ENVIRONMENTAL IMPACT REPORT & ENVIRONMENTAL MANAGEMENT PROGRAMME

for

SWAN LAKE ECO ESTATE

on

Remainder Farm Swanlake 755

Aston Bay

In terms of the National Environmental Management Act (Act No. 107 of 1998, as amended) & 2014 Environmental Impact RegulationsNational Environmental Management Act (Act No. 107 of 1998, as amended) & 2014 Environmental Impact Regulations

Prepared for Applicant: AcrtiSmart (Pty) Ltd on behalf of Glenny Buchner Trust

Date: 8 November 2018

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Report Reference: KOU504/03

Department Reference: EC08/M/172-04

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PURPOSE OF THIS REPORT:

Authority Decision-Making

APPLICANT:

ArctiSmart (Pty) Ltd on behalf of Glenny Buchner Trust

CAPE EAPRAC REFERENCE NO:

KOU504/03

DEPARTMENT REFERENCE:

EC08/M/172-04

SUBMISSION DATE

08 November 2018

ENVIRONMENTAL IMPACT REPORT

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

SWANLAKE ECO ESTATE

Remainder of the Farm Swanlake 755, Aston Bay (Kouga Municipality)

Submitted for:
Stakeholder Review & Comment

Report Issued by:
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ABBREVIATIONS

AIA	Archaeological Impact Assessment
BGIS	Biodiversity Geographic Information System
BID	Background Information Document
CBD	Central Business District
ACMP	Archaeological Conservation Management Plan
CDSM	Chief Directorate Surveys and Mapping
CEMP	Construction Environmental Management Plan
dBA	Decibel (measurement of sound)
DEA	Department of Environmental Affairs
DEA&DP	Department of Environmental Affairs and Development Planning
DEIR	Draft Environmental Impact Report
DME	Department of Minerals and Energy
DSR	Draft Scoping Report
FEIR	Final Environmental Impact Report
EAP	Environmental Impact Practitioner
EHS	Environmental, Health & Safety
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMP	Environmental Management Programme
GPS	Global Positioning System
GWh	Giga Watt hour
HIA	Heritage Impact Assessment
HWC	Heritage Western Cape
HD	Historically Disadvantaged
I&APs	Interested and Affected Parties
IDP	Integrated Development Plan
IFC	International Finance Corporation
IPP	Independent Power Producer
KNP	Karoo National Park
KOP	Key Observation Point
kV	Kilo Volt
$L_{Aeq,T}$	Time interval to which an equivalent continuous A-weighted sound level
LLRC	Low Level River Crossing
LUDS	Land Use Decision Support
LUPO	Land Use Planning Ordinance
MW	Mega Watt
NEMA	National Environmental Management Act
NEMAA	National Environmental Management Amendment Act
NEMBA	National Environmental Management: Biodiversity Act
NERSA	National Energy Regulator of South Africa
NHRA	National Heritage Resources Act
NID	Notice of Intent to Develop
NSBA	National Spatial Biodiversity Assessment
NWA	National Water Act
PDI	Previously Disadvantaged Individuals

PIA	Paleontological Impact Assessment
PM	Post Meridiem; “Afternoon”
SACAA	South African Civil Aviation Authority
SAHRA	South African National Heritage Resources Agency
SANBI	South Africa National Biodiversity Institute
SANS	South Africa National Standards
SDF	Spatial Development Framework
SMME	Small, Medium and Micro Enterprise
SAPD	South Africa Police Department
TIA	Traffic Impact Assessment
VIA	Visual Impact Assessment

REPORT DETAILS

Title:	**DRAFT ENVIRONMENTAL IMPACT REPORT & ENVIRONMENTAL MANAGEMENT PLAN (pre-application)** **for 'SwanLake Eco Estate'**
Prepared for:	ArctiSmart (Pty) Ltd on behalf of Glenny Buchner Trust
Published by:	*Cape Environmental Assessment Practitioners (Pty) Ltd. (Cape EAPrac)*
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Cape EAPrac Ref:	KOU504/03
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EXECUTIVE SUMMARY

1 INTRODUCTION

Cape EAPrac has been appointed by **ArctiSmart (Pty) Ltd**, hereafter referred to as the Applicant, as the independent environmental practitioner to facilitate the **Part 2 Amendment Application** process prescribed in terms of the National Environmental Management Act (NEMA, Act 107 of 1998 as amended) for the following:

- extension of the validity period of the Environmental Authorisation (EA),
- change in ownership and
- adjustments to the development concept and layout.

This Impact Report (version 1) is made available for stakeholder review and comment for a period of 30-days extending from 8 November 2018 – 8 December 2018. The document is available on the *Cape EAPrac* website (www.cape-eaprac.co.za) and at the Kouga Municipality's Planning Department. The availability of the report has been advertised in the Kouga Express (Wednesday, 31 October 2018), via site notices and written notices to neighbouring property owners, key stakeholders, councillors and relevant Authorities. Notices called for I&APs to register and to participate during the environmental application.

1.1 PROJECT HISTORY

SwanLake Eco Estate was authorised by the Provincial Department of Economic Development, Environmental Affairs & Tourism (DEDEAT) on 31 March 2009. The DEDEAT approved development on five (5) different portions of the Farm SwanLake 755, however this application for Amendment is only relevant to the Remainder Farm 755.

Approval was granted for the following:

- **35 development footprints** (maximum footprint of 400m2 with development restricted to 250m2 within this footprint, inclusive of decks, pools, surfaces areas, house, outbuildings etc);
- **122 single residential erven**;
- **Services and roads**.

The EA contained various conditions for how the development had to be implemented, amongst others a series of changes that had to be made to the layout in order to minimise potential environmental impacts. These changes were made and submitted to the DEDEAT on 13 October 2017.

The EA was issued to **Glenny Buchner Trust**[2], however due to weakening economic conditions in South Africa at the time and numerous failed sale agreements, the Trust could not implement the development rights. The Trust subsequently applied for two (2) validity period extensions that were issued on 15 November 2011 and 11 November 2016 respectively.

[2] In the event that the Amendment Application is successful ArctiSmart (Pty) Ltd will be taking over the EA and the associated legal obligations from Glenny Buchner Trust.

The Holder of the Environmental Authorisation submitted a third amendment application requesting another extension, however this application was rejected by the competent authority based on the fact that their previous decision included advised the Holder that no further extensions will be granted. The Holder appealed the DEDEATs decision to turn down their extension request and the Appeals Directorate decided in favour of the Holder allowing them to continue with a Part 2 Amendment Application. The Environmental Authorisation remains valid until such time as the Amendment Application process is concluded.

The Trust has since sold and transferred the property to **ArctiSmart (Pty) Ltd** who intends to develop the property.

ArctiSmart (Pty) Ltd appointed various specialists and technical professionals to review the original authorisation and development proposal in order to re-assess the development. The main purpose of the **Part 2 Amendment Application** is to:

- compare the development proposal (as authorised) with the latest and relevant environmental and planning legislation, policies, guidelines and regulations to determine whether extending the validity period is suitable and
- establish whether the proposal is considered appropriate given any significant changes to the site conditions.

1.2 SITE DETAILS

Remainder Farm SwanLake 755 borders directly onto the northern boundary of Aston Bay. Dolphin Drive (main access road into Aston Bay) forms the eastern boundary of the property as well as a small portion of its southern boundary. Farm land surrounds the property on the northern and eastern sides whilst the Seekoei Nature Reserve and Estuary is situated to the west. The property has two existing access points directly off Dolphin Drive.

Table 1: Property details (VTP Planners 2018).

Title Deed Description:	Remainder of the Farm No. 755, in the Kouga Municipality and Administrative District of Humansdorp, Easter Cape Province
21 Digit code	C03400000000075500000
Title Deed Number:	T 7271/1990 old Deed, a new Title Deed nr will be available soon
S.G. Diagram Nr:	11149/71
Title Deed Restrictions:	None relevant to this application
Property Size:	±39.5 ha (development area 38.2ha) -excl. erven 1580 &1579
Property Owner:	Arctismart Property Limited 2017/087939/07
Bonds:	None
Zoning:	Sub-divisional Area
Land Use	Vacant

Once the DEDEAT issued the original EA for the SwanLake Eco Estate, the Kouga Municipality approved the rezoning of the land from Agriculture to "Subdivisional Area" with a residential density of +/-4units/ha, in July 2009.

The following sub-sections provide a brief overview of the current site conditions and known environmental features, as they are reported on by the independent specialists. Specialists all performed site inspections to familiarise themselves with the potential environmental constraints.

It is important to note that the current environmental application and subsequent specialist investigations have been informed by a detailed aerial survey undertaken by VPM Surveyors in 2018. Such a survey was not undertaken as part of the initial environmental application. This survey is considered a vital tool to determine site conditions because the site cannot be inspected on foot due to impenetrable vegetation cover in most areas. Likewise this survey has provided detailed contours and exact boundary details (it is noted that the approved plan was not to scale and subsequently was distorted), it allowed for proper services to be planned and specific site features to be identified and demarcated (i.e. drainage area / vegetation ecotones).

1.2.1 BOTANICAL OVERVIEW

With the exception of a large area that burned during the first quarter of 2018, transformed areas invaded by alien invasive species and unlawful dumping, the 30m wide electrical servitude and various internal tracks, the site contains **mostly natural vegetation**. Pote (2018) notes that the vegetation unit indicated for area is **Gamtoos Thicket** with **Algoa Dune Strandveld** (along the coast away from the site) and **Humansdorp Shale Renosterveld** (along the farmland north of the site) in surrounding areas. The original botanical assessment undertaken by CES (Fordham 2008) described the classified vegetation unit as **Algoa Dune Thicket** with very much the same species occurring on site at present as was found in 2008.

The vegetation on site consists mostly of tall dense thicket, where tall trees, shrubs and succulents are well represented. Both the Gamtoos Thicket and Algoa Dune Strandveld have been classified as having a conservation status of *"Least Threatened"* whilst the Humansdorp Shale Renosterveld is listed as *"Endangered".*

The detailed aerial survey of the property helped distinguish between vegetation areas with a greater sense of confidence since site assessment on foot only is difficult due to the vegetation cover being very dense in many areas.

Three distinct vegetation types are found on the property namely valley/coastal thicket, fyos and grassland/wetland areas.

- The **Valley/Coastal Thicket** within the site is comprised of a dense thicket including large dominant trees such as Milkwood (Sideroxylon inerme) and Boerboon (*Schotia afra*). Other species include *Aloe africana, Aloe pluridens, Azima tetracantha, Diospyros dichrophylla, Dovyalis rotundifolia, Euclea racemosa, Euclea undulata, Euphorbia triangularis, Grewia occidentalis, Gymnosporia arenicola, Maytenus procumbens, Mystroxylon aethiopicum, Pappea capensis, Rhus crenata, Rhus laevigata, Rhus longispina, Schotia afra* and *Scutia myrtina.* These are typical of the local Thicket and Coastal Thicket vegetation.

- The **Fynbos** within the development footprint has been heavily impacted by Alien invasion and fire, which is likely to continue under status quo conditions. The impact of the development to this vegetation community will thus likely be moderate to low.
- The **Grassland/Wetland** area is within a dune slack and prone to occasional seasonal flooding and a perched water table, draining to the east. Dominant species include various grasses as well as restios and shrubs. Typical species include *Cynodon dactylon, Digitaria eriantha, Eragrostis curvula, Imperata cylindrica, Panicum deustum, Themeda triandra, Tristachya leucothrix* and *Isolepis* spp.

It is noted that the site contains a number of protected species and that search and rescue requirements will be substantial to ensure that the necessary permits are in place for the removal/relocation of protected species.

Due to the occurrence of dense milkwood thicket, as well as the presence of the low lying depression (watercourse) along the northern boundary of the eastern portion, the positioning of footprint units in this area is of concern and until such time as the flood line analysis has been revised (following the 2018 aerial survey) these units may still require reconfiguration.

1.2.2 AQUATIC OVERVIEW

Collety (2018) confirms that the site is dominated by vegetated dunes, with the interdunal areas being characterized as drainage features. The detailed aerial survey of the property helped demarcate this feature. None of these areas however, exhibited any obligate wetland plant species or any soils that conformed to any hydromorphic criteria (gleys or mottles), thus indicating an overall lack of any wetland characteristics, as shown in trial pits / excavations existing within the site.

Collety (2018) delineated the aquatic feature and provided for a 10 meter wide buffer to protect the feature from development related impacts. The revised layout plan incorporates the buffer area.

The central on-site aquatic feature is typical of inland wetlands associated with ephemeral drainage lines that would only contain water for short periods during *extreme* rainfall events. The on-site feature has no direct connection with any other systems downstream and is cut off from the remainder of the localised catchments either by natural dune formations or developments such as roads and Marina Martinique.

Several ephemeral pans occur within 500m from the site, however since they fall onto agricultural land they have, with the exception of one being fed by a leaking pump station, been converted into dams or modified to grazing areas. A water use license is however required because of the proximity to on-site watercourse and the ephemeral pans.

1.2.3 ARCHAEOLOGICAL OVERVIEW

Binneman (2018) revisited the site in May 2018. He reported the same constraint as previously reported on in the 2008 investigation namely difficulty to assess site conditions given the densely vegetated nature of the development site. The detailed aerial survey could not benefit this discipline most submerged artefacts cannot be identified through aerial survey.

However, the recent fire that affected the western portion of the property during the first quarter of 2018 resulted in the complete loss of groundcover within most of the development

footprint of the western node. Compared to the initial archaeological survey in 2008, this absence in groundcover provided valuable first hand observation opportunities for the two archaeologists who conducted the most recent site inspection in 2018.

It was found that apart from a few fragments of marine shell in places, no significant concentrations of archaeological materials were observed. The eastern development node footprint is still covered by dense vegetation which made a thorough archaeological investigation of that section impossible. Footpaths and the electrical service track were however followed where possible on foot, in order to investigate the eastern footprint for possible sites/materials.

Notwithstanding the groundcover in the eastern portion of the site, the experiences and knowledge gained from other investigations in the immediate area and wider surrounding region provided background information to make accurate assumptions and predictions on the incidences and the significance of possible pre-colonial archaeological sites/material which may be located in the eastern area, or which may be covered by the soil and vegetation.

It is predicted that it is possible for shell middens and other archaeological sites/materials (including human remains) to be found when the construction takes place and as such ECO monitoring must take place and where necessary archaeological monitoring as well.

There are no known graves or buildings older than 60 years on the property surveyed and in general it would appear from the visual evidence that the area may be of low cultural sensitivity.

1.3 FINDINGS OF THE RE-EVALUATION PROCESS

The results from the updated specialist studies provide a thorough description of the site and its environmental/cultural features. Apart from the recent bushfire that caused the western portion of the development footprint to be exposed, the site conditions are very similar to the condition it was in during the original environmental investigation.

- The archaeologists maintain that there is a risk of exposing artefacts during construction hence construction monitoring remains a requirement.
- Whilst the botanist did not identify any new elements on the site, other than alien vegetation encroachment that continue to impact on the natural vegetation, there are no additional features that prevent the site from being considered for development. The designation of parts of the property as a Critical Biodiversity Area (CBA2) reflects the natural condition of the vegetation and acknowledges the need to maintain a functional corridor, however the botanist maintains that concentrating the development along the southern part, whilst more than 75%% of the site will remain natural, will not jeopordise the outcomes for the CBA2 designation.
- The freshwater specialist (a new study previously not undertaken to inform decision-making) confirmed the presence of the on-site watercourse, but established that it is isolated and would hold water only under extreme rainfall conditions. Nonetheless a buffer of 10m is recommended around the mapped watercourse which has been taken into account with the revised layout proposal.

- The appointed engineers have confirmed that the site will be serviced and linked to the Municipal infrastructure. The Kouga Municipality has, according to iXEngineers (2018) confirmed that sufficient spare capacity exist within the Municipal services to accommodate the development. Special care will be taken with stormwater management.
- Under the previous environmental application the site was zoned 'Agriculture'. The Town Planner affirmed that the site is now zoned appropriately as 'Subdivisional Area' and the development proposal is therefore deemed to be in line with the primary rights of the property. The Kouga Spatial Development Framework (2015) designates the site for 'Low Density Residential' development (approximate density of 10 units per hectare). Due to the CBA2 parameters as specified in the SDF the proposal of a much lower density of 3 units per hectare (+/-20% of the site) is deemed appropriate.

To help contextualise the outcome of the Part 2 Amendment Application investigation to date, it is important to acknowledge the following:

- The re-evaluation of the development has taken into account new information and spatial tools previously not considered as part of the original environmental investigation or any of the previous amendment applications (i.e. freshwater assessment and aerial surveys);
- This re-evaluation will incorporate renewed stakeholder engagement and input from key authorities that were not deemed necessary to inform any of the previous amendment applications;
- The Kouga SDF (2015) is adopted by the Kouga Council as part of their Integrated Development Plan (IDP) and as such property is deemed to fall within the defined 'urban edge' of Aston Bay. Other than 'urban edges' the DEDEAT also considers whether or not a development falls within the 'urban area' of a town. 'Urban areas[4]' means areas situated within the 'urban edge', or in instances where no urban edge or boundary has been defined or adopted, it refers to areas situated within the edge of the built-up areas. The development proposal is therefore considered to be within both the 'urban edge' as well as the 'urban area' of Aston Bay;
- Under a different scenario, where the development application was submitted as a totally new application, in other words ignoring the prior Environmental Authorisation of 2009, the outcome of the recent specialist investigations would have resulted in a similar conclusion for the site to be considered for development subject to the known site constraints, mitigation measures and implementation of the environmental management plan (EMP);
- The Eastern Cape Biodiversity Spatial Plan (2007) classifies most of the study area as a Critical Biodiversity Area (2) with the far eastern corner falling within a CBA3 status. The terrestrial CBA2 is the most relevant since it indicates 'near natural landscape' and relates to the Biodiversity Land Management Class 2 where the land use objective is: *"Maintain biodiversity in near natural state with minimal loss of ecosystem integrity. No transformation of natural habitat should be permitted* (Berliner & Desmet 2007).

[4] 'Urban areas' definition from the 2014 Environmental Regulations (as amended in 2017).

Based on the outcome of the specialist and technical investigations undertaken to date, it is evident that there are no new/substantial impacts associated with the development as approved (compared to the original environmental process), there is no indication of specialist findings contrary to the initial environmental assessment and the most recent spatial data still supports low density township development on condition that the majority of the site remain as a functional corridor in terms of the CBA2 designation.

It is noted that the outcome of the stakeholder engagement process and revised flood line analysis may still influence the final recommendation of the re-evaluation in the Part 2 Amendment Application. Following the outcome of the renewed stakeholder engagement process, it will be possible for the environmental assessment practitioner (EAP) to formulate a clear view of stakeholder opinion on the matter which will ultimately inform the DEDEATs decision whether or not to grant approval (or not) in response to the Amendment Application.

1.4 PROCESS TO DATE

On 31 March 2009 the then Department of Economic Development & Environmental Affairs (DE&DEA) approved the development of a low density development on the Remainder of Farm SwanLake 755 Aston Bay. The Environmental Authorisation (EA) was issued to the Glenny Buchner Trust. Various conditions of approval were tabled in the EA which the Holder of the EA had to adhere to, including implementation timeframes within the validity period of the EA.

According to the EA the Holder of the Authorisation had to comply with the following time limits:

1. Effect the change in land use (i.e. rezoning) within 12 months of the date of the EA (no later than 13 March 2010). To this end the Holder complied with this validity period by obtaining rezoning approval by July 2009 effectively changing the land use from ‘Agriculture’ to ‘Subdivisional Area’;
2. Construct services within 6 months of the rezoning being effected (i.e. no later than January 2010);
3. Complete all services within 6 months from commencement (i.e. no later than July 2010);
4. Construction of dwellings to commence within 6 months of completion of the services (i.e. no later than January 2011); and
5. Completion of all dwellings within 18 months of sale or within 12 months of subsequent resale which period may not exceed 60 months.

The Holder of the EA could not implement the rights within the validity periods and applied for an extension of five (5) years which was granted until 15 November 2016.

A second extension was applied for on 7 September 2016 for a further four (4) years, however the Department only granted extension for another 12 months (ending 7 September 2017). At the time the Holder of the Authorisation started engagements with another potential buyer/developer for the site and once it became evident that the sale will be successful a third extension was applied for in August 2017 which was rejected, however the decision was overturned by the Appeal Directorate. Following the outcome of the appeal

decision the new owners of the property met with the DEDEA on 20 August 2018 to discuss the way-forward and agree on a project timeframe.

In terms of the 2014 Environmental Regulations (as amended 2017), Regulation 52(2) states that 'any authorisation issued in terms of the previous National Environmental Management Act (NEMA) Regulations, must be regarded to be an environmental authorisation in terms of these Regulations. Furthermore, in terms of Regulation 28(1B) an environmental authorisation which is the subject of an amendment application, remains valid pending the finalisation of such amendment application[5].

2 LEGISLATIVE AND POLICY FRAMEWORK

Although a number of guidelines, policies and Acts apply to the development (these are discussed in more detail in the main report), the National Environmental Management Act (NEMA), the National Water Act (NWA), the National Heritage Resources Act (NHRA), and the National Forest Act (NFA) are key Acts regulating this application.

The current re-evaluation of this development is being undertaken in terms of the **National Environmental Management Act** (NEMA, Act 107 of 1998 as amended)[6] . This Act makes provision for the amendment of an Environmental Authorisation in one of two ways. Amendments where there is no change in the scope or where it will only be for the change of ownership, so-called **Part 1 Amendments** (Regulation 29) and amendments where a change in scope will occur, so-called **Part 2 Amendments** (Regulation 31).

Because the development type remains the same as originally authorised and there is a change in ownership, this application would typically constitute a Part 1 Amendment Application. However due to the time lapse of nine (9) years since the original EA was issued and considering new legislation and potential changes to site conditions, the application was motivated as a **Part 2 Amendment** to ensure

(a) that updated specialists input can be obtained;

(b) that renewed public participation can be conducted; and

(c) to provide the competent authority with the most relevant information to inform decision-making.

The minimum requirements for a Part 2 Amendment is to consider impacts that will result in a change to the scope of the valid EA, where such changes will result in an increased level, or change in the nature of the impacts where such level of change in the nature of the impact

[5] Regulation 28(B) inserted by Government Notice 326 in Government Gazette 40772 dated 7 April 2017)

[6] On 18 June 2010 the Minister of Water and Environmental Affairs promulgated new regulations in terms of Chapter 5 of the National Environmental Management Act (NEMA, Act 107 of 1998), viz, the Environmental Impact Assessment (EIA) Regulations 2010. These regulations came into effect on 02 August 2010 and replace the EIA regulations promulgated in 2006. In December 2014 these Regulations were replaced with the latest 2014 Regulations and in April 2017 amendments were issued.

was not (a) assessed in the initial application, or (b) taken into consideration in the initial environmental authorisation and (c) the change does not, on its own constitute a listed or specified activity.

Reporting as part of a Part 2 Amendment Application must include the following:

- An assessment of all impacts related to the proposed change;
- Advantages and disadvantages associated with the proposed change;
- Measures to ensure avoidance, management and mitigation of impacts associated with the proposed change;
- Any changes to the environmental management plan (EMPr); and
- Provide for public participation.

In addition to the requirements of NEMA, as discussed in the previous section, Section 21c & i of the **National Water Act (NWA**) requires the Applicant to also apply for authorisation from the Department of Water Affairs (DWS) for an activity in, or in proximity to any watercourse source (notably within 500m from a wetland). In issuing a license, the DWS must take into account the following factors as prescribed in Section 27 of NWA:

(a) existing lawful water uses;
(b) the need to redress the results of past racial and gender discrimination;
(c) efficient and beneficial use of water in the public interest;
(d) the socio-economic impact -
(i) of the water use or uses if authorised; or
(ii) of the failure to authorise the water use or uses;
(e) any catchment management strategy applicable to the relevant water resource;
(f) the likely effect of the water use to be authorised on the water resource and on other water users;
(g) the class and the resource quality objectives of the water resource;
(h) investments already made and to be made by the water user in respect of the water use in question;
(i) the strategic importance of the water use to be authorised;
(j) the quality of water in the water resource which may be required for the Reserve and for meeting international obligations; and
(k) the probable duration of any undertaking for which a water use is to be authorised.

The WULA decision will be issued separate from the Part 2 Amendment Application and will only follow on the outcome of the environmental process. In the event that the WULA decision recommends something different to what is presented in this re-evaluation, the Applicant will have the option to amend the environmental authorisation (EA) to comply with the WULA specifications or alternatively update and incorporate such requirements with the Environmental Management Plan (EMP).

Furthermore, in terms of Section 38 of the **National Heritage Resources Act**, Section 38(8) makes provision for the assessment of heritage impacts as part of an environmental application. The Part 2 Amendment Application has included an updated evaluation of the site conditions and potential impact of the development on potential heritage resources. The updated specialist report has been submitted to the Eastern Cape Provincial Heritage Resources Agency (ECPHRA) for further comment.

The site contains a number of species of conservation concern (SCC) including protected species and the removal, trimming or damaging of such species is regulated in terms of the **National Forestry Act** (Act 84 of 1989) and the **Nature and Environmental Conservation Ordinance** (No 19 of 1974) for the Eastern Cape Province. Bergwind Surveys (McDonald 2018) conducted a survey of the site to provide an indication of the presence of protected species. McDonald (2018) noted that the original CES Botanical Report (2008) did not include a map of the location of sample species or any reference to the co-ordinates of sample species making it impossible to follow-up their sample sites or have a clear understanding of the localities of the protected species sites referred to in their report. McDonald (2018) confirms that such species do occur within the development footprint and states that the necessary permits must be applied for from the competent authority before any construction may commence that may impact on such species. Due to the fact that more than 75% of the natural vegetation on the site will be conserved the loss of protected species within the remaining +/-20% is considered acceptable most notably because *Sideroxylon inerme* (milkwood) is very common on the site whilst species such as *Aloe Africana* and *Aloe pluridens* can be easily replanted. A number of species identified in the original CES (2008) report were listed as being of conservation value, but McDonald (2018) has confirmed most to be of 'least concern' in terms of the Red Data list.

According to the Eastern Cape Biodiversity Spatial Plan (2007) the site falls mostly within a Critical Biodiversity Area (2) with the far eastern corner falling within a CBA3 status. The terrestrial CBA2 is the most relevant since it indicates 'near natural landscape' and relates to the Biodiversity Land Management Class 2 where the land use objective is: *"Maintain biodiversity in near natural state with minimal loss of ecosystem integrity. No transformation of natural habitat should be permitted* (Berliner & Desmet 2007). According to Pote (2018) the vegetation in the study area comfortably falls within the classification of being 'near' natural since the only current negative impact is the presence of alien invasive *Acacia cyclops*.

Other applicable legislation and policies are discussed in more detail in the main report

3 DEVELOPMENT PROPOSAL

The original EA authorised 35 development footprints and 122 erven with associated services, roads and accesses.

The conditions of the EA required amendments to this development layout.

Taking into account the specialist and technical inputs obtained as part of the re-evaluation of the development, the revised development proposal allows for:

- 35 'development footprints'
- 84 'single residential erven'

The revised layout provides for 38 less erven than what was originally approved.

It must be noted that at least ten (10) of the 'development footprints' situated closest to the northern boundary of the property within the eastern node, may still need to be reconfigured

once the flood line analysis has been updated using the most recent aerial survey data from 2018.

The development is proposed to be developed in four phases, starting with the western node (single residential and footprint units), followed by the eastern node (single residential and footprint units).

3.1 SERVICES

iX Engineers relied on the detailed aerial survey undertaken by VPM Surveys to inform planning of services and stormwater for the development.

3.1.1 Water

The average daily demand for the development is calculated at 75.4Kl/day. The engineers propose that the development will rely on potable water from the Kouga Municipality for drinking purposes, cooking and washing (50% usage). Rainwater will be captured and used for toilet flushing and limited irrigation purposes (20%) and capacity for treated effluent (grey water only) for fire fighting purposes and limited gardening.

In order to comply with this water demand projection each housing unit must be fitted with a minimum rain water harvesting tank of 5000l for linking to irrigation/toilets/washing facilities.

Municipal water will be obtained from the existing 200mm bulk water line running along Dolphin Driver that services Aston Bay. Due to the demand associated with the development being low, no upgrade is required to this bulk line.

3.1.2 Sewage

The development will be fitted with a waterborne sewage system for potable purposes. However an on-site, modular recycling system will be positioned within Phase 1 (western node, Erf 86), closest to Dolphin Drive to provide recycled grey water for fire fighting purposes and limited irrigation in the western node only.

According to iX Engineers the Municipal sewage bulk lines and sewage works require no upgrading as a result of the development.

3.1.3 Access

All access roads will be grass-block surfaced to improve infiltration and restrict the development footprint (i.e. no need for additional stormwater channels etc). Main roads will not exceed 4m in width and secondary roads within the sensitive areas will not exceed 3m in width.

According to iX Engineers no upgrades are required along existing road networks. Two accesses are proposed to each serve the eastern and western nodes. The western node will be access directly off Dolphin Drive as depicted on the preferred layout plan (between erven 6 & 7) and the western node will be access off Dolphin Drive next to Erf 1580 (between erven 13 & 31).

3.1.4 Stormwater

A small stormwater retention pond will be provided for on Erf 86 in the western node. This is to help reduce flow along with permeable road surfaces and rain water storage tanks to pre-development volumes.

It is recommended that the original flood line analysis for the site be updated to make use of the latest detailed aerial survey data which provides 1m contour to ensure that the development will not encroach beyond the flood line of the on-site watercourse.

3.1.5 Solid Waste

The development will implement an at-source separation and recycling waste management system whereby individual households will be required to separate waste at home. Recyclable materials will be collected by Management and temporarily stored at Erf 1 (eastern node) and Erf 86 (western node) until collection. Organic waste will be composted at Erf 1 and Erf 86 to be reused as natural soil fertiliser within the development

Any surplus waste material will be collected and disposed of at the landfill at Humansdorp.

3.1.6 Electricity

The development will connect to the existing 11kV overhead line that supplies electricity to Aston Bay. The demand is estimated at 400KvA. iX Engineers has confirmed that no upgrading is required to the existing electrical network.

Houses will be fitted each be with gas stoves, solar panels and LED lighting as part of the energy conservation methods to reduce demand on fossil fuels.

Only low level, bollard type street lighting will be implemented.

3.1.7 Installation

Water and sewage infrastructure will be installed within the same trenches. Electricity must be installed in separate trenches due to potential risks associated with electricity and water during maintenance works.

Services between the western and eastern nodes will be connected via a ring-feed system that will cross over erven 1580 & 1579 that used to form part of the Remainder SwanLake 755, but was subdivided off when the original rezoning took place. A 6m wider servitude will be registered in favour of the SwanLake Eco-Estate to allow for installation and maintenance of services across these properties.

4 SPECIALIST ASSESSMENT

In order to consider the potential impact(s) of the amendments applied for, the following specialist studies were undertaken:

- Botanical (McDonald 2018 and Pote 2018)
- Freshwater (Collety 2018)
- Archaeology (Binneman 2018)

Although a visual impact assessment formed part of the original environmental investigation, such an assessment was not repeated since the original assessment determined the impacts to be acceptable. Furthermore the site has since been rezoned from Agriculture to Subdivisional Area (residential development is therefore indicated as a primary right) and all units are restricted to single storey (not exceeding 5 meters) as per the original EA.

5 IMPACTS ASSESSED

The following impacts have been identified and assessed by the various specialists (more details on the significance and ratings of these impacts are provided in the main report and attached specialist reports):

5.1 BOTANICAL IMPACTS ASSOCIATED WITH THE DEVELOPMENT:

Construction Phase

- **Vegetation clearing** for construction could impact indigenous species as well as riparian and terrestrial plant communities. Vegetation clearing will also lead to **habitat loss** for fauna and potentially the **loss of sensitive / protected species, habitats and ecosystems within the remaining natural areas.**

Operational Phase

- The presence of the development will **disrupt the connectivity of the landscape** for some species which will avoid traversing the cleared areas and may impact their ability to disperse or maintain gene flow between subpopulations.
- **Alien clearing** will improve the ecology and habitat of the area.

Cumulative Impacts

- **Transformation of intact habitat** could **disrupt the connectivity** of the landscape for fauna and flora and **impair their ability to respond to environmental fluctuations**.

Since the area affected by the activity takes is restricted to approximately 20% of the site and the development is concentrated along the southern portion of the property, the overall loss and impact on botanical features is considered **LOW negative** during construction and the long term impact associated with alien clearing and appropriate management of the remaining open space is considered to be **MEDIUM positive**.

5.2 FRESHWATER IMPACTS ASSOCIATED WITH THE DEVELOPMENT

Construction Phase

- Risks associated with landscape scale alterations in **surface flows**;
- Water **quality impacts** on the on-site watercourse as a result of siltation.

Operational Phase

- change in the **runoff characteristics** from the site as a result in the increase in hardened surfaces;
- some **impairment of the surface water quality** to occur, namely sedimentation and other pollutants contaminated runoff and the sewage pollution;

Cumulative impacts

- Ongoing alien clearing will improve **watercourse habitat and flow requirements.**

Various water bodies dominated the regional and study area landscape. All of the observed aquatic features showed some form of impact due to the land uses and land reclamation that has taken place over a period of time. However no true aquatic systems were confirmed within the site, only an area that would flood during extreme rainfall events.

Based then on the potential impacts addressed in the DWS Risk Assessment Matrix (Appendix A), with proper design and mitigation and avoidance of aquatic areas / areas within the 1:100 year flood line, all impacts were rated as **LOW negative.**

5.3 HERITAGE ISSUES ASSOCIATED WITH THE DEVELOPMENT

Construction Phase

- Impact on potential archaeological features during vegetation clearing/construction

Operational Phase

- None

Cumulative impacts

- None

Considering the site is not considered sensitive and provided that the necessary mitigation measures are implemented the archaeologist confirmed that there is no reason for this project to not be implemented. The overall impact is rates as **LOW negative.**

5.4 MITIGATION MEASURES

The following **additional** mitigation measures must be implemented (in addition to the conditions already stipulated in the Environmental Authorisation (EA):

- The Environmental Management Plan (EMP) must be implemented;
- Once search & rescue efforts have been completed a Clearance Certificate must be issued by the appointed Botanist and submitted to the DEDEAT;
- Vegetation may only be cleared per phase;
- The 10m buffer along the on-site watercourse must be respected and no development may encroach into this buffer area;
- The stormwater management actions must be implemented;
- The existing road crossing connecting the single residential erven and footprint units must be done in such a manner that flow is improved (final design must be undertaken in consultation with a freshwater specialist);
- Fencing of the property must be suitable to allow for the movement of small mammals along the ecological corridor / remaining open space within the development.
- The footprint units in the eastern node, closest to the northern boundary, must be reconfigured should the updated flood line analysis require such;

- Implementation of the Environmental Management Plan for Heritage Resources must be implemented (Binneman 2018).

6 WAY-FORWARD

The re-evaluation of the development proposal in as far as changes to the scope and/or nature of impacts, indicate that the development proposal, in its revised format will not result in significant or new impacts that cannot be mitigated to acceptable levels.

Ensuring compliance with the Environmental Management Plan and providing sufficient monitoring during construction by an Environmental Control Officer (ECO) and Archaeologist (where necessary) increases the level of confidence with which the validity period of the Environmental Authorisation (EA) can be considered.

The engagement with the Kouga Municipality by VPM Planners as well as iX Engineers have confirmed that the site is suitably zoned for township development and as per the Kouga SDP's designation (for low density township development) the Municipality will provide services to the development.

This Impact Report is available for stakeholder review and comment from 8 November 2018 – 10 December 2018. Comments received during this period will be considered by the project team and specialists. Responses, where necessary, along with any further amendments or changes to the proposal, will be submitted as part of the Impact Assessment Report (Version 2) that will be circulated to registered Interested & Affected Parties (I&APs) again before submission to the DEDEAT for decision-making.

All comments must be submitted, in writing, to the below contact:
Attention: Louise-Mari van Zyl
Cape EAPrac
Box 2070, George, 6530
Fax: 044-874 0432
Email: louise@cape-eaprac.co.za

MAIN REPORT

1 INTRODUCTION

Cape EAPrac has been appointed by ArctiSmart (Pty) Ltd, on behalf of the Holder of the Authorisation (Glenny Buchner Trust), hereafter referred to as the Applicant, as the independent environmental practitioner to aciliate the Part 2 Amendment Application process for the SwanLake Eco Estate on Remainder SwanLake Farm 755, Aston Bay.

The study area covers approximately 38.2ha (excluding erven 1579 & 1580 previously part of the property). Roughly 20% of the site (+/-7ha) is earmarked for residential development.

The development was approved for development by the DEDEAT in March 2009, followed by the necessary rezoning of the site from 'Agriculture' to 'Subdivisional Area' in July 2009.

A Part 2 Amendment Application process is being followed to inform the Department's decision on the following main aspects:

- a further extension of two years (24 months) to enable the new land owner to implement the project; and
- change in ownership and applicant details from Glenny Bucher Trust to ArctiSmart (Pty) Ltd who is the new owner of the property.

1.1 PROFESSIONAL TEAM

The amendment application process is informed by both technical and independent specialists. The technical team members consist of the following professionals:

- iX Engineeers
- VPM Surveys
- VPM Planners

The independent specialists who conducted assessments to determine if the site conditions and relevant legislation changes have affected the development potential in any way include:

- Scherman Colloty & Associates (freshwater)
- EAS (Pty) Ltd (botanical)
- Eastern Cape Heritage Consultants (archaeology)

The technical reports and WULA were used to inform this Impact Report and potential interested and affected parties (I&APs) are invited to review and submit comment on the various technical and specialist reports as part of the stakeholder engagement phase.

2 BROAD CONTEXT

2.1 WHY THIS DEVELOPMENT AND WHY IN THIS AREA

The SwanLake Eco-Estate on Remainder Farm SwanLake 755 obtained prior Environmental Approval in 2009. Similarly the site was rezoned to Subdivisional Area also in 2009. As a

result of the development being approved, the Kouga Municipality included the property within the 'urban edge' of Aston Bay and designated it for low density residential development. The proposed development can be serviced by the local municipality ito services availability and the site conditions have not changed to any extent that may prevent the development from being implemented.

2.2 NEED AND DESIRABILITY

The primary rights of the property are deemed to be residential. As such a result the assumption can be made with a high level of confidence that the property will be developed as it is earmarked for low density township development.

Following the initial approval of the development, the Kouga Municipality took into account the recommended status of a Class 2 Critical Biodiversity Area (CBA2) and CBA3 and restricted the density that may be considered on the property to a maximum of 10 units per hectare.

The preferred development proposal will have a density of 3 units/ha which is significantly less than what it allowed for ito the spatial planning provisions. Needless to say the spatial planning provisions are not the only determining factor and as such it is important to note that the specialist assessments undertaken as part of the Part 2 Amendment Application process have confirmed that the proposal to develop approximately 20% of the site, whilst conserving in excess of 75% of the site is still considered to be in line with the goal of keeping the property as 'near' natural.

Despite the extended validity period of the EA, the Holder of the EA has not conducted any form of alien clearing or site management. As a result alien infestation has increased along the periphery of the southern boundary and illegal dumping of garden waste and building rubble have occurred. Recent fires also cause damage to the vegetation.

It is evident that the original Holder of the EA (who was also the land owner at the time) did not comply with the EA conditions, nor other applicable legislation governing alien vegetation management and Duty of Care principles by ensuring that the property is maintained. The new land owner however fully intends to implement the EA and therefore it is highly likely that the conditions of the EA as well as compliance with other applicable legislation will be adhered to which improves the desirability of allowing a further extension of the validity period of the EA.

2.3 SPATIAL PLANNING CONTEXT

The key policy and planning documents pertaining to the proposed development include:

- Kouga Local Development Spatial Framework
- Saartjie Baardman Spatial Development Framework
- Eastern Cape Provincial Growth Development Plan
- Eastern Cape Provincial Development Spatial Plan

VPM Planners have considered the applicability of all of the above-mentioned spatial planning frameworks and determined that the development is considered consistent with, and in line with these planning tools.

A copy of the Planning Report is attached to this Impact Report (Version 1).

3 LEGISLATIVE AND POLICY FRAMEWORK

In addition to the planning legislation described in the previous section, the broader legislation relevant to this study is briefly outlined below. These environmental requirements are not intended to be definitive or exhaustive, but serve to highlight key environmental legislation and responsibilities only.

3.1 THE CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA

The Constitution of the Republic of South Africa (Act 108 of 1996) states that everyone has a right to a non-threatening environment and that reasonable measure are applied to protect the environment. This includes promoting conservation and environmentally sustainable development, while promoting justifiable social and economic development.

Section 24 of the Constitution of the RSA (1996) and Section 2 of NEMA requires the investigative processes, as well as decision-making authorities to:

- To consider the social, economic and environmental impact of the proposed development including its disadvantages and benefits;
- To integrate those factors or considerations into decision-making and
- To make a decision informed by them.

3.2 NATIONAL WATER ACT, 1998 (ACT NO. 36 OF 1998)

According to Section 22(1) of the **National Water Act (NWA)**, a person may only use water without a licence:

- if that water use is permissible under Schedule 1, or;
- if that water use is permissible as a continuation of an '*existing lawful use'*, or;
- if that water use is permissible in terms of a general authorisation issued under section 39 of the NWA.

The incorporation of a freshwater impact assessment for the Part 2 Amendment Application has highlighted the fact that a WULA may be required because of the proximity to on and off-site wetlands.

The necessary WULA will be submitted to the Department of Water Affairs & Sanitation (DWS) for consideration.

3.3 NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO 107 OF 1998)

The current assessment is being undertaken in terms of the **National Environmental Management Act** (NEMA, Act 107 of 1998 as amended)[11] . This Act makes provision for the identification and assessment of activities that are potentially detrimental to the environment and which require authorisation from the competent authority (in this case, the Provincial Department of Environmental Affairs & Development Planning, DEADP) based on the findings of an Environmental Assessment.

The 2014 Environmental Regulations (as amended 2017) also provides for the Amendment of Environmental Authorisations for changes that may/may not result in new or increased impacts or change in the scope of works and/or administrative impacts such as changing the details of the Holder of the Authorisation.

NOTE TO THE READER: A Part 2 Amendment Application process is being followed due to the time lapse from when the original EA was issued.

3.4 NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY (ACT 10 OF 2004)

The National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEMBA) provides for listing threatened or protected ecosystems, in one of four categories: critically endangered (CR), endangered (EN), vulnerable (VU) or protected.

The list of threatened terrestrial ecosystems supersedes the information regarding terrestrial ecosystem status in the NSBA 2004.

NEMBA also deals with endangered, threatened and otherwise controlled species. The Act provides for listing of species as threatened or protected, under one of the following categories:

- **Critically Endangered**: any indigenous species facing an extremely high risk of extinction in the wild in the immediate future.
- **Endangered**: any indigenous species facing a high risk of extinction in the wild in the near future, although it is not a critically endangered species.
- **Vulnerable**: any indigenous species facing an extremely high risk of extinction in the wild in the medium-term future; although it is not a critically endangered species or an endangered species.

[11] On 18 June 2010 the Minister of Water and Environmental Affairs promulgated new regulations in terms of Chapter 5 of the National Environmental Management Act (NEMA, Act 107 of 1998), viz, the Environmental Impact Assessment (EIA) Regulations 2010. These regulations came into effect on 02 August 2010 and replace the EIA regulations promulgated in 2006. In December 2014 these Regulations were replaced with the latest 2014 Regulations and in April 2017 these Regulations were amended.

- **Protected species**: any species which is of such high conservation value or national importance that it requires national protection. Species listed in this category include, among others, species listed in terms of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

The vegetation types for the site are indicated as Gamtoos Thicket and at a fine scale pattern it consists of a mosaic of grassy scrubland and thicket which is mature and very stable. There has been little to no change in the vegetation from the original botanical assessment undertaken in 2008.

3.4.1 The National Spatial Biodiversity Assessment (NBA)(2011)

The NBA 2011 assesses the state of South Africa's biodiversity, across terrestrial, freshwater, estuarine and marine environments, emphasising spatial (mapped) information for both ecosystems and species. The NBA is central to fulfilling the South African National Biodiversity Institute's (SANBI) mandate in terms of the National Environmental Management: Biodiversity Act (Act 10 of 2004) to monitor and report regularly on the state of biodiversity, and includes two headline indicators that are assessed across all environments: **ecosystem threat status** and **ecosystem protection level**. Information from the NBA can thus be used to streamline environmental decision-making, strengthen land-use planning, strengthen strategic planning about optimal development futures for South Africa, and identify priorities for management and restoration of ecosystems with related opportunities for ecosystem-based job creation.

3.5 NATIONAL PROTECTED AREA EXPANSION STRATEGY (NPAES) FOR S.A. 2008 (2010)

Considering that South Africa's protected area network currently falls far short of sustaining biodiversity and ecological processes, the NPEAS aims to achieve cost-effective protected area expansion for ecological sustainability and increased resilience to Climate Change. Protected areas, recognised by the National Environmental Management: Protected Areas Act (Act 57 of 2003), are considered formal protected areas in the NPAES. The NPAES sets targets for expansion of these protected areas, provides maps of the most important protected area expansion, and makes recommendations on mechanisms for protected area expansion.

The **Seekoei River Nature Reserve** is located immediately to the west and adjacent to the site.

3.6 NATIONAL FORESTS ACT (NO. 84 OF 1998):

The National Forests Act provides for the protection of forests as well as specific tree species, quoting directly from the Act: "*no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree, except under a licence or exemption granted by the Minister to an applicant and subject to such period and conditions as may be stipulated".*

The Department of Agriculture, Fisheries and Forestry (DAFF) is responsible for the implementation and enforcement of this Act.

McDonald (2018) confirmed that the site contains a number of protected tree species and he further confirms that the development footprint also contains said species. However the primary rights of the site is Subdivisional Area and the removal of protected species can therefore be considered by the Department.

The necessary Forestry Permits must however be obtained by the Holder of the EA before any construction may commence that will result in the removal/damaging or trimming of protected tree species.

3.7 CONSERVATION OF AGRICULTURAL RESOURCES ACT (CARA)

CARA provides for the regulation of control over the utilisation of the natural agricultural resources in order to promote the conservation of soil, water and vegetation and provides for combating weeds and invader plant species. The Conservation of Agricultural Resources Act defines different categories of alien plants:

- Category 1 - prohibited and must be controlled;
- Category 2 – must be grown within a demarcated area under permit; and
- Category 3 - ornamental plants that may no longer be planted, but existing plants may remain provided that all reasonable steps are taken to prevent the spreading thereof, except within the flood lines of water courses and wetlands.

Although the property is no longer zoned as Agriculture the removal of invasive alien vegetation is considered a priority and the Holder of the EA must ensure that all invasive alien vegetation on the property is removed prior to Phase 1 of the development being completed.

3.8 NATIONAL VELD & FOREST FIRE ACT (NVFFA) (ACT 101 OF 1998)

The purpose of the National Veld and Forest Fire Act is to **prevent and combat veld, forest and mountain fires** throughout the Republic of South Africa and to provide institutions, methods and practices for achieving this purpose. Institutions include the formation bodies such as Fire Protection Associations (FPA's) and Working on Fire. The Act provides the guidelines and constitution for the implementation of these institutions, as well as their functions and requirements.

Every owner on whose land a veldfire may start or burn or from whose land it may spread must prepare and maintain a **firebreak** on his or her side of the boundary between his or her land and any adjoining land. The procedure in this regard and the role of adjoining owners and the fire protection association are dealt with within this Act.

The property borders on Aston Bay and as a result the responsibility of the owner is to maintain a fire break along the northern boundary which falls along the existing Eskom powerline servitude which is kept free of vegetation and therefore serves as a fire break.

3.9 NATIONAL HERITAGE RESOURCES ACT (ACT 25 OF 1999)

The protection and management of South Africa's heritage resources are controlled by the National Heritage Resources Act (Act No. 25 of 1999). Eastern Cape Provincial Heritage Authority (ECPRHA) is the competent authority for the Eastern Cape, and is registered as a Stakeholder for this environmental process.

Section 34 (1) No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority. **Buildings older than 60 years or with heritage significance will be altered as part of the proposed development – approval for such activities are being applied for from HWC.**

- The appointed archaeologist confirmed that no such structures exist on the property.

Section 35 (4) No person may destroy, damage, excavate, alter or remove from its original position, or collect, any archaeological material or object, without a permit issued by the SAHRA, or the responsible resources authority. **If archaeological materials are exposed during vegetation clearing and/or earth moving activities, then they must be dealt with in accordance with the National Heritage Resources Act (No. 25 of 1999). An archaeological impacts assessment is being conducted as part of the Environmental Process.**

- The appointed archaeologist has made the necessary monitoring recommendations.

Section 36 (1) Where it is not the responsibility of any other authority, SAHRA must conserve and generally care for burial grounds and graves protected in terms of this section, and it may make such arrangements for their conservation as it sees fit.

Section 36 (3) Nor may anyone destroy, damage, alter, exhume or remove from its original position, or otherwise disturb, any grave or burial ground older than 60 years, which is situated outside a formal cemetery administered by a local authority, without a permit issued by the SAHRA, or a provincial heritage authority, in terms of Section 36 (3).

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

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

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

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

(i) exceeding 5 000 m2 in extent; or

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

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

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

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

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority.

The appointed archaeologist have submitted their updated impact assessment report to the ECPRHA for input.

3.10 GUIDELINE ON NEED & DESIRABILITY (2017)

Although there are a number of applicable guidelines the Guideline on Need & Desirability is considered important because it relates directly to the questions of rural development and how/if it should be done. Other relevant guidelines are also considered applicable and listed in this report.

The Guideline on Need and Desirability (2017) compiled by the Department of Environmental Affairs contains information on best practice and how to meet the peremptory requirements prescribed by the legislation and sets out both the strategic and statutory context for the consideration of the need and desirability of a development involving any one of the NEMA listed activities. Need and desirability is based on the principle of sustainability, set out in the Constitution and in NEMA, and provided for in various policies and plans, including the NDP. Addressing the need and desirability of a development is a way of ensuring sustainable development – in other words, that a development is ecologically sustainable and socially and economically justifiable – and ensuring the simultaneous achievement of the triple bottom-line.

3.11 APPLICABLE GUIDELINES FOR ENVIRONMENTAL APPLICATION PROCESSES

The following guidelines have been used to inform the process to date as well as relevant specialist studies, although this is not an exhaustive list it does highlight those develop by the Department of Environmental Affairs as well *inter alia*, the following:

- *Manual for the identification and delineation of wetland and riparian areas, DWS (2008)*
- *Guideline to regulate activities/developments affecting watercourses, DWS (2014)*
- *Guideline on Public Participation (2013)*
- *Guidelines for involving Heritage Specialists in the EIA process (2005)*
- *Guidelines for involving Social Specialists in the EIA process (2007)*
- *Guidelines for involving Biodiversity specialists in the EIA process (2005)*
- *Guideline for reviewing Specialist Reports in the EIA process (2005)*
- *Guidelines for environmental management plans (2005)*
- *Circular EADP 0028/2014: One Environmental Management System*

3.12 NATIONAL WASTE MANAGEMENT STRATEGY

The National Waste Management Strategy presents the South African government's strategy for **integrated waste management** for South Africa. It deals among others with: Integrated Waste Management Planning, Waste Information Systems, Waste Minimisation, Recycling,

Waste Collection and Transportation, Waste Treatment, Waste Disposal and Implementing Instruments.

3.13 NATIONAL BUILDING REGULATIONS

The National Building Regulations and Building Standards Act as amended must be complied with. This act addresses, inter alia:

- Specifications for draftsmen, plans, documents and diagrams;
- Approval by local authorities;
- Appeal procedures;
- Prohibition or conditions with regard to erection of buildings in certain conditions;
- Demolition of buildings;
- Access to building control officers;
- Regulations and directives; and
- Liability.

3.14 ATLAS OF FRESHWATER ECOSYSTEM PRIORITY AREAS (FEPAS) AND THE FEPA IMPLIMENTATION MANUAL

The National Freshwater Ecosystem Priority Areas (NFEPA) project was a collaboration between the CSIR, SANBI, the Department of Water Affairs, the Water Research Commission, SANParks, SAIAB, WWF-SA and the Department of Environmental Affairs. Its purpose was to identify a national network of freshwater priority areas to provide strategic spatial priorities for conserving South Africa's freshwater ecosystems and associated species, and to support sustainable use of water resources.

These strategic spatial priorities are known as **Freshwater Ecosystem Priority Areas, or FEPAs**. FEPAs were determined through a process of systematic biodiversity planning based on a range of criteria that are described in detail in the NFEPA Technical Report. The FEPA maps are published in the Atlas of Freshwater Ecosystem Priority Areas in South Africa which is accompanied by an Implementation Manual that provides detailed, practical guidelines for managing land uses and their impacts in the freshwater priority areas (Driver *et al.* 2011).

The appointed freshwater specialist confirmed that the site does not contain any natural wetlands and that the on-site watercourse will only receive runoff during heavy downpours.

3.15 SUSTAINABILITY IMPERATIVE

The norm implicit to our environmental law is the notion of sustainable development ("SD"). SD and sustainable use and exploitation of natural resources are at the core of the protection of the environment. SD is generally accepted to mean development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs.

The evolving elements of the concept of SD *inter alia* include:

- the right to develop;
- the pursuit of equity in the use and allocation of natural resources (the principle of intra-generational equity) and the
- need to preserve natural resources for the benefit of present and future generations.

Economic development, social development and the protection of the environment are considered the pillars of SD (the triple bottom line).

"*Man-land relationships require a holistic perspective, an ability to appreciate the many aspects that make up the real problems. Sustainable planning has to confront the physical, social, environmental and economic challenges and conflicting aspirations of local communities. The imperative of sustainable planning translates into notions of striking a balance between the many competing interests in the ecological, economic and social fields in a planned manner. The 'triple bottom line' objectives of sustainable planning and development should be understood in terms of economic efficiency (employment and economic growth), social equity (human needs) and ecological integrity (ecological capital).*"

As was pointed out by the Constitutional Court, SD does not require the cessation of socio-economic development but seeks to regulate the manner in which it takes place. The idea that developmental and environmental protection must be reconciled is central to the concept of SD - it implies the accommodation, reconciliation and (in some instances) integration between economic development, social development and environmental protection. It is regarded as providing a "conceptual bridge" between the right to social and economic development, and the need to protect the environment.

Our Constitutional Court has pointed out that the requirement that environmental authorities must place people and their needs at the forefront of their concern so that environmental management can serve their developmental, cultural and social interests, can be achieved if a development is sustainable. "*The very idea of sustainability implies continuity. It reflects the concern for social and developmental equity between generations, a concern that must logically be extended to equity within each generation. This concern is reflected in the principles of inter-generational and intra-generational equity which are embodied in both section 24 of the Constitution and the principles of environmental management contained in NEMA.*" [Emphasis added.]

In terms of NEMA sustainable development requires the integration of the relevant factors, the purpose of which is *to ensure that development serves present and future generations.*[12]

[12] See definition of "sustainable development" in section 1 of NEMA.

4 ASSESSMENT METHODOLOGY

It is important to understand that this re-evaluation does not evaluate the development ito alternatives or the typical no-go option (i.e. no development) since the project is already approved.

With the exception of the freshwater assessment, the assessments were undertaken specifically to evaluate whether or not site conditions may have changes to the extent that the development may not be considered appropriate any longer, or whether applicable legislation, policies or guidelines may have changes or new ones come into effect that may prevent the development from being implemented.

Impact criteria should include the following:

- **Nature of the impact:** impacts associated with the proposed Public Safety Centre development have been described in terms of whether they are negative or positive and to what extent.
- **Duration of impacts: Impact were assessed in terms of their anticipated duration:**
    - Short term (e.g. during the construction phase)
    - Medium term (e.g. during part or all of the operational phase)
    - Permanent (e.g. where the impact is for all intents and purposes irreversible)
    - Discontinuous or intermittent (e.g. where the impact may only occur during specific climatic conditions or during a particular season of the year)
- **Intensity or magnitude: The size of the impact (if positive) or its severity (if negative):**
    - Low, where the receiving environment (biophysical, social, economic, cultural etc) is negligibly affected or where the impact is so low that the remedial action is not required;
    - Medium, where the receiving environment (biophysical, social, economic, cultural etc) is altered, but not severely affected, and the impact can be remedied successfully; and
    - High, where the receiving environment (biophysical, social, economic, cultural etc) would be substantially (i.e. to a very large degree) affected. If a negative impact, could lead to irreplaceable loss of a resource and/or unacceptable consequences for human wellbeing.
- **Probability: Should describe the likelihood of the impact actually occurring indicated as:**
    - Improbable, where the possibility of the impact is very low either because of design or historic experience;
    - Probable, where there is a distinct possibility that the impact will occur;
    - Highly probable, where it is most likely that the impact will occur; or
    - Definite, where the impact will occur regardless of any prevention measures.

- **Significance: The significance of impacts can be determined through a synthesis of the assessment criteria. Significance can be described as:**
    - Low, where it would have negligible effect on the receiving environment (biophysical, social, economic, cultural etc), and on the decision;
    - Medium, where it would have a moderate effect on the receiving environment (biophysical, social, economic, cultural etc), and should influence the decision;
    - High, where it would have, or there would be a high risk of, a large effect on the receiving environment (biophysical, social, economic, cultural etc). These impacts should have a major influence on the decision;
    - Very high, where it would have, or there would be a high risk of, an irreversible negative impact on the receiving environment (biophysical, social, economic, cultural etc) and irreplaceable loss of natural capital/resources or a major positive effect on human well-being. Impacts of very high significance should be a central factor in decision-making.
    - Provision should be made for with and without mitigation scenarios.
- **Confidence: The level of confidence in predicting the impact can be described as:**
    - Low, where there is little confidence in the prediction, due to inherent uncertainty about the likely response of the receiving ecosystem, or inadequate information;
    - Medium, where there is a moderate level of confidence in the prediction, or
    - High, where the impact can be predicted with a high level of confidence
- **Consequence**: **What will happen if the impact occurs**
    - Insignificant, where the potential consequence of an identified impact will not cause detrimental impact to the receiving environment;
    - Significant, where the potential consequence of an identified impact will cause detrimental impact to the receiving environment.
    - Provision must be made for with and without mitigation scenarios.

The impacts should also be assessed in terms of the following aspects:

- **Status of the impact**

  The specialist should determine whether the impacts are negative, positive or neutral ("cost – benefit" analysis). The impacts are to be assessed in terms of their effect on the project and the environment. For example, an impact that is positive for the proposed development may be negative for the environment. It is important that this distinction is made in the analysis.

- **Cumulative impact**

  Consideration must be given to the extent of any accumulative impact that may occur due to the proposed development. Such impacts must be evaluated with an assessment of similar developments planned and already in the environment. Such impacts will be

either positive or negative, and will be graded as being of negligible, low, medium or high impact.

Care must be taken to ensure that where cumulative impacts can occur that these impacts are considered and categorised as **additive** (incremental or accumulative); **interactive**, **sequential** or **synergistic**.

Based on a synthesis of the information contained in the above-described procedure, the specialists are required to assess the potential impacts in terms of the following significance criteria:

- **No significance**: The impacts do not influence the proposed development and/or environment in any way.
- **Low significance**: The impacts will have a minor influence on the proposed development and/or environment. These impacts require some attention to modification of the project design where possible, or alternative mitigation.
- **Moderate significance**: The impacts will have a moderate influence on the proposed development and/or environment. The impact can be ameliorated by a modification in the project design or implementation of effective mitigation measures.
- **High significance**: The impacts will have a major influence on the proposed development and/or environment.

5 SPECIALIST IMPACT ASSESSMENT

5.1 ECOLOGICAL IMPACT ASSESSMENT

The site was inspected by McDonald (2017) to identify species of conservation concern as well as by Pote (2018) to determine whether the development may still be considered for implementation.

Both specialists confirmed that the area where the development is proposed can be considered for development. The area remains small (approximately 20% of the site) compared to the remainder which will be conserved through formal zoning parameters and is appropriately concentrated along the southern boundary of the property leaving a large, open section along the northern boundaries to continue functioning as an ecological corridor in a near natural condition.

5.1.1 Possible impacts on biodiversity during construction and operations

The main impacts because of the proposed activity include the following:

1. Permanent or temporary loss of vegetation covers because of site clearing in construction. Site clearing before construction will result in the blanket clearing of vegetation within the affected footprint.
2. Loss of species of special concern during site clearing activities. Numerous species of special concern are present within the affected area, which will be destroyed during site preparation.

3. Susceptibility of some areas to erosion because of construction related disturbances. Removal of vegetation cover and soil disturbance during construction may result in some areas being susceptible to soil erosion after completion of the activity. Dune sands have a high erosion susceptibility.
4. Susceptibility of post construction disturbed areas to invasion by exotic and alien species. Post construction disturbed areas having no vegetation cover are often susceptible to invasion by weedy and alien species, which can not only become invasive but also prevent natural flora from becoming established.
5. Disturbances to ecological processes. Activity may result in disturbances to ecological processes due to fragmentation of intact vegetation corridors and fragmentation of intact vegetation.

5.1.2 Potential cumulative and indirect impacts

- Limited cumulative impacts are expected because of the expansion of the site, due to the limited disturbance area. These include regional loss of vegetation and species of special concern.
- It is unlikely that the proposed development construction will have any significant indirect impacts relating to vegetation.

Table 2: Botanical Impacts associated with the continued development of the development (Pote 2018).

Impact	Description/Comment	Extent	Duration	Intensity	Probability	SB*	Status	SA*
CONSTRUCTION								
Permanent or temporary loss of vegetation cover because of site clearing in construction of proposed development	The clearing of vegetation and installation of the proposed development will result in the temporary removal of vegetation cover.	Site	Short	Medium	Definite	Mod	-ve	Low
Loss of species of special concern during site clearing activities	Some protected species will be removed during construction of the proposed development because of vegetation clearing.	Site	Short	Low	Definite	Mod	-ve	Low
Susceptibility of post construction disturbed areas to invasion by exotic and alien species	After the proposed development has been constructed, the disturbed area will be susceptible to recolonisation by invasive species and weeds.	Site	Short	Low	Probable	Mod	-ve	Low
Susceptibility of some areas to erosion because of construction related disturbances	Clearing of vegetation cover during proposed development construction will temporarily result in areas being susceptible to erosion.	Site	Short	Low	Probable	Low	-ve	Low
Disturbances to ecological processes because of proposed development construction	Ecological processes may be temporarily disturbed during the construction process and during temporary discharge.	Site	Long	Medium	Improbable	Low	-ve	Low
OVERALL						**Mod**		**Low**
OPERATION								
Permanent or temporary loss of vegetation cover because of site clearing in construction of proposed development	No additional loss of natural vegetation is likely after construction is completed.	Site	Long	Low	Probable	Mod	-ve	Low
Loss of species of special concern habitat as a result of site clearing activities	No additional loss of species of special concern is likely after construction is completed	Site	Long	Low	Probable	Low	-ve	Low
Invasion by exotic and alien species during operational phase	The implementation of an ongoing alien management plan will reduce the fire risk and reduce alien infestation.	Site	Long	Medium	Definite	Mod (-ve)	**+ve**	**Moderate**
Susceptibility of some areas to erosion because of construction related disturbances	Clearing of vegetation cover during proposed development construction will temporarily result in areas being susceptible to erosion.	Site	Long	Low	Probable	Low	-ve	High
Disturbances to ecological processes because of proposed development construction	The retention of natural vegetation within the Open Space area will assist to conserve the vegetation and maintain ecological processes.	Local	Long	Medium	Probable	Low (-ve)	**+ve**	**High**
OVERALL						**Low**		**Mod (+ve)**

5.1.3 Mitigation measures

The following section summarises the mitigation measures recommended by the ecologist to ensure that the identified impacts during the construction and into the operational phase are within acceptable limits:

Table 3: Recommended mitigation measures for botanical impacts (Pote 2018).

Impact	Mitigation Measures
Permanent or temporary loss of vegetation cover as a result of site clearing in construction of proposed development	• Blanket clearing of vegetation must be limited to the proposed development footprint and associated infrastructure, and the area to be cleared must be demarcated before any clearing commences. No clearing outside of minimum required footprint to take place. • Topsoil must be striped and stockpiled separately during site preparation and replaced over disturbed areas on completion. • Any site camps and laydown areas requiring clearing must be located within already disturbed areas away from watercourses and dunes.
Loss of species of special concern during site clearing activities	• Some protected species are likely to be affected. • Respective permits must be obtained timeously (1 – 2 months) before vegetation clearing commences and a flora search and rescue plan must be implemented. Rescued plants should be replanted into nearby disturbed areas of similar habitat. • Permits must be kept on site and in the possession of the flora search and rescue team at all times. • Once flora search and rescue is complete, a clearance certificate must be issued by the botanist and copies of a post audit report supplied to DEDEAT
Susceptibility of post construction disturbed areas to invasion by exotic and alien species	• Alien species must be removed from the site as per NEMBA requirements. • A suitable weed management strategy to be implemented in construction and operation phases. • After clearing is completed, an appropriate cover crop may be required, should natural re-establishment of grasses not take place in a timely manner.
Susceptibility of some areas to erosion as a result of construction related disturbances	• Suitable measures must be implemented in areas that are susceptible to erosion (i.e. on dunes with mobile sands and near watercourse), including but not limited to gabions and temporary runoff diversion berms (if necessary). Areas must be rehabilitated and a suitable cover crop planted once construction is completed. • Topsoil must be stripped and stockpiled separately and replaced on completion. • Disturbances to the watercourses must be kept to a minimum and measures implemented to mitigate any erosion risk. • A suitable grass crop must be applied on completion of construction. • Adequate scour protection and energy dissipation measures must be designed and installed at discharge points. Where vegetation cover is disturbed downstream of the discharge point, measures must be implemented to rehabilitate before discharge commences.
Disturbances to ecological processes as a result of proposed development construction	• Blanket clearing of vegetation must be limited to the development footprint, and the area to be cleared must be demarcated before any clearing commences. • Any clearing within forest areas must be done in a manner than minimises the width of clearing required. The final siting will require approval from the necessary authority (DAFF). • Disturbances to the watercourses must be kept to a minimum.

5.2 FRESHWATER IMPACT ASSESSMENT

The original environmental application did not include a freshwater investigation. This study is considered important to help identify whether the on-site aquatic features, once mapped and investigation, may influence the decision on whether or not the site may still be considered for development.

It is clear from the outcome of the assessment that the on-site as well as the surrounding aquatic features do not pose a risk to the development and the opposite (development posing a risk to the aquatic features) is also limited.

5.2.1 Impact 1: Changes to the hydrological regime due to increase hard surfaces with an increased potential for erosion

Nature of the impact

Due to the nature of the proposed project this would be an operational phase impact, limited to once the development has been completed, i.e. any hard surfaces will increase the rate and volume of surface water runoff

Significance of impacts without mitigation

Due to the nature of the study area hydrology, its present state and the present impacts the overall significance of the impact would be rated as **Negative**.

Proposed mitigation

- Clearing of the remaining vegetation as it has been proposed in the layout plan will be kept to a minim and the grass species, will be replaced with trees.
- The proposed road crossing should be designed in such a manner to improve the flow of water between the main channel. This will reinstate some of the tidal flows, improving the available habitat and quality of the water.

Significance of impact with mitigation

Due to the nature of the study area hydrology, its present state and the present impacts the overall significance of the impact would be rated as **Slight**, Positive.

Table 4: Assessment of impact of changes to the local hydrological regimes and increased potential of erosion post mitigation (Colloty 2018).

Group A (Condition criteria)
Extent (A1)
A measure of the importance of the condition, which is assessed against the spatial boundaries or human interests it will affect.

National / International interests	4	
Regional / National interests	3	
Areas immediately outside the local condition	2	1
Important only to the local condition	1	
No importance	0	
Magnitude of change / effect (A2)		
Magnitude is defined as a measure of the scale of benefit/dis-benefit of an impact or a condition.		
Major positive benefit	3	
Significant improvement in status quo	2	
Improvement in status quo	1	
No change / Status quo	0	1
Negative change to status quo	-1	
Significant negative dis-benefit or change	-2	
Major dis-benefit or change	-3	
Group A Score:		1
Group B (Situation criteria)		
Duration / Permanence (B1)		
This defines whether a condition is temporary or permanent, and should be seen only as a measure of the temporal status of the condition.(e.g.: an embankment is a permanent condition even if it may one day be breached or abandoned; whilst a coffer dam is a temporary condition, as it will be removed).		

No change / Not Applicable	1	
Temporary	2	3
Permanent	3	
Reversibility (B2)		
This defines whether the condition can be changed and is a measure of the control over the effect of the condition. It should not be confused or equated with permanence. (e.g.: an accidental toxic spillage into a river is a temporary condition (B1) but its effect (death of fish) is irreversible (B2); a town's sewage treatment works is a permanent condition (B1), the effect of its effluent can be changed (reversible condition) (B2))		
No change / Not Applicable	1	
Reversible	2	2
Irreversible	3	
Cumulative (B3)		
This is a measure of whether the effect will have a single direct impact or whether there will be a cumulative effect over time, or a synergistic effect with other conditions. The cumulative criterion is a means of judging the sustainability of a condition, and is not to be confused with a permanent /irreversible situation.		
No change / Not Applicable	1	
Non-cumulative / single	2	2
Cumulative / synergistic	3	
Group B Score:		7
Final Assessment score		**7**

5.2.2 Impact 2: Impact of changes to water quality

Nature of the impact

Presently, little is known about the water quality of the watercourses, but it is assumed that due to the activities in the study area, grazing, road storm water runoff the aquatic systems will contain some pollutants.

During construction, various materials, such as sediments, diesel, oils and cement, could also pose a threat to the continued functioning of downstream areas, if by chance it is dispersed via surface run-off, or are allowed to permeate into the groundwater.

In the operational phase the only potential issues are related to the any leaks or spills from any conservancy tanks (if required).

Significance of impacts without mitigation

Due to the nature of the study area hydrology, its present state and the present impacts, the overall significance of the impact would be rated as **Negative** (Table 6).

Proposed mitigation

- Chemicals used for construction must be stored safely on site and surrounded by bunds. Chemical storage containers must be regularly inspected so that any leaks are detected early.
- Littering and contamination of water sources during construction must be prevented by effective construction camp and on-site management.
- Emergency plans must be in place in case of spillages onto road surfaces and wetlands /water courses.
- No stockpiling should take place within a water course or wetland.
- All stockpiles must be protected from erosion, stored on flat areas where run-off will be minimised, and be surrounded by bunds.
- Stockpiles must be located away from river channels / wetlands.
- Erosion and sedimentation into channels must be minimised through the effective stabilisation (gabions and Reno mattresses) and the re-vegetation of any disturbed riverbanks, such as at the proposed road crossing.
- The construction camp and necessary ablution facilities meant for construction workers must not be in any of the delineated watercourses or wetland areas (including 20m buffer).
- For the operational phase, any sewer lines and or conservancy tanks must be inspected on a regular basis or emptied prior to becoming full.

Significance of impact with mitigation

Due to the nature of the study area hydrology, its present state and the present impacts the overall significance of the impact would be rated as **Slight**, negative (Table 6).

Table 5: The potential impacts of changes ot the local water quality (Colloty 2018).

Group A (Condition criteria)		
Extent (A1)		
A measure of the importance of the condition, which is assessed against the spatial boundaries or human interests it will affect.		
National / International interests	4	1
Regional / National interests	3	
Areas immediately outside the local condition	2	
Important only to the local condition	1	
No importance	0	
Magnitude of change / effect (A2)		
Magnitude is defined as a measure of the scale of benefit/dis-benefit of an impact or a condition.		
Major positive benefit	3	-1
Significant improvement in status quo	2	
Improvement in status quo	1	
No change / Status quo	0	
Negative change to status quo	-1	
Significant negative dis-benefit or change	-2	

Major dis-benefit or change	-3	
Group A Score:		-1
Group B (Situation criteria)		
Duration / Permanence (B1)		
This defines whether a condition is temporary or permanent, and should be seen only as a measure of the temporal status of the condition.(e.g.: an embankment is a permanent condition even if it may one day be breached or abandoned; whilst a coffer dam is a temporary condition, as it will be removed).		
No change / Not Applicable	1	3
Temporary	2	
Permanent	3	
Reversibility (B2)		
This defines whether the condition can be changed and is a measure of the control over the effect of the condition. It should not be confused or equated with permanence. (e.g.: an accidental toxic spillage into a river is a temporary condition (B1) but its effect (death of fish) is irreversible (B2); a town's sewage treatment works is a permanent condition (B1), the effect of its effluent can be changed (reversible condition) (B2))		
No change / Not Applicable	1	2
Reversible	2	
Irreversible	3	
Cumulative (B3)		
This is a measure of whether the effect will have a single direct impact or whether there will be a cumulative effect over time, or a synergistic effect with other conditions. The cumulative criterion is a means of judging the sustainability of a condition, and is not to be confused with a permanent /irreversible situation.		

No change / Not Applicable	1	
Non-cumulative / single	2	2
Cumulative / synergistic	3	
Group B Score:		7
Final Assessment score		**-7**

5.2.3 Impact 3: Loss of any bed / banks or wetlands areas due to clearing of vegetation of infilling

Nature of the impact

Due to the nature of the proposed project this would not occur as no aquatic systems will be directly affected, assuming that the 1:100 year floodline or / water course whichever is larger is avoided[18].

Significance of impacts without mitigation

Due to the nature of the study area hydrology, its present state and the present impacts the overall significance of the impact would be rated as **Slight**, negative (Table 7).

Proposed mitigation

- The current layout should be adhered which will minimise the overall loss of any aquatic / watercourse habitat
- Suitable erosion protection such as gabions or stone pitching should also be included, to prevent any erosion/sedimentation, where it is envisaged that surface water flows will increase

The most recent layout shown below, takes cognisance of this and has excluded any development from these areas, while it is assumed that a detailed stormwater management plan will be developed

[18] It is recommended that the initial flood line analysis be redone to consider the detailed aerial survey of the property undertaken in 2018.

5.2.4 Summary of the aquatic mitigation measures

- Vegetation clearing should occur in parallel with the construction progress to minimise erosion and/or run-off. Large tracts of bare soil will either cause dust pollution or quickly erode and then cause sedimentation in the lower portions of the catchment.
- Only indigenous plant species must be used in the re-vegetation process. The species list mentioned in this and the vegetation study should be used a guide
- All construction materials including fuels and oil should be stored in demarcated areas that are contained within berms / bunds to avoid spread of any contamination into wetlands. watercourses or rivers. Washing and cleaning of equipment should also be done within berms or bunds, in order to trap any cement and prevent excessive soil erosion. These sites must be re-vegetated after construction has been completed. The following list of plants would be suitable for rehabilitation, with most readily found in the nursery trade or are located within the site:
    - *Cynodon dactylon,*
    - *Digitaria eriantha,*
    - *Eragrostis curvula,*
    - *Imperata cylindrica,*
    - *Panicum deustum,*
    - *Themeda triandra,*
    - *Tristachya leucothrix* and
    - *Isolepis spp*
- Mechanical plant and tankers/bowsers must not be refuelled or serviced within or directly adjacent to any river channel or wetland area.
- Erosion control measures must be put in place prior to any construction activities that would result in soil being exposed.
- Weather forecasts from the South African Weather Bureau of up to three days in advance must be monitored on a daily basis to avoid exposing soil, works or materials during a storm event
- Appropriate action must be taken in advance to protect works should a storm event be forecasted;
- Any damage and loss of soil resulting from a storm is to be remedied immediately.
- The construction camp and necessary ablution facilities meant for construction workers must be well removed from the wetlands.
- All stockpiled material must be located outside wetlands.
- There should be no toilet facilities placed close to wetlands areas or water courses.

No maintenance of machinery is to take place close to wetland areas unless adequate measures have been instituted to ensure that no hydrocarbons ingress into the soil or water.

5.3 HERITAGE IMPACTS

5.3.1 Pre-colonial archaeology, recent paleontological and historical remains

Assessments of impacts can only be presented on the evidence of the visibility of heritage remains. Therefore a re-assessment can only be presented for the southern footprint of which a large part has recently been cleared of vegetation by a bushfire.

The eastern footprint is covered with dense vegetation which made a re-assessment impossible and therefore the impact on possible heritage resources during the clearing of the vegetation and the construction phase cannot be assessed at present. Once the vegetation is cleared a re-assessment can be conducted.

Nature of the impacts

- From the visual evidence it would appear that the southern footprint is of low heritage sensitivity because no significant sites/materials were observed during the re-assessment. However, this does not rule out the fact that significant heritage resources are covered by soil and vegetation. The three thin shell scatters and associated cultural material (also Khoi pastoralist pottery) observed along the northern boundary of the property indicate that there are pre- colonial archaeological sites on the property which may be buried.

- The main impact on heritage remains will be the physical disturbance of the material and its context. Further clearing of the vegetation may expose surface heritage remains. Construction activities (approximately 42.3 hectares) will penetrate sub-surface sediments and may expose, disturb, destroy and displace heritage remains. Heritage resources are non-renewable and the construction phase may have a negatively impact on heritage remains.

Extent of the impacts

Further clearing of the vegetation and future construction activities may impact on above ground and buried heritage remains (including human remains). This negative impact on possible heritage sites/materials may be local and relatively small, but nevertheless permanent. In general further disturbances of sites/materials can be limited by mitigation if reported immediately to the nearest archaeologist and/or Eastern Cape Heritage Provincial Resources Authority (ECPHRA).

Although these impacts will be limited and restricted to the local area, heritage remains of regional, national and even international significance may be exposed. The wider region (Klasies River Caves) yielded some of the oldest remains of anatomically modern humans in the world. The oldest date for the presence of sheep associated with Khoi pastoralists along the Eastern Cape coast was recorded some 5 kilometres north of the proposed development.

Table 6: Impact of vegetation clearing and construction (Binneman 2018).

Nature: The potential impact of further clearing of the vegetation and construction of the infrastructure on above and below ground heritage for the southern footprint (re-assessed on the visual evidence of surface heritage remains).		
	Without Mitigation	**With Mitigation**
Extent	Local	Local
Duration	Permanent	Permanent
Magnitude	Minor	Minor
Probability	Unlikely	Unlikely
Degree of confidence	Medium-high	Medium-high
Significance	Low	Low
Status	Negative	Neutral
Reversibility	No	No
Irreplaceable loss of resources?	No, but in some cases, yes	No
Can impacts be mitigated?	Yes	
Cumulative impacts: The cumulative impacts on above and below ground heritage will only increase if further residential developments are planned for adjoining areas.		
Residual impacts: Long term to permanent		

5.3.2 Recommended mitigation measures:

1. All vegetation clearing must be conducted by hand and must be cut above the ground, not 'pulled' out. An archaeologist must be present during the vegetation clearing activity.
2. If any archaeological sites or material are exposed during the clearing of the vegetation, then further recommendations will follow for a possible Phase 2 Mitigation process.
   - A Phase 2 Mitigation process includes the systematic excavations and/or collection of sites/materials before construction of the development starts/continues.
3. All construction of infrastructure must be monitored by an archaeologist. If any shell middens/material or any other heritage/archaeological site/materials are exposed, all work in that area must cease and an archaeologist must inspect the find and make recommendations for a Phase 2 Mitigation process.
4. Manager/foreman or ECO should be informed before construction starts on the possible types of heritage sites resources they may encounter and the procedures to follow when they find sites.
5. If any concentrations of heritage/archaeological material are exposed during construction, then all work must cease in the immediate area and it must be reported to the archaeologist at the Albany Museum in Grahamstown (Tel: 046 6222312) or to the Eastern Cape Provincial Heritage Resources Authority (Tel: 043 6422811), so that a systematic and professional investigation can be undertaken. Sufficient time should be allowed to investigate and to remove/collect such material. Recommendations will follow from the investigation (See appendix B for a list of possible archaeological sites/material that maybe found in the area). If any archaeological sites/materials are exposed, then:
   - The local Gamtkwa KhoiSan Council must be consulted about possible mitigation measures regarding the finds and the destiny of the material.

- If the local Gamtkwa KhoiSan Council agrees to the removal of the material, an archaeologist must apply for a permit from the Eastern Cape Provincial Heritage Resources Authority to scientifically excavate/collect the material.

6. All costs must be financed by the applicant. This may include:
   All monitoring and mitigation expenses regarding the excavations/collecting of material, travel, accommodation and subsistence, analysis of the material, radiocarbon date(s) of the site(s) and a one-off curation/storage fee payable to the Department of Archaeology at the Albany Museum in Grahamstown (Eastern Cape Repository for Archaeological material).
7. Although there are few visible archaeological sites in close proximity of the property, the proposed development will have an indirect impact on cultural resources in the surrounding areas. Important archaeological and historical sites and material are within walking distance and residents will no doubt visit or 'discover' these through their recreational activities. Against this background the following recommendations are proposed:
   - Terms of conditions, in the form of a 'management strategy' should be included in the constitution of the Home Owners Association or into the rules of any other relevant management body. The purpose of this 'management strategy' would be to inform the home owners and visitors to the Swan Lake Eco Estate of possible heritage resources on the property and surrounds, and to prevent possible damage to sites or the illegal collecting of material by residents and/or visitors. This 'management strategy' document (terms of conditions) can be compiled by the Eastern Cape Heritage Resources Authority in cooperation with the Home Owners Association or relevant body.
   - It is suggested that if archaeological sites/materials are exposed in the footprints the developers should consider a small display/information centre at a central place in the development where relevant information can be displayed regarding the history of archaeological heritage of the area.

Such a facility will be a positive contribution to the heritage empowerment of the local KhoiSan communities and it may prove to be a valuable 'investment' to the development. It should also include a 'management strategy' which inform the owner/visitors/tourists about the protection, conservation and protocol of visiting these heritage resources.

6 WAY FORWARD

All relevant issues or concerns that may be raised during the stakeholder engagement phase of this Part 2 Amendment Application process will be captured by the EAP and reported to the specialists, technical professionals and the applicant for consideration.

The outcome of the scientific investigations have confirmed that the site remains suitable for development as proposed despite new legislation and/or changes to the relevant and applicable planning and environmental legislative framework.

Input from stakeholder however is deemed important also and should the stakeholder engagement process highlights any aspects that may require further investigation or engagement with Authorities regarding the proposal, such will be reflected in the Impact Report Version 2.

All stakeholders who wish to participate during the remainder of the Part 2 Amendment Application process must request to be registered as an Interested & Affected Party (I&AP) and/or have submitted comment response to this version of the Impact Report.

Version 2 of the Impact Report will then be expanded to incorporate and Issues & Response Report, with details on the public participation and stakeholder engagement undertaken as part of the process.

Comments must be submitted in writing and much reach *Cape EAPrac* no later than 10 December 2018:

Cape EAPrac

Attention: Louise-Mari van Zyl

PO Box 2070, George, 6530

Email: louise@cape-eaprac.co.za or Fax: 044-874 0432

7 RECOMMENDATIONS

The following additional recommendations are submitted as part of the ongoing environmental process for items that must be completed/updated to ensure that the Impact Report can be finalised with all relevant information pertaining to the decision.

The initial flood line analysis must be updated using the detailed aerial survey undertaken of the site in 2018. With more detailed contour information, the flood lines are expected to be slightly different to the initial analysis.

Kouga Municipality must provide written confirmation that they approve of the engineering proposals and they must supply written confirmation that they can provide the necessary municipal services.

8 CONCLUSION

Even though the Holder of the Authorisation did not implement the development rights over a period of nearly nine (9) years, it is the intention of the new owner of the property, who specifically obtained the land for its development potential, to implement the development.

This assurance is very necessary since it highlights the fact that the project will be implemented and that the new owners (and Holders of the Authorisation) fully intend on complying with the necessary conditions or approval.

The outcome of the various specialist studies have affirmed that site conditions have not changed much over the past nine (9) years with the exception of a degree of alien infestation along the southern boundaries where transformation has been noted. The most recent spatial planning tools still support the development of a low-density residential development and the proposal will still achieve a reasonable outcome in terms of conservation targets and objectives by securing in excess of 75% of the site for conservation purposes.

I&APs are invited to submit their comment on this Impact Report (Version 1) to help inform the Department's decision on whether or not to approve a further extension.

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APPENDIX A

LOCATION & DEVELOPMENT PLANS

APPENDIX B

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