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ENVIRONMENTAL SUMMARY FOR THE PROPOSED CONSENT USE APPLICATION FOR THE MAGALIES RIVER LODGE

In terms of the National Environmental Management Act (107 of 1998), certain development activities that may potentially impact on the environment require authorization prior to any development commencing. Chapter 5 of the NEMA further include a set of principles that guide and support the requirements that must be met to ensure that any development is a sustainable development.

The initial comment of 2019 appears to have been compiled in response to the submission of a township application. These are largely null and void following the agreement from Mogale that a consent use application process for a Lodge could be undertaken.

The comments that follow provide a short summary of relevant assessments and investigations that were used to support a revised Site Development Plan that was developed in support of the consent use application.

1. Location

The property lies on Portion 77 (a portion of Portion 74) of the Farm Kruitfontein 511JQ that totals an area of 8.5653ha (Figure 1). The Magalies River Lodge is located just outside of the town Magaliesburg in the Gauteng Province. Access to the site is available via the R24 Krugersdorp/Magaliesburg Road.

The site is bisected by a perennial water course called the Magalies River. The Magaliesburg Mountain Range extends through the site. A local road provides access to the site (Figure 2).

The site comprises the existing historical lodge + a camping terrain located across the road from the main lodge (Figure 3). The camping terrain offers limited accommodation and conference facilities.

The Mogale City Local Municipality approved the business rights on the 27th June 2002 following a consent use application. In September 2018, MCLM further approved a Site Development Plan.

2. Nature of Current Activities & Description of the Site

The original lodge comprised the main unit with offices, staff quarters (located across the road), kitchen, 3 en suite bedrooms, lounge, pool, managers house and limited infrastructure along the river bank (lapa) - Figure 4 (SDP).

The site is serviced with a municipal water line, supplementary borehole, Eskom Power Supply and five (5) septic tanks with French drains. The three (3) tanks, that include the managers house, main lodge and ablution area are historical (prior to 2000) whereas the two (2) tanks at the camp site were installed in 2005.

A borehole also occurs on site and ground water is used as and when required. This use is limited to approximately 25 000 litres per month. Recently the DWS has approved a General Authoriization application for this water use in terms of Section 21 of the National Water Act.

Waste (solid domestic) is collected into a skip that is emptied twice a week to the local landfill.

In approx. Nov 1999, a parking area was added to the layout and a small wooden deck was added to extend the existing lapa on the banks of the water course.

In 2001, an Environment Conservation Act S28A exemption application was compiled for the existing activities as well as the further development of 4 units/chalets to be located across the road in the camping terrain. The proposed foot print, including the existing uses, was to total a maximum of 2580m^2.

The S28A application and approval included specific mention of Activity 2(c) of the Listed Activities published under Regulations 1182 and 1183 of the Environment Conservation Act (73 of 1989). This authorization was issued on the 09th January 2002.

In 2005 or thereabouts, two large concrete foundations were built for tents but these were then later (in 2016) converted to two blocks of 4 chalets each. In addition, the proponent constructed four (4) temporary tent sites (elevated platform & tent) on the "camping terrain" located directly across the road from the existing lodge. This was later extended to 8 tents in total (an additional 4 being added). Tents 9 and 10 and pool with tented boma/conference centre was also created in this camping terrain. These all constitute part of the original application and exemption approval.

In 2015, the existing servant quarters were converted into a residence with 3 bed, 3 bath + kitchen + double garage using the existing footprint.

Within the existing lodge development area (i.e. the original unit), a chapel was also constructed adjacent to the lodge in 2005 and in 2016, an ablution block was constructed adjacent to the existing Lodge. This took place on transformed vegetation and in previously landscaped areas which means it did not trigger NEMA.

3. Existing Development Footprint

Figure 4 illustrates the extent of the development. The current development footprint totals 2085.7m^2.

The following activities and footprints exist on the property (refer to Photo Plate below):

Use / Activity	**Area (m^2)**
Function Venue	847.3
Conference	385.8
Chapel + Ablution Block	254.2
Restaurant	205.3
Staff Quarters + Store	75.6
Managers Cottage + Garage	112.5
Tented Accommodation	559.2
Chalets + Overnight Units	521.9
Road/Access	
Parking (52 bays)	
Open Space / Landscaping	
Total	**85 653**
Coverage	**2.64%**

The envisaged development is not likely to significantly impact on or degrade the bio-physical features of the site. The environmental impact is likely to be low and can be adequately mitigated by means of best practice building controls.

4. Comments on Landscaping, Open Space Management and Integrated Catchment Management & Natural Resource Management

A Landscape Plan (Figure 4) has been compiled and demonstrates that large parts of the existing site include indigenous trees. The site is located within a rural part of Gauteng and the development has been in existence for over 25 years.

The development further comprises a lodge with tented camp located on the banks of the Magalies River. This area is heavily wooded with a number of indigenous as well as several exotic tree species. Large parts of the site thus remain covered.

It is concluded, based on the above, that the prescribed requirement to plant indigenous trees within the relatively small parking area is not necessary as these would offer little benefit or value to the area.

5. Requirements of ECA/NEMA (2014, as amended)

In 2002, the GDACE issued an authorization that approved the current lodge operation and gave permission for the establishment of four chalets. The development footprint approved for the above was limited to an area of 2580m^2.

The current development footprint has been independently assessed to fall below this limit and therefore remains legal in terms of the ECA (Act 73 of 1989).

The additional construction of the chapel in 2005 and an ablution block in 2016, both located adjacent to the main lodge, are also considered to be compliant to NEMA (107 of 1998) and the EIA regulations 2014 (as amended). This is because the chapel was an extension of an existing building in 2005 under the current approval and the ablution block of 2016 included the development of transformed vegetation (development of a landscaped area). The footprint of this development also totalled less than 300m^2. This site is located more than 32m from the edge of the riparian zone. The temporary wooden decks (that total an area of 125m^2) are built on stilts and disturb an area of less than 10m^2 and thus did not trigger NEMA (2006).

Based on the above, it is our professional opinion that NO listed activities were triggered according to Listing Notice 1, 2 or 3 of the National Environmental Management Act (107 of 1998) and therefore the development does not require environmental authorisation.

6. Alien Invasive Plant Plan

Eco Assessments investigated the site in October 2020 and recorded the presence of a number of exotic alien invasive plants that occurred on the property (**Appendix A and Figure 4**). These are listed below along with specific measures that must be used to control & manage these plants.

a. Category 1b plants: Need to be controlled on the site

Cotoneaster sp (Pyracatha)- trees must be marked and removed in the appropriate manner

Melia azedarach (Syringa) – trees must be marked and removed in the appropriate manner

Eucalyptus sp. (bluegum) – Several tall Eucalyptus trees occur in the north-western corner and along the north-western boundary of the tented camp area. Around this area small Eucalyptus saplings are sprouting. Eucalyptus plants also occur in the mountain area. These plants must be controlled and removed where possible as they are affecting the natural grassland area north of the tented camp. Eucalyptus trees are invasive, they reduce biodiversity and they have a significant negative impact on water resources.

NOTES: Cotoneaster plants were observed in several places on the site, and was therefore not marked individually. An ecologist must mark these plants before actions are taken to remove them. Many of the larger syringa trees were marked as well as the bluegum trees. However, all specimens must be marked by an ecologist, before they are removed. This will then systematically be done throughout the site and plants can be marked with danger tape or spray painted.

b. Category 2 plants: Apply for permit

Populus x canescens (poplar)
This tree is very prominent in the drainage line. It will not be a simple exercise or even possible to remove it from the drainage line, because the drainage line has been severely invaded by poplars downstream and upstream of the site.

Acacia mearnsii (black wattle)

c. Category 3 plants: Exemption must be applied for, for having these plants on site

Ligustrum sp (Privet)

Morus alba (Mulberry)

The alien plant management plan provides specific actions and guidelines that will need to be implemented in a phased plan to control and eliminate the impact of exotic alien invasive plants that occur on the site.

7. Requirements in terms of the National Water Act (36 of 1998)

A wetland ecologist as well as floodline engineer were appointed to ascertain the nature and/or impact of the historical layout and current layout on the watercourses within the study area.

8. Floodline Assessment

The 1:100 year floodline assessment finds no permanent structures lie within the floodline (Please refer to SDP and **Figure 5**).

The report finds that, in spite of the comparatively large flow in the river during a 100-year flood, the water will not reach any of the permanent infrastructure ("*permanent infrastructure*" exclude the timber decks closer to the river) at the lodge. This is due to the steep slope on the lodge's side of the river and the gentler slope on the opposite side of the river. This results in a larger percentage of the 100-year floodplain being on the opposite side of the river (**Appendix B**).

The 2-level timber deck will fall within the 100-year floodplain, but as it is not a permanent structure and it rests on poles and not walls, it will not impede the flow of the river during a 100-year flood.

9. Riparian Assessment

No wetlands were identified within the study area and its immediate surroundings. Areas that extend approximately 60 m downstream and 180 m upstream of the property, along the right-hand bank of the river and upslope of riparian habitat, appeared to have wetland habitat based on an interpretation of aerial imagery. No wetland conditions or indicators were recorded in any of these areas, with the majority of them being terrestrial habitat with well drained or shallow rock soils. A small tributary of the Magalies River that exists as riparian habitat with a swale like-channel with no wetland conditions, was verified approximately 170 m upstream of the property (**Appendix C**).

The existing development footprint within the property is located in a catchment that is largely localised to the property and drains directly into the Magalies River without any distinct evidence of overlapping with wetland areas. An estimation of the potential impact of the existing development on wetlands within the regulated 500 m regulated area for Section 21 (c) and (i) water use activities is therefore regarded as negligible based on available information.

From a riparian habitat consideration, the impact of the two decks on the watercourse is not regarded as high as the structures have had a similar effect as alien trees in the area due to their construction on poles. No impact is expected on instream habitat as the poles are located outside of the active channel. Similarly the water quality-related impact of the decks, which have been built with chemically treated wood, is expected to be negligible as the combined surface area of the poles are low and contact only

occurs when bankfull flow is exceeded. The decks have a higher magnitude shading impact for their surface area compared to exotic trees, resulting in a very low (<2%) plant cover underneath them. No signs of erosion were recorded below the decks or either immediately upstream or downstream of the poles that support the deck. Flow events that extend beyond the active channel therefore do not appear to result in any visible impact in terms of scour damage around decks for the last 15 years. Natural riparian vegetation will not become re-established underneath the decks, while the decks remain in place, but their reestablishment is also dependent on the control of alien trees, specifically dense stands of *Populus* x canescens that dominates the macro channel bank. The combined surface area of the two decks are small with an approximate size of 125m^2 or 0.01 ha (**Figure 5**). The overall impact of the decks on the watercourse is regarded as low mainly due to their small size, lack of erosion around them and the existing shading impact caused by tall alien trees.

The swimming pool and a portion of the lodge building is present within 32 m of the watercourse edge as measured from the upper margin of the riparian habitat that is currently regulated by the NEMA, but have been constructed approximately 20 years ago and may predate environmental legislation, such as NEMA and the NWA (**refer to SDP and Figure 5**).

10. Waste Water Management

An independent assessment of the site by Mr G Krige of AED found that the practice of conservancy tanks and/or digester/French drains, as used at both the lodge and tented camp for the disposal of sewage is acceptable, particularly as the quartzitic soils found in this area make excellent filtration media (**Appendix D**).

There are, however, some safety issues, as explained above, that must be taken into consideration. There must not be any chance whatsoever of the public coming in contact with either grey or black water. The tanks and structures must be installed correctly, reducing the chances for people falling into any of these tanks to 0%, at all times. At present there is a remote chance that a person or child can fall into some of these tanks. Underground installations should be made safe by either placing a concrete slab over the structure or, where this is not practical, by fencing off the area where the tank/French drain locates. All tanks must be fitted with airtight lids.

There should be no waste pipes (grey water pipes) installed on surface. They must be buried underground. PVC pipes will be broken when placed on surface (such as the one at the ablution block), while a veld fire will also burn/damage these pipes.

Grey water should not be used as irrigation water for flowerbeds or left to flow into the veld and on towards the Magalies River. As grey water could contain pathogens, this water must be directed into a French drain or into a conservancy tank if it is impractical to construct a French drain.

The current use of the Septic Tanks will be emptied on a regular basis and the owner will employ the service of a reputable company to service and maintain the systems. The waste water will be pumped and collected and then disposed of at a registered waste disposal site.

11. Storm Water Management

A number of storm water run-off measures have been implemented on site to ensure that run off does not impact on the environment. These include -

- Adequately sized gutters and down pipes that discharge onto the front veranda;
- Well kept lawn downslope of the lodge to encourage infiltration;
- Storm water pond (outside of the riparian edge) south west of lodge;
- Attenuation pond (outside of the riparian edge) south east of lodge;
- Semi-permeable paving that allows for infiltration;
- Relatively large areas of landscaped and/or natural vegetation;
- Magalies River Irrigation channel that acts as a cut off trench.

Storm water measures are adequately suited to address requirements of run off in this rural area. No evidence of erosion, gulley formation, bank collapse or similar impacts were noted downstream of the lodge areas.

In general, and barring the obvious incorrect application of the southeastern storm water pond, AED is of the belief that the storm water management at the lodge and other buildings around the lodge is adequate and can accommodate an average downpour. As stated above, the southeastern storm water pond should be relocated at a more suitable site, or some other storm water attenuation structure should be installed.

In general storm water is controlled effectively at the lodge. However, some tweaks are needed. The northwestern storm water canal and pond should be repaired and re-commissioned, while the southeastern storm water pond must be relocated to a different area.

Storm water flows off the tented camp without creating any erosion. The irrigation canal intercepts whatever storm water leaves the tented camp. AED is thus satisfied that no additional storm water management is necessary at the tented camp.

The flow in the Magalies River is not affected by the activities at the study area. AED does not believe that run-off to the river is either increased or decreased by the activities at the study area. In densely populated urban and industrial areas, it is common practice to install attenuation dams/ponds to regulate the outflow into the urban watercourses to prevent flash floods, due to the land-use change from natural veld to urban. However, in a rural area, such as this one, and where there is a river that does not flow through urban areas downstream from the study area, attenuation of storm water is not needed to control downstream flooding. The storm water ponds at the lodge are however still required to prevent erosion of the banks of the Magalies River and both ponds must be made operational again.

The proponent has furthermore compiled a formal waiver agreement that absolves the Mogale City Local Municipality of any liability in the event that flood waters affect any structures, property or persons that could be impacted upon by any such storm event (**Appendix D**).

12. Water Use Permits, Applications and Authorizations

The National Water Act prescribes that water uses listed in terms of Section 21 require authorization.

In terms of the above, a General Authorization Application has been lodged with DWS to regularise the use of ground water on the site for business purposes as required by Section 21G of the NWA and in terms of the requirements of General Authorizations. The borehole will also be registered as prescribed.

The managers house & lodge pool has been constructed prior to 1998 and therefore falls outside of the National Water Act requirements.

However the temporary wooden deck has been constructed within the 1:100 and riparian area. This impact is considered by the specialist to be low and therefore a General Authorization application has been commenced to regularise this activity with DWS. A similar process is not required in terms of the National Environmental Management Act as the development occurred prior to 2006 and the footprint fell outside of the 1:5 year floodline. This development footprint is also less than $10m^2$.

The site currently employs the use of 5 septic tanks. The tank & french drain at the managers house caters for a small demand. Two (2) septic tanks cater for the sewage flows from the lodge. These discharge waste directly into the environment. Two (2) septic tanks cater for the sewage flows at the tented camp and these also discharge waste directly into the environment. The volume of this run off is likely to not exceed legislated thresholds and therefore the existing structures will be retained but improved to improve safety and functionality.

The continued use and/or amendment to the plan on how waste water is to be managed on site will be considered by DWS as part of the WULA/GA application process. Relevant details will be provided to Mogale for monitoring and auditing purposes as and when available.

13. National Heritage Resource Act

A professional cultural historian was appointed to assess the site and development footprint and evaluate its impact on the cultural historical environment (**Appendix E**).

Key finding of the assessment includes:

- The dilapidated remains of three structures were identified during the survey. Based on aerial photographs and topographic maps these features are approaching the 60 years NHRA protection threshold. Their potential to contribute to aesthetic, historic, scientific and social aspects are non-existent and the structures are therefore of no heritage significance. It should be noted that structures like these are often associated with the graves of stillborn babies;
- No surface evidence of significant heritage resources was identified during the survey;
- An independent paleontological assessment concluded it is extremely unlikely that any fossils would be preserved in the area. However, since trace fossils such as mat related features have been found in another site in the Daspoort Formation, there is a very small chance that fossils may occur here;
- No grave sites were identified in the study area.

The impact of the project on heritage resources is considered very low and the project has a positive socio-economic impact on the surrounding area. Form a heritage point of view there are no objections to the project based on approval from SAHRA and no further mitigation is required.

14. Conclusion

The current activities on the site as part of the historical development and operation of the Magalies River Lodge, have adequately addressed all relevant environmental requirements in terms of the ECA and NEMA, as appropriate, and therefore the development footprint as detailed in the consent use application and accompanying Site Development Plan remains, in our professional opinion, to be legally compliant.

Applications to register and approve the use of ground water have been obtained from DWS. Steps to authorize the wooden deck that is located with the riparian zone are currently underway. This will address requirements in terms of the National Water Act.

No further or additional activities, other than those historically constructed, are proposed within the 1:100 year floodline or riparian zone or 32m regulated area of the riparian zone.

The historical septic tanks will be “serviced” to ensure that they remain safe, secure and non-hazardous. These remain as lawful uses and do not exceed thresholds of the National Environmental Management Act. Where required, these septic tanks will be authorised with DWS.

A cultural heritage assessment concluded that the historical impact of the development on the site was very low and we await confirmation from SAHRA/PHRAG on the professional opinion compiled by a specialist cultural historian on whether any additional permits are required.

Relevant documents will be provided to Mogale City Local Municipality, once received.

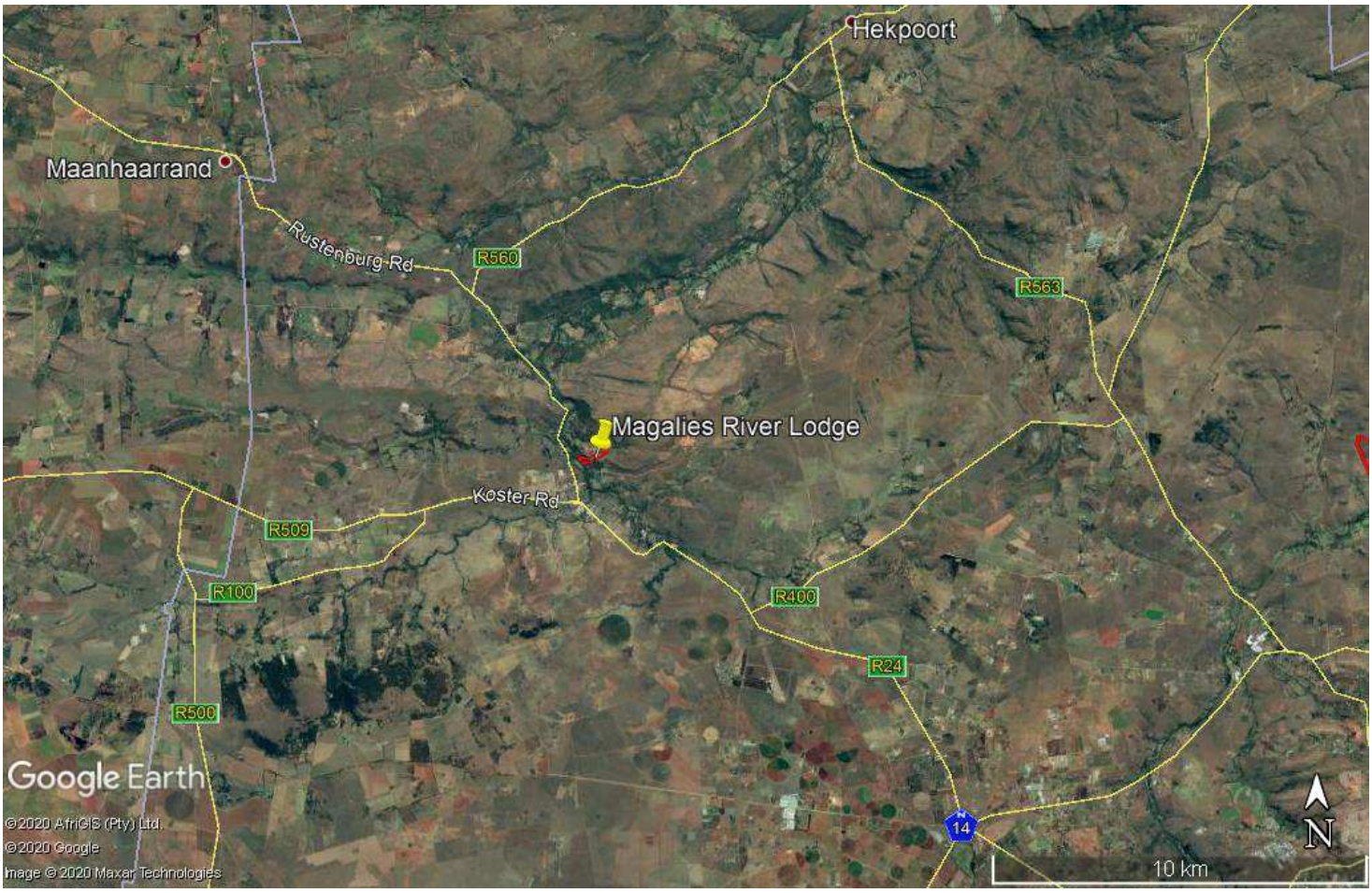


Figure 1. Regional Locality Map

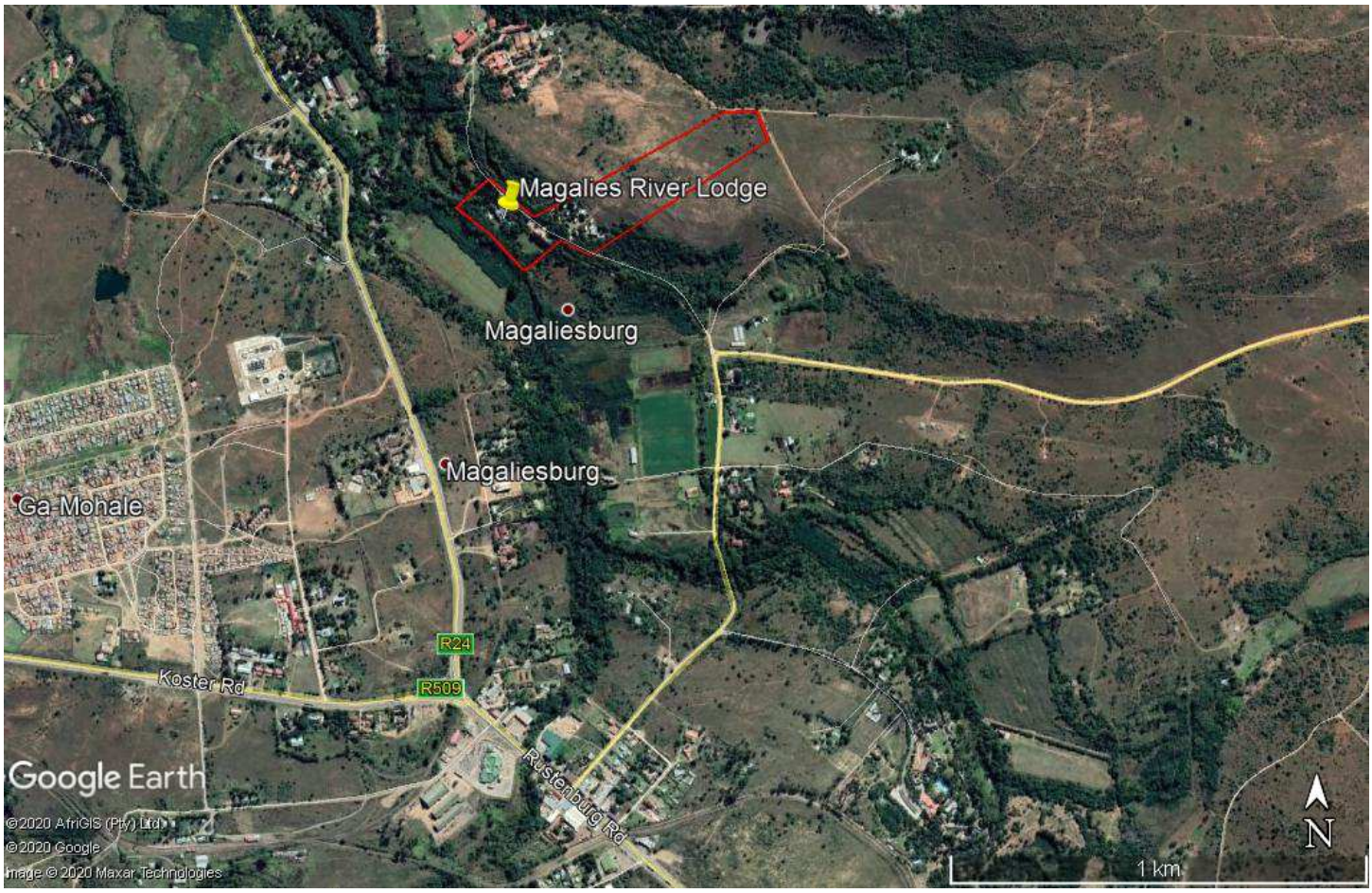


Figure 2. Site Locality Map

Figure 3. Aerial Map (Main Lodge Area - top; Tented Camp Terrain - bottom)

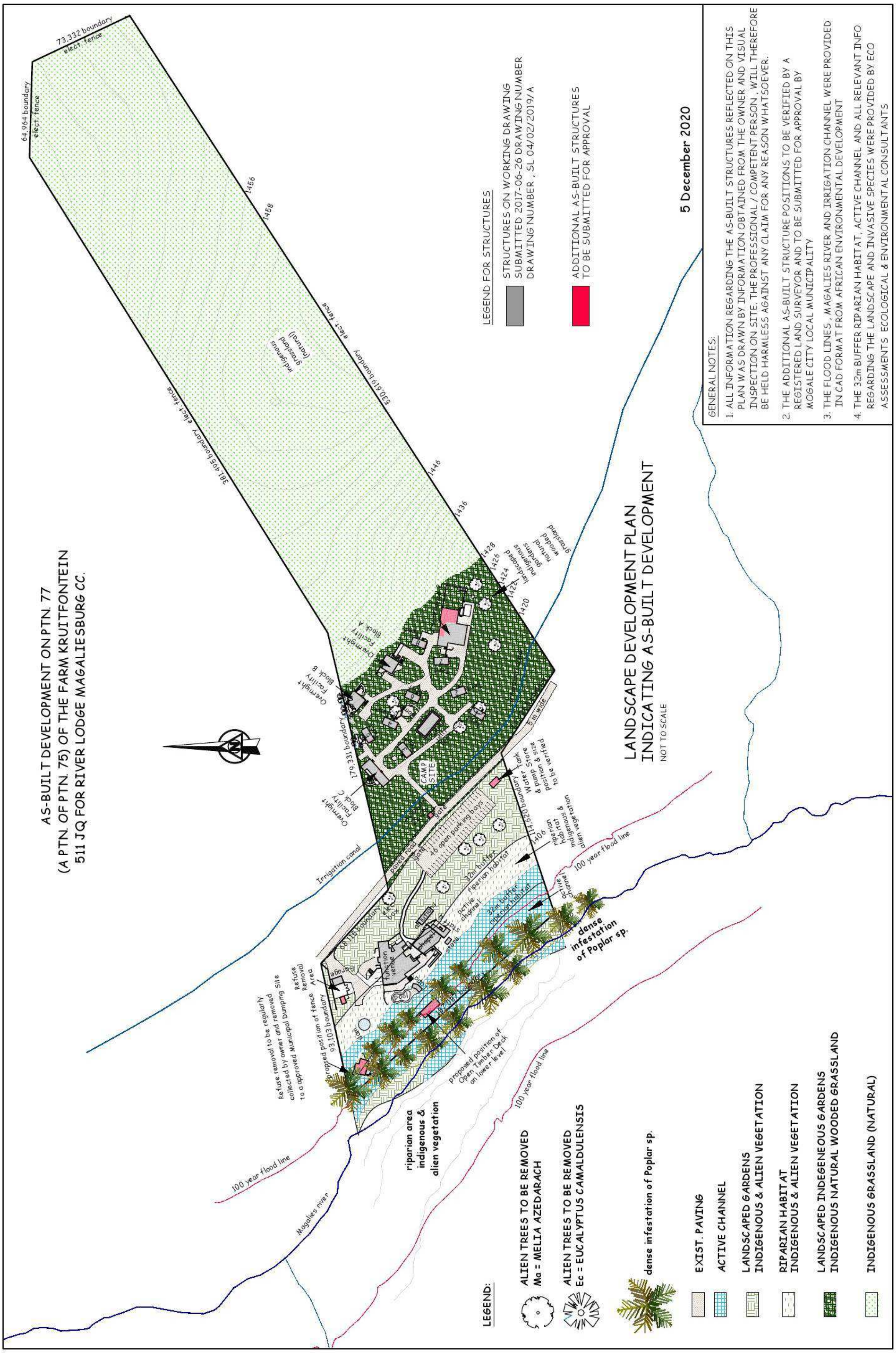


Figure 4. **Landscape Plan (schematic illustration)**

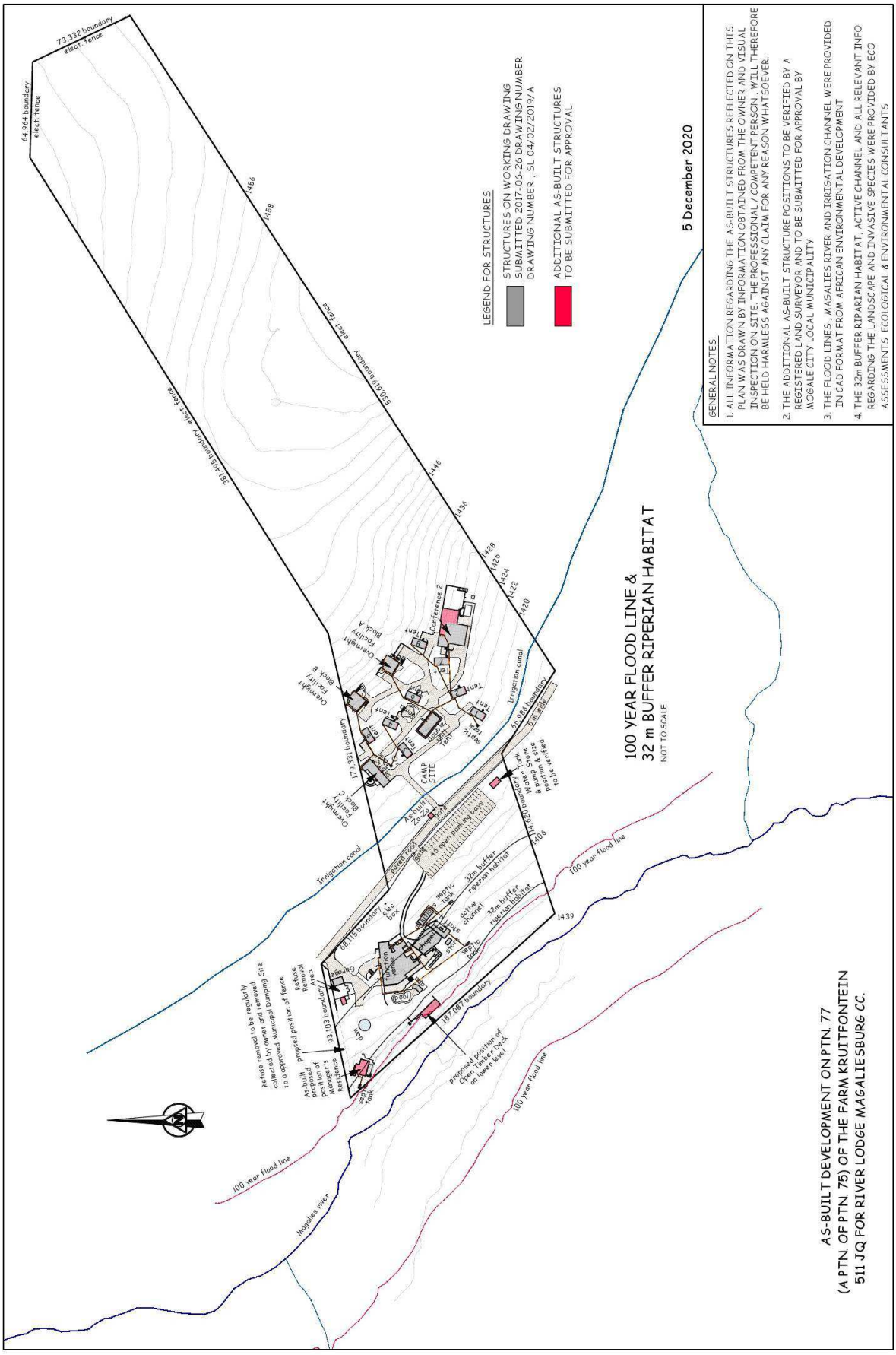
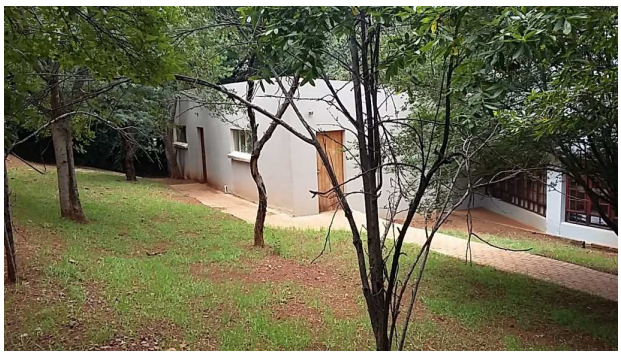


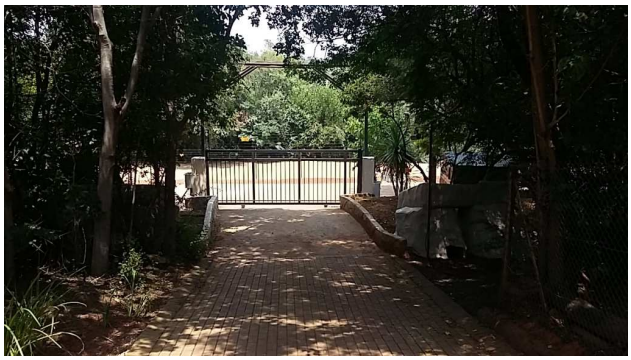
Figure 5. Floodline (red line) including 32m Buffer Area to riparian edge

1. Entrance to Lodge

2. Parking for lodge



3. Ablution block (new) next to main lodge



4. Entrance to camp & conference

5. Upgraded Staff Quarters

6. Typical example of 8 raised tented camps (with parking bay)

7. Conference centre with pool

8. Deck above pool

9. Communal Toilet

10. Typical tent camp with landscaped areas

11. Chalet #1 of 2 (4 units in each chalet)

Chalet #A (centre) and Chalet #B (on far right)

Photo Plate

Appendix A Alien Plant Management Plan

Appendix B Floodline Assessment

Appendix C Riparian Assessment

Appendix D Storm Water & Water Use Comments

Appendix E Cultural Historic Assessment