on the other side of the Aasvoëlberg; Class 1 Ridge; Rocky outcrops and the Class 1 Ridge buffer.

If all the mitigation measures are implemented this layout might also work however it is still thought best that no Residential Activities should be located in the most western corner of the site. This alternative is therefore considered as the second best layout plan from an environmental and ecological point of view.

No-go alternative (compulsory)

If the No-go alternative is followed it would mean that the status quo is being maintained which means that the site remains in its current state. It will also mean that a new residential area; schools; hospital; shopping centre etc. will not be established if the no-go option is decided on. Therefore the need of the Free State Human Settlements Department in collaboration with the Xhariep District Municipality and Mohokare Local Municipality to address the backlog of housing will not be carried out and fulfilled. The housing backlog will then remain a priority over the next few years and should the no-go option be chosen it will only affect and delay the backlog of housing further. It could furthermore also add additional pressure on more vulnerable land situated further away from the town. In the long term the site might also attract illegal vagrants and illegal settlements that are not legally regulated.

In terms of service delivery should the no-go option be followed no additional pressure in the short term will be placed on the Mohokare Local Municipality and Xhariep District Municipality. It is known that there is a great lack of service delivery in the town of Zastron and that the system is currently under-capacitated. The Department of Water and Sanitation in collaboration with the Mohokare Local Municipality is currently busy upgrading its services to provide for the needs of the town of Zastron. With the planned new upgradings and infrastructure from Montagu Dam and the Orange River it is said that it will be sufficient to supply not only the needs of the town of Zastron but still have a surplus available that will be able to supply services to the additional proposed development.

Considering the natural environment consisting of certain areas with highly sensitive characteristics and features on the site, a vacant piece of land can easily attract illegal vagrants without any control of where they will reside and what damage they can do to the area. The site has many areas that are considered as wetland/ watercourses which need to be protected by all means. The Aasvoëlberg also houses the Cape Vultures and it is known from the Ecological Report that plants with medicinal value are present on the site. Currently it is known that people go up the mountain to get hold of the medicinal plants as there is no controlled access.

It is also widely known that Vultures are sought after which in the African trade involves the poaching, trafficking, and illegal sale of vultures and vulture parts for bushmeat and for ritual and religious use, like traditional medicines. At this stage it seems that the Cape Vulture colony is expanding; however in the long term

there is no assurance that it will remain in this state.

Illegal dumping is another matter that needs to be recognized that can possibly take place on the site. Whereas with the planned proposed development which took all the sensitivities into consideration it will be possible to still protect and conserve the sensitive areas along with the proposed development adhering strictly to all the mitigation measures proposed in the report and exercising controlled access to the site and specifically to the most sensitive areas i.e. the Aasvoëlberg and wetlands/ watercourses.

The development option might be considered a better option in the long term than the no-go option. Should the no-go alternative be followed, no specific manner of protection and conservation of sensitivities on the site can be fully exercised and the possibility exists that the site can be deteriorated in the long run. Unless the Mohokare Local Municipality spends money to fence off the sensitive areas in order to ensure that none of the mentioned activities takes place on the site. This might not even help but then the no-go option might be valid. Therefore weighing the possible impacts of the no-go option it seems that this option is not considered the most feasible option for the site.

Decommissioning Phase:

No decommissioning or closure is envisaged as the proposed development is for a Residential and Mixed Use Development.

SECTION E. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?	YES	[redacted]

If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment).

[redacted]

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

No fatal flaws were identified in terms of the proposed activities and the receiving environment that would prevent the proposed development from taking place. The EIA report was executed in an objective manner and the process and report conform to the requirements as stipulated in Regulation 21 and Appendix 2 of GN No. 326 of 7 April 2017.

It is recommended that the Mohokare Local Municipality in collaboration with the Conservation Section of DESTEA examine the proposed layout plan and confirm if some of the development activities will fall within the proposed extension of the conservation area.

It is recommended from an environmental point of view that the Tourism facility be located as close as possible to the Vulture Conservation area as per the Proposal – Alternative 4 layout plan. It is furthermore recommended that it should be incorporated in the planning with the main focus on the occurrence of the Vulture colony; other sensitive fauna and flora species; coordination of regulated tours in consultation with VulPro (who specialises in saving Africa's vultures through rehabilitation; research and education as well as implementing VulPo captive breeding progammes); education regarding the Cape Vulture; it's protection and continued conservation. It is furthermore suggested that specific attention should also be towards intervention against the use in traditional medicine and education to alleviate the possible impact.

It is recommended that the following will be made a recommendation in the Environmental Authorization:

- The layout is planned in such a manner to incorporate the railway line. No direct access is allowed to the Railway line from the proposed site. The site will be fenced off with boundary walls.
- Proof of basic service provision and the necessary availability be submitted to DESTEA prior to the commencement of the development;
- It is also recommended that further investigations and negotiations take place to seek measures to be beneficial to the existing local community in terms of possible upgradings and service provision that might be beneficial to both the locals and the proposed new development.

- Mohokare Local Municipality will be responsible for the erection of boundary walls and fences around the entire new development and should be up kept and maintained regularly by them.
- A proper storm water management plan be conducted prior to the commencement of the proposed development and be submitted to DESTEA for approval;
- Adhere to all the mitigation measures as per the Environmental Management Programme (EMPr);
- The mitigation measures as per the specialist reports:

1. Ecological:
   - Access to the aquatic and wetland associated areas as well as the cliffs and mountainous area including ideally the Vulture Conservation area should prohibited as far as possible;
   - Wherever necessary the Relevant Authorizations to be obtained for all protected species in term of NEMBA and the National Forests Act; 1998 (Act No. 84 of 1998);
   - No carcasses or vulture feeding opportunities should be created or allowed by the local residents; which will interfere with the VulPro site and also possibly lead to poisoning of the creatures;
   - It is suggested that a community liaison office and officers (or as part of the tourism centre) should exist which will monitor community interventions; prevent; report incidents. Monetary awards should be offered to encourage information is brought to light (if any) on the illegal harvesting of the Vultures in the area and ensure prosecution is enforced if necessary;
   - VulPro should be consulted and their input obtained to ensure all management prescribed in the EMPr is aligned with and supplementary to support their conservation efforts. Education programmes and incorporating tours or viewings at set times and possibly as a tourism attraction for the area should be investigated; which will ensure education conservation and the possibility of financial support for both the community and VulPro (which is a volunteer organisation);
   - Ideally; the entire western section (on the western side of the road) should be fenced off with strict access control; or access control managed and granted through the Tourism centre proposed in this area; which will allow regulated access to the mountainous area and only as part of the allowed activities (tourism attraction; viewing and educational workshops; etc.);
   - Community involvement and projects (added benefit work creation) could also stimulate awareness and swing the favour towards conservation instead of illegal harvesting. All of these aspects should be closely discussed with VulPro and DESTEA to ensure the best way forward;
   - Design and development of infrastructure in accordance with best practice guidelines to avoid both collisions and electrocutions as best possible; and could even consider implementing infrastructure underground where possible.
   - A responsible person associated with both the Tourism centre proposed and liaison with VulPro should be appointed during the construction phase to ensure the development of suitable initiatives and a suitable Vulture Management Programme is drafted in consultation with VulPro to

supplement their conservation efforts;
A responsible person (with environmental knowledge) should also be appointed by the applicant during construction to prevent other unnecessary ecological impacts that could occur or animals are harmed and also ensure no breeding ground or unexpected discovery of red listed/ sensitive animals that may require relocation is handled incorrectly by uninformed personnel;

- Prevent the needless loss of or damage to flora particularly with regard to protected; endemic; near-endemic and rare species to keep the specific habitat type as unaltered as possible. This will include the active management of Alien and Invasive species as well;
- Harvesting of plant species for purposes of traditional medicines should be strictly prohibited;
- Death; injury and hindrances to any fauna species should be prevented as far as possible;
- Prevention of significant alterations to the ecosystems in the area; specifically; the wetland zones; adherence to all measures as described in the specialist wetland assessment and specialist delineations made in this regards;
- All infrastructure that could possibly impact the Vulture colony; should be prevented and this include special adaptions to the infrastructure; such as additional effort required to reduce electrocutions and collisions of Cape Vultures with power-line infrastructure. Existing pylons and overhead lines need to be replaced or retro-fitted; on a carefully prioritised basis; and new infrastructure needs to designed and routed; to minimize the risks from electrocution and collisions;
- The electrical infrastructure which normally forms part of the residential development; should investigate the use of insulators to be placed on conductors to prevent the bird from touching the conductor while landing or taking off and thus reducing the risk of an electric shock. The length of the isolators is adapted to the size

It is recommended from an environmental point of view that the tourism facility be located as close as possible to the Vulture Conservation area. It is furthermore recommended that it should be incorporated in the planning with the main focus on the occurrence of the Vulture colony; other sensitive fauna and flora species; coordination of regulated tours in consultation with VulPro (who specialises in saving Africa's vultures through rehabilitation; research and education as well as implementing VulPo captive breeding progammes); education regarding the Cape Vulture; it's protection and continued conservation. It is furthermore suggested that specific attention should also be towards intervention against the use in traditional medicine and education to alleviate the possible impact.

All activity should be avoided in restricted areas and possible wetland zones after construction; incorporating those findings from the wetland assessment done for the project; unless authorization area obtained for this; then management of these activities will be important;

- A management plan for the control of invasive/ alien weed species needs to be implemented. Specialist advice should be used in this regard. This plan should include pre-treatment; initial treatment and follow-up treatment. The

cleared areas after removal should be re-vegetated with indigenous naturally occurring species to decrease large patches of bare soil. The best mitigation measure in this regard is avoiding invasive and/ or exotic species from being established. This should not only be conducted within the direct location of the development but also into surrounding areas which may be impacted by the development. It is vital that the control of alien invasive species is ongoing.

- Activities on site must comply with the regulations of the Animal protection Act; 1962 (Act 71 of 1962);
- The vegetation removal (and associated fauna) should be controlled and should be very specific;
- Ensure linear structures; such as roads and pipelines; are well managed to reduce the degradation of vegetation due to the edge effects. This will be facilitated by ensuring vehicles remain on roads and alien invasive species introduction is controlled along road verges.

2. Heritage:

- Structures older than 60 years are the responsibility of the provincial Heritage Authority of the said province;
- Structures older than 60 years are protected by the National Heritage Resources Act; 1999 (Act no 25 if 1999); Section 34 (1) before demolition a Section 34(1) demolition application must be submitted to the Free State Provincial Heritage Resources Authority (FSHRA) for approval/ comment;
- The Discovery of subsurface archaeological and/ or historical material as well as graves must be taken into account in the Environmental Management Programme;
- The municipal cemetery must be protected during construction activities; and
- Submit this report as a Section 38 application to the relevant heritage authority for approval/ comment.
- It will be required that Motheo College should take full responsibility for the preservation and upkeep of the heritage buildings and site and provide a methodical plan of execution.

3. Wetland:

- A wetland delineation outcome; with a 32m buffer is provided. During the planning for and physical development of the site the erodibility of the soils has to be taken into account. In this regard adequate planning has to be done for the mitigation of erosion during construction as well as storm water management post construction. The storm water management aspects are the responsibility of the town planners and engineers on the project and these have to be planned in line with current best practice in order to avoid degradation of the natural landscape and negative effects on structures and houses.

It is herewith requested that DESTEA; Stakeholders and Registered Interested ad Affected Parties provide comments on the Draft EIA Report in order to incorporate these comments within the final EIA for consideration of the Environmental

Authorization by DESTEA.		
Is an EMPr attached?	YES	**NO**

The EMPr must be attached as Appendix G.

The EMPr is attached as Appendix G.

The details of the EAP who compiled the EIAR and the expertise of the EAP to perform the Scoping and EIA process must be included as Appendix H.

If any specialist reports were used during the compilation of this EIAR, please attach the declaration of interest for each specialist in Appendix I.

Any other information relevant to this application and not previously included must be attached in Appendix J.

Anè (ACM) Agenbacht

NAME OF EAP

SIGNATURE OF EAP

DATE

SECTION F: APPENDIXES

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information