GEORGE
TEL: +27 (0) 44 873 4923 **FAX:** +27 (0) 44 874 5953
EMAIL: info@sescc.net **WEBSITE:** www.sescc.net
ADDRESS: 102 Merriman Street, George 6530
PO BOX: 9087, George , 6530

CAPE TOWN
TEL: +27 (0) 21 554 5195 **FAX:** +27 (0) 86 575 2869
EMAIL: betsy@sescc.net **WEBSITE:** www.sescc.net
ADDRESS: Tableview, Cape Town, 7441
PO BOX: 443, Milnerton, 7435

AMENDED OPERATIONAL ENVIRONMENTAL MANAGEMENT PROGRAMME

FOR THE

HARTLAND LIFESTYLE ESTATE DEVELOPMENT ON A PORTION OF THE REMAINDER OF THE FARM VAALEVALLEY 219, MOSSEL BAY WESTERN CAPE

APPLICANT:	Hartland Lifestyle Estate (Pty) Ltd
ENVIRONMENTAL CONSULTANT:	Sharples Environmental Services cc Original OEMPr Author: Mr. R. E. Hiseman (2008) Primary Amendment Author: Michael Bennett
DEA&DP REF:	Original: EG12/2/1 - AM18 - Farm Valle Valley 219/10 (5382) Current: 16/3/3/5/D6/29/0003/22 Addendum: 16/3/3/5/D6/29/0008/22
SES REFERENCE NUMBER:	EIR/MSB/MS/36/SD/3/8
DATE:	28 June 2023

Chapter 1 Introduction

Sharples Environmental Services cc has been appointed by Hartenbos Landgoed II (Pty) Ltd, the Applicant, to compile the Operational Construction Phase Environmental Management Plan (CEMP) in terms of Environmental Conservation Act (Act 73 of 1989). This CEMP is for the proposed Hartenbos Landgoed Phase II on a Portion of the Farm Vaalevalley 219 which is hereafter referred to as the "Property". The property is situated in the magisterial district of Mossel Bay.

This OEMPr has been compiled to ensure compliance with the requirements of the Department of Environmental Affairs and Development Planning (DEA&DP) and the environmental principles of "duty to care", while also minimizing the impact of operational phase activities on the environment.

Chapter 2 Commitment to the OEMPr

The OEMPr is required to ensure that once the construction phase has been successfully completed by the developer that there is a mechanism in place whereby the development can sustain itself, using specific procedures which will be followed by the applicant / homeowners association to maintain and ensure that rehabilitation of the natural areas is achieved. These procedures will reduce the adverse impacts of the construction phase and will ensure that future degradation is eliminated. The OEMPr will ensure that sustainable management of the residential as well as the natural environment takes place into the future.

A copy of the OEMPr will be issued to each homeowner who will have to sign acceptance of this management plan on purchase of a property in this development. This acceptance will be binding on the property owner and will be transferable to any new owner. The Homeowners association will ensure that compliance is maintained with regard to the management plan and the landowners, with penalties for non – compliance. DEAD/P or a duly appointed consultant will have to audit the applicant / homeowners association on a yearly basis.

A contingency plan must be in place if the homeowners association collapses. This contingency plan should be in the form of a property tax which the Mossel Bay municipality can levy on each landowner to ensure that sufficient funds are available to maintain the management of the natural areas of the development. This land tax should be on top of normal land taxes. The municipality must have the power in such a situation to appoint a managing authority to ensure that environmental management of the natural open space is continues.

Chapter 3 Context and Background

This operational phase EMPr is designed around the environmental issues and concerns identified during the EIA process as well as the site specific constraints to a development of this nature. The OEMPr is therefore formulated to ensure that the maintenance / operational phase activities are environmentally manageable and that potentially harmful or destructive activities are averted or minimized before otherwise preventable environmental degradation sets in.

This document will serve as the basis for a full Operational Management Plan which is required by law for “contract nature reserves” and will require updating within 5 years. This “Contract Nature Reserve” status would be achieved by the applicant applying to CapeNature to enter into a Stewardship agreement whereby the open space area is declared a “Contract Nature Reserve” with the same status as a Provincial nature reserve. The open space area will need to be assessed by a regional ecologist from CapeNature and if found to be of significant value, negotiations could be conducted to enter into a contract between CapeNature and the applicant. Various options of assistance could be negotiated which would be beneficial for both parties

Section 3.1 Location and description of Property

The Property is located approximately 2-km northeast of Hartenbos and about 2-km south west of Little Brak River township. Access to the Property entails taking the N2 Road and travelling in a south-westerly direction over the Little Brak River, until approximately 3-km further when the Hartenbos off-ramp is taken. The point of entry entails a Northwest (left) turn at the T-junction and an ensuing Northeast (right) turn at the next turning opportunity, into the old Hartenbos-Little Brak River road. This road is followed for about 1-km before turning Southeast (right) at the next available opportunity. The subsequent track leads under the N2 Road and straight to the Property. The Property is approximately 370 hectares in extent.

The railway line serves as the south-eastern boundary of the Property, with the ocean beyond that. The N2 National Road serves as the north-western boundary, with the old Hartenbos-Little Brak River road and tracts of zoned agricultural land on the other side of the N2 Road. The Little Brak River serves as the north-eastern boundary. Further north is the informal residential area of Power Town and the residential area of Little Brak River.

The Hartenbos Landgoed Phase I development serves as the south-western boundary, with a host of smallholdings and the Hartenbos River. Beyond that, further south, is the residential area of Hartenbos.

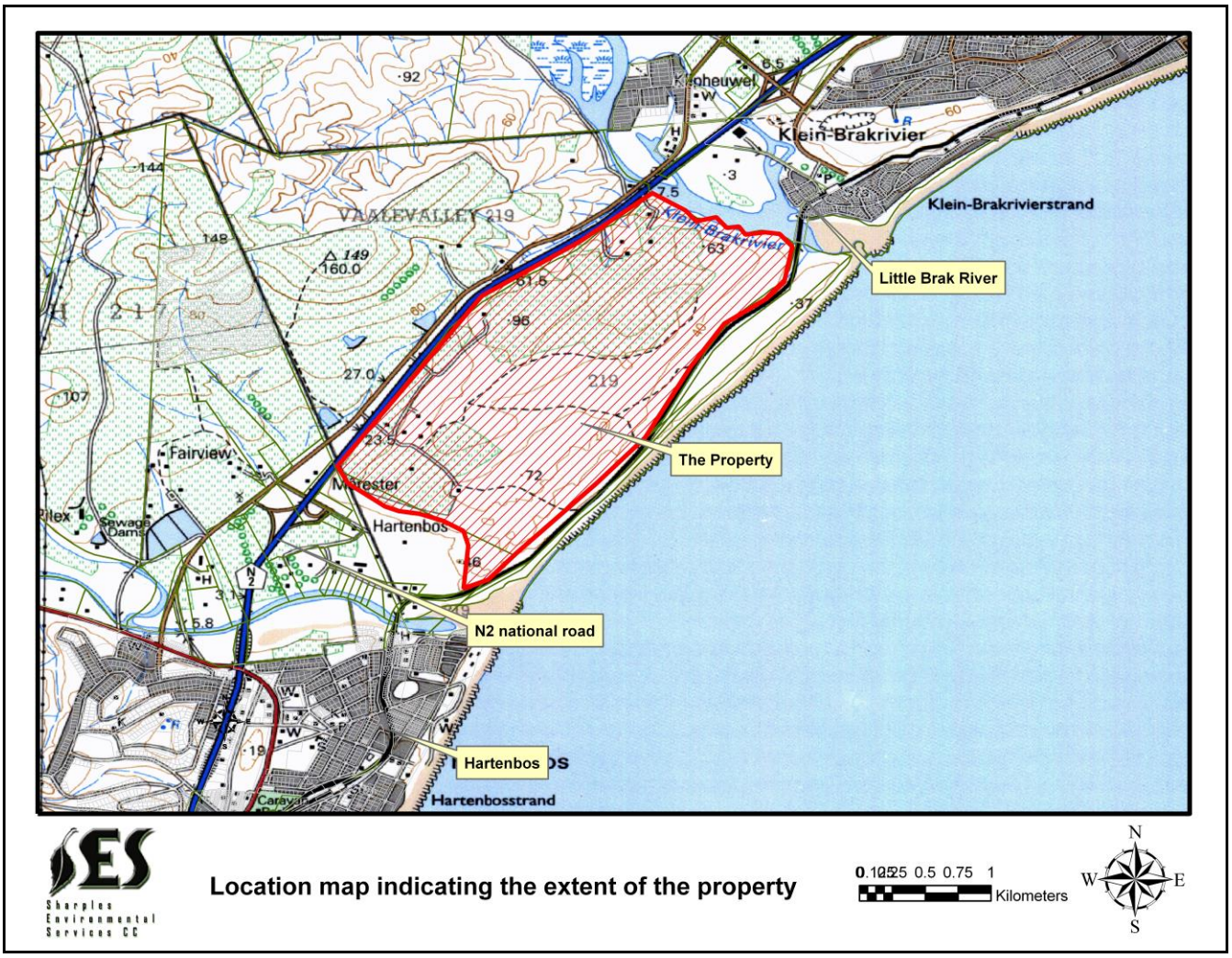


Figure 1: Enlarged part of 1: 50 000 scale map indicating the location of the Property

Section 3.2

Description of proposed activity

The proposed development consists of a total of 2288 Residential units made up of single residential erven and general residential (including 150 Social Housing units), a 0.88ha Business Zone, 3.24ha Community Zone (consisting of a school and sports field) and an Open Space of 235ha (excluding the internal Open Spaces), which will be- managed as a nature reserve, a road network and associated infrastructure services will be accommodated on the footprint.

The main access will be from through the New Vintage Development to the southwest of Hartland and the secondary access will be from the MR 344 through the culvert under the N2 National Road.

Water will be provided from the proposed new 15Ml reservoir that will supply both the proposed Hartland Lifestyle Estate and possible future developments in the area, in addition to a 5Ml reservoir and booster pump station.

Sewerage removal will be accommodated by means of a gravity sewer network in combination with sewage pump stations. The sewage will be pumped to a point near the north-western edge of the site from where it will gravitate and siphon to the Hartenbos Regional Sewage Treatment Works.

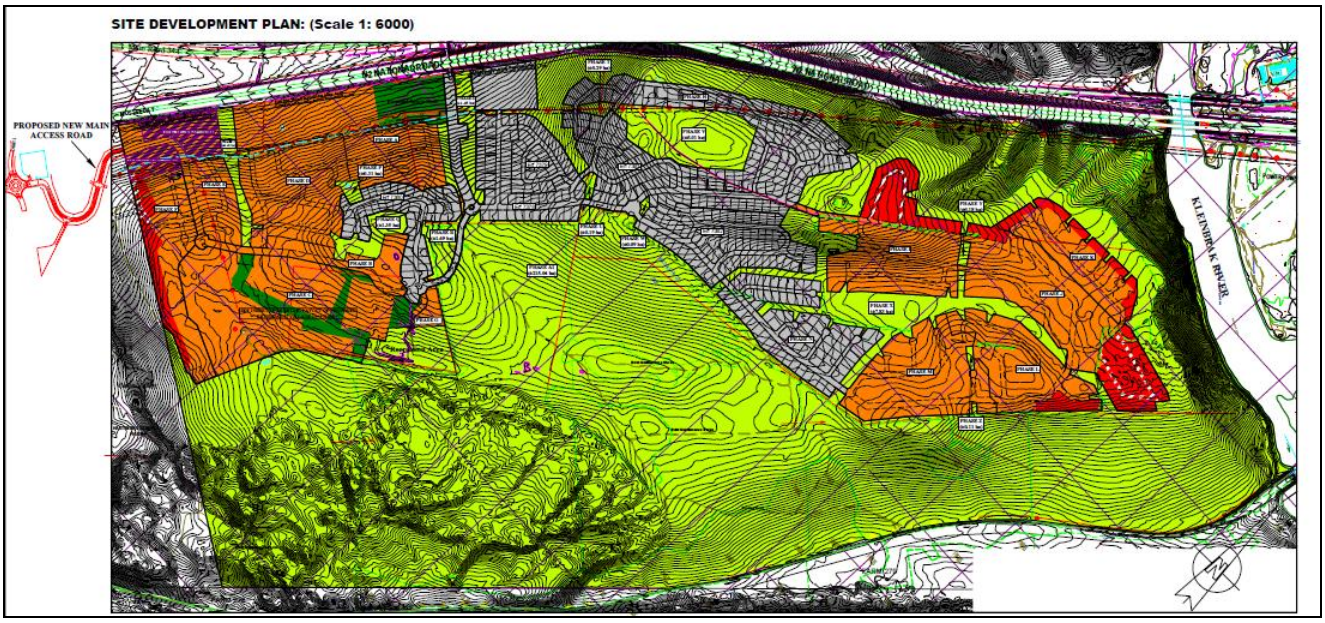


Figure 2: Site Development Plan

Game species, predominantly antelope, may also be introduced on the Property in the Open Space and naturally vegetated areas nearest the coastline.

Chapter 4 Description of Receiving Environment

Section 4.1 Biophysical Environment (2008)

According to Conservation Management Services, who compiled a Vegetation and Vertebrate Fauna Sensitivity Analysis for the entire property as part of the environmental assessment process, the vegetation of the property can be broadly differentiated into transformed and un-transformed habitats. According to *Conservation Management Services* the un-transformed areas consist largely of Thicket and Fynbos / renosterveld vegetation. In the report it is noted that Vlok & Euston-Brown (2002) described the vegetation, in terms of the STEP project, as Herbertsdale Renoster Thicket. This is actually a mosaic of Gouritz Valley Thicket within a Renosterveld matrix. In terms of the CAPE project (Cape Action Plan for the Environment), the vegetation of the area is mapped as Riversdale Coast Renosterveld and Stilbaai Fynbos / Thicket mosaic.

In terms of detailed on-site investigation, it is noted that the vegetation of the study area appears to be most accurately described as a Fynbos / Thicket mosaic. There is no clear distinction between Renosterveld and Fynbos in this area, but the vegetation matrix in which the Thicket is located is clearly more of a Coastal Fynbos than Renosterveld.

4.1.1. Vegetation Sensitivity Analysis

According to *Conservation Management Services*, the general sensitivity of the dominant natural vegetation type (Fynbos / thicket) lies in the fact that the sands of the area overlie limestone, which are limited on the study area. Two species indicative of lime-rich soils are *Agathosma muirii*, and *Euchaetis burchelli*. Both of these plant species, although not yet Red Data Book species, are threatened. *Otholobium fruticans*, a Red Data Book plant which is listed as vulnerable, is also as widespread on the study area. Another very rare plant identified by the Report is *Delosperma virens*, and the small population of no more than 100 plants is notable.

Conservation Management Services indicated that another critically endangered plant of the study area is *Diosma aristata*. The population found on the property is of great significance for the conservation of this species. *Hawarthias parksiana* was also noted, and this too is a listed Red Data species (endangered).

4.1.2. Vertebrate Fauna Survey

Conservation Management Services indicated that the fauna of the study area is typical of the thicket and fynbos covered South Cape coastal areas. The fauna is relatively intact, with the exception that many of the original larger mammal species were eradicated by the end of the 19th Century.

The following description of the fauna is per vertebrate faunal group:

- **Amphibians** - The disturbed pasture area, thicket and Fynbos habitats and earth dams provide a limited range of suitable habitats for amphibians. Of the 16 species listed to occur in the area, *Conservation Management Services* could not confirm that the species were currently present.

- **Reptiles -** The following is likely to occur in the study area: 3 Tortoises; 1 Chameleon; 21 Snakes; 5 Geckos, and; 11 Lizards. According to the Conservation Management Services, of the 43 species predicted to occur, 16 are endemic to the sub-region, most with small distribution ranges. Only 2 of the predicted species were confirmed.

- **Mammals -** The pasture, thicket and Fynbos habitats potentially provide habitat for:
  - 8 Insectivores (shrews, moles);
  - 13 Chiroptera (bats);
  - 2 Primates (monkeys);
  - 1 Lagomorph (rabbits, hares);
  - 16 Rodents (rats, mice);
  - 9 Carnivores (cats, mongooses, otters), and;
  - Ungulates (hoofed animals).

  Only 5 of the 59 species were confirmed.

- **Birds -** Birds are comparatively more mobile, than other animals and their presence does not necessarily indicate permanent residence or occupation. The earth dams on the study area support occasional water and wetland birds. The thicket habitats of the general area are important bird habitats and may contain: Chorister robin; Forest buzzard; Forest canary; Knysna warbler, and; Knysna woodpecker. The thicket

habitats of the study area may also contain elements of bird fauna typical of coastal forest, Afromontane forest and thicket / fynbos ecotones. Of the 153 bird species predicted to occur in the general area, only 16 are confirmed.

Section 4.2

Biophysical Environment (2022)

- Mark Berry was appointed to compile the Vegetation Compliance Statement.
- Robyn Phillips of Cossypha was appointed to compile the Terrestrial Biodiversity and Animal Species Compliance Statement.
- Dr James Dabrowski of Confluent aquatic consulting and research was appointed to compile the Freshwater Compliance Statement

4.2.1 Vegetation Compliance Statement

The study site is located in a coastal fynbos/thicket environment on the Southern Cape coastal plain. The indigenous species recorded in the vegetation adjacent to the site are typical thicket species, such as Searsia pterota, Sideroxylon inerme, Schotia afra, Cussonia thyrsiflora and Aloe arborescens. The 2018 Vegetation Map of South Africa classifies the main vegetation type found here as Hartenbos Dune Thicket. The latter is easy to spot with its impenetrable, thorny thicket structure. The Vegetation Map also shows Canca Limestone Fynbos and Mossel Bay Shale Renosterveld in the western part of the site, but this is speculative as the area has been almost completely transformed by past farming activities. There is evidence on site that the thicket may have extended across the site towards its western boundary.

Indigenous shrub species recorded inside the fallow land include *Felicia muricata, Helichrysum foetidum, Osteospermum moniliferum, Leysera gnaphalodes, Gnidia squarrosa, Drosanthemum intermedium, Delosperma litorale, Carpobrotus edulis, C. deliciosus (or C. deliciosus x edulis), Mesembryanthemum aitonis, Aizoon secunda (dominant), Euphorbia burmannii, Clutia daphnoides, Crassula multicava, C. expansa, Cotyledon orbiculata, Aloe ferox, Lycium cinereum, Searsia glauca, Sideroxylon inerme, Carissa bispinosa, Pelargonium capitatum, Anthospermum galioides, Exomis microphylla and Selago corymbosa.* The *Carpobrotus* species are excellent soil binders and should be salvaged for rehabilitation purposes. Geophytes recorded include *Oxalis pes-caprae, Drimia capensis, Bulbine lagopus, Brunsvigia orientalis* and *Moraea polyanthos*. The taller shrubs and trees, such as *Sideroxylon inerme, Carissa bispinosa and Searsia glauca*, are typically associated with dune thicket. *Sideroxylon inerme* (milkwood) is a protected tree species and a permit is required for its removal.

Indigenous species recorded in the dune thicket include *Schotia afra, Sideroxylon inerme, Pterocelastrus tricuspidatus, Mystroxylon aethiopicum, Gymnosporia buxifolia, Putterlickia pyracantha, Searsia glauca, S. pterota, Azima tetracantha, Diospyros dichrophylla, Phylica axillaris, Colpoon compressum, Hermannia holosericea, Agathosma apiculata, Aloe arborescens, Jordaaniella dubia, Crassula muscosa, Cussonia thyrsiflora, Pelargonium peltatum, Rhoicissus digitata and Commelina africana. Thamnochortus insignis* is the only restioid recorded inside the thicket.
All the recorded species are widespread and fairly common. Due to the time of the survey, spring flowering bulbs, especially members of the *Iridaceae* and *Orchidaceae* families, were not picked up. These will show themselves later in the spring season. Floristic association with dune thicket (Hartenbos Dune Thicket in this case) is strong with most of the recorded species regarded as important taxa in the unit. No SCC or regional endemics were recorded.

4.2.2 Terrestrial Biodiversity and Animal Species Compliance Statement

Faunal activity on the site was generally low with only common or generalist birds, small mammals, and butterflies recorded. Some of the bird species recorded on the site included Cape Spurfowl *Pternistis capensis*, Spotted Thick-knee *Burhinus capensis*, Barn Swallow *Hirundo rustica*, Karoo Prinia *Prinia maculosa*, Bokmakierie *Telophorus zeylonus*, Common Starling *Sturnus vulgaris*, and a pair of Jackal Buzzard *Buteo rufofuscus* that are known to nest in an alien tree on the southern border of the site (on the fringe of the indigenous dune thicket). Mammal diversity on the site was low with only small mammals such as Four-striped Grass Mouse *Rhabdomys pumilio* and Cape Gerbil *Gerbilliscus afra* recorded, with a high concentration of burrows observed throughout the site. Spoor of Small-spotted Genet *Genetta genetta* was observed on the edge of the dune thicket in the southern portion of the site. Only one common butterfly species was recorded during the field survey, Silverbottom Brown *Pseudonympha magus*. No faunal SCC were recorded during the site surveys. The habitat on the site is largely homogenous and generally of poor quality and is unlikely that the available habitat would support any significant populations of faunal SCC.

4.2.3 Freshwater Compliance Statement

The property falls within Primary Catchment K (Kromme) area and falls on the catchment divide of quaternary catchments K10B and K10F. The project area of interest (PAOI) (i.e., the surface area to be developed) falls within K10B. No freshwater features are indicated to occur within the development footprint. The PAOI was traversed by vehicle and by foot on the 26th of August 2022. No freshwater features were identified within the development footprint. Based on the results of the desktop review and the site survey, the sensitivity of aquatic biodiversity on Remaining Portion 11 of Farm 219 Vaale Valley can be confirmed as Low and a comprehensive specialist assessment is therefore not required.

Chapter 5 Terms of Reference

A number of standard conditions must be adhered to, to ensure that the OEMPr remains valid. The general Terms of Reference, upon which this OEMPr is based, are encapsulated in various Authority requirement lists and guidelines, which govern the compilation of Management Plans.

These conditions are designed to ensure that the Applicant / Homeowners association is bound to a particular management regime. This ensures that the environmental concerns identified in the EIA study are duly addressed and a sustainable management strategy is developed to manage the development site in perpetuity.

The general and site-specific requirements include:

- The OEMPr must be approved by the relevant decision-making authority prior to any construction activities commencing.
- The OEMPr must be included in all contract and deeds of sale documentation for the purchase of property in the development.
- The developer is responsible for this OEMPr until such time that the Homeowners association is legally constituted. Thereafter the responsibility and accountability for ensuring compliance with the conditions contained in the OEMPr reverts to the Homeowners association.

- An integrated waste management approach must be used that is based on waste minimisation and must incorporate reduction, recycling, re-use and disposal where appropriate. Any solid waste shall be disposed of at a landfill licensed in terms of section 20 of the Environment Conservation Act, 1989 (Act No. 73 of 1989).

- Each household must have a set of homeowners rules and regulations available and all guests must be made aware and abide by these regulations.

- The natural open space area must be clearly demarcated by a post and rail pole fence 1,2 metres high.

- Disturbance to the natural environment must be kept to a minimum or as far as possible be avoided. Rehabilitation must be undertaken where disturbance to the natural environment is unavoidable.

- The Applicant / Homeowners association should appoint a suitably experienced environmental manager or environmental management company to ensure that the mitigation/rehabilitation measures and recommendations referred to in the EMP are implemented.

- No stock farming or domestic stock must be allowed to graze in the open space areas.

- No utilization of any of the natural resources in the open space areas must be allowed. This includes wood collection, harvesting of thatching reed, hunting or removal of plants. The making of fires, dumping of domestic waste and uncontrolled fires must also be controlled.

- The applicant / homeowners association should submit an Environmental Audit to the relevant authority six months after construction has been completed: Thereafter a yearly report can be submitted to the same authority every December.

    - The audit report should indicate the date on which the construction was completed and detail compliance with the mitigation/rehabilitation measures and recommendations referred to in the EMP.
    - The applicant /homeowners association may be required to perform remedial action should the audit report reflect that rehabilitation is inadequate.

- All relevant sections and regulations contained in the National Water Act, Act 38 of 1998, regarding water pollution must be adhered to.

- The relevant authorities shall be given access to the site for the purpose of assessing and/or monitoring compliance with the maintainance/operational management plan and recommendations referred to in the OEMPr, at all reasonable times.

- All the conditions contained in this OEMPr must be adhered to.

The Environmental Authorization, if and when issued, will also have a number of conditions that must be adhered to in order to ensure that the Environmental Authorization remains valid. This Terms of Reference will therefore also need to encapsulate the conditions of the Environmental Authorization that will be issued by the DEA&DP. This will ensure that the

findings of the Environment Impact Assessment are carried through to the execution and completion of the project.

Chapter 6 How to use this Document

This document should be seen as a working document to be used by the Applicant / Homeowners association and all contractors and labourers operating on site in order to arrive at a common goal. That goal is to ensure that the operational phase activities take place in such a manner that positive environmental impacts are maximized and negative impacts are minimized as far as possible.

It is essential that this OEMPr be carefully studied, understood, implemented and adhered to as far as possible. The Applicant / Homeowners association must retain a copy of this OEMPr. All landowners must be in possession of this OEMPr.

Section 6.1 Caveat to this Report

This OEMPr has been prepared with the help of and with reference to the "Guidelines for Environmental Management Plans" produced by the DEA&DP and prepared by the CSIR. It is important to note that the OEMPr is not designed to be a tool used to manage the physical construction of the development per se but rather an effective tool, which must be used to manage the environmental impacts of the development.

This OEMPr must be seen as an integrated management plan flowing from the EMP and is designed to ensure sustainable environmental management after the construction phase. The OEMPr gives guidelines for the effective management of biodiversity for the residential and open space areas of the development into the future. It has to be accepted that at this stage there are a number of unknown factors which will require the OEMPr to be updated if the development is approved.

Section 6.2 Legal Framework

This OEMPr should be seen as binding to the Applicant / Homeowners association and any person acting on his / there behalf, including but not limited to, an agent, servant, employee or any person rendering a service to the development site.

The Applicant / Homeowners association will be responsible for ensuring that contractors and labourers do not contravene provisions of the following pieces of legislation:

- Constitution of South Africa, Act No. 106 of 1996, Section 24.
- Environmental Conservation Act (Act No. 73 of 1989).
- National Environmental Management Act (Act No. 107 of 1998), as amended.
- National Heritage Resources Act (Act 25 of 1999).
- National Water Act (Act 38 of 1998).
- National Forest Act (Act 84 of 1998).

Furthermore, *SES* strives to incorporate principles from:

- National Environmental Management: Biodiversity Act (2003).
- National Environmental Management: Protected Areas Act (2003).

The Applicant should also ensure compliance to the Occupational Health and Safety Act (Act 85 of 1993). This act stipulates that every employer must provide and maintain, as far as is reasonably practicable, a working environment that is safe and without risk to the health of its employees. This OEMPr does not detract from any other legal requirements.

Chapter 7 Purpose of this Operational Environmental Management Programme

The purpose of this OEMPr is to define the parameters for the maintainace / operational phase of the proposal. The OEMPr also provides management guidelines, which set out steps and actions and when taken, will ensure that the environment degradation is kept to an absolute minimum.

The OEMPr describes management measures in detail and in prescriptive; identifying specific individuals to undertake specific tasks. As an open-ended document, information gained during the ongoing operational phase could lead to changes in the recommendations and specifications of this document.

Aspects that will be included in this OEMPr include:

- Ecological management of all natural open spaces
- Recreational development and management of natural open spaces
- Environmental management of residential development
- Wildlife conflict management.
- Refuse and waste management.
- Fire management – fire protection and prescribed burns.
- Game introductions
- Monitoring
- Storm water system / erosion maintainace
- Environmental reporting
- Penalties, claims and damages.
- Environmental Education.
- Accommodation of staff on site.
- Discovery and Protection of Heritage Resources.
- Stormwater and Erosion control.
- Vegetation management.
- Final Rehabilitation.
- Monitoring and reporting.
- Environmental Auditing.
- Inclusion into contract documentation.

Chapter 8 Competency & Duties of the Applicant / Homeowners association

During the operational / maintance phase of the development an (operational environmental management plan) OEMPr must be developed and implemented to ensure sustainable environmental management of the whole development.

To ensure that this open space can be sustainably managed it is vitally important that sufficient sustainable funding is provided for the implementation of this OEMPr. To ensure effective management of the natural environment .a conservation management fund must be developed (section 21 (company). To ensure sustainable funding is available over this operational period the applicant (developer) should lodge a sum of money (R2 million) into a trust account. The interest from this money can be used to fund management activities until such time that there are sufficient properties sold. Once the homeowners association has been constituted a conservation management levy can be levied on all property owners in the development to fund future management actions. The first few years of the homeowners association conservation levy funding, will in all probability not produce sufficient funding to cover management costs. However once the conservation management fund has reached the same level of funding as that provided by the developer the applicant (developer) can be refunded his R2 million. The homeowners association will need to review the levy tariffs on a regular basis to ensure that there is sufficient funding available.This conservation management levy can only be used to pay for the environmental management interventions required in the future of the development.

The applicant / homeowners association will be required to appoint a suitably qualified environmental manager (EM) either fulltime or on a contract basis, to assist with the management of the natural environment. This environmental manager must be able to demonstrate he/she is of sufficient competency to undertake these services. The EM must have had at least 3 years of previous environmental management experience, in reserve management and must be available to ensure that he/she is readily available when required.

A business plan and operational budget must be developed between the applicant / homeowners association and the EM. At least R250,000-00 should be available in the first year of management in the operational phase. The applicant / homeowners association and EM will draw this budget up based on the OEMPr priorities and funding available.

The EM will need to be appointed after the construction phase of the development. Once the ECO has been signed off the EM must be appointed and must be fully aware of what is required.

The EM's duties should include the following:

- Ensuring that the environmental specifications, as per the environmental authorization and the OEMPr, are adhered to throughout the operational phase;
- Assist in finding environmentally acceptable solutions to operational problems;
- Develop a homeowners environmental focus group to assist with monitoring and active management of the natural open space areas.

- Establishing an environmental awareness program to educate applicant / homeowners association (property owners).

- Develop and distribute a bimonthly newsletter distributed to all property owners

- Ensure that he/she remains within the operational budget and motivates timorously if extra funding is required.

- Initiate all management actions required to ensure sustainable management of the whole development.

- Keep detailed records of all management activities with regards to the environment. This will involve monthly management reports and assistance with environmental audits. A yearly environmental report must be complied and forwarded to DEAD/P in December of each year.

- The EM must ensure that all contractors or labour used for managing the area are fully aware of all rules and regulations as well as any statuary legislation pertinent to this development.

- Liaise with applicant / homeowners association with regards the requirements of this OEMPr.

- Carry out all environmental monitoring prescribed in the OEMPr.

- Develop and maintain contact with Provincial conservation agency, environmental NGO`s ,eg Bot Soc ,CREW ,WESSA.

- Conduct baseline and monitoring activities and develop fauna and flora data base information of species occurring on the development.

- The EM must ensure that regular patrols are conducted in the natural area to ensure compliance with the rules and regulations and that no snares, hunting etc. are taking place.

- With approval of the applicant / homeowners association, furnish property owners or public with verbal warnings or in serious contraventions fines as laid out in this OEMPr.

- Recommend additional environmental management measures, should this be necessary.

Chapter 9 Stormwater & Erosion Control

The management / maintainace of stormwater is crucial to preventing erosion on exposed areas, during the construction and operational phase. Accelerated erosion needs to prevented, at all costs.

The steep sandy slopes bordering the Klien Brak river have been identified as being particularly sensitive to erosion events. Previous agricultural practises have caused serious erosion on this slope. The movement of cattle has over time destabilized the area causing erosion ‘slips” when heavy rainfalls occur. It is important to ensure that this area is stabilised in the construction phase but equally important to maintain these erosion structures and ensure that any new areas are stabilised timorously.

The stormwater system designed for the residential development has been designed to, transfer water from hard surfaces such as roads, roofs and paved areas into, various dissipation sumps around the residential development. The philosophy of managing the stormwater on site will be adopted, thereby reducing the need for stormwater pipelines which concentrate large volumes of water causing significant problems or damage” off site “.During the construction phase the stromwater management infrastructure will be installed which will include, specially designed dissipation sumps .
This system needs to be managed and it will be the responsibility of the applicant / homeowners association to manage and maintain this storm water system.

On a monthly basis or when heavy rainfall has occurred waste traps will have to be cleared of any obstructions, litter etc. The actual dissipation barriers, sumps etc will have to be checked at the same rate and particularly after heavy rains to ensure that these structures are still in tact and functioning. Any repairs must be conducted immediately to ensure that no erosion takes place in these areas.

If any of these systems are found to be underperforming and not dissipating the storm water this must be reported to the homeowners association for remedial action.

It is important to provide the environmental manager and contractors with a range of tools to enable them to prevent and control erosion and manage stormwater on a daily basis. It is for this reason that this OEMPr proposes a three-tier approach to the issue of stormwater management. The combination of the systems will be used to ensure that while one system is used to decelerate the speed of the overland flow of stormwater, another system will be used to dissipate the energy of the stormwater.

The proposed stormwater control system therefore entails a small and medium scale approach to the management of stormwater, each with differing erosion control structures. The OEMPr should be consulted on the scale of situation in order to decide on the most appropriate stormwater / erosion management measure.

Stormwater / erosion management measures are discussed for both the construction and operational phases.

Section 9.1 Small-Scale Erosion and Stormwater Control Measures

These control measures will entail brush packing and brush wattling (brush bound into cylindrical bundles) as well as mulching and the use of shade netting barriers (or similar) or geo-fabric barriers in areas where no brush is available. These stormwater control measures are usually placed directly across the path of flow of stormwater. Poles and logs, staked in along the contours of a slope susceptible to erosion may also be used. Seeding exposed

slopes with a suitable fast-growing grass (or other) mix may also be undertaken to provide additional stability.

Section 9.2 Medium-Scale Erosion and Stormwater Control Measures

Small berms and benches cut into the slope as well as poles and logs, placed along the contours of the slope can be used for medium-scale erosion and stormwater control.

Section 9.3 Roles & Responsibilities with Erosion and Control

Which ever stormwater and erosion control measure is employed; the aim is to take care at all times to prevent erosion and pollution of soils on the development. Where there is a possibility of erosion and pollution occurring, the environmental manager is to apply the necessary approved stabilization /control method.

It is the responsibility of the environmental manager to ensure that the erosion control measures are in place throughout any period of risk. Any concentrated flows of stormwater should, where possible, be dissipated to avert any erosion.

Please note that erosion control methods might need to be supplemented or improved during the construction/operational phase. Such additional erosion control measures should be implemented in consultation with the applicant / homeowners association.

Section 9.4 Brush-Packing & Mulching

Brush-packing or mulching, is done by covering the exposed surface with organic plant material such as branches, plant cuttings and leafy material. This method should be employed on all steep exposed slopes or where an area is vulnerable to either wind or water erosion. Brush-packing or mulching is a valuable soil erosion control method due to the following:

- It assists with the retention of moisture in the soil.
- It protects the exposed soil from wind erosion while at the same time trapping wind blown sand particles.
- Traps wind blown seeds.
- It functions as a protection against rain splash erosion.
- It eventually decays and contributes to the organic content of the topsoil

Mulched material should be spread on the entire site to be treated up to a depth 50mm. If mulch material is too thinly spread out it will be ineffective in protecting the area, but if it is too dense it will suppress plant growth.

Chapter 10 Management of natural open spaces

Recommendations were made by Conservation Management services (June 2005) for the operational management of the open space areas on this development. These

recommendations are intended to mitigate nature conservation measures in the open space areas and must be implemented.

These open space areas have been identified as sensitive environmental areas where no residential construction will take place. However these areas need to be managed to maintain ecological biodiversity and to provide limited and controlled recreational access to the residents living in this development.

Management would include a fire management programme, alien vegetation follow-up control, habitat restoration, low impact utilization and erosion control. To achieve this, a homeowners association would have to be formed for the general development with a management committee to be formed once the developer has completed the development, This management committee could appoint a suitably qualified environmental management team to manage these sensitive open spaces under contract or appoint a fulltime conservation manager.

To ensure “buy in “from the homeowners association a certain amount of low impact utilization of the open space will be required to attract their involvement. The type of activities envisaged on these trails would be walking, jogging, bird watching, cycling and guided nature trails.

CapeNature have a land Stewardship programme which seeks to form partnerships with landowners who have unique pieces of natural fauna and flora which are not formally protected by existing national or provincial nature reserves. Application should be made to CapeNature to consider this natural open space as a “Contract Nature Reserve”. This will give it the status of a provincial nature reserve. This “contract status“nature reserve will unlock certain services from CapeNature. These services could include assistance with controlled burns, environmental auditing, field ranger training etc. These services will have to be negotiated with the signing of the contract. There is concern that CapeNature is under staffed but if a contract is signed CapeNature is obliged to deliver.

Once the initial clearing stage of alien vegetation on the open space area has been completed and the rehabilitation process started as per the EMP the maintainace management of the area needs to begin.

Section 10.1

Maintenance Management

Maintainace management would consist of following up on the alien vegetation removal plan, monitoring ,repairing and replanting of indigenous plants that perish in the rehabilitated areas and monitoring and repairing rehabilitated erosion areas damaged by high rainfall / wind incidents. Follow-up sessions should be scheduled at least two years in advance. The alien plant removal and rehabilitation schedule must be audited in accordance with the EMPr audit frequency.

Section 10.2

Maintenance Management- rehabilitated areas

The areas which have been rehabilitated by revegetating indigenous plant species or the areas which were badly eroded and required stabilization need constant follow up which will

require replacement of mortalities in terms of plants and repacking of erosion barriers where necessary.

Plant rehabilitation follow up can take place by restocking of various indigenous species used in the original rehabilitation programme. These plants could be sourced from an indigenous nursery. Plants must be “hardened “and need initial watering. Replacement of indigenous species and weeding of alien species needs to take place on a 6 monthly basis.

Erosion rehabilitation areas need to be inspected on a 6 monthly basis but also after heavy rainfall events. Replacing and repositioning of erosion barriers and the replanting of vegetation will be the main management tasks. Attention must be given to identifying new erosion points and the stabilization of these areas.

Maintenance of nature trails, access tracks, sign boards, decks etc. Will require ongoing maintenance.

Section 10.3

Maintenance Management – nature trail/access tracks

Mowing of the access roads/nature trails should take place at least every three months or according to rate of growth of ground vegetation or rainfall. Hand operated weed-eaters could be used on the narrow nature trail and a small tractor mounted mower must be used on the access tracks/ firebreaks where grass block sections should be used to stabilise sections of known erosion areas. Where trails pass close to high vegetation, trimming of vegetation will have to take place. This can be done by using a “kapmes “or a pruning shears.

Section 10.4

Maintenance Management- signboards, decks etc.

Any damaged or loose sections of timber need to first be repaired and then treated. Timber work will need treatment with wood preservatives every year. Surfaces which are flaking will need a light sanding followed by a good quality wood preservative such as “Rubol” or “Timbercare”. Timber signboard frames will need the same treatment. The actual interpretive signboards will usually require replacement every 4 – 5 years. Trimming of grass for, 50 metres around the structures every 3 months will be required.

Section 10.5

Trails

These trails will take the form of a system of well laid out single track trails traversing sections of the natural open space. These trails will have to follow contour lines where possible and it is not likely that any removal of indigenous vegetation will take place. Existing vehicle tracks and disturbed cattle paths will be incorporated into the trail where possible. The trail system will have various access points so that residents can have easy access to these trails. This natural area lends itself to this system of trails with stunning estuarine and sea views as well interesting vegetation habitats. Once the rehabilitation of the open space is completed, residents will find these trails an inviting area in which they can practise various pastimes.

The layout of this trail system will have to be planned on the ground and according to features in the landscape (see Fig No 2 for proposed trail layout). Erosion barriers will be installed on all steep slopes or erosion prone areas. Untreated wood chips will be laid on the trail path to stabilize the path. A series of trail direction indicator boards will be erected to clearly demarcate the trail. At various vantage points raised wooden decks will be erected. These decks would act as protection from excessive trampling by hikers etc. The surface area of such a deck would be no greater than 2m x 3m and would be raised from the ground to allow light under the structure so that vegetation can still grow under it. The decking would be slated timber with gaps to allow rain water penetration. At these points interpretation boards and rustic seating will be provided. A wide range of interpretation can be carried out covering various ecological systems for example, estuarine, terrestrial and marine themes. These interpretation stations would consist of rail and post timber frames with screen printed information boards attached to them. Coastcare have produced an excellent range of interpretation boards particularly for the coastal zone. The artwork for these interpretive boards is available at no charge from Marine and Coastal Management (Coastal management section Cape Town)
The trail system will have to be zoned so as to incorporate different activities. Cycling is not compatible with walking or running. It might be necessary to have a different route for bicycles however this can only be accessed when actually laying out the trail route.

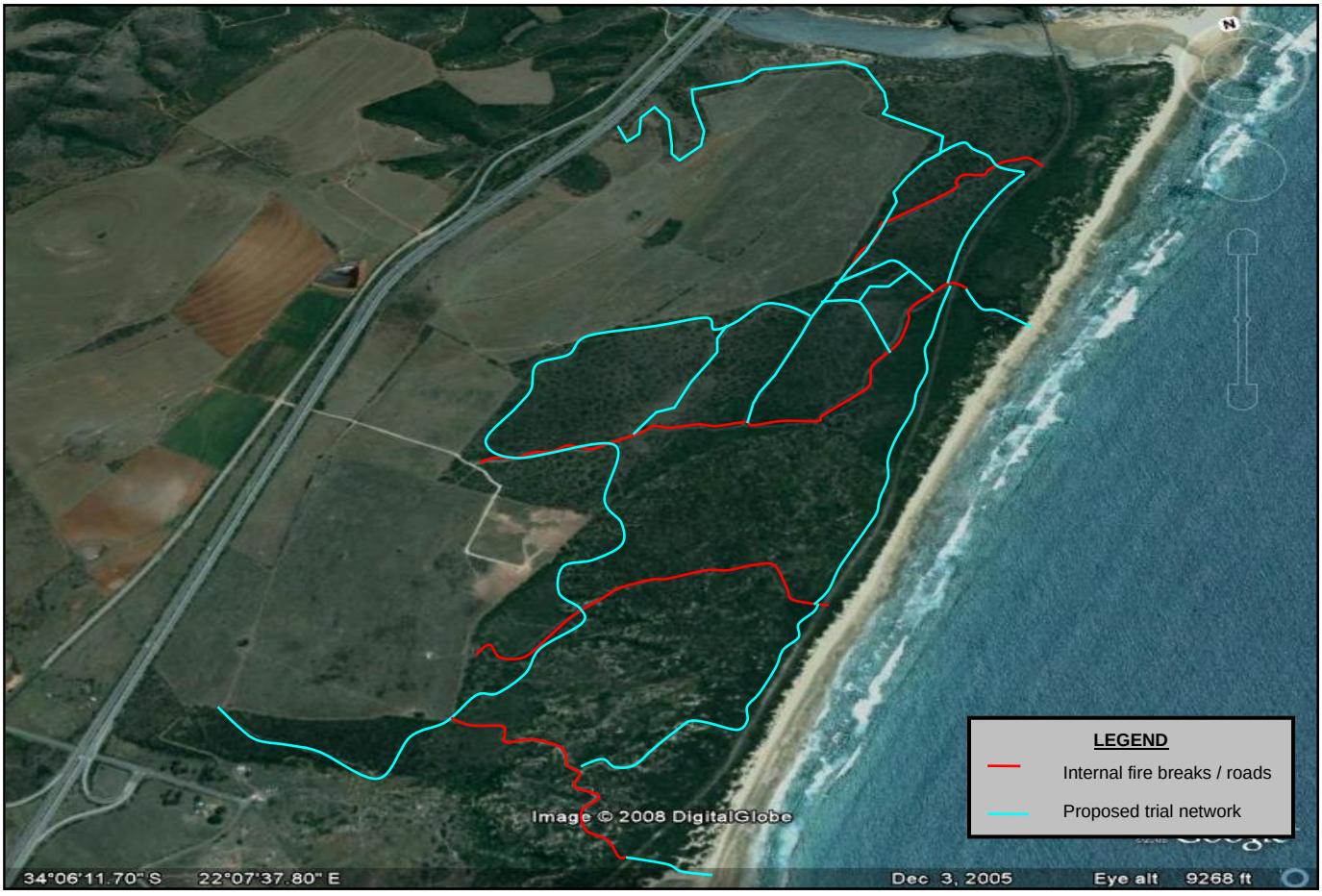


Figure 3 – Proposed nature trial network

Chapter 11 Fire Management

The fynbos biome according to Fuggle and Rabie (1996) occupies approximately 2,7% of southern Africa and consists of the richest flora of all southern Africa biomes. It includes the Cape Floristic Kingdom with exceptionally high levels of regional and local endemism. The richness of the Fynbos Biome is due to the high change / turnover of moderately rich communities along environmental gradients (beta diversity) and high turnover within communities along geographical gradients (gamma diversity). In other words the floristic composition displays unique changes over very small distances giving rise to many rare species. To ensure high and rich levels of species composition, conservation of rare and threatened plant and animal species, effective management techniques are essential to sustain this biome. Fuggle and Rabie (1996) state that the maintainace of diversity in fynbos communities are poorly understood and therefore fire in this respect plays a major role as an effective management tool.

The planning of veld management is according to Bothma (1996) based on a thorough knowledge of the vegetation, the variability thereof, grazing/ browsing capacity and the quality of the veld, the reaction of the vegetation to grazing, browsing, burning and bush clearance and the growth process during the life cycle of plants.

A fire management programme will be developed to protect the sensitive open space from wildfires which could destroy red data species of vegetation and animals. Wildfires at the wrong time of year could be very detrimental to some of these species.

To ensure that these wildfires do not destroy this area a fire management programme which will identify a system of fire breaks, burning blocks and planned controlled burns will be developed. Conservation Management services (vegetation and vertebrate fauna sensitivity analysis June 2005) referred to a statement from Dr. Annelise Schutte-Vlok (CapeNature) that " Only one development has implemented and maintained an ecological fire management programme over the past 9 years." The fact that the bulk of this open space is one homogenous area free of structures which need protection will ensure that cost effective ecological fire management can take place and that this development can be a leader in best practise management of open space in the Southern Cape.

Section 11.1 Timing of Burn

The timing of a burn is vitally important in fynbos vegetation. Fynbos vegetation is adapted to fires in those seasons with the highest fire risk. This is the time when most natural fires would have occurred. The best time for controlled burns in fynbos is during late Summer to mid Autumn. This information is based on monitoring of vegetation recovery after fires as well as the needs of the smaller wildlife such as tortoises and birds (Vlok 1996).

The recommended burning regime is therefore from late January to late April. Eden District Council fire management are rather loath to issue burning permits in high risk periods however if the fire plan is properly motivated and the ecological benefits highlighted this issue can be sorted out.

Section

Fire Protection Agencies (FPA)

The recent establishment of fire protection agencies in the southern Cape is as a direct result of section 20 of the National Veld and Forest Fire Act, (Act No 101 of 1998) and the regulations set out in the schedule. (Government notice R.665 16 May 2003 as amended by Govt. notice R.953 4 July 2003). Fire Protection Agencies (FPA) are basically forums in which landowners get together to formally address the veld and forest fire risks in an area. FPA`s assist landowners to predict veld fires, prevent veld fires and manage veld fires. In the Hartenbos area the Southern Cape Fire protection association has already been registered and is an operational FPA. The Homeowners association **MUST**, become members of this FPA and actively take part in it's activities.

Fire Protection Agencies provide expertise in fire management and planning and can provide basic equipment at times of need. Items such, as fire rakes, fire beaters, drip torches and vehicle mounted fire pumps are available for use by members of the FPA at no charge.

Section 11.3

Working on fire Programme

This programme is a poverty relief initiative funded by the Department of Water Affairs and Forestry (now know the Department of Water and Sanitation) and provides skills acquisition and job creation in the veldfire fighting field. Various firebases are situated in fire prone regions around South Africa. The nearest fire base is at Witfontien (George) . This team is managed by CapeNature who provides training and the basic infrastructure for the base. These teams are trained to SETA standards and are experienced in the latest fire fighting techniques.

Working on Fire, have trained, personnel who are proficient in controlling wildfires as well as the capability of managing controlled fires. Outside of the fire season these personnel are used to make firebreaks on state land. These Working on Fire teams are available to the public to perform controlled burns and for the making of firebreaks at competitive rates.

Section 11.4

Legal Procedures before Burning can take place

There are certain legal aspects which need to be considered before any burning can take place. At present the requirements are determined in terms of the Forest Act 122 of 1984 , Regulation 5 of Provincial Notice 745 of 1977, the local requirements of the Eden District Council, the Conservation of Agricultural Resources Act of 1983 and section 20 of the National Veld and Forest Act (Act No 101 of 1998) . These regulations are set out to protect landowners from reckless fire management practises and legal claims for losses caused by runaway fires.

As mentioned already it is mandatory for this development to be a member of the local fire protection agency. At present the local Southern Cape FPA is not fully functional so it is important that the environmental manager or designated management company must liase with both the FPA and the Eden District Council disaster management control centre based in George.

Basic legal requirements

- The local agricultural extension officer must be informed, in writing of the intention to burn.
- The Eden district council and the Sothern Cape FPA must be notified in writing of the intention to burn. A Fire Plan must be submitted which must include: A map of the area, indicating all firebreaks, water points where fire trucks can fill up, escape routes and ignition points. This fire plan must also indicate what equipment is available and what is actually going to be on site. A fire team with appropriate levels of training must be nominated with a fire boss and crew boss identified. The date/dates of the proposed burn must be declared.
- The local Mossel Bay municipality must also be notified of the proposed burn and there fire station placed on standby on the day of the fire.
- All the surrounding neighbours must be warned in writing .
- Adequate firebreaks must be in place according to the prescribed minimum requirements of the Southern Cape FPA.
- A Burning permit must be issued by the Eden District Council after an inspection carried out by the Southern Cape FPA fire control officer.

Weather conditions play an important role in successfully controlling controlled fires. It would be advisable to study the long range weather forecast from the SA Weather website in advance of the controlled fire to ensure that weather conditions remain stable at time of burning.

It would be advisable to obtain a Working on Fire team to assist with the firebreak preparations and to carry out the controlled burn or obtain the services of a competent fire management company . These experts have vast experience and although there are costs involved it will be money well spent. Controlled fires have a habit of becoming wildfires in the hands of inexperienced staff.

Section 11.5

Fire threats

Fire threats to the open space need to be identified and at present the main threat would be from the railway line on the southern boundary on the property. The prevailing winds are the south easterly wind in summer and the north westerly in winter. The Outeniqua Choe Choe uses this line regularly and is powered by a steam train. This steam train used to run on the George – Knysna line and was often guilty of starting runaway fires destroying vast tracts of pine forest and natural vegetation. This train has only operated for a few years on the Mossel bay – George line and the potential for a wildfire is therefore real. As mentioned before the highest risk is in the Mid January to May. Firebreaks need to be maintained and this preparation should take place before the fire season.

Section 11.6

Fire Management Blocks and Firebreaks

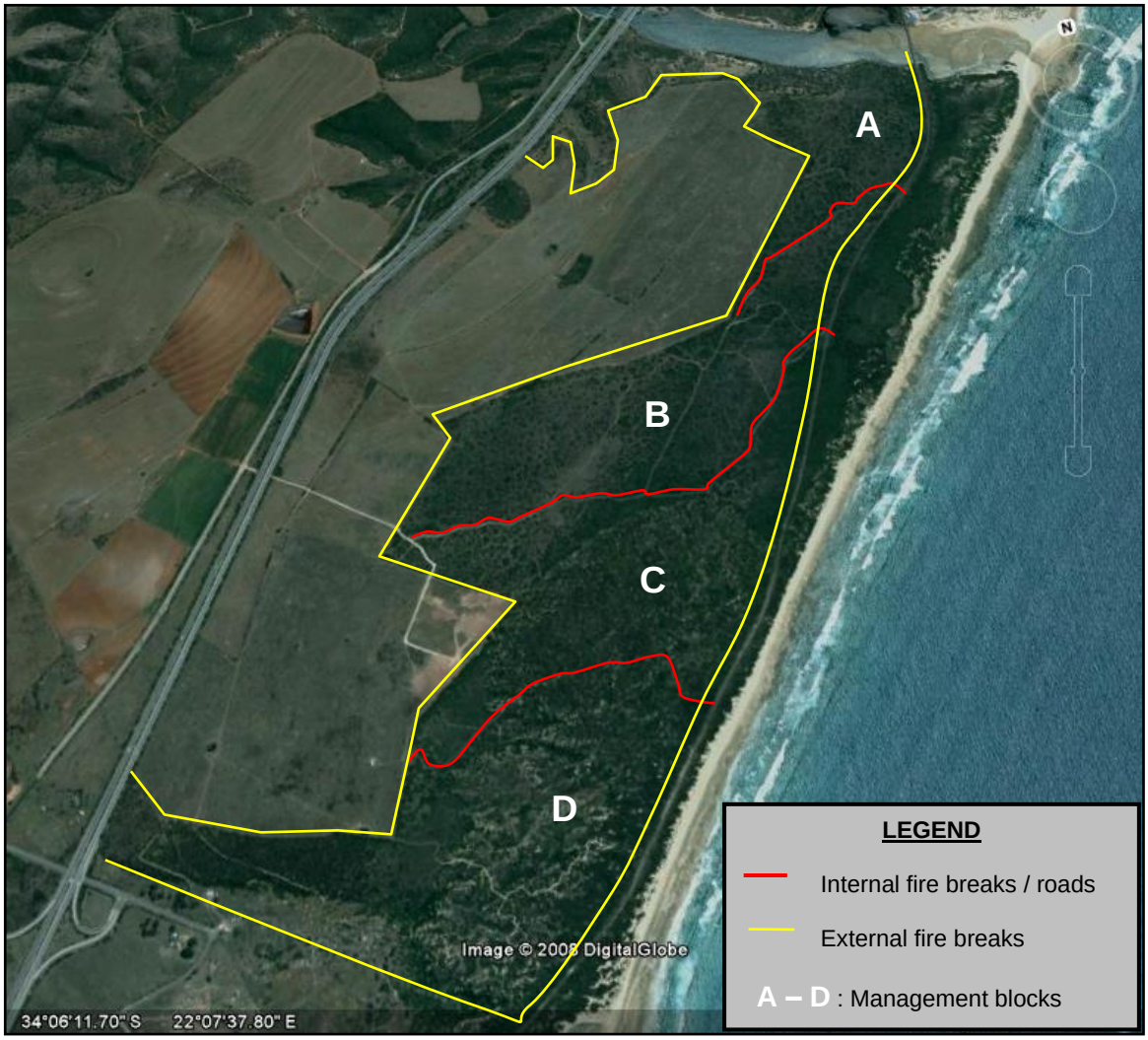
The open space area will be divided up into fire management blocks. Some of these blocks will have vegetation which does not readily ignite such as unit FT 7 (Indigenous thicket) while other blocks will be more fire prone ie. unit FT 4 (fynbos vegetation). The area to be managed by controlled burns is roughly 170 ha. It can be divide up into basically 3 – 4 blocks

.These blocks will be demarcated by existing management tracks which will be maintained and managed as firebreaks (see Fire block map)

At present there are a series of farm tracks in this open space which afford access to the area to carryout management tasks. These tracks need to be incorporated into the block burning plan and maintained and incorporated into the fire break system as well as the nature trail system. These tracks could also form the internal firebreaks needed to control block burns. Due to poor road maintance in the past some of these management tracks have eroded due to high rainfall and will need to be stabilized with grass-blocks (ground cover to re-establish) or closed down and rehabilitated. It is important that there is a mosaic of veld age of the vegetation over the whole open space area. Each block will therefore be burnt at different times to reduce the chance of a wildfire destroying the whole area in one fire event. The burning cycle in this coastal area should be every 12 years. Some areas will however not burn and others will readily burn (fynbos).

Block	2009	2012	2015	2018
A	Fire			
B			Fire	
C		Fire		
D				Fire

Firebreaks are mandatory; however there are certain areas where a firebreak is not required. On the eastern boundary of the development we have the Klien Brak river which is a natural boundary forming a natural firebreak. The boundary along the railway line needs to be cleared to a 10 metre firebreak and maintained each year as this is the main fire risk area. The buffer between the main residential development and the open space area needs to be 10 metres wide and maintained on a yearly basis. At times of controlled burns this firebreak must be increased by 10 metres by slashing the veld to lower the flame height. The western flank of the development requires a 10 metre firebreak which must be shared with the neighbouring development. All internal firebreaks need to act as management tracks as well and need to be cleared / slashed 5metres on either side of the track. (see fig No 3 firebreak map)



Map 1 - Fire Management Blocks and Firebreaks

Chapter 12 Residential Development Maintenance Management plan

The residential area of the development needs to work in harmony with the natural environment open space areas to ensure that the natural area remains ecologically intact. To this end Conservation Management Services (June 2005) identified various potential threats to the sensitive natural environment by the proposed residential development. Recommendations were made for the operational management plan for the residential area which was incorporated into this plan.

The residential area will require a separate management plan from the natural open space management plan. The residents of this development will form a home owners association with each member signing acceptance of the home owner's management plan / rules and regulations which they will have to abide to. Penalties would need to be incurred for non compliance by residents and any changes to the management plan would need to be approved by DEAD/P before implementation. Each individual homeowner will be responsible for his/her own property. A management committee consisting 6 members duly appointed by the homeowners association must be appointed to manage the whole development (Open space and residential areas). They will achieve this by using the maintenance management

plans provided by the developer. The home owners association should also appoint a manager or management team to assist with the management of this development.

With the emphasis on climate change and the spotlight on renewable energy, it would be prudent to incorporate the following aspects into any future management of the environment. Water, alien invasive plants, domestic animals, possible wildlife conflict, non-compliance of management plan, suggested plants for residential gardens and management of storm water system.

Section 12.1

Possible Wildlife conflict

Possible wildlife conflict

When new residential developments intrude into natural areas there is always the chance of conflict occurring with naturally occurring wildlife. These conflicts can negatively affect the residents of these developments as well as negatively affecting the wildlife.

Residents may not have domestic cats on this development as they have an extremely negative impact on the natural wildlife. Nesting birds, ground birds and birds in general are heavily targeted by cats. Small mammals such as mice, shrews and moles are likewise affected. Genetic crossbreeding of domestic cats with the African wildcat is a known problem in residential areas and must be avoided.

Dogs should be limited to two per household but must be controlled by secure fencing of the property. Dogs may accompany their owners on the trails / jogging trails but only on a fixed lead. Owners will be responsible for any faeces from their animals and must remove them themselves. Feeding of dogs outside of dwellings must be avoided at all costs as this will encourage wildlife to scavenge. Species such as little grey mongoose and possibly, vervet monkeys could come into conflict with residents through this type of feeding. In turn these species could have negative dietary problems in the future from this food source.

Waste management of domestic refuse is an important factor in managing wildlife conflict. All domestic waste on each residential site must be deposited in refuse containers that are able to close securely.

Species such as porcupines, moles and various birds may become perceived “problems “. These species must be managed and no animal/ bird /reptile species may be killed or injured. The homeowners management committee can be contacted to assist with any long term conflict problems.

The feeding of birds by means of artificial birdfeeders must be discouraged. Indigenous fruit bearing trees and shrubs can be planted in gardens which will provide sufficient food and refuge.

Section 12.2

Residential Gardens

Gardening in the coastal zone is quite challenging as salt laden winds, drought periods (climate change) and low nutrient sandy soils reduce the range of plants that can withstand

these conditions. Local indigenous vegetation can withstand these harsh conditions as they have evolved with them over thousands of years.

Residential gardens and the type of plant, grass and tree species occurring in them can have an extremely negative impact on the natural open spaces if the wrong or invasive species are propagated in them. There are many red data plant species in the open space areas and these need to be carefully protected by not coming into competition from " escaped "exotic garden plants which could rapidly out compete these indigenous species causing their disappearance. Residents will be required to propagate "Waterwise indigenous gardens "on their properties. This will not preclude them from having small beds of flowering plants for cut flower purposes. These however will have to be restricted to container pots or troughs.

No gardening will be allowed in the natural open spaces or in the private open spaces within the residential development. The private open spaces in the residential area must be managed by the homeowners association or appointed agents.

The use of herbicides must be strictly controlled as they can have a devastating effect on pollinator insect species which are often host specific. Only the prescribed herbicides listed in the alien vegetation section may be used where necessary. No toxic poisons are to be used.

Section 12.3

Species which may not be planted

This list is not definitive but it lists potential problem "escapee" plants which should definitely not be introduced.

All proclaimed weeds under Notice 2485 of 1990 National Department of Agriculture Conservation of Agricultural Resources (Act 43 of 1983) may not be propagated in this development including any other exotic tree species with a growth form which is unlike the growth form of the locally indigenous vegetation and which may dominate the landscape .

Cosmos
Pansies
Nasturtium
Pampas grass
Lantana spp.
Minotok tree
Pine trees
Monkey puzzle trees
Palm trees

Section 12.4

Some Species which could be propagated

This list is not restrictive and as long as no invasive vegetation is used in the development the integrity of the naturally occurring plants will remain intact. Local nurseries will be able to provide species suitable for the coastal zone. The following list will give some guidelines.

Shrubs

Chrysanthemoides monilifera	Bitoubos
Felicia filifolia	
Metalasia muricata	
Aloe ferox	
Agathosma spp.	
Carrisa bispinosa	
Colpoon compressum	
Erica spp.	
Felicia spp.	
Grewia occidentalis	
Leucospermum spp.	
Pelargonium spp.	
Phylica ericoides	
Plumbaygo auriculata	
Portulacaria afra	
Protea spp.	
Rhus crenata	
Salvia spp.	
Agapanthus africanus	

Ground cover

Carpobrotas edulis	
Lampranthus spp.	

Grasses & Reeds

Cynodon dactylon (grass)	Kweek
Stenotaphrum secundatum	Buffalo grass
Thamnochortus erectus	Thatching reed
Thamnochortus insignis	Thatching reed

Trees

Sideroxylon inerme	White Milkwoods
Olea europaea	
Olea exasperata	
Rhus glauca	
Rhus crenata	
Rhus lancea	
Rhus chirindensis	
Schoita afra	
Tarchonanthus camphorates	
Pterocelastrus tricuspidatus	
Buddleja saligna	
Buddleja salviifolia	
Erythrina caffra	Coastal coral tree
Polygala myrtifolia	September bossie
Ekebergia capensis	Cape Ash
Pittosporum viridiflorum	Outeniqua yellowwood
Cassine peragua	

Ekebergia capensis
Virgilia oroboides
Celtis africana
Cunonia capensis
Passerina rigida
Passerina filiformis
Metalasia muricata
Gymnosporia nemorosa
Cassine eucleiformis
Maytenus acuminate
Rhamnus prinoides
Pterocelastrus tricuspidatus
Diospyros dichrophylla

Section 12.5

Water

In the future water will become a limiting factor for gardening as water availability and cost will make it prohibitively expensive to maintain “green manicured “lawns and flowerbeds. Coupled to this is the fact that “climate change “and it’s effects are already a fact which is affecting our daily lives. One of these “effects is the occurrence of droughts and increased flood events. It is therefore important to set the standard at the start of this development in terms of water conservation and utilization.

Water - will be supplied from the bulk municipal source. The water from the source will be managed according to water saving principles:

- As a start each dwelling must have at least a 2000 litre rainwater storage tank which is connected to the gutter system of the house.
- The use of irrigation systems must be encouraged as this is an efficient method for irrigating small areas. Indigenous vegetation which is recommended for the development will require very little if any watering once established.

- The use of mulch will also reduce water evaporation and will ensure that the soil remains moist. Mulch can be in the form of untreated chipped wood. Ground creepers and ground cover will also assist in keeping the soil moist.

- Have timed irrigation systems with the focus on the hours when the least evaporation occurs;

  All hoses to be fitted with trigger gun spray nozzles to limit wastage.

- All external taps to only be linked to rain storage tanks to prevent the use of potable (drinkable) water to be used for activities such as gardening and car washing;

- Washbasin and shower taps to be fitted with flow reduction devices, aerators and motion sensors to ensure water conservation and prevent that they can be left running;
- Toilets should be fitted with reduce flow or preferably a duel flush system;

- Re-use household waste water for gardening and/or flushing;

- All drains fitted with grease traps which are included in a maintenance schedule;
- A vehicle wash bay constructed which ensures that contaminated water is routed to the correct waste water stream and not storm water systems;
- Dry sweeping of garden and construction gear in preference to washing to limit water consumption;
- If biodegradable, non-toxic soaps, shampoos and detergents are used exclusively in the household, the waste water streams can be directed to catchment ponds for re-use as irrigation;
- Watering hoses fitted with trigger gun spray nozzles;
- Taps around the estate fitted with locks to prevent unauthorised use and included on a maintenance schedule to detect and repairs leaks;
- Washing appliances (dishwashers and washing machines) filled only to the minimum level required for effective functioning;
- Appliances used only when sufficiently full to warrant operation;
- High pressure hoses used wherever possible to reduce water consumption;
- Physical brushing or sweeping used in preference to water cleansing wherever possible (e.g. cleaning pathways); and
- Swimming pools must be connected to rainwater gutter system and backwashing water is to be reused.

Section 12.6

Waste and Energy saving Guidelines

Operational Waste and Energy Guidelines should focuses on mechanisms that need to be implemented by the landowners.

Electricity – will be supplied by the Municipality. Internal reticulation will be according to the appointed Electrical Engineers standards. The following energy saving mechanisms should be implemented:

- Energy saving bulbs in all structures, alternatively use low voltage or compact fluorescent lights;
- Use energy saving geysers and geyser blanket.
- Use proper insulation to reduce the need for air conditioning;
- Solar glazing or energy efficient windows to reduce the need for air conditioning;

- Maximize the use of solar heating;
- Structures should be orientated to optimize use of ambient weather and climate, conditions for heating and cooling;
- Natural light used wherever possible during the day in preference to artificial light (Trade off between using large windows for use of sunlight but this may require additional air-conditioning);
- Programmed lighting (Especially in low usage areas such as conference halls);
- Cold rooms and freezers fitted with counter-weight doors to ensure that they cannot left open unnecessarily;
- Use of solar heating maximized.

Sewage – No French drains or individual septic tank will be allowed on site.

Material - material used during construction or in the life-cycle of the project should be focused on renewable and recyclable elements:

- Select building materials for durability to minimize maintenance or replacement;
- Use standard materials to increase the potential for re-use and re-cycling;
- Materials should be sourced locally where possible; and
- Use recycled shuttering, door and window frames, sanitary ware, concrete aggregate and roofing materials.

Renovations/ building maintenance:

- Paint - Water based paints should be used wherever possible;
- Renovations and maintenance planned to minimize the production of waste;
- Waste segregation and recycling planned prior to commencement; and
- Any waste generated segregated to maximize re-use or recycling.

Chapter 13 Archaeological and Heritage resources

An Archaeological Heritage Impact Assessment was conducted by MAPCRM cc and noted a number areas and artefacts considered sensitive from a heritage and archaeological point of view. It will be important for the applicant / homeowners association to ensure that all

recommendations included in the report compiled by MAPCRM cc dated 28 September 2005 are implemented. Permits as stipulated in the afore mentioned report, will have been obtained from Heritage Western Cape for the development phase and must be placed on file with the applicant / homeowners association after completion of the development as reference material

If any heritage resources are unearthed or discovered during management actions work in that area is to be suspended immediately. These heritage resources may include, among others, features of previous human activity, such as:

- Human remains;
- Fossil bones;
- Stone tools / artefacts;
- Coins;
- Rock art & engravings;
- Pottery & ceramics;
- Shell middens / marine shell heaps; and
- Old structural remains.

The applicant / homeowners association must be notified immediately and a competent and qualified heritage specialist and / or archaeologist must be contacted to make an assessment of the feature and to give further advice and instructions.

An Archaeological Heritage site visit was undertaken by Dr. Peter Nilssen on 27 April 2021. The recommendation in his report, dated 5 May 2021 are as follows:

- Because of their vulnerable context and in order to protect them in the short to medium term, it is strongly recommended that the graves at waypoint HD32 (Figure 3) should be fenced as soon as possible and that a buffer of at least 2 to 3 meters between the graves and the fence should be observed. A decision about the future of the graves should also be made as soon as possible. It is requested that Heritage Western Cape provides input as to the best way forward in terms of relocating the graves to a more suitable site on the property or conserving the graves in situ with suitable measures for maintenance and protection. It is this author's opinion, pending results of research into living descendants or relatives of the deceased, that the former option of relocation may be preferable. This issue may require further discussion between all interested and affected parties and with consideration of Section 36 of the National Heritage Resources Act (Act No.25 of 1999).

- Due to the scarcity of heritage resources - noted in both the Nilssen 2005 report and during the recent site inspection - in the area currently under development (Figure 3), it is recommended that full time archaeological monitoring is not necessary but that part time monitoring involving daily site inspections by a suitably accredited professional archaeologist should be implemented when bulk excavations and earthworks are in progress. Dalmar or a representative should inform the appointed archaeologist of their excavation and earthworks schedules to ensure that fresh earthworks are inspected for potential buried heritage resources.

- Because the original archaeological heritage impact assessment was done 16 (sixteen) years ago, it is recommended that recorded heritage resources falling within the development footprint shown in Figure 2 should be revisited and re-evaluated and that a fresh assessment be made of their significance and requirements for mitigation. It is recommended that only heritage occurrences considered being of medium to high significance or that were proposed for mitigation need to be investigated and re-evaluated. Due to higher incidences of Stone Age materials in certain portions of the development footprint (see Figure 2), it may be necessary to implement full time archaeological monitoring in those areas.

- Any heritage resources of high significance, but that currently fall outside the development footprint must be avoided by increased vehicular and pedestrian activity on the property. It may be necessary to revisit such sites and make appropriate arrangements for their protection and conservation.

- As stated previously, the recommendations made here need to be reviewed and responded to by Heritage Western Cape in light of the current situation as well as the earlier assessment by this author in 2005. HWC is requested to give advice on the best way forward in order to attain and maintain compliance with the heritage / archaeological component of the EA.

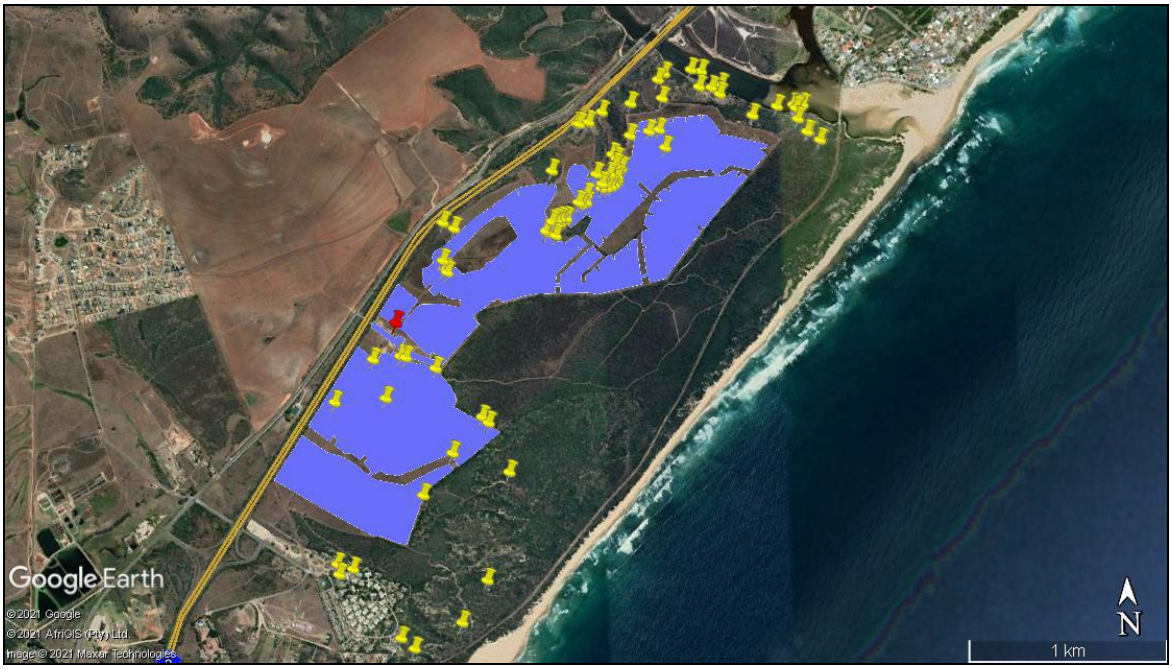


Figure 2: Hartland Development footprint in blue with heritage occurrences recorded in 2005 indicated by yellow markers (Nilssen 2005). The red marker is the location of the graves at waypoint HD32 (see Figure 3). Note that many of the documented heritage resources fall outside the Hartland Development footprint, but that a few in the south-west are in an area that is already developed. Courtesy of HilLand Environmental, Dalmar Beleggings and Google Earth 2021

Figure 3: Enlarged from Figure 2 showing the current and imminent development phases in green (Hartland Villas, Phase 1 and Phase 3), GPS fixed tracks (red lines) of the archaeological foot survey and documented heritage resources (yellow markers, Nilssen 2005). Note that HD32 is approximately 20 meters NE of the actual location of the graves enclosed with a white circle. The labourers cottages were at waypoint HW33. Courtesy of HilLand Environmental, Dalmar Beleggings and Google Earth 2021.

Chapter 13

Game Management and introductions of game species

Historical game species in the Southern Cape were documented by Skead (1980) who obtained his information from early travellers venturing into the interior from the Cape. Few records are available with regards to the South Cape due to the wagon routes used by the early travellers being located more inland. The coastal areas were therefore not well documented. However various travellers recorded different locations for game due to wildlife populations moving into different areas following good rains to obtain new grazing. It must also be remembered that the habitat has changed considerably from these early times and the current habitat is often not suitable anymore for the original species. In the case of this development previous agricultural activities have impacted severely on the natural environment. Historically game was not confined to fences or human constraints such as roads or railway lines. Game never stayed in one place and moved where ever grazing, water or nutrients (natural licks) were available. Species such as Elephant, Hippopotamus and Cape Buffalo frequented the coastal plains of the Southern Cape at the time of the Khoi-san and early settler occupation. The skeletal remains of Elephant, Hippopotamus and Buffalo have been found in the coastal belt in recent times particularly when foundations have been dug for housing developments.

Although the report by Conservation Services (June 2005) does not identify a large diversity of large game species occurring in this natural area it still has an important collection of small species which can be sustainably supported in this small area (170 ha).

It is important to note at this stage that game introductions into this area will have to be carefully considered due to the high incidence of red data plant species. The management objectives of this area will be predominately to preserve renosterveld vegetation which includes these red data plant species. The next consideration would be the habitat. Only species which are known to have occurred naturally in the area historically and for which the habitat is still suitable could be considered for reintroduction.

Section 13.1

Wildlife – Human conflict

It must be remembered that this is a residential development which will be supporting a relatively small natural area. There will therefore not be much of a “carrying capacity” in terms of numbers and of species. The fact that the natural area will not be fenced off thereby allowing the movement of wildlife onto public open space in the residential area must be kept in mind. The movement of wildlife into the residential area will be minimal if game numbers are kept at low numbers. Wildlife introductions could increase the potential for conflict situations.

The possibility of conflict situations arising between wildlife and property owners must be kept to a minimum. Naturally occurring species such as Bushbuck can live in harmony with residential development but must have ‘flight paths ‘ and natural refuge areas to ‘withdraw” into. Bushbuck can however be very aggressive at certain times of the year and people have been severely injured by bushbuck rams. It is also not a good idea to bring in so called ‘tame animals ‘ as these animals are never tame and are potentially a problem which could later on manifest itself by way of injuring people seriously or by damaging residential gardens. These so called introductions of “tame animals” could lead to the possible “removal” of these specimens with possible negative reactions from property owners.

Section 13.2

Wildlife introductions

The condition of vegetation is an important factor when determining wildlife introductions. This open space will be in the process of being rehabilitated after being cleared of alien vegetation. It will therefore be very susceptible to erosion and grazing pressure if game species are introduced too early in the rehabilitation period. Other factors apart form food must also be considered such as interspecific competition.

This natural area does not lend itself to habitat manipulation which is what would be required to introduce certain species, such as Springbuck. Springbuck select poor quality veld and will probably select the newly rehabilitated areas. They will not be able to utilise the Fynbos and Thicket areas and are therefore not recommended for introduction.

We therefore need to consider species such as Bontebok which occurred on the grassy renosterveld lowlands of the Overberg. Bontebok feed on grass and short resprouting vegetation which occurs by way of regular burning. They are also water dependant , which means that adequate permanent water must be provided. There is a possibility of an introduction of this species but an assessment would need to be made once rehabilitation has occurred (at least 5 years).

As can be seen a “Cautionary Approach” needs to be applied with introductions to this area. It is strongly suggested that the naturally occurring species occurring on the site at present be maintained and that no new introductions be made in the foreseeable future. The situation can be re evaluated in 5 years time when this management plan needs to be revised. During management of this open space observations of wildlife will be documented and a clearer picture will be revealed of numbers and species present.

It will be possible to introduce species such as Grysbok, Bushbuck and Duiker (which are known to occur at present) earlier than the suggested 5 years but only in very low numbers. Genetic contamination is a potential problem when species have been introduced from geographically different area. The mentioned species for introduction would need to come from local (South Cape) stock.

CapeNature have a strict translocation policy with regard to wildlife introductions. Before any translocations are considered the local conservation services officer based in George should be contacted to advise on the latest policy for game translocations. Permits will have to be obtained from CapeNature for possession and transporting of any introduced species .

Chapter 14 Control of Alien & Invasive Plant Species

Section 14.1 Alien Vegetation flow- up removal plan

Once the initial clearing of alien vegetation has taken place during the construction phase of this development, it is vitally important that a follow-up plan is developed to control the regeneration that will occur after the initial clearing.

This removal plan will be an ongoing project as the seed bed of some of these alien species can last for up to 40 years (*Acacia cyclops)* . Once the initial clearing of aliens has taken place the follow up phase needs to first concentrate it’s efforts in the fynbos areas, and then in the thicket areas. Alien regeneration will occur in areas were there is not too much competition from indigenous plants and where sunlight is not too restricted (fynbos and open grassland areas).

Wildfires and controlled burns will affect alien regeneration drastically.

Alien species particularly *Acacia cyclops* can be expected to explode after a fire which assists in germinating the seed bed. Large areas of seedlings will appear after the burn. These can be left for the first 3 months as there will be a high natural mortality rate of these seedlings due to competition. A few control methods can be used at after this stage. A herbicide spray

such as Garlon /Contact can be applied by spraying the young seedlings. A more labour intensive method would be to hand pull the young seedlings.
Any young trees from 6 months to 2 years can be hand pulled using a tree popper.

Opuntia spp (Cactus) will need to be controlled by continuous removal of material which must be burnt and NOT dumped in compost heaps or landfill dumps as it readily roots and will re invest areas in which it has been cut but not removed. See frequency of follow up below.

Agave americana (Sisal) will need to be controlled by means of injecting MSMA into the main stem. See frequency of follow up.

Eucalyptus spp (Bluegum) can be controlled by felling with a saw or by "ring barking / frilling " the lower base of the tree. A herbicide can be applied by brush or spraypack.

Biological control of aliens is a long term control method which does not require any physical management.

Some of these control agents are present on the site and consist of the flower- galling midge *Dasineura dielsi* which is present on the *Acacia cyclops*. The gall is formed in the place of the seed pods which reduces the seed production to almost zero. Therefore no new seed is added to the seed bed.

Opuntia spp or Prickly pear has an agent called *Cactobastis cactorum* commonly known as the cactus moth. This agent has been very successful to date.

Alien plant removal and rehabilitation schedule

Type of Alien	Management action	Treatment	Time scale	Priority
Acacia cyclops	Pull seedlings by hand /tree puller Large trees –cut at base	None None	2 years 2 years	High High
Opuntia ficus-Indica	Injected or sprayed. If cut ALL material must be removed and burnt	MSMA	1 year	High
Eucalyptus spp	Ring bark / Frill or cut down large trees	Garlon/Contact	2 years	Medium
Agave americana	Inject	MSMA	2 years	Medium

All vegetation clearance must be undertaken with utmost care to ensure that only that vegetation, which needs to be removed, is removed.

Eradication of alien plants must be completed in such a manner that indigenous vegetation is not damaged.

It is important to remove both young plants (saplings) and old trees that are seed bearing. Different strategies can be employed to remove different species, but all methods will involve manual labour. Chain saws and brush cutters, or tree pullers should be used where necessary. Chemical follow up should be used on alien species to ensure effective kill rate. It is important to tackle the smaller, more dispersed plants first, and then the larger stands of alien vegetation

Maintenance and follow-up sessions should be scheduled at least two years in advance (see schedule above). The alien plant removal and rehabilitation schedule must be audited on a regular basis by an independent environmental auditor appointed by the applicant / homeowners association duly approved by DEAD/P

Section 14.2

Clearing of small alien plants

The best method of clearing small plants is by hand pulling them. Trees younger than 1 year will be able to be removed by using a tree puller. It is easier to pull these saplings after rain when the soil is moist. They must then be stacked for removal to a recognised waste site, or alternatively mulched on site. Mulched material can be use as a ground cover, and for stabilizing sandy sections on the trails.

Section 14.3

Clearing of alien trees

Alien trees must be cut down with chain saws and then chopped into smaller portions. Some species of alien plants like *Eucalyptus spp* trees are coppicing species and will re-grow from roots and stumps. This means that a chemical such as Roundup or Garlon will need to be used to prevent the trees from re-sprouting. These chemicals can either be sprayed onto the stump with a knapsack sprayer or painted on with a paintbrush. Another alternative to prevent re-growth is to strip the bark from the remaining part of the stump (ring barking). *Acacia cyclops* which is the predominant alien tree specs will not coppice if cut low enough.

Section 14.4

Methods for controlling alien vegetation

Biological control, chemical control, mechanical clearing, and burning have all been used with varying results. Each method has been successful but nearly all require follow-up control. The most successful clearing projects have included an integrated approach to account for initial clearing and continued management.

28.3.1 Mechanical control:

- Mature non-coppicing trees must be cut as low as possible and no herbicide treatment is needed on the cut stumps.
- Debris may be removed immediately from site to be burned in a safe area, mulched or used as firewood.
  - Large branches should be used as firewood.
  - Smaller branches should be mulched.
  - Alien material containing seed must be removed from the site and burned.
- Should debris be left on site:
  - In sparser areas, where felled debris will not hinder follow-up operations, plants can be felled and left *in situ*.
  - In dense areas, stack debris in rows five metres apart parallel to the contours to facilitate follow-up operations.

- Removal of debris to a distance of 20 m from urban fringe to reduce fire hazard.
- Low density seedling regeneration must be hand pulled.
- Hand pulling around pockets of indigenous vegetation (1m swathe around clumps)

28.3.2 Chemical control:

- Follow-up visitation no later than three months after initial operation.
- Follow-up control will be needed because soil stored seed may stay dormant in soil for up to 50 years.
- Follow-up control will involve a combination of hand pulling and foliar spraying.
- Seedlings, saplings and coppice can be foliar sprayed.
- Follow-up spray operation when sufficient regeneration has taken place.
- Blanket or foliar spray.

28.3.3 Tools

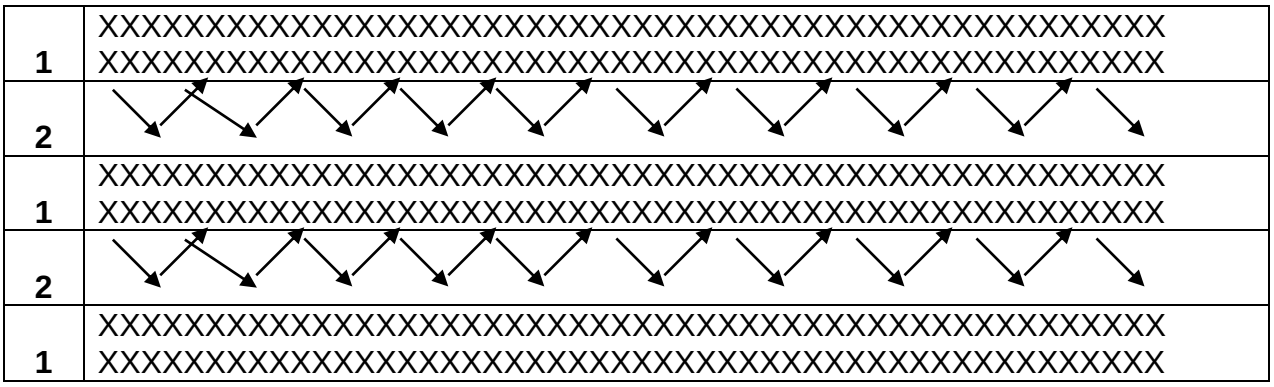
- Loppers, bow saws and chainsaws
- 12 –15 litre back pack spray units
- Flat fan nozzles or solid cone and 1 bar constant flow valves

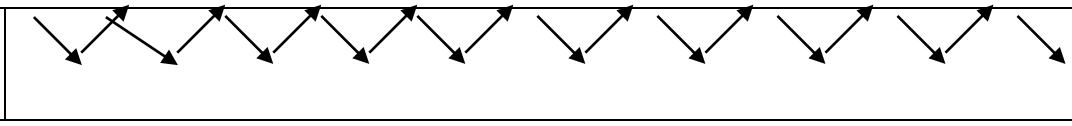
28.3.4 Herbicide

- Triclopyr Ester 480 (Selective herbicide).
- Triclopyr Ester 480 at 1% solution.
- 0.5% Actipron and dye.

28.3.5 Team composition

- 6 persons, each being equipped with a lopping shear, bow saw and herbicide applicator, must first sweep through the area in individual lanes 5 metres apart. These persons target all plants less than 8 cm in basal diameter, felling, stacking and applying herbicide. De-branching should only be used to facilitate stacking of larger branches.
- 2 chainsaw operators thereafter follow through these lanes felling all plants more than 8 cm in basal diameter. Two assistants are responsible for stacking and herbicide application.
- For the denser areas, methodology must follow the illustration below. All rows are five metres wide. Swathes labelled 1 must be cut first and the debris placed back into these swathes. Thereafter debris generated in swathes labelled 2, must be placed into swathes labelled 1.



2	

28.3.6 Follow up

Once the source of the problem has been removed, namely the seed bearing trees, it is important to follow up on any seedlings and saplings that may have grown in the interim. If this is not done the effort of the removal of the adult trees will have been wasted, as the alien vegetation problem will intensify.

Chapter 15 Environmental Monitoring and Reporting

Other forms of management that will be required are monitoring. Monitoring records the success or lack of success of management interventions or activities and natural trends. These are measured over time and recorded for later evaluation and possible change of management techniques.

Priority monitoring would consist of

1/ Alien vegetation removal programme,
2/ Rehabilitation of eroded areas
3/ Plant rehabilitation success.
4/ Wildlife observations
5/ Monitoring of trail use and possible erosion areas.

Monitoring should take place at certain points on the nature trails to track changes such as possible erosion points. Fixed point photography and vegetation marked plot methods can be used for monitoring.

The homeowners association could involve their members in other forms of monitoring, particularly, game observation and bird counts. Rare and endangered plant monitoring can be carried out by members of the homeowners association with assistance from the George branch of the Botanical Society of South Africa and CREW.

Training of these homeowners to perform monitoring tasks could be seen as part of the management of this natural area and a way of having meaningful involvement from the homeowners association.

The following section details the need for monitoring the implementation of the principles of this EMP as well as the level of monitoring required.

Section 15.1 Environmental monitoring by applicant / homeowners association (HOC)

Regular monitoring of all the environmental management measures and components should be carried out by the applicant / homeowners association or appointed management agent in order to ensure that the provisions of this OEMPr are adhered to. Ongoing and regular

reporting on the progress and implementation of this program should be undertaken, as per the requirements of the environmental authorization. A monthly management report is a prerequisite and must incorporate the key management actions in the OEMPr. This report must be submitted to the applicant / homeowners association a monthly basis. A yearly report must be submitted to DEAD/P in December every year.

Section 15.2 Monitoring by HOC

It is likely that as part of the conditions of approval the establishment of a Homeowners association committee will be included. The HOC will be chosen by the Homeowners association. It will comprise of individuals interested and knowledgeable in the management of the open space areas (nature areas).The HOC will convene regularly and coordinate and control management of the open space areas. The HOC would be responsible for monitoring the management tasks carried out in the open space They could also manage a volunteer group of people made up of interested residents or environmental NGO`s to assist with the management of the open space.

Section 15.3 Habitat monitoring

The condition of the sensitive vegetated areas must be monitored regularly in order to ensure that management activities are not impacting negatively on the condition of the natural vegetation. The most effective way to achieve this is by means of numerous fixed point photographic sites. In this way, a record of any shift in habitat condition can be maintained and potential impacts be detected at an early stage.

Chapter 16 Record Keeping

All the administrative procedures and minutes of management meetings, monthly management reports, non compliance incidents, audit reports and financial records must be clearly documented and filed on a master file and lodged with the applicant / homeowners association. A monthly report must be written up detailing management actions and costs incurred. This report can then be used as a newsletter to inform the homeowners of how their conservation levy is being spent.

Chapter 17 Environmental Auditing

An independent audit report, in terms of the OEMPr must be submitted to the DEAD/P once a year at the beginning of December. This audit must be carried out every year and must be submitted by the applicant / homeowners association at their expense. The applicant / homeowners association must appoint an environmental auditor once the homeowners association is formed and must ensure that DEAD/P approves the auditor's credentials. There must be an audit contract between the auditor and homeowners association for at least 5 years.

The audit report should indicate the following:

- Detail the rehabilitation measures of the site including the removal of alien vegetation.
- A section of the report must comment on the progress with regards to the fire management plan.
- Effectiveness and state of repair of the storm water system.
- Report on the monitoring carried out during the reporting period.
- Compliance with the rules and regulations of the homeowners association as laid out in this OEMPr.
- Game introductions and mortalities.

The DEAD/P may require remedial action should the audit report reflect that rehabilitation or compliance is inadequate. If the audit report is not submitted, the DEA&DP may give 30 days written notice and may have such an audit undertaken at the expense of the applicant and may authorize any person to take such measures necessary for this purpose.

Chapter 18 Penalties, Claims and Damages

The applicant / homeowners association will be responsible for all costs incurred in the rehabilitation and maintance management of the site and for ensuring that all procedures required to rehabilitate and manage the site are implemented. If third parties are called to the site to perform management and rehabilitation procedures, the applicant / homeowners association will be responsible for their conduct and actions. These third parties will be contractually bound to these penalties. It is therefore vitally important that adequate supervision or a management contractor is appointed.

Each homeowner will be contractually bound to these penalties which will be managed by the applicant / homeowner association. The DEA&DP, as per requirements stipulated in their legislation, may impose penalties on the applicant / homeowners association if conditions contained in this OEMPr are contravened.

Section 18.1 Issuing of penalties and fines

Fines will be issued for the transgressions listed below. Fines may be issued per incident at the discretion of the applicant / homeowners association. Such fines will be issued in addition to any remedial costs incurred as a result of noncompliance with the specifications of the Operational Environmental Management Plan.

The applicant / homeowners association will inform the landowner of a contravention and the amount of the fine in writing. The fine will be added to the offending landowners conservation levy. All funds generated in this manner must be utilized in management actions. .

Please note that payment of any fines in terms of this section of the OEMPr shall not absolve the offender from being liable from prosecution in terms of any law.

Section	
18.2	**Procedure for issuing fines**

Any avoidable non-compliance with the conditions of the OEMPr shall be considered sufficient ground for the issuing of a penalty or fine.

Possible offences, which should result in the issuing of a fine or written warning, include, but are not limited to:

Class I contraventions

- Littering
- Not adhering to waste/ food management policy.

Class II contraventions

- Dogs off lead on trails
- Dog's feces not cleared up by owner.
- Feeding of wildlife
- Hikers not staying on the demarcated trails
- Domestic stock in natural open spaces
- Non compliance with cat policy

Class III contraventions

- Damage or collection of any flora or fauna
- Unauthorized fires;
- Hunting, killing, snaring, trapping, chasing or disturbance of any wildlife.
- Use of any toxic poison.
- The operation of any vehicle, quad bike, motorcycle off demarcated roads.
- Non compliance with alien vegetation management policy

In the event of non-compliance the following recommended process shall be followed:

The applicant / homeowners association shall issue a notice of non-compliance to the landowner stating the nature and magnitude of the contravention and motivating the need for compliance. This notice will be regarded as a written warning in less serious cases. In cases of a more serious magnitude a fine and remedial action will be mandatory. Fines levied as a result of transgressions of this OEMPr shall be determined in accordance to the following fine structure.

Class I contraventions – R500-00

Class II contraventions – R1000-00

Class III contraventions – R5000-00

In the case of non-compliance giving rise to physical environmental damage or destruction, the applicant / homeowners association shall be entitled to undertake or cause to be

undertaken such remedial works as may be required to make good such damage and to recover from the landowner the full costs incurred in doing so.

Chapter 19 Inclusion into Contract Documentation

This OEMPr should be included into all contracts compiled for property owners purchasing a property in the development as well as any contractor or sub-contractors employed by the applicant / homeowners association. This OEMPr should be available to all potential purchasers of property in this development before purchase.

Chapter 20 Conclusion

It is likely that if the conditions, requirements and recommendations of the above OEMPr are implemented as described and the stakeholders adhere to the various management measures, then this development could stand out as a best practise example for sustainable management of sensitive natural environments within a residential development.