

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PROGRAMME

**EXPANSION OF THE EXISTING SHOPRITE CHECKERS
DISTRIBUTION CENTRE SITUATED ON ERF 8741, WELLS
ESTATE, EASTERN CAPE PROVINCE.**



TEL: 028 – 312 1734

FAX: 086 508 3249

E-MAIL: Paul@phsconsulting.co.za / nadine@phsconsulting.co.za

PO BOX 1752, HERMANUS, 7200

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Definitions:

"Activity" means an activity identified in any notice published by the Minister or MEC in terms of section 24D(1)(a) of the Act as a listed activity or specified activity. Activity in this document refers to the activities as listed in Listing Notice 1, 2 and 3 of the Environmental Impact Assessment Regulations, 2014 (as amended).

"Bush Encroachment" means stands of plants of the kinds specified in column 1 of Table 4 of the Conservation of Agricultural Resources Act (Act No. 43 of 1983) where individual plants are closer to each other than three times the mean crown diameter.

"Ecological Infrastructure" refers to naturally functioning ecosystems that deliver valuable services to people, such as water and climate regulation, soil formation and disaster risk reduction.

"Flood event" is the event where land is inundated by the overflowing of water from a river channel and where this event causes significant damage to infrastructure or results in watercourse erosion and/or sediment deposition.

"Impeding" as defined in the General Authorisation, in terms of section 39 of the National Water Act, 1998 (Act no 36 of 1998) for Water Uses as defined in Section 21(c) and 21(i) (GN. 509 of 26 August 2016), means to, in any manner, hinder or obstruct the instream flow of water temporarily or permanently, but excludes the damming of flow so as to cause storage of water.

"Indigenous vegetation" refers to vegetation consisting of indigenous plant species occurring naturally in an area, regardless of the level of alien infestation and where the topsoil has not been lawfully disturbed during the preceding ten years.

"Maintenance" means actions performed to keep a structure or system functioning or in service on the same location, capacity and footprint.

"Owner" means the landowner.

"Watercourse" means:

- (a) a river or spring;
 - (b) a natural channel in which water flows regularly or intermittently;
 - (c) a wetland, lake or dam into which, or from which, water flows; and
- any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse as defined in the National Water Act, 1998 (Act No. 36 of 1998); and a reference to a watercourse includes, where relevant, its bed and banks.

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

Acronyms:

BAR	Basic Assessment report
CBA	Critical Biodiversity Area
DEDEA	Eastern Cape Department of Economic Development, Environmental Affairs and Tourism
DWS	Department of Water & Sanitation
EAP	Environmental Assessment Practitioner
GA	General Authorisation, in terms of the National Water Act, 1998 (Act No. 36 of 1998)
GN	Government Notice
MEC	Member of Executive Council
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NFEPA	National Freshwater Ecosystem Priority Areas
NWA	National Water Act, 1998 (Act No. 36 of 1998)
PES	Present Ecological State
PPP	Public Participation Process
REC	Recommended Ecological Category
RQO's	Resource Quality Objectives

SECTION 1: CONTEXTUAL INFORMATION

1.1. Background

A Construction Environmental Management Programme (CEMPr) describes mitigation measures in detail, and is prescriptive, identifying specific individuals or organisations responsible for undertaking specific tasks to ensure that impacts on the environment are minimised during construction and related activities. Information gained during on-going monitoring of procedures on site could lead to changes in the recommendations and specifications of this document over time.

This document is intended to guide and manage construction activities associated with the proposed expansion of the existing Shoprite Checkers Distribution Centre (DC) located on Erf 8741, Wells Estate.

By virtue of the fact that this document has been compiled as part of a Basic Assessment application there exist a legal obligation for the specifications of this CEMPr to be complied with should an Environmental Authorisation be issued by DEDEA for this project.

Financing of environmental control requirements outlined in this document, as they relate to each of the development phases of the project, is the responsibility of the Developer unless another party has been identified as the responsible party.

It is the responsibility of the Developer, and any other development entity that may develop any phase of the overall project, to ensure adherence to the recommendations of the CEMPr, and to review the results of the monitoring reports and to facilitate any corrective action that may be necessary.

1.2 EAP Qualifications

PAUL SLABBERT (Managing Member) graduated from the Potchefstroom University in 1995 with an honours degree B Art Et Scien. His passion for environmental, heritage, visual & land-use planning with knowledge of associated management strategies, enables him to facilitate with all role players to implement workable solutions. His extensive experience in rural and urban conservation, with the emphasis on environmental impact reporting and management with focus on sustainable development, enabled him to have various publications. He has hands-on expertise

in heritage, conservation, mining and recreation disciplines, with the emphasis on creating economic and employment opportunities.

Professional Registration & Membership

- Professional Certified Member of the of the Certification Board for Environmental Impact Practitioners: Environmental Assessment Practitioners Association of South Africa (EAPSA)
- Professional Certified Member of the Association of Professional Heritage Practitioners (APHP)
- Corporate Member of the South African Planning Institute (SAPI)
- Professional Member of the International Association for Impact Assessment (IAIA)

Amanda Fritz-Whyte graduated from Nelson Mandela Metropolitan University in 1998 with a Bachelors of Science Honours Degree in Geology, after which she completed a Masters Degree of Science in Water Resource Management in 2006 through University of Pretoria. She has 20 years experience in environmental management in the mining, motor manufacturing and construction industries, with specific reference to impact assessment, pollution management, EMS, water use licencing and auditing.

Nadine Duncan obtained a Bachelor of Science Honours Degree in Geography as well as a Bachelor of Science Degree in Landscape Architecture- both from the University of Pretoria. With 16 years experience in Impact Assessments and environmental management and a passion for sustainable development, responsibilities included Project Management, conducting Environmental Impact Assessments (Scoping/EIA's & BA's), Environmental Management Programmes, Public Participation Process facilitation, Open Space Planning, compilation of Environmental Management Frameworks and legal reviews. She is proficient in Geographic Information System (GIS) software and has a good understanding of the laws and regulations relating to air quality, water, biodiversity, heritage, and waste management in South Africa.

Impact Practitioners & Environmental Planners:

- Environmental Impact Assessments [legislative & process],
- Heritage & Visual Impact Assessments [legislative & process],
- Mining [legislative & process],
- Environmental Management [environmental control, management plans],
- Conservation [management strategies, funding & alien vegetation],

- Land-Use [forward planning, feasibility study, business plan],
- Eco-tourism [trails, birding, recreation, construction, lodging],
- Community [facilitating, public participation, education],
- Water use authorisation (WULA's, GA's pollution prevention management plans and ELU's);
- Waste management licences;
- Organizers [events, packages, strategic, project management].

Completed Projects and Roles:

- For full list of implemented projects please view at www.phsconsulting.co.za
- For overview of social and community engagement visit www.africanvisionfoundation.co.za

Advanced Legislative Knowledge:

Providing specialist services and managing and driving projects related to the following legislation:

- National Environmental Management Act (Act No. 107 of 1998) and 2017 Regulations;
- Environmental Conservation Act (Act No. 73 of 1989);
- National Heritage Resources Act (Act No. 25 of 1999);
- Land Use Planning Ordinance (Ordinance 15 of 1985);
- National Environmental Management: Integrated Coastal Management Act (Act No. 24 of 2008);
- National Environmental Management: Waste Act (Act No. 59 of 2008);
- National Environmental Management: Air Quality Act (Act No. 39 of 2004);
- Mineral and Petroleum Resources Development Act (Act No. 28 of 2002);
- National Water Act (Act 36 of 1998);
- National Water Services Act (Act 108 of 1997).

1.3. Proposed Development and Site Description

PHS Consulting has been appointed by Shoprite Checkers (Pty) Ltd for the Application for Environmental Authorisation (Basic Assessment) for the expansion of the existing Shoprite Checkers Distribution Centre situated on Erf 8741 Wells Estate, located approximately 15 kilometres north from the CBD of Gqeberha, east of Motherwell and west of the Coega IDZ. The property is traversed by the R102 (the Old Grahamstown Road) and M Kaulela Street (**Figure 1**). Erf 8741 is owned by Shoprite

Checkers (Pty) Ltd (Reg. Nr. 1929/001817/07) and comprise 82 ha. The total size of the proposed development footprint is approximately 19 ha.



Figure 1: Locality Plan

The proposed development will entail additions and alterations to the existing distribution centre, including a new office building, new workshop and truck wash, new guardhouses and additions to the dry goods warehouse; returns warehouse and perishables warehouse (**Figure 2**) including the installation of additional subsurface diesel storage containers (4x 83 000l tanks) (**Figure 3**). The existing 78 000l diesel tank on site will not be decommissioned. The combined volume of all diesel storage containers on site will be less than 500,000 litres. The existing development on site has access to water; sewer; electrical; and waste removal services.

Access to the property will be gained from the Old Grahamstown Road (R102). The proposed access will be directly opposite M. Kaulela Street. The existing entrance south of M. Kaulela Street will remain open for access to the staff and visitors car park. An emergency road is proposed from the R102 Old Grahamstown Road at a point approximately 430 m south of the proposed staff access. This access will remain closed and will only be used in an emergency.

Stormwater management will entail the provision for subsoil drains to address the shallow groundwater table that could be encountered during construction. The proposed subsoil network will consist of 110 mm diameter perforated pipes connecting to the stormwater system. Stormwater run-off from the impervious areas will be routed via roadside channels, as well as low points with inlets towards the underground stormwater pipe network into the attenuation facilities, located on the

western and southern boundary of the site. The internal stormwater system consists mainly of an underground gravity pipe and culvert network, Q-drain channels, roadside channels in the parking area and inlet structures that drain the roads and marshalling yards. This system was designed to have sufficient capacity to convey a 1:5-year rainfall event. During rainfall events with a return period larger than 1:5-years, the proposed roads, marshalling yards, parking areas and channels will act as overland flow routes that will channel, attenuate and ultimately discharge the surface runoff via predetermined escape routes into the attenuation facilities. The design of these dams will make allowance to adequately manage the 1:50-year rainfall event. Two stormwater attenuation facilities/dams will be constructed on the south and western boundaries of the site and will operate as a dry extended detention facility. The attenuation dam outlets will be connected to the existing stormwater channel to the southeast of the site. The outlet capacity of the attenuation dams will be capped at 1400l/s by limiting the outlet pipe sizing. Note that the existing dam will be incorporated into the new dam design (**Refer to DBAR_Appendix D-9: Stormwater Management Plan**).

The layout of the proposed development takes into consideration all recommendations made by the various specialists and aims to limit the impact on the 'sensitive terrestrial area' as far as possible. The proposed layout is supported by the various appointed specialists on condition that recommended mitigation measures are implemented. Note that all recommended mitigation measures have been included in this CEMPr and the OEMPr.

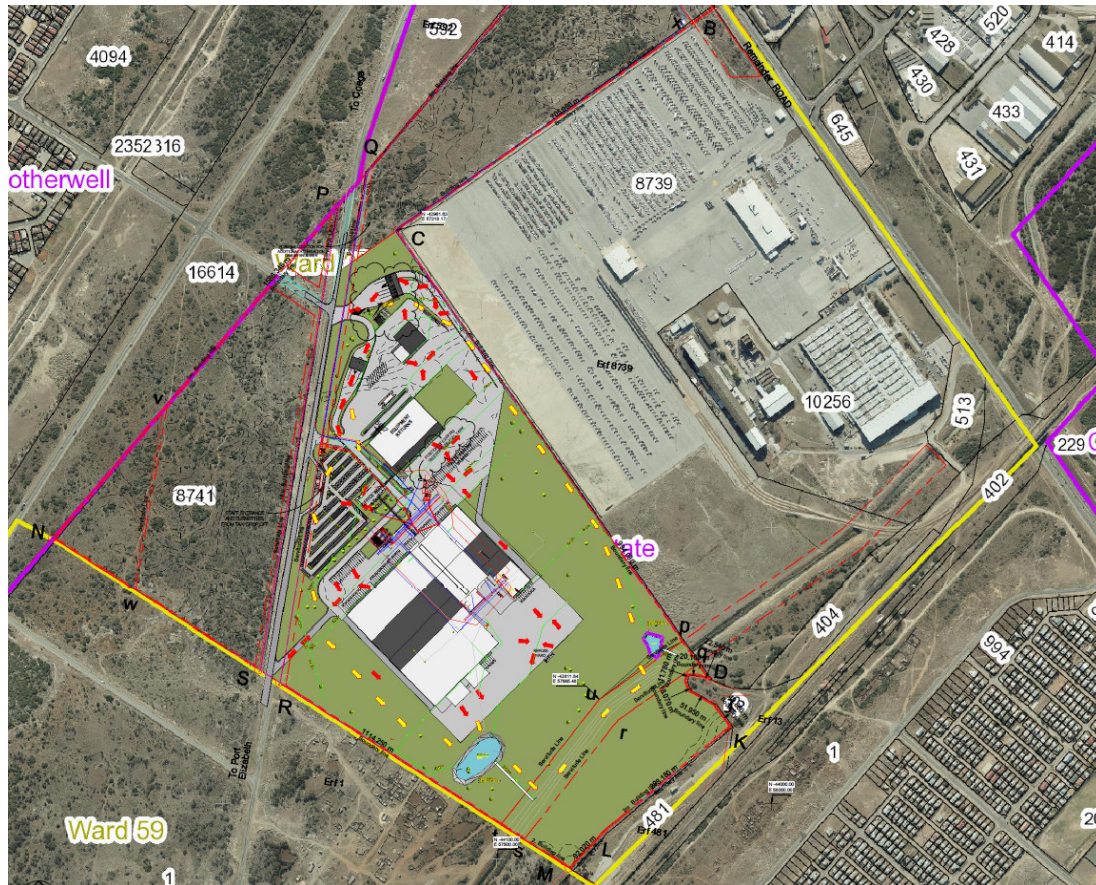


Figure 2: Proposed SDP

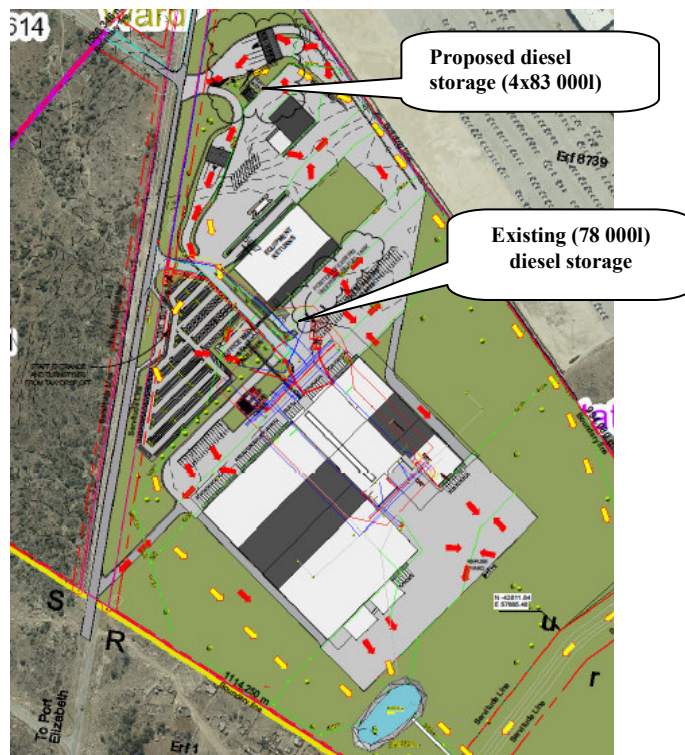


Figure 3: Proposed and existing diesel storage

BASELINE ASSESSMENT :

A. Terrestrial Ecology:

The Terrestrial Flora Specialist had the following findings:

The site falls within the Albany Centre of Floristic Endemism (Van Wyk & Smith, 2001), which constitutes the south-western portion of the Maputaland–Pondoland–Albany Biodiversity Hotspot (Mittermeier et al., 2011). This hotspot is considered the second richest floristic region in southern Africa (after the Cape Floristic Region) and the second richest floristic region in Africa, relative to its size (CEPF, 2010). The site forms part of the Subtropical Thicket Biome (Rutherford et al., 2006). The vegetation of this biome, in a general sense, is dense a dense, woody, semi-succulent and thorny shrubland with an average height of 2–3 m (Vlok et al., 2003; Hoare et al., 2006). Within the Subtropical Thicket Biome, primary drainage basins act as regional biogeographic units (Potts et al., 2013), and so the thicket vegetation in the study area, which is associated with the broader Algoa Basin (comprising the Sundays, Coega and Swartkops basins), belongs to the Sundays Thicket regional unit (Vlok et al., 2003).

The site also forms part of geologically youthful coastal landscapes of the Cape Floristic Region (CFR) that harbour a diverse array of calcicolous plant species (Grobler and Cowling, 2021). These species are intimately associated with coastal dunes and limestones and have evolved in the region over the past five million years. While not as rich in localized calcicolous species as the Agulhas and Riversdale coastal plains in the western CFR, the Coega–Grassridge area supports several species restricted to limestone substrata, many of which are endemic to the area (Grobler and Cowling, 2021). The Coega–Grassridge coastal plain also harbours limestone-endemic species with marked longitudinal disjunctions in their distributions and forms the easternmost range limit for many of these species.

The NMBM BP (Stewart, 2014) does not identify the site as a Critical Biodiversity Area (CBA) or a Critical Ecosystem Support Area (CESA). According to the most recent NPAES (REF), no protected areas or priority focus areas for protected area expansion occur within 1 km of the site.

VEGMAP (Dayaram et al., 2019; SANBI, 2006–2018, 2018a) identifies a single vegetation type historically occurring in the study area, namely AT 39 Grassridge Bontveld. This vegetation is restricted to the lower Algoa Basin where it occurs on moderately undulating plains above the lower reaches of the Swartkops, Coega and Sundays rivers. Grassridge Bontveld is associated with shallow, lime-rich soils overlying limestones (calcarenites) of the Alexandria and Nanaga geological formations. It comprises a mosaic of low (2–3 m) thicket bush clumps of variable size embedded in

a matrix of low (0.2–0.8 m) grassy dwarf-shrubland (Grobler et al., 2018). The species present in the shrubland are a mixture of Fynbos, Grassland and Karroid elements.

Grassridge Bontveld is moderately protected, with approximately 10% of its original extent lost to cultivation, mining, urban development, and road building; as such, the vegetation type is assigned a threat status of Least Concern (SANBI, 2018b, 2019; Skowno et al., 2019). The conservation target for Grassridge Bontveld is 19% of the ecosystem's original extent.

Site Ecological Importance –

- The proposed development area is situated entirely in the Grassridge Bontveld vegetation type, which is a non-threatened ecosystem type.
- The site contains six terrestrial vegetation units and four other habitat types relevant to flora, with three of these representing relatively undisturbed natural habitat of importance for plants, namely intact Grassridge Bontveld, degraded Bontveld and Thicket Clumps.
- Subpopulations of one Critically Endangered, one Endangered and one Vulnerable species were recorded during the field survey. All these threatened species occur in intact Grassridge Bontveld, particularly in the south-western portion of the site.
- Additionally, subpopulations of two Near Threatened species were located in intact Grassridge Bontveld (associated with threatened species) and a Thicket Clump in the northern portion of the site, respectively.
- The proposed development area comprises terrestrial habitats of very low, low and medium Site Ecological Importance.
- The recommended mitigation measure for these SEI classes involve minimisation and restoration of environmental impacts associated with development activities.

B. Terrestrial Fauna:

The Terrestrial Fauna Specialist had the following findings:

A total of 333 faunal species (22% butterflies, 3% amphibians, 14% reptiles, 12% mammals, and 49% birds) were identified to potentially occur naturally in the vicinity of the project area. Approximately 2.7% of these species are SCC, meaning that they either have restricted distribution ranges, Red Data (Global or Regional) listing, or TOPS listing.

No amphibian or butterfly SCC are known to occur in the project area and most SCC likely have their distributions limited to the Limestone bontveld habitats of the site. Notable exceptions include the African striped weasel *Poecilogale albinucha* and three species of bird of prey (lanner falcon *Falco biarmicus*, African marsh harrier *Circus ranivorus*, black harrier *Circus maurus*) with wide habitat tolerances that might include Grassy-karoo mosaic habitats.

The likely occurrence of SCC is inferred from the presence of suitable habitat and the extent of current threats (i.e., not project related). Thus, while suitable habitat might occur in the project area, meaning high likelihood of occurrence of SCC, this coincides with threats to faunal communities. By association, this also means threats to the ecological processes facilitated by fauna, including trophic– (browsing, frugivory, predation), transport– (pollination, seed dispersal, nutrient dispersal), habitat architecture– (plant forms, path opening), and biopedurbation (digging, hoof action) processes. In thicket habitats, such as those of the project area, herbivory by large mammals is probably the most important driver of ecological patterns and processes. For example, herbivore feeding preferences are known to influence the abundance and distribution of plants, competitive interactions between plants, and seed dispersal patterns. Large herbivores also change plant community composition by trampling and enriching the soil with their dung (Kerley et al. 1995, Kerley & Landman 2006).

Because indigenous medium- and large-sized herbivore communities in the project area have all collapsed in response to various anthropogenic threats, the ecological processes facilitated by these species in particular are undoubtedly also disrupted. For reptile SCC, probability of occurrence in the project area is expected to be relatively high given the presence of potentially suitable habitat and the fact that these species are not known to be vulnerable to the direct influences of humans. Although all the reptile SCC have restricted distribution ranges, these species are also generally common (Bates et al. 2013). However, probability of occurrence declines for the medium- and large-sized mammals and birds. That is, while potentially suitable habitat exists, populations of these species are vulnerable to habitat transformation and fragmentation, disturbances, and the direct influences of humans in close proximity of the project area.

C. Freshwater Ecology:

The Aquatic Specialist had the following findings:

The study area is within the lower catchment of the Coega River (Quaternary catchment M30B), close to the watershed with the adjacent Swartkops River (Quaternary catchment M10D). The site is situated within the Nelson Mandela Metropolitan Municipality near Port Elizabeth, in the Eastern Cape. Coega is a Nguni word that means 'ground water'. The area is underlain by an artesian aquifer that is formed by sandstones and quartzites of the Table Mountain Group and recharged from the Winterhoek Mountains to the north. This aquifer is, however, unlikely to have any interaction with the aquatic features on the site. The topography at the site is generally flat.

The mean annual rainfall for the area is approximately 483 mm which is received throughout the year. The drier months are December and January when approx. 24 mm and 22 mm are received respectively. The months of late winter to spring; August, September and October, receive higher rainfall than the rest of the year, with an average monthly rainfall of 34 mm, 35 mm and 38 mm respectively. The area is relatively moderate with the monthly average day time midday temperature varying by only 5.9°C between the hottest month; February (25.2°C), and the coldest month; July (19.3°C). Winds are predominantly from the west and west-south-west (41% combined frequency) all year round, and from the east (15%) from October through to March.

The aquifer that occurs in the area is indicated to be a minor fractured aquifer with yields of 0.1 to 0.5 l/s and electrical conductivity of 150 to 370 mS/m. The average depth to the groundwater table is about 22 m below ground level. Recharge is approx. 11 mm/a. The aquifer is classified as having a medium to high susceptibility to contamination from anthropogenic activities. A groundwater assessment undertaken by SRK (2021) for this project, determined the groundwater levels in the area to be shallow (<4 mbgl) with the general drainage being towards the southeast and southwest.

The Coega and Swartkops Rivers are the most significant surface water features within the wider study area with the Coega River being approx. 7 km to the northeast of the site and the Swartkops River about 3 km to the southwest. The site is located on the plateau adjacent to the Coega River Catchment. Several small depression wetland areas or pans occur on the flat plateau between the two river systems. No wetland areas are mapped as occurring within the site.

Two sets of conservation mapping results are of relevance to the national and provincial identification of the ecological importance that has been attributed to the

aquatic ecosystems in the study area: The National Freshwater Ecosystem Priority Areas map; and the Nelson Mandela Bay Municipality Critical Biodiversity Areas (CBA) map (that was a product of the Provincial Fine Scale mapping process undertaken at a local authority level).

FEPAs are intended to provide strategic spatial priorities for conserving South Africa's freshwater ecosystems and supporting the sustainable use of water resources and have been determined through a process of systematic biodiversity planning. The Coega River catchment is a Phase 2 FEPA river. Phase 2 FEPAs are considered to be moderately modified and should not be allowed to be degraded or modified further as they may need to be rehabilitated to meet biodiversity targets. The site largely falls outside of the Phase 2 FEPA river sub-catchment. Several pans occur on the plateau adjacent to the Coega River that is mapped as FEPA Wetland clusters. Some small depression wetlands are mapped to the east and west of the site. The closest wetland, approximately 270m east of the site, is mapped as part of the wetland cluster however it is within an area that has recently been developed. The proposed development is unlikely to impact the FEPA River status or the adjacent FEPA wetlands.

In terms of the CBA map, the larger catchment in which the Coega River and the adjacent wetland clusters are mapped is mapped as an aquatic CBA2. CBA2 areas should be maintained in a natural (or near-natural state if this is the current condition of the site) that secures the retention of biodiversity patterns and ecological processes. If land-use activities are unavoidable in these areas and depending on the condition of the site, set-aside areas must be designed in the layout and implemented. The site falls outside of the CBA mapped area.

It can thus be said that the proposed development is unlikely to impact the ecological integrity of the larger river and wetland systems mapped as being of aquatic biodiversity conservation value.

D. Groundwater Assessment

The Geohydrology Specialist had the following findings:

The geology underlying the Site is mainly the Alexandria Formation of the Algoa Group. The Alexandria Formation is underlain by the older Sundays River Formation of the Uitenhage Group, which is exposed in the northern section of the Site.

The Alexandria Formation consists of alternating layers of calcareous sandstone, conglomerate and coquinite and has an average thickness of 9m. The

conglomerates contain pebbles and cobbles that are set in a fine to medium-grained sand matrix. The coquinites are pebbly in places and consist of 70% invertebrate shell remains that is commonly recrystallised.

The Sundays River Formation comprises grey to bluish green mudstone, siltstone and sandstone. The thickest known intersection of this formation is 1 863 m near Addo.

The Algoa Group aquifer (which includes the Alexandria Formation) is a unique intergranular aquifer, where water seeps through the porous, sandy and pebbly material until it comes into contact with underlying, usually impervious pre-Algoa rocks (e.g. the Sundays River Formation). From here, it moves in the basal Alexandria conglomerate towards the sea, where it may daylight as springs at the coast. There is hardly any build-up in groundwater level (due to its high permeability) and the water level encountered within the conglomerate is likely its true piezometric level.

A borehole yield analysis revealed that 60% of boreholes in this formation yields less than 0.5 L/s, which implies that 40% of boreholes yield more than 0.5 L/s.

Groundwater quality is generally regarded potable, with conductivity measuring <300 mS/m. Sodium, calcium and chloride often exceeds maximum recommended limits.

The water level in an intergranular aquifer, such as this one, is often directly dependent on rainfall and may change depending on the volumes of rainfall received.

The Uitenhage Group (of which the Sundays River Formation forms a part) is a dense mass of rock with generally low permeability, with a limited groundwater potential. Many boreholes have been drilled unsuccessfully into this formation. The groundwater quality is also considered poor, with conductivity commonly measuring above 300 mS/m. Sodium, calcium, chloride and magnesium is also normally above the allowable limits for drinking water.

Surface Water and Groundwater Drainage -

Elevations range between 45 and 40 mamsl. Higher elevations are present towards the north of the Site, and lower elevations in the centre and towards the south. There are higher elevations of around 48 mamsl to the northwest and southeast of the Site.

Surface water will accumulate in the lowest lying areas, towards the centre and south of the Site.

Deeper groundwater will most likely move towards the Swartkops River in the southwest; and the sea in the southeast.

E. Heritage Resources

The Heritage Specialist had the following findings:

Based on the extensively disturbed nature of the area proposed for development, as well as the already constructed structure on the property, it is very unlikely that the proposed development will impact on significant, in situ archaeological resources. In addition, there are clearly no structures of any kind located within the proposed development area which may have heritage significance. As such, it is recommended that no further archaeological assessments are required. However, should any archaeological resources or human remains be uncovered during the course of construction, work must cease and ECPHRA must be notified.

Most excavations on site are unlikely to have serious consequences for fossil heritage. As such, it is very unlikely that significant palaeontological resources will be impacted by the proposed development. However, it is recommended that the Chance Finds Procedure be adopted and implemented throughout the construction phase of the development.

1.4. Comment to the CEMPr

The CEMPr forms part of the contract identifying and specifying the procedures to be followed by the Contractor (construction team) in order to eliminate or reduce adverse impacts of the construction works on the natural vegetation. Should an employee of the Contractor persistently fail to observe provisions of the CEMPr, the Environmental Control Officer (ECO) can recommend that the employee be removed from the site.

A copy of the CEMPr will be issued to each contractor at the tender stage to allow for costs of implementing the CEMPr to be included in the cost estimates. This will also ensure that each contractor is aware of his responsibilities prior to commencing work. Copies of the CEMPr will be made available to all senior personnel on site, who will be required to familiarise themselves with the contents of the document and to follow procedures accordingly.

Each Contractor involved in the project will be expected to sign for, and thus acknowledge receipt of the final CEMPr, and thereby will be expected to abide by

the specifications of the document, as well as annexures and any amendments thereto.

1.5. Legal Status of the CEMPr

The Environmental Contract ascribes legal status to the CEMPr and any subsequent amendments thereto. The CEMPr includes all relevant documentation within this report and/or referred to within it.

1.6. Environmental Principles

The following Section 2 of the National Environmental Management Act (NEMA) principles were used in compiling this CEMPr:

- Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.
- Development must be socially, environmentally and economically sustainable, i.e. meet the "triple bottom line" criteria.
- Sustainable development requires the consideration of all relevant factors including the following:
 - o that the disturbance of ecosystems and loss of biological diversity are avoided, minimised and remedied;
 - o that the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied;
 - o that the development, use and exploitation of renewable resources and the ecosystems of which they are a part do not exceed the level beyond which their integrity is jeopardised;
 - o that a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions.
- Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment.
- Community well-being and empowerment must be promoted through environmental education, the raising of environmental awareness and the sharing of knowledge and experience and other appropriate means.
- Capacity building and education: The CEMPr must play a role in developing the understanding, skills and capacity of the employees on, and people

surrounding, the project of environmental management principles and the concept of sustainable development.

- Duty of care: Every person (professional consultants, developers, contract workers and community members) associated with the development have a duty to act with due care to avoid damage and pollution to the environment and to limit wastage of resources such as water.
- Equity: Environmental Management should ensure equitable access to natural resources, benefits and services to meet basic needs and ensure human well-being.
- Good project management: Good project management depends on reciprocal understanding between the people in the area and the project management team. Decisions must be taken, and executed, in an open and transparent manner, and access to information must be provided in accordance with statutory provisions and directives in the CEMPr.
- Prevention: The CEMPr must anticipate problems and prevent negative impacts on the environment and on people's rights.
- Polluter Pays: Those responsible for environmental damage must pay the repair costs and the costs of preventative measures to reduce or prevent further pollution or degradation.
- Waste management: The creation of waste must be minimised and avoided where possible. Waste recycling, separation at source and safe disposal of unavoidable waste should be encouraged.

1.7. EIA Regulations, 2014 (as amended) - CEMPr Content Requirements

Appendix 4 of the Environmental Impact Assessment (EIA) Regulations of 2014 provides the content requirements for an CEMPr. An CEMPr must also comply with section 24N (2) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA).

1.8. Key terms and abbreviations

a) Contractor –

- (i) the main or specialised contractors as engaged by any Developer from time to time for the execution of the works, including all sub-contractors appointed by the main contractor of his own volition for the execution of parts of the works; and

- (ii) any other contractor from time to time engaged by any Developer directly in connection with any part of the Works which is not a nominated subcontractor or a subcontractor to the main contractor.
- b) **Council** – the local municipality, its successors in title or assigns.
- c) **Days** – the days of the week excluding Sundays and public holidays.
- d) **Developer** – For the purposes of this document "developer" will refer to a person or persons, associations or corporate entities initiating, guiding and controlling any development on the site, until final completion of the project.
- e) **Environmental Management Programme (EMPr)** – The purpose of the EMPr is to set environmental objectives and targets for the developer, professional consultants, contractors and subcontractors to achieve during the construction of the project.
- f) **Environmental Control Officer (ECO)** – a suitably qualified environmental consultant to be appointed by the Developer, and his successor/s should he cease to hold such appointment for any reason, to oversee the implementation of the EMPr and environmental agreement until the completion of works on the site.
- g) **Landscaper (L)** – the landscaper and his successor/s should he cease to hold such appointment for any reason, appointed by the developer to oversee the contractual aspects of general and specific landscaping on site.
- h) **Site Manager** – the employee of the main contractor responsible for the day to day control of all activities and operation on site.
- i) **Works** – the building construction operations and all related and incidental works such as, but not limited to, site works, earthworks, roads, landscaping and the installation of services in connection with the execution and carrying to completion of the development plan.

1.9 Environmental control on site

1.9.1. Environmental Control Officer (ECO)

A suitably qualified and experienced individual to be designated to fulfil the role of Environmental Control Officer, to ensure and oversee the implementation of the CEMPr in its entirety on site during construction.

The role of the ECO is essentially seen as an interactive one which involves site visits once a month. Site visits may need to be made more frequently during certain stages of the development, depending on the sensitivity of the area in which construction is taking place.

The responsibilities of the ECO during the construction phase of the project will include:

- To environmentally educate and raise the awareness of the Contractors and their staff as to the sensitivity of the site and to target responsible individuals as key players for environmental education, to facilitate the spread of the correct environmental attitude during the contract work.
- To review method statements and to determine the most environmentally sensitive options of modus operandi for the development tasks.
- To oversee the implementation of environmental procedures set out in this document.
- To attend site contractor's meetings and report on environmental issues.
- To receive notices and minutes of all site meetings.
- To maintain an open and direct channel of communication with the Site Manager, who will be immediately aware of the actions of the ECO at all times, especially as they relate to implementation policy and corrective actions as detailed in this document.
- To take immediate action on site where clearly defined no-go areas are violated, or in danger of being violated, and to inform the Site Manager immediately of the documents and the action taken.
- To keep an up to date record of works on site, as they relate environmental issues in the Site diary.
- To be contactable by the public regarding matters of environmental concern as they relate to the development. Such developments shall be recorded in the Site Diary.

1.9.2 Developer

For the purposes of this document "developer" will refer to a person or persons, associations or corporate entities initiating, guiding and controlling any development on the site, until final completion of the project.

With respect to the construction phase of the development, the Developer is to:

- Ensure that all relevant approvals and permits have been obtained prior to the start of construction activities on Site;
- Ensure that the requirements as set out in this CEMP and the Environmental Authorisation issued by DEDEA and any other conditions of approvals by the relevant Authorities are adhered to and implemented by himself and any person on his behalf;

- Appoint a suitably qualified or experienced (minimum 3 years) Environmental Control Officer prior to the start of construction activities on Site, and for the duration of the construction phase;
- Ensure that DEDEA is given at least one week's written notice prior to the commencement of construction including the name and contact details of the appointed ECO;
- Provide all Contractors working on the project with a copy of this CEMP as part of tender contract documentation to allow the Contractors to cost for its requirements within their respective construction contracts;
- Respond to third party or public queries and/or complaints relating to construction operations.

SECTION 2: METHOD STATEMENTS AND REQUIREMENTS

2.1 General requirements

2.1.1 Contractual communication procedures on site

A logbook should be kept on site for the purposes of recording on-site instructions and as a general record of environmental issues. The diary must be kept for a minimum of two years after the activity is completed for the relevant authority to review if deemed necessary. A photographic record of before and after construction will be kept for visual reference purposes. The logbook will consist of three sections:

a) Environmental Site Instruction Section

The Environmental Site Instruction Section will be used for the recording of general site instructions relating to the protection of environmentally sensitive or potentially impacted areas or features on the site, by the ECO, to facilitate the issuing of the site instruction by the Resident Engineer (RE).

b) Site Diary Section

The purpose of this section will be to record the comments of the ECO as they relate to activities on the site, any problems encountered or comments or complaints received from the public about works from the site.

This book is to remain on site at all times and is to be made available for monitoring purposes by the local authority as required.

c) Monitoring Section

The purpose of this section will be to record the comments of the ECO during Construction and the effective implementation of the waste, recycling, landscaping and renewable energy measure used during the life cycle of project.

2.1.2 Communication/Contractual Network

There is to be continual communication between the Resident Engineer (RE) (or similar) and Contractor, as well as the RE, Site Manager and the ECO. The ECO will advise the RE on factors relating to the CEMPr and all environmental matters on site.

The ECO is empowered to order the Contractor immediately to cease any activities or operations that are required to be stopped as a matter of urgency to prevent serious adverse environmental impacts or potential impacts on the site or any of the adjacent properties or areas outside the boundaries of the site. The ECO shall without delay report any such actions to the Project Manager. The suspension will be enforced until corrective action has been taken, with no extension of time for such delays. In such a case, all costs are to be borne by the Contractor.

2.1.3 Method Statement Format

For any activity the Contractor is requested to submit a method statement for comment by the ECO, the format should clearly indicate the following:

- What- a brief description of the work to be undertaken;
- How- a detailed description of the process of work, methods and materials;
- Where- a description/sketch map of the locality of work; and
- When - the sequencing of actions with due commencement dates and completion date estimates.

The Contractor must submit the method statement to the ECO prior to the start of any construction activity. Work may not commence until the comments of the ECO have been received, and taken into consideration. The ECO must communicate and inform the Responsible Authority (DEDEA) when clearance of the ground surface and the bulk earthworks will commence.

2.1.4 Programming of Construction Events

The ECO must be supplied with a detailed programme of all construction events to allow for proper monitoring on site. Any amendments to the program of construction events for any reason must be communicated with the ECO.

2.1.5 Bylaws and Regulations

All national and provincial laws and regulations, as well as all local authority bylaws and regulations which apply to the development of this site are to be adhered to.

2.2. Specific Procedures

2.2.1. BIOPHYSICAL MANAGEMENT MEASURES – TERRESTRIAL FLORA

The proposed development area is situated entirely in the Grassridge Bontveld vegetation type, which is a non-threatened ecosystem type. The site contains six terrestrial vegetation units and four other habitat types relevant to flora, with three of these representing relatively undisturbed natural habitat of importance for plants, namely intact Grassridge Bontveld, degraded Bontveld and Thicket Clumps.

Subpopulations of one Critically Endangered, one Endangered and one Vulnerable species were recorded during the field survey for this study. All these threatened species occur in intact Grassridge Bontveld, particularly in the southwestern portion of the site. Additionally, subpopulations of two Near Threatened species were located in intact Grassridge Bontveld (associated with threatened species) and a Thicket Clump in the northern portion of the site, respectively.

The proposed development area comprises terrestrial habitats of very low, low and medium Site Ecological Importance. The recommended mitigation measure for these SEI classes involve minimisation and restoration of environmental impacts associated with development activities; specific recommendations are as follows:

- Medium – development of medium impact acceptable, followed by appropriate restoration activities.
- Low – development activities of medium to high impact are acceptable, followed by appropriate restoration activities.

- Very Low – development activities of medium to high impact acceptable without the need for restoration activities.

The preferred development layout will result in the clearing of vegetation, of which 6.31 ha has **Medium** SEI, 3.30 ha has a **Low** SEI, and 9.24 ha has a **Very Low** SEI.

The most significant impacts relate to the direct and cumulative loss of Grassridge Bontveld vegetation and its associated SCC during the construction phase. In general, the proposed development is likely to have moderate potential to negatively impact on terrestrial biodiversity and plant SCC in the study area as most potential impacts were evaluated to be of Low and Medium significance after the implementation of the following mitigation measures:

Construction Phase -

- Limit vegetation clearing to areas within the approved development footprints.
- Disturbance to intact vegetation must be restricted by demarcating those areas that will be cleared during construction, including access roads, haul roads, and lay-down and stockpile areas.
- Lay-down areas should be contained within the planned clearance areas and should not be placed in the surrounding intact vegetation.
- All construction personnel active on site must be notified of the importance of avoiding disturbance to intact vegetation outside of demarcated clearance areas.
- Permits for the destruction of protected plant species (SCC and *Sideroxylon inerme*) must be obtained from the relevant authorities.
- The No-Go area should be clearly demarcated prior to any construction personnel, machinery or vehicles entering the site, and no clearing should be permitted within these areas.
- Prior to vegetation clearing, demarcated development footprints must be surveyed for threatened plant SCC by an Environmental Control Officer or similarly qualified person and a search-and-rescue operation undertaken for species that are suitable for translocation – this includes the succulent species *Bergeranthus addoensis*, *Corpuscularia lehmannii* and *Rhombophyllum rhomboideum*.
- Rescued SCCs should be translocated to the No-Go area where specific microhabitats of the translocated species; areas in the southeast of the site where these SCC occur should suffice for this purpose.
- Care must be taken to not disturb any individuals of plant SCC that is not to be translocated.

- Translocation should occur during cooler and wetter periods of the year (e.g., autumn or winter) to minimize stress on the plants.
- Plants must be watered once every week for the first two months following translocation to enhance their survival potential.
- Survival of all translocated plants must be monitored and recorded monthly for the first year following translocation; these results must be reported to the authors of this report (which are to be shared with the South African National Biodiversity Institute).
- An Alien Invasive Plant (AIP) management plan must be developed for the site and implemented during the Construction and Operational phases of the project. This plan should aim to eradicate and control the spread of AIPs within the portions of the site that are not proposed for development.
- Any AIP material removed during clearing of the development footprints must be removed from the site and destroyed so that reestablishment on site is avoided.
- Areas disturbed during construction must be inspected for establishing AIPs on a regular basis, and these should be removed and destroyed as soon as possible before setting seed to limit their spread.
- Follow-up clearing for AIPs within the intact vegetation should take place on a yearly basis.
- Wind erosion should be limited by using mesh netting set up around any cleared footprints as soon as clearing has taken place.
- Existing vehicle tracks should be used as far as possible, and no new roads/tracks should be created in the portions of the site not proposed for development.
- A stormwater management plan must be designed and implemented for the Construction and Operational phases of the project.
- Access to areas of intact vegetation, particularly in the No-Go area, should be restricted.
- Construction workers must be notified of the prohibition of poaching plants and a fine system implemented.
- Existing major roads should be used as transport corridors to and from the site.

2.2.3. BIOPHYSICAL MANAGEMENT MEASURES – TERRESTRIAL FAUNA

The proposed expansion will likely influence faunal species, the habitats that they occupy, and the ecological processes facilitated by these species. Of the 333 faunal species that potentially occur naturally in the vicinity of the project area, nine (four reptiles, four birds, and a single mammal species) are SCC. While the Limestone bontveld habitats occurring in the fenced portion of the project area likely support

SCC, its distribution is fragmented beyond the site, meaning fragmented faunal communities. Additionally, current threats to fauna and faunal-mediated processes in these habitats are diverse, reducing the sensitivity of the project area for fauna. Potential impacts from the proposed project on fauna may, therefore, be within acceptable limits, provided that the appropriate mitigation measures are applied.

While the preferred project layout makes provision for minimising impacts on sensitive faunal habitats, it will also be important to reduce current threats to ensure the long-term persistence of the remaining bontveld ecosystem. This may, in part, be achieved through the continuous removal of alien invasive plants. The alternative (i.e., not controlling alien invasives) will likely lead to increased habitat transformation and fragmentation.

The Species Environmental Assessment Guidelines (SANBI 2020) recommends that for Endangered or Vulnerable species, in particular, no further loss of habitat should be permitted as the species are likely to go extinct in the near future if current pressures continue. Because the likely presence of these species in the project area could only be inferred from the available suitable habitat and broad records of occurrence, appropriate habitat exclusion buffers (i.e., No-Go buffers) could not be applied for the project area. Furthermore, because the presence of sensitive species is not confirmed, population sizes are not known, and accurate spatial information on the geographic distribution of these species is often not available (important when evaluated against the availability of potentially suitable habitat within the project area), calculation of the Site Ecological Importance (as per the Species Assessment Guidelines) is problematic.

Nevertheless, through appropriate mitigation, both the direct and indirect impacts of the proposed project on fauna can be kept to a minimum. Risks to faunal species as a result of the specific activity may, therefore, be expected to be low.

Recommended Mitigation measures:

Construction phase -

- Conduct a pre-construction walk through (search and rescue) of the project footprint to identify fauna threatened by construction activities. Threatened fauna should be removed to similar habitat within close proximity of the project area by the Environmental Control Officer or other suitably qualified individual.
- Limit construction activities in sensitive Limestone bontveld habitats to a minimum

- Construction camps: 1) ensure strict control of staff movements to reduce faunal disturbances, 2) ensure strict poaching control, 3) exclude all domestic/feral dogs and cats. Domestic dogs and cats present on site should be removed to a suitable facility.
- Clearly demarcate all construction areas to avoid any unplanned loss and transformation of sensitive habitats.
- Construction staff should undergo environmental induction before construction commences to raise awareness and reduce potential faunal impacts.
- Conservation-orientated clauses should form part of construction contracts, complete with penalty clauses for non-compliance.
- Temporary equipment stockpiles must be located in transformed habitats or at existing construction sites and away from sensitive habitats.
- Construction camps: 1) ensure these are located in transformed habitats away from sensitive habitats, 2) ensure camps are fenced to control staff movements, 3) prohibit fuel-wood collections 4) prohibit campfires, and 5) ensure the provision of appropriate refuse facilities for staff, and monitor refuse removal weekly. All refuse should be disposed of appropriately offsite.
- Where appropriate, cleared areas should be rehabilitated or landscaped with indigenous vegetation according to an appropriately formulated plan, developed by an appropriately qualified specialist.
- Develop and implement an invasive plant control and management plan to eradicate these species on site. The plan should be developed by an appropriately qualified specialist, and monitored by the Environmental Control Officer.
- Hazardous materials (chemicals, fuels, oils) should be stored appropriately to prevent contamination. Accidental spills that occur on site should be cleaned up immediately and appropriately.

2.2.4. BIOPHYSICAL MANAGEMENT MEASURES – FRESHWATER RESOURCES

The aquatic feature at the proposed development site comprises a small artificial depression wetland associated with a stormwater pond on the site. The wetland is in a largely modified ecological condition and is considered of low ecological importance and sensitivity. The wetland on the site will be modified and replaced with the proposed two new stormwater ponds within the site to meet the stormwater management requirements of the proposed development. Because the wetland on the site is artificial and has formed in the existing pond constructed to mitigate stormwater runoff from the currently developed area on the site, new wetland

habitat will likely form within the new stormwater ponds proposed for the south and southwestern portions of the site. There would thus be no loss of wetland functionality (given that the primary wetland function is stormwater mitigation) or wetland habitat within the site. The surface area of the combined two new stormwater ponds is 0.5 ha, an increase from the existing 0.35 ha.

Wetland habitat within the new stormwater infrastructure at the site should be constructed to mitigate the loss of the existing stormwater pond wetland habitat. The facilities should be planted with a mixed community of indigenous sedges and rushes.

The following mitigation measures are recommended:

- The water quality impacts during the construction phase should be addressed through a Construction Environmental Management Plan for the project, and implemented by an on-site Environmental Officer;
- The stormwater management plan for the site should ensure that any impacts of stormwater from the site are mitigated as far as possible within the site (measures such as the use of permeable surfaces, re-use of runoff from built areas such as roofs as well as the use of measures such as swales) to minimise the stormwater impacts on the watercourse;
- Where necessary pre-treatment areas such as oil, sediment and litter traps should be included in the stormwater management design; and
- Wetland habitat within the new stormwater infrastructure at the site should be constructed to mitigate the loss of the existing stormwater pond wetland habitat. The facilities should be planted with a mixed community of indigenous sedges and rushes.

2.2.5. BIOPHYSICAL MANAGEMENT MEASURES – GROUNDWATER RESOURCES

Due to the nature of the geological formations on which the fuel station will be established, and the encounter of shallow / seasonal groundwater beneath the Site, the risk to pollution of groundwater, should a fuel leak or spillage occur, is considered high. It is advised that the pollutants (fuel) should not come into direct contact with the ground surface beneath the Site; and also, should not leak into the permeable soils and Alexandria Formation (from the USTs). Once pollutants have come into contact with the Alexandria Formation, it could come into contact with shallow groundwater table (directly or within rainwater or storm water) and migrate towards the Swartkops River and / or the sea.

The following mitigation measures are recommended:

- Pollutants (fuel) should not come into direct contact with the ground surface beneath the Site; and also, should not leak into the permeable soils and Alexandria Formation (from the USTs). Once pollutants have come into contact with the Alexandria Formation, it could come into contact with shallow groundwater table (directly or within rainwater or storm water) and migrate towards the Swartkops River and / or the sea.
- Because of the perceived high risk to contamination of groundwater for this area, the USTs and all holding and working areas of the fuels must be contained and lined so that no pollutants can come into contact with the underlying soils or geology. If this is done, the risk of pollutants getting into the groundwater environment is greatly reduced, under normal conditions.
- It is standard practice to install small diameter monitoring wells in the excavations where USTs are installed, so that leakage of fuel can be detected.
- If a spillage or leakage event occurs, it should be reported to the relevant authorities and the necessary actions taken to contain the fuel and reduce any negative impact.

2.2.6 HERITAGE/CULTURAL RESOURCES

Based on the extensively disturbed nature of the area proposed for development, as well as the already constructed structure on the property, it is very unlikely that the proposed development will impact on significant, in situ archaeological resources. In addition, there are clearly no structures of any kind located within the proposed development area which may have heritage significance. As such, it is recommended that no further archaeological assessments are required. However, should any archaeological resources or human remains be uncovered during the course of construction, work must cease and ECPHRA must be notified.

Most excavations on site are unlikely to have serious consequences for fossil heritage. As such, it is very unlikely that significant palaeontological resources will be impacted by the proposed development. However, it is recommended that the Chance Finds Procedure be adopted and implemented throughout the construction phase of the development.

2.2.7 NOISE IMPACTS

The contractor must take appropriate measures to limit the impact of unreasonable noise from construction activities. Appropriate measures should include holding discussions with affected parties to determine if there are times of the day when noise is less likely to be a problem, and restricting working hours as far as reasonably practical. No construction activities should be allowed on Sundays and public holidays.

2.2.8 CLEANLINESS OF ROADS

The Contractor must ensure that construction vehicles do not spill or drop any construction materials (sand, cement, debris, etc) onto public or private roads. If this should occur, it is the responsibility of the Contractor to ensure that the roads are suitably cleaned.

2.2.9 SAFETY

The Contractor is to appoint a safety steward, who will be responsible for safety of the labour force, construction activities and handling emergency situations on site during construction hours.

2.2.10 FIRE CONTROL

The contractor must take appropriate measures to guard against accidental fire, and it will be presumed that any bush fire which starts on the site, or within 100m thereof during the construction period would be the responsibility of the developer and incur legal liability thereof.

Fire beaters are to be kept on site, and easily accessible at all times, and not locked away. In the case of any welding, grinding or other "hot work", a fire extinguisher is to be readily available to extinguish any fire that may result from these activities.

All excavation equipment should carry fire extinguishers, and all staff should be able to use them if required.

No open fires may be lit anywhere on the construction site, except at locations approved by the ECO and Site Manager. The burning of refuse or vegetation material on site as a means of disposal is not allowed.

2.2.11 EMERGENCY

All accidents and emergency situations are to be reported to the ECO and Site Manager, and full details included in the monthly environmental report.

Fire

In the case of a fire occurring on site, the ECO and safety steward are to be notified immediately. If fairly localised, an effort should be made to extinguish the fire immediately, and if required, the assistance of the local fire department should be sought by the safety steward.

First Aid

The Contractor must provide and maintain a suitable first aid kit on site, with a member of staff suitable qualified in first aid on site during working hours, in accordance with the Occupational Health and Safety Act.

2.2.12 PUBLIC COMPLAINTS

All public complaints received are to be registered by the ECO or Site Manager, and addressed immediately. Public complaints and responses are to be recorded in the Site Diary, and included in the monthly environmental report by the ECO.

2.3. SITE ESTABLISHMENT REQUIREMENTS

2.3.1 Site Definition and Demarcation

Prior to any works commencing on site, a site survey and the placement of demarcation pegs must be undertaken. Peg coding is to be communicated to the Contractor and all other relevant parties as they may be identified. The area earmarked for flora translocation must be identified.

The development site and no-go areas must be clearly demarcated with hazard tape to the satisfaction of the ECO. Once this has been done, all works, including stockpiling of construction and waste materials, are to be strictly confined to the demarcated area.

The construction at any of the proposed unit sites needs to be contained to the boundaries of the building zone.

2.3.2. Environmental Awareness Training for Site Personnel

All contractor teams involved in work on the development may need to be briefed on their obligations towards the environmental controls and methodologies. The briefing will usually take the form of an on-site talk and demonstration by the ECO or suitable personnel. Alternatively, the contractors should be provided with a copy of the CEMPr in order to be aware of the conditions and mitigation measures for the site.

2.3.3 Contractor's Camp

There should be a single Contractor's camp for use by all contractors and subcontractors, for the provision of staff facilities as well as the storage of all materials and equipment. The most suitable location for the Contractor's Camp should be determined by the Site Manager and ECO. Care should be taken that the contractors' camp is located on already impacted areas, also ensuring minimal risk to existing operations on the property.

2.3.4 Ablution Facilities

The Contractor should ensure that ablutions are restricted to the sanitary facilities only. Where chemical toilets are provided, the Contractor should ensure that they are kept in hygienic condition and emptied on a regular basis.

Care must be taken that no spillage occurs when chemical toilets are cleaned, and their contents are properly stored and removed off site. A contingency plan for spills must be supplied by the contractor, and approved by the ECO. Toilets should be located where their use would result in minimal impact on the environment, and may not be in areas of running or standing water during winter, and must be secured to prevent them from blowing over.

2.3.5 Fencing of Sensitive Features

All fencing is to be erected prior to construction works commencing on site, and are to remain in position and in good repair for the duration of the works. No materials, rubble or equipment is to be stored or stockpiled within the fenced areas, and no-one should enter these areas. Any deviations from these specifications are subject to the approval of the ECO.

2.3.6. Material handling and storage

Fuels and hazardous materials

Fuels and flammable materials are to be stored in suitably equipped storage areas, inside the Contractor's Camp. These areas shall comply with general fire safety requirements. Impervious materials are to be used in these storage areas to prevent contamination of the ground in the event of spillages or leaks. Quantities of fuels and hazardous materials stored on site should be appropriate to the requirement for these substances on site.

Bulk fuel depots are to be placed within hardened bund areas; bunds are to have a holding capacity equal to 110% of the largest fuel container. The Contractor is to ensure that he is aware of the effects of all substances on staff and the environment, and the correct action to take in the case of any incident involving these materials.

Stockpiles

The Contractor must identify sites for stockpiling building materials, and excavated material, which are to be marked on a plan, and approved by the Site Manager and ECO. Stockpile sites should preferably be in areas with a gentle gradient. Stockpiles should be stabilised if required.

2.3.7. Effluent/ Waste Management

General Wastes

Waste management during the construction phase is the responsibility of the Contractor. The Contractor must establish a system acceptable to the ECO for control during execution of the works. Refuse refers to all construction debris (cement bags, rubble, timber, cans, nails, wire, spilt bitumen, glass, packaging, plastic, organic matter, etc.). Refuse generated during the execution phase of the works should be stored in an appropriate area on site, protected against wind dispersion and removed on a regular basis for disposal of at a permitted disposal site. No burning or burying of refuse on site should be allowed. Refuse bins must be water tight and wind-proof.

Eating areas

If construction workers are allowed to eat on the development site, other than within the Contractor's Camp, the Contractor shall provide adequate refuse bins at all such places, and ensure that they are used. Bins are to be cleared on a daily basis.

2.3.8 Maintenance of equipment

All mechanical equipment and work vehicles which may be kept on site are to be stored, serviced and refuelled only at designated areas within the Contractor's Camp. Within these areas drip trays and other impervious materials, for example plastic or metal sheeting, are to be used to prevent contamination of the ground in any way.

The RE or ECO may order the removal of equipment that is causing continual environmental damage by leaking oil or diesel for example, until such equipment has been repaired.

2.3.9 Topsoil Removal and Stockpiling

Where services are to be installed, topsoil is to be removed from the work areas, stockpiled separately from subsoil, and must be stabilised within a day of stockpiling. Stockpiles should be convex at the top to promote run-off, so that water is not able to accumulate and result in leaching of nutrients from the soil.

2.3.10. Erosion Control

Care must be taken at all times to prevent erosion of soils on the construction site. Should any erosion be detected on site, the ECO, RE or Site Manager must identify the cause of such erosion and ensure that the most appropriate method of mitigation or stabilisation is employed as soon as possible.

2.3.11. Dust Control

The contractor shall take appropriate measures, to the satisfaction of the ECO to minimise the generation of dust and mud on the site, by supplying suitable stabilisation (such as mulch or straw stabilisation) for all cleared ground.

Watering of exposed working areas may be considered for the control of dust during windy conditions, although great care must be taken that this does not result in excessive run-off, and erosive action.

2.3.12. Run-off

Runoff generated during construction should not cause any damage and should be controlled or contained during periods of high rainfall.

2.3.13. Earth Shaping

Any major earth works are to be restricted to the site boundaries. Bulldozer and heavy machinery operations are to be under constant supervision, and must be aware of all

the environmental obligations and penalties for transgressions, as they have the potential to inflict severe damage to the surrounding environment.

The use and excessive movement of heavy machinery should be avoided in particularly sensitive areas with great environmental value, or high erosion potential.

2.3.14. Trenching and Service Installation

The excavation of trenches for the installation of services should be undertaken in a phased manner where possible, to allow for trenches to stand open for a maximum of five days only. Materials removed from trenches must be stockpiled in a suitable position close by, and should be stabilised if backfilling is not expected to occur within the following two days.

Service installation should be coordinated to prevent the undue reopening of trenches for the installation of additional services.

Due to the fact that the majority of service infrastructure is already in place on the property, service installation and trenching is expected to be minimal.

2.3.15. Construction Traffic Management

All construction vehicles carrying materials must use sheeting to prevent loss of loads due to wind or rain.

Movement of all construction vehicles on site is to be strictly limited to ECO approved haul and access routes at all times. Should deviation from these routes be necessary for any reason, this is to be with approval of the ECO, and under the supervision of the RE, who is to ensure that no significant environmental damage results.

2.3.16. Site Clean Up and Rehabilitation

The Contractor must ensure that all structures, equipment, materials and facilities used on site construction activities are removed once the project has been completed. The construction site shall be cleared, and cleaned to the satisfaction of the ECO. The Contractor will ensure that no building rubble or waste is left behind in the area designated as pasture or any other area; clean up and remove any spills and contaminated soil in the appropriate manner; ensure that no discarded materials are buried on site or on any other land not designated for this purpose.

The Contractor must landscape areas adjacent to the site (if disturbance is unavoidable) to at least the same condition as was present prior to construction; use

harvested topsoil for rehabilitation and landscaping following construction; and landscape any disturbed areas as soon as construction in the area is complete with locally indigenous species, including those removed from the site prior to construction.

The Contractor must appoint a specialist contractor to remove alien and weed species in areas disturbed as a result of construction activities to comply with existing legislation (amendments to the regulations under the Conservation of Agricultural Resources Act, 1983 and Section 28 of the National Environmental Management Act, 1998).

2.3.17. ENERGY EFFICIENCY

Use passive solar design to reduce energy consumption and thus the need for extra equipment such as air conditioning and to ensure comfortable accommodation:

- North orientation to ensure that as many well-used spaces face north as possible. Sun control is more difficult on East and West facing windows. South facing windows can capture good reflected light from the sky and elsewhere, but very little solar energy.
- Good insulation in the roof and walls to keep the inside temperature warm in winter or cool in summer.
- Sensible fenestration (windows) (where applicable) – let in the light and catches the winter sun, but not too much window area so that warmth or cool cannot be retained inside when needed. They can be combined with shading and reflecting devices - such as overhangs, screens, shutters, awnings, trees, planting, different glass types - to control the amount, quality and time of daylight entering the building.
- Suitable ventilation for fresh air and cool breezes.
- Natural lighting through windows and light wells.

2.4. STORMWATER MANAGEMENT

(Refer to DBAR_Appendix D-9: Stormwater Management Plan)

The effective management of stormwater run-off generated from the development site will ensure that downstream water courses and ecosystems are protected while also implementing critical measures to ensure that the development is protected against events of abnormal rainfall and flooding.

The 1: 100-year flood line falls outside of the development site and should not adversely affect the development. During a 1: 100-year rainfall event, the normal

overland flow routes and drainage patterns will not apply as the run-off will be too big for the normal flow routes, channels, and even roads. Given the natural fall of the land surrounding the site it is anticipated that no overland run-off from the erven and roadways bounding the site, will enter into the site.

The 1: 100-year run-off generated from the development site will also not have an adverse effect on any adjacent properties as the run-off will be released into an existing open stormwater canal along the southern section of the site, which will ultimately discharge run-off into the surrounding watercourses.

The standard stormwater principles was employed for the design of the internal stormwater system (KLS,2021). The stormwater detail design made allowance for the creation of low and high points to the roads, parking areas and marshalling yards, to make provision for adequate cross falls and longitudinal slopes to meet the minimum standards for effective stormwater drainage.

The following minimum specifications were implemented in the stormwater infrastructure design:

- 100 D Concrete Spigot & Socket pipes
- Minimum minor system pipe diameter (roof water collection) - 300mm
- Minimum major system pipe diameter - 450mm
- Minimum velocity inside a half full pipe - 0.9m/s
- Maximum spacing between manholes/inlets/catch pits – 90m

Minor Flows (1:5 year and smaller rainfall events)

The development will create relatively large impervious areas that will substantially increase the stormwater run-off from the site. Stormwater run-off, however, will be concentrated in certain areas, for example at low points in the parking areas and marshalling yards.

Stormwater run-off from the impervious areas will be routed via roadside channels, as well as low points with inlets towards the underground stormwater pipe network into the attenuation facilities, located on the western and southern boundary of the site.

The internal stormwater system consists mainly of an underground gravity pipe and culvert network, Q-drain channels, roadside channels in the parking area and inlet structures which drains the roads and marshalling yards. This system was designed to have sufficient capacity to convey a 1:5-year rainfall event (this is defined as a rainstorm which has a 20% chance to occur).

Major Flows (Larger than 1:5-year rainfall events)

During rainfall events with a return period larger than 1:5-years, the proposed roads, marshalling yards, parking areas and channels will act as overland flow routes which will channel, attenuate and ultimately discharge the surface runoff via predetermined escape routes into the attenuation facilities. The design of these dams will make allowance to adequately manage the 1:50-year rainfall event.

Attenuation

Stormwater attenuation facilities/dams will be constructed on the south and western boundaries of the site and will operate as dry extended detention facility.

The main purpose of these facilities will be to retain the difference between a 1:5-year pre-development and 1: 50-year post-development flood. The attenuation dams are classified as dry dams, with extended storage available to effectively attenuate large floods (up to a 1: 50-year flood). This facilities will effectively manage stormwater runoff up to 1: 100-year rainfall events and attenuate up to 1: 50-year rainfall events. The outlet structure of the attenuation facility will govern the outflow to not exceed the 1: 5-year predevelopment flow for the overall development.

The attenuation dam has an emergency overflow which has the capacity to discharge the run-off generated from rainfall events larger than 1:50 years, up to a maximum of a 1:100-year rainfall event. The emergency outflow will release excess run-off as surface discharge onto the surrounding area which discharges into the existing open stormwater canal to the south-east of the site.

The total attenuation volume provided on site will be 8800m³. This satisfies the minimum requirement as calculated by making use of the Rational Method. (South African Drainage Manuel) (8055m³).

Outlet Structures – Inlets into the Attenuation Facility

The stormwater from the underground pipe network will discharge through two separate outlet structures directly into the attenuation dams.

Outlets into the Municipal Stormwater Network

The attenuation dam outlets will be connected to the existing stormwater channel to the south-east of the site. The outlet capacity of the attenuation dams will be capped at 1400l/s by limiting the outlet pipe sizing.

The planning and design of stormwater elements is a holistic process which incorporates much more than the infrastructure elements required in adequately dealing with stormwater run-off. The stormwater design and management plan were based on standard stormwater design principles (KLS, 2021). The consulting Engineer is required to be actively involved with construction supervision to ensure that all elements conform to design specifications.

SECTION 3: COMPLIANCE AND MONITORING

3.1. Compliance and Monitoring

The monitoring of works on site is necessary to demonstrate compliance with the specifications of the CEMPr and to allow for problems or issues of non-conformance to be identified and appropriate corrective measures to minimise environmental damage to be implemented.

Monitoring should include visual checks by the Site Manager on a daily basis, checks on particular requirements for site activities by the ECO, as well as a review of site documentation. The ECO shall complete the performance record, as a record of transgressions or problems experienced on site, and how they were dealt with. Monitoring of activities on site by the ECO should be done on a monthly basis.

3.2. Environmental Control Sheets

3.2.1 Communications

MITIGATION AND ENVIRONMENTAL CONTROLS		ACTION		
Site Diary and Site Instruction Book	<ul style="list-style-type: none"> To be updated on a regular basis 	ECO, Site Manager		
Public complaints	<ul style="list-style-type: none"> To be recorded, along with records of responses to them in the Site Diary 	ECO/Site Manager		
Environmental Awareness education	<ul style="list-style-type: none"> Each contractor team to attend a training session prior to commencing work on site Record of members attending training sessions to be kept, and updated regularly 	ECO		
Method Statements	<ul style="list-style-type: none"> Method statements to indicate What, How, Where and When activities are to take place. Method statements for each relevant activity to be submitted to ECO prior to the start of that activity on site. Work is not to commence until method statement approved by ECO and Site Manager if necessary. 	Contractor		
COMMENTS/ UPDATE				
RECORD OF PERFORMANCE				
Acceptable	Details of Transgression		Action Taken	Date
	Yes	No		

3.2.2 Site Preparation

TASK	MITIGATION AND ENVIRONMENTAL CONTROLS	ACTION
Site definition	<ul style="list-style-type: none"> Site survey to be undertaken, and site demarcated with hazard tape prior to any other works on site. 	Surveyor
Vegetation clearance	<ul style="list-style-type: none"> All vegetation to be removed from site to be indicated on a site plan, and clearly marked on site. All No-go areas to be identified and demarcated. Fires may not be used as a method of vegetation clearance. No vegetation outside of approved expansion footprint to be cleared. When necessary, appropriate dust control measures (such as wetting of soil and covering of stockpiles) shall be implemented. 	L, ECO Contractor
Fencing of sensitive features	<ul style="list-style-type: none"> Sensitive portions of the site should be fenced off prior to construction All extra fencing material to be removed from site or stored in the Contractor's Camp. Fencing must remain in place for the duration of the works on site. If damaged, fencing is to be repaired or replaced immediately. No dumping or stockpiling of any materials is allowed within fenced areas, and no-one should enter these areas. 	Contractor
Terrestrial Flora - Search and rescue	<ul style="list-style-type: none"> Permits for the destruction of protected plant species (SCC and <i>Sideroxylon inerme</i>) must be obtained from the relevant authorities. Permits for the removal and translocation of plant SCCs should be obtained from the appropriate authorities. Prior to vegetation clearing, demarcated development footprints must be surveyed for threatened plant SCC by an Environmental Control Officer or similarly qualified person and a search-and-rescue 	

	<p>operation undertaken for species that are suitable for translocation - this includes the succulent species <i>Bergeranthus addoensis</i>, <i>Corpuscularia lehmannii</i> and <i>Rhombophyllum rhomboideum</i>.</p> <ul style="list-style-type: none"> • Rescued SCCs should be translocated to the No-Go area. • Care must be taken to not disturb any individuals of plant SCC that is not to be translocated. • Translocation should occur during cooler and wetter periods of the year (e.g., autumn or winter) to minimize stress on the plants. • Plants must be watered once every two weeks for the first two months following translocation to enhance their survival potential. • Survival of all translocated plants must be monitored and recorded monthly for the first year following translocation; these results must be reported to the authors of this report (which are to be shared with the South African National Biodiversity Institute). • Conduct a pre-construction walk through (search and rescue) of the project footprint to identify fauna threatened by construction activities. Threatened fauna should be removed to similar habitat within close proximity of the project area by the Environmental Control Officer or other suitably qualified individual. • Topsoil to be removed from all work areas, and stockpiled separately from subsoil. • Stockpiles should be suitably shaped to prevent leaching of nutrients, and stabilised. 	Contractor												
Terrestrial Fauna - Search and rescue														
Topsoil removal														
COMMENTS/ UPDATE														
RECORD OF PERFORMANCE														
Acceptable	<table border="1"> <tr> <th colspan="2">Details of Transgression</th> <th>Responsible Party</th> <th>Action Taken</th> <th>Date</th> </tr> <tr> <td>Yes</td> <td>No</td> <td></td> <td></td> <td></td> </tr> </table>	Details of Transgression		Responsible Party	Action Taken	Date	Yes	No						
Details of Transgression		Responsible Party	Action Taken	Date										
Yes	No													
Yes														

3.2.3 Site Procedures

TASK	MITIGATION AND ENVIRONMENTAL CONTROLS	ACTION
Contractor Camp	<ul style="list-style-type: none"> • Contractor Camp to be located at the most suitable site as identified by the ECO and Site Manager. • To be located in transformed habitats away from sensitive habitats. • Ensure camps are fenced to control staff movements. • Ensure strict control of staff movements to reduce faunal disturbances. • Prohibit fuel-wood collections. • Prohibit campfires. • Ensure strict poaching control. • Exclude all domestic/feral dogs and cats. Domestic dogs and cats present on site should be removed to a suitable facility. • Ensure the provision of appropriate refuse facilities for staff, and monitor refuse removal weekly. • All refuse should be disposed of appropriately offsite. 	Contractor
Toilet facilities	<ul style="list-style-type: none"> • Suitable toilet facilities are provided for all staff. • Ablutions are to be restricted to the facilities provided. • Toilets are to be kept in a hygienic condition and emptied regularly 	Contractor
Working hours	<ul style="list-style-type: none"> • To be limited to between 07h00 and 18h00 on weekdays, and 07h00 and 14h00 on Saturdays. • No work on Sundays and public holidays 	Contractor
Public roads	<ul style="list-style-type: none"> • Construction materials spilled on private or public roads cleaned up. 	Contractor

<p>Fire control</p> <p>Material handling and storage</p> <p>Stockpiles</p> <p>Waste management</p>	<ul style="list-style-type: none"> • Required fire fighting equipment is available on site, and in working order. • No open fires are lit on site without approval of the ECO and Site Manager. • Fuels and hazardous materials to be stored in suitably equipped storage areas in the Contractor camp. • These areas shall comply with fire safety requirements. • Impervious materials are to be used to prevent contamination of the ground in the event of spillages or leaks. • Sites for stockpiling as identified by the Contractor are to be marked on a plan, and approved by the ECO and Site Manager. • Stockpiles must be suitably stabilised where necessary. • Implement effective waste management. • All waste to be stored in an appropriate area on site, and protected against wind dispersal. • Collect all waste in bins and/or skips at the construction site. • Waste to be removed on a regular basis for disposal at a permitted disposal site. • No burning or burying of refuse on site is allowed. • Identify and separate materials that can be reused or recycled to minimise waste, e.g. metals, packaging and plastics, and provide separate marked bins/ skips for these items. These wastes must then be sent for recycling and records kept of recycling. • Sufficient portable on-site weather & vermin proof bins with lids need to be provided and appropriately placed and emptied regularly. Waste to be disposed of at a licensed landfill site, and proof of disposal retained for auditing purposes. 	<p>Contractor</p> <p>Contractor</p> <p>Contractor</p> <p>Contractor</p> <p>Contractor</p> <p>Contractor</p>
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	<ul style="list-style-type: none"> Excess excavated material that cannot be used for backfill should not be allowed to accumulate on site and should be disposed of at a formal landfill site or suitable spoil site identified in conjunction with the ECO. Prevent littering by construction staff at work sites by providing bins or waste bags in sufficient locations. No polluted water from washing of mechanical plant or equipment to be discharged to the ground. All runoff from batching plants, work areas and mixer washings to be contained in sedimentation ponds, which are suitably lined. Ponds must be allowed to dry out regularly, and solid waste removed and disposed of at a site approved by the local authority. All mechanical equipment and work vehicles to be stored, serviced and refuelled at designated areas in the contractor camp. Drip trays or impervious materials to be used to prevent contamination of ground. Suitable measures must be in place to prevent erosion resulting from diversion, restriction or increase in stormwater runoff. Measures must be taken to prevent stormwater from flowing from excavated areas or stockpiles to areas not part of SDP Stormwater containing harmful substances to be contained, and removed from site. Stormwater channels are to be kept clear from soil and debris. 	<p>Contractor</p> <p>Contractor</p> <p>Contractor</p> <p>Contractor</p>
<p>Discharge of construction water</p>		
<p>Maintenance of equipment</p>		
<p>Stormwater management</p>		

<p>Erosion control</p>	<ul style="list-style-type: none"> • Erosion or stormwater damage resulting from Contractor operations to be suitably repaired. • Suitable stabilisation measures are to be implemented wherever works are taking place. • Where erosion is detected, suitable mitigation methods are to be employed as soon as possible. • Avoid clearing of vegetation until absolutely necessary (i.e. just before earthworks). • All cleared ground is to be suitably stabilised to prevent dust. • If ground is watered to prevent dust, care must be taken that runoff is not excessive, or erosive. • Regularly evaluate the effectiveness of all dust management measures. Amend how or which measures are used if necessary. • Avoid excavation and handling and transport of materials which may generate dust under high wind conditions or when a visible dust plume is present. • Cover trucks transporting loose material to or from site with tarpaulins, plastic, or canvas. • Ensure that any material spilled from trucks on public roads during transport to or from the site is cleaned up.
<p>Dust control</p>	
<p>Construction management</p>	<p>traffic</p> <ul style="list-style-type: none"> • All construction vehicles carrying materials must use sheeting to prevent loss of loads due to wind or rain. • Movement of construction vehicles must be limited to approved haul and access routes. • Limit the number of vehicles allowed on-site and restrict the movement of these vehicles over unsurfaced or unvegetated areas once they are on site to reduce dust problems.
<p>Site Rehabilitation</p>	<ul style="list-style-type: none"> • Construction site shall be cleared and cleaned to the ECO's satisfaction.

	<ul style="list-style-type: none"> • Ensure that slopes (if any) are immediately stabilised to prevent erosion, using geofabric or other appropriate erosion stabilisation techniques. • All construction equipment, vehicles, equipment, waste and surplus materials, including site offices, temporary fencing and other facilities, to be removed from the site. • Any spills and contaminated soil to be cleaned up and removed in the appropriate manner. • Ensure that no discarded materials are buried on site or on any other land not designated for this purpose. • Ensure that affected areas are landscaped with indigenous vegetation following construction. • Return areas adjacent to the site (if disturbance is unavoidable) to at least the same condition it was prior to construction. • Use harvested topsoil for landscaping following construction. • Landscape areas with locally indigenous species, including those removed from the site prior to construction. • Landscape any disturbed areas as soon as construction in the area is complete. • Implement Translocation and Rehab plan. 	
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COMMENTS/ UPDATE

RECORD OF PERFORMANCE				
Acceptable	Details of Transgression		Action Taken	Date
	Yes	No	Responsible Party	

3.2.4 Construction Activities

TASK	MITIGATION AND ENVIRONMENTAL CONTROLS	ACTION
Preparation of building materials	<ul style="list-style-type: none"> Preparation of materials to be limited to a batching plant, or the Contractor Camp 	Contractor
Earth shaping	<ul style="list-style-type: none"> Works to be restricted to within surveyed boundaries of the site. Bulldozer/ heavy machinery operators to be under constant supervision. Use and excessive movement of heavy machinery to be avoided in areas of environmental sensitivity or high erosion potential. 	Contractor
Excavation of trenches for service installation	<ul style="list-style-type: none"> Trenching to be undertaken in a phased manner. Trenches to stand open a maximum of 5 days for installation of services. 	Contractor
Dewatering of trenches if flooded	<ul style="list-style-type: none"> Water to be pumped to sedimentation ponds, not allowed to flow into adjacent land. 	Contractor
Backfilling of trenches	<ul style="list-style-type: none"> To be undertaken in a phased manner as services are installed. Fill material to be replaced in same work area from which it originated as far as possible. Fill material to be compacted to its approximate original density. 	Contractor
Temporary stabilisation	<ul style="list-style-type: none"> All areas in which service have been installed are to be stabilised as soon as possible after backfilling. 	Contractor

<p>Groundwater pollution prevention</p> <p>Heritage and palaeontology resources</p>	<ul style="list-style-type: none"> Monthly maintenance checks to be carried out and remedial action implemented where necessary. The USTs and all holding and working areas of the fuels must be contained and lined so that no pollutants can come into contact with the underlying soils or geology. Install small diameter monitoring wells in the excavations where USTs are installed, so that leakage of fuel can be detected. If a spillage or leakage event occurs, it should be reported to the relevant authorities and the necessary actions taken to contain the fuel and reduce any negative impact. Should any archaeological resources or human remains be uncovered during the course of construction, work must cease and ECPHRA must be notified. The Chance Finds Procedure must be adopted and implemented throughout the construction phase of the development. 			
<p>COMMENTS/ UPDATE</p>				
<p>RECORD OF PERFORMANCE</p>				
<p>Acceptable</p>	<p>Details of Transgression</p>	<p>Responsible Party</p>	<p>Action Taken</p>	<p>Date</p>
<p>Yes</p>	<p>No</p>			

3.3. Penalties and Incentives

Transgressions relate to actions by the Contractor or contractor team members whereby damage or harm is inflicted upon the environment or any feature thereof and where any of the conditions or specifications of the CEMPr are infringed upon.

In the instance of environmental damage, the damage is where possible to be repaired and rehabilitated using appropriate measures, as specified and undertaken by appropriate specialists, for the account of the contractor or other guilty party.

Where infringement of the specifications or conditions of the CEMPr is registered, appropriate remedial action or measures are to be implemented for the account of the Contractor.

Transgressions are most likely to occur with respect to litter on site, damage to trees on site, disturbance of sensitive areas, and erosion.

If excessive infringement with regard to any of the specifications is registered, the Client reserves the right to terminate the Contractor's contract.

Issues of non-compliance noted by the ECO are to be communicated to the site manager, who holds the responsibility of ensuring that the relevant parties are made aware of the lack of compliance with CEMPr specifications, and that appropriate action is taken to rectify the situation. The ECO will advise on appropriate corrective actions when necessary.

3.4. Site record

Minutes of the Contractor's meetings on site must reflect environmental queries, complaints, actions agreed upon, dates of eventual compliance and must form part of the official environmental site record, along with the Environmental Site Book and Site Diary.

In additions to the summary report, the ECO shall keep a monthly photographic record of progress on site and an ad hoc record of incidents or events on site, especially in the case of transgressions from CEMPr specifications. Such photographs are to be taken with an in-camera dating facility.

3.5. Review of CEMPr

The CEMPr will be reviewed by the ECO on an ongoing basis. Based on observations during site inspections and issues raised at site meetings, the ECO will determine whether any procedures require modification to improve the efficiency and applicability of the CEMPr on site.

Any such changes or updates will be registered in the ECO's monthly record, as well as being included as an annexure to this document. Annexures of this nature must be distributed to all relevant parties on site.

3.6. Environmental Audits

A suitably qualified Environmental Auditor is to be appointed, at the expense of the Developer, to undertake audits of compliance with the CEMPr.

Objectives should be to audit compliances with the key components of the CEMPr, to identify main areas requiring attention and recommend priority actions. The audit should cover a cross section of issues, including implementation of environmental controls, environmental management and environmental monitoring.

Results of the audits should inform changes required to the specifications of the CEMPr or additional specifications to deal with any environmental issues which arise on site and have not been dealt with in the current document.

4. SPECIFIC MANAGEMENT PLANS

The following Specific Management Plans have been developed as part of the policy requirements of Authorities and applicable Legislation to ensure that construction and operation of the proposed development are managed in a responsible way.

4.1. TERRESTRIAL ALIEN INVASIVE PLANT (AIP) ERADICATION MANAGEMENT PLAN

The purpose of the Alien Invasive Eradication Management Plan is to provide a framework for the management of alien and invasive plant species during the construction and operation of the Project. The broad objectives of the plan include the following:

- Ensure alien plants do not become dominant in parts or the whole site through the control and management of alien and invasive species presence, dispersal and encroachment.;
- Initiate and implement a monitoring and eradication programme for alien and invasive species; and
- Promote the natural re-establishment and planting of indigenous species in order to retard erosion and alien plant invasion.

General clearing and guiding principles include the following:

- The lighter infested areas should be cleared first to prevent the build-up of seed banks;
- Pre-existing dense mature stands ideally should be left for last, as they probably won't increase in density or pose a greater threat than they are currently;
- Collective management and planning with neighbours may be required in the case of large woody invaders as seeds of aliens are easily dispersed across boundaries by wind or water courses;
- All clearing actions should be monitored and documented to keep track of which areas are due for follow-up clearing; and
- Different species require different clearing methods such as manual, chemical or biological methods or a combination of both. However care should be taken that the clearing methods used do not encourage further invasion. As such, regardless of the methods used, disturbance to the soil should be kept to a minimum.

Ten alien invasive plant species were recorded on the site. The most abundant species were *Acacia cyclops* and *Acacia saligna*, which were concentrated in highly disturbed areas. However, saplings of *A. cyclops* have also re-established in areas that were recently cleared of alien invasive vegetation. Other alien invasive species occurred at lower abundances and were more localized, for example:

- *Agave sisalana* was largely restricted to areas covered with rubble;
- *Cortaderia selloana* was restricted to the banks of the wetland;
- *Lantana camara*, *Nicotiana glauca* and *Xanthium spinosum* occurred sporadically in Grassridge Bontveld;
- *Opuntia ficus-indica* was largely restricted to fragmented Thicket Clumps;
- *Opuntia stricta* and *Solanum elaeagnifolium* occurred sporadically in the Grazing Lawn.

Of these species, *Acacia cyclops* and *A. saligna* are the most significant threat to the local flora and terrestrial biodiversity as they easily invade areas subjected to disturbance, after which they outshade and outcompete indigenous species associated with the shrubland component of Grassridge Bontveld.

Species specific treatment -

Treatment of woody AIPs including *Acacia Cyclops* (Rooikrans) and *Acacia saligna* (Port Jackson):

- Seedlings must be hand pulled and no herbicide is needed;
- Young plants should be lopped/pruned and treated by means of a foliar spray of 50ml of Triclopyr Ester* mixed with 10l of water and applied at a rate of 3 l/ha; and
- Adult plants must first be cut down to a stump and frilled before being treated with 300ml of Triclopyr Amine salt* mixed in 10 l of water applied at a rate of 1.5 l/ha. Additionally, a Triclopyr Ester* solution can also be applied to approximately 0.6m length of stump.
- All branches that have been mechanically removed must be transported off site to a designated dumping facility. Cut branches should not be left in stockpiles as the seeds will likely germinate.
- Care must be taken when removing trees to ensure erosion does not occur.

Follow-up AIP treatment -

- Follow-up control is essential to control alien saplings, seedlings and coppice regrowth to achieve and sustain the progress that was made in the initial phase. If the follow up control phase is neglected, the alien infestation may become worse and denser than before the eradication process started.
- Follow-up should be undertaken quarterly for the first year after the initial AIP clearing, thereafter, annually, within the growing season (September – November) for at least seven (7) years.
- An annual assessment before mobilisation of the clearing crew should be undertaken to determine equipment and personnel requirements in order to secure the necessary funding.
- After initial control operations dense regrowth may arise as new regrowth will sprout in the form of stump coppice, seedlings and root suckers. The following should therefore be applied:
 - Plants that are less than 1m in height must be controlled by foliar application.

- Areas with dense seedlings should not be uprooted or hoed out, as these areas will result in soil disturbance and will in return promote flushes and germination of alien seedling growth.

Any exposed soil must be protected using covering with a geotextile such as hessian sheeting or Geojute.

Once all vegetation clearing is completed all vegetation must be disposed of at a licensed refuse facility and may not be mulched or burned on site.

Only indigenous vegetation species may be used as part of the landscaping of the development and open space area associated with the wetlands, thus reinstating faunal and floral habitats. This will ensure that the current levels of ecological service provision of the systems are maintained and where feasible, improved.

4.2. REHABILITATION AND SCC TRANSLOCATION MANAGEMENT PLAN

4.2.1 Translocation of SCC Plant Species

Of the 13 plant species of conservation concern (SCC) identified as potentially occurring in the study area, five were confirmed to occur on site, three of which are threatened species. All SCC were associated with intact Grassridge Bontveld (both the shrubland and thicket components), while threatened species were concentrated in the southern portion of the site (**Refer to Figure 4**). As recommended by Raimondo et al. (2009), a buffer area of 200 m comprising natural or semi-natural areas should be maintained around subpopulations of threatened species (Figure 4). All other SCC that could potentially occur on site were assessed to have a low likelihood of occurrence, based primarily on the lack of suitable habitat in the study area (four species) and the high sampling effort during the field survey for this study, specifically in intact areas of suitable habitat for these species.

The following SCC were recorded during the field survey:

- *Corpuscularia lehmannii*
- *Rhombophyllum rhomboideum*
- *Selago zeyheri*
- *Bergeranthus addoensis*
- *Euphorbia meloformis*



Figure 4: The location of three threatened plant species of conservation concern (SCC) at the site. Buffer areas of 200 m (recommended by Raimondo et al., 2009), comprising intact and restorable habitat areas, are indicated. Conservation status: CR, Critically Endangered; EN, Endangered; VU, Vulnerable.

Permits for the destruction of protected plant species (SCC and *Sideroxylon inerme*) and for the removal and translocation of plant SCCs must be obtained from the relevant authorities.

Prior to vegetation clearing, demarcated development footprints must be surveyed for threatened plant SCC by an Environmental Control Officer or similarly qualified person and a search-and-rescue operation undertaken for species that are suitable for translocation – this includes the succulent species *Bergeranthus addoensis*, *Corpuscularia lehmannii* and *Rhombophyllum rhomboideum*.

Rescued SCCs should be translocated to the identified No-Go area (**Refer to Figure 5**)



Figure 5: The assessed development footprint and No-Go area to be set aside for conservation at the site. Also indicated is the general area into which rescued plant SCC must be translocated.

Care must be taken to not disturb any individuals of plant SCC that is not to be translocated. Translocation should occur during cooler and wetter periods of the year (e.g., autumn or winter) to minimize stress on the plants.

Plants must be watered once every two weeks for the first two months following translocation to enhance their survival potential. Survival of all translocated plants must be monitored and recorded monthly for the first year following translocation;

these results must be reported to the authors of this report (which are to be shared with the South African National Biodiversity Institute).

Vegetation clearing must be limited to areas within the approved development footprints. Disturbance to intact vegetation must be restricted by demarcating those areas that will be cleared during construction, including access roads, haul roads, and lay-down and stockpile areas. Lay-down areas should be contained within the planned clearance areas and should not be placed in the surrounding intact vegetation.

All construction personnel active on site must be notified of the importance of avoiding disturbance to intact vegetation outside of demarcated clearance areas.

The No-Go area must be excluded from development and managed for conservation (**Figure 7**).

4.2.2 Rehabilitation/Landscaping of disturbed areas

All no-go areas must be demarcated and no construction activities may take place in these areas (**Figure 5**). Should any no-go areas be disturbed, for any unavoidable reason, during the construction phase or maintenance during the Operational Phase, prior approval must be obtained from the ECO.

Areas disturbed by any activities relating to the proposed development should be rehabilitated or landscaped as/where required.

The following terrestrial flora units were identified on the development site as indicated on **Figure 6** below:

i. Grassridge Bontveld (Intact & deagraded)

The following plant species occur in this unit –

- Woody dwarf and low shrubs (0.2–0.8 m tall) with mixed affinity, but Karoo and Fynbos elements are most abundant.
- Dominant and commonly occurring shrubs include *Passerina rubra*, *Disparago tortilis*, *Lobostemon trigonus*, *Wahlenbergia tenella*, *Eriocephalus ericoides*, *Chrysocoma rigidula*, *Euryops algoensis*, *Berkheya heterophylla* var. *heterophylla*, *Pteronia incana*, *Helichrysum rosum*.

- *Aspalathus subtingens*, *Elytropappus rhinocerotis* and *Indigofera denudata* are locally dominant in deeper sandy clay soils, while *Jamesbrittenia microphylla*, together with the sedge *Ficinia truncata*, is dominant on exposed limestones. *Selago zeyheri* (Vulnerable) occurs sporadically in the Grassridge Bontveld shrubland.
- Grassridge Bontveld has a well-developed succulent component comprising both dwarf succulents and low succulent shrubs. While they are never dominant, succulent shrubs that are locally common include *Crassula ericoides* subsp. *ericoides*, *Crassula tetragona*, *Bulbine frutescens*, *Delosperma gratiae*, *Delosperma litorale*, *Lampranthus algoensis*, *Ruschia recurva*, *Ruschia congesta*, *Ruschia cymbifolia*, *Ruschia orientalis* and *Pachypodium succulentum*.
- Dwarf succulents are abundant among the shrubs, with species like *Aloe humilis*, *Crassula capitella*, *Crassula cotyledonis*, *Crassula haemispherica*, *Crassula muscosa*, *Curio radicans*, *Duvalia caespitosa*, *Euphorbia procumbens*, and *Trichodiadema intonsum* being relatively common and widespread, while others are more localized and endemic to the surrounding area, for example *Bergeranthus addoensis* (Near Threatened), *Corpuscularia lehmannii* (Critically Endangered) and *Rhombophyllum rhomboideum* (Endangered).
- Grasses are abundant in the shrubland component of Grassridge Bontveld and can be locally common in areas of richer soils or in areas subjected to disturbance. The most common and abundant grass species include *Cynodon dactylon*, *Chloris guyana*, *Cymbopogon marginatus*, *Ehrharta calycina*, *Eragrostis curvula*, *Eragrostis obtusa*, *Melica racemosa*, *Panicum maximum*, *Themeda triandra* and *Tribolium uniolae*.
- Grassridge Bontveld also hosts a rich geophyte flora, with most of these species occurring in more open areas among grasses and shrubs. Geophytes encountered on site include *Acrolophia cochlearis*, *Albuca setosa*, *Babiana sambucina*, *Boophone disticha*, *Brunsvigia gregaria*, *Bulbine narcissifolia*, *Chlorophytum crispum*, *Freesia corymbosa*, *Haemanthus coccineus*, *Hypoxis stellipilis*, *Ledebouria revoluta*, *Ornithogalum dubium* and *Tulbaghia violacea*.

ii. Thicket clumps

The thicket canopy is dominated by:

- Small trees and shrubs (2–3 m tall), with *Euclea undulata*, *Mystroxyton aethiopicum*, *Pterocelastrus tricuspidatus*, *Sideroxyton inerme* and *Schotia*

afra being the dominant overstorey species, while the tree succulent *Aloe africana* can be found emerging above the canopy. Hedge-forming and often spinescent shrubs typically occupy the fringes of thicket clumps, including the species *Azima tetraacantha*, *Capparis sepiaria* var. *citrifolia*, *Carissa haematocarpa*, *Dovyalis rotundifolia*, *Ehretia rigida*, *Gymnosporia polyacantha* and *Searsia pterota*. The succulent shrub *Euphorbia caerulescens* occurs along the fringes of larger thicket clumps found on deeper, richer clay soils. Climbers and creepers are common in the thicket, especially *Asparagus africanus*, *Cynanchum viminale* and *Pelargonium peltatum*.

- The ground layer of thicket clumps is poorly developed, but certain succulent species enjoy the sheltering effect of thicket shrubs, including *Euphorbia clava*, *Euphorbia meloformis* (Near Threatened), *Stapelia grandiflora* and occasionally *Rhombophyllum rhomboideum* (Endangered).

iii. Secondary Grassland

- A few indigenous grass species like *Cynodon dactylon* and *Melica racemosa* are dominant in this vegetation unit while scattered woody shrubs, for example *Helichrysum rosum*, *Berkheya heterophylla* var. *heterophylla* and *Lycium cinereum*, have also re-established in these disturbed areas.

iv. Grazing Lawn

- Grazing Lawn occurs in the northern portion of the site where there has been a relatively long history of livestock farming. Kraals and homesteads were established here at least 15 years ago (but these have since been removed), although these areas were likely used as browsing and grazing grounds prior to this. As the area is unfenced, these practices likely continue. The intense herbivory has led to severe degradation of historically occurring Grassridge Bontveld, with the species-rich shrubland now replaced by a species-depauperate grassland dominated by *Cynodon dactylon*

v. Alien Invasive Vegetation

- A small area of invasive alien vegetation occurs along the eastern boundary in the northern section of the site. This vegetation is dominated by the invasive shrubs *Acacia cyclops* and *Acacia saligna*, with some ruderal indigenous species (e.g., *Aizoon pubescens*, *Mesembryanthemum aitonis*) occurring in

the ground layer. Note that this vegetation can also be found scattered throughout areas mapped as 'Rubble' (Figure 6).



Figure 6: Six terrestrial vegetation units and landcover types at the site that were identified. (Grobler, 2022).

Viable topsoil to be stockpiled during site clearing on site for post development rehabilitation/landscaping. All alien plant species to be removed (Refer to Section 4.1 AIP Eradication Plan).

Indigenous plant species identified in areas earmarked for development should be removed and set aside (where possible) prior to construction, for future replanting in disturbed areas.

ECO to advise on areas to be rehabilitated/landscaped during the construction phase. Only indigenous plant species (identified in this section) to be used for landscaping purposes.

Wetland habitat within the new stormwater infrastructure at the site should be constructed to mitigate the loss of the existing stormwater pond wetland habitat. The facilities should be planted with a mixed community of indigenous sedges and rushes.

The density of the plant cover over rehabilitated area should be assessed on a quarterly basis in order to evaluate rehabilitation success.

APPENDICES

APPENDIX 1 – LOCALITY MAP



Kariega

UITENHAGE FARMS

spatch

Motherwell

Erf 8741

MARKMAN

R335

COEGA

BLUEWATER BAY

Google Earth

Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image Landsat / Copernicus
Image © 2022 Maxar Technologies

2 km

APPENDIX 2- SDP

APPENDIX 3 – ENVIRONMENTAL AWARENESS PLAN

ENVIRONMENTAL AWARENESS PLAN

**EXPANSION OF THE EXISTING SHOPRITE
CHECKERS DISTRIBUTION CENTRE SITUATED ON
ERF 8741, WELLS ESTATE, EASTERN CAPE
PROVINCE.**



April 2022

ENVIRONMENTAL AWARENESS PLAN

The contractor (Construction Phase) and the Proponent (Operational Phase) will implement an Environmental Awareness Plan (EAP) at the Shoprite Checkers Distribution Centre. The material/source of information for the EAP will be the approved Environmental Management Programme Report(s), as well as other relevant specialist reports. These documents will be utilised to compile a database which will contain environmental aspects and issues with medium to high significance. The environmental issues and aspects will be entered into the database with associated mitigation measures and responses, along with the specific legislation that governs such an impact or aspect. The environmental awareness plan is detailed in the sections below.

Induction

All full time staff and contractors are required to attend an induction session. Employees are inducted when they start at the mine and when they return from leave. Any contractor, who works on the mine for a period of 24 hours or more, is required to undergo the respective induction training. Environmental issues and aspects related to the operation will be addressed in these induction sessions.

All environmental impacts and aspects and their mitigating measures will be discussed, explained and communicated to employees. The induction sessions will be modified according to the level of employee attending the induction session, so that all employees gain a suitable understanding of environmental issues and pollution.

The basic content of the induction programme for full time employees is as follows:

- Welcome and Registration;
- Disciplinary Code;
- Fire Extinguisher;
- Employee Assistance Program;
- Security;
- HIV/Aids Awareness;
- Environmental Issues as per EMPRs
- Environmental and Quality Checklists

A Basic Environmental Training Course should be developed by management.

Environmental Meetings

Environmental meetings can be held with management, and selected groups of supervisors /foremen and/or employee representatives. This will take the form of an open discussion between the relevant department and these individuals. The symposiums will aid in environmental awareness being generated at all levels, as well as assist the relevant department in defining all, and identifying new environmental issues, concerns and pollution sources.

In-house Training

In-house training sessions will be held with relevant employees. The training sessions will be determined by the relevant department, and will allow for employees to participate in determining what the environmental issues and concerns are with regard to their specific occupation. Education with regard to environmental incident reporting will be detailed at these sessions.

On the Job Training

On the job training is an essential tool in environmental awareness. Employees will be given details of the expected environmental issues and concerns specifically related to their occupation. Employees will be trained on how to respond if an environmental problem or source of environmental pollution arises. The training will be on-going, and all new employees will be provided with the same standard of training as existing employees.

General Training and Skills Development

Human Resources Development Programmes will include appropriate training and skills development programmes as required by the workforce in support of operation specific business plans (both mining and non-mining related). Training will be offered in portable skills, being competencies that will enable employees to find jobs elsewhere within the mining industry, or to become self-employed.

Basic environmental and pollution control skills will be included in this training.

ENVIRONMENTAL COMMUNICATION STRATEGY

Management shall establish and maintain procedures for the internal communication between the various levels and functions of the organisation, and receiving, documenting and responding to relevant communication from external interested & affected parties. The organisation shall consider processes for external communication on its significant environmental aspects and record its decision. Communication is a management

responsibility. All supervisors are responsible for effective communication within their own sections. Environmental communication can be divided into two categories, namely internal communication and external communication.

Internal Communication

The following communication channels and media will/can be used to communicate environmental issues.

HOD Meetings: The Contractor/ DC Manager communicates information to senior management on environmental issues.

Publications: Leaflets, posters etc are produced by the relevant department or other designated persons.

Daily/ Weekly Safety Meeting: All meetings are scheduled to commence with a discussion on safety, health & environmental topics.

External Communication

The following communication channels and media will/can be used to communicate environmental issues to individuals who are not employed.

Publications: Selected publications should be produced and used to communicate environmental issues to outside parties. Examples include newsletters and Annual Reports.

E-mail: E-mail communication received must be stored, with replies, in an appropriate folder on a server. E-mail messages, relevant to environmental management, should be kept for a minimum of two years before deletion.

Mail: Correspondence received by mail must be filed, along with the response (where relevant), within the relevant department's filing system for a minimum period of 2 years. Paper correspondence will be archived in this department.

Telephone: A register of telephonic environmental queries should be kept by the relevant department detailing caller, contact details, date, query, action taken and response. Furthermore, the person answering the call will be responsible for logging their particulars against the call, as well as ensuring that all communication that leads to an aspect or an impact, is entered on the database.

Storage of Correspondence: All original correspondence must be retained for a minimum period of two years.

Environmental Reports: Copies of relevant specialist study reports and Environmental Impact Assessments to be made available should these be requested by an external party.

Queries from Interested and Affected Parties: Response to queries about environmental impacts and aspects will be addressed by the relevant department.

Incident Reporting Structure

Environmental incident reporting is a vital part of communication. Employees are required to report any and all environmentally related problems, incidents and pollution, so that the appropriate mitigating action can be implemented timeously.

ENVIRONMENTAL INCIDENT REPORTING PROCEDURE

ENVIRONMENTAL INCIDENT REPORTING STRUCTURE	ACTION REQUIRED
<p>Line Management in relevant area of responsibility where the incident occurred</p>	<p>Shall investigate the incident and record the following information:</p> <ul style="list-style-type: none"> o How the incident happened; o The reasons the incident happened; o How rehabilitation or clean up needs to take place; o The nature of the impact that occurred; o The type of work, process or equipment involved; and o Recommendations to avoid future such incidents and/or occurrences. <p>Shall inform the Environmental Manager /DC Manager on a daily basis of all incidents that were reported in the area/section.</p> <p>Shall consult with the relevant department / person for recommendations on actions to be taken or implemented where appropriate (e.g. clean-ups).</p> <p>Shall assist the Environmental Manager and/or DC Manager</p>

	<p>with applicable data in order to accurately capture the incident into the reporting database.</p>
<p>Area / Line Managers</p>	<p>Shall forward a copy of the incident form to other line managers.</p> <p>Shall forward a copy of the incident form to the Environmental Manager / DC Manager.</p> <p>Shall inform the relevant department / person on a weekly basis of the incident by e-mail or by submitting a copy of the incident report. Once a High Risk Incident (any incident which results from a significant aspect and has the potential to cause a significant impact on the environment) occurred it must be reported immediately to the Environmental Manager /DC Manager by telephone or email to ensure immediate response / action.</p> <p>Shall forward a copy of the completed Incident Reporting Form (and where applicable a copy of the incident investigation) to the relevant department / person</p>
<p>Environmental Manager / DC Manager</p>	<p>Shall complete an incident assessment form to assess what level of incident occurred.</p> <p>Shall make recommendations for clean-up and / or appropriate alternate actions.</p> <p>Shall enter actions necessary to remediate environmental impacts into the database in conjunction with the responsible line manager.</p> <p>Shall enter the incident onto the database in order to monitor the root causes of incidents.</p> <p>Shall highlight all incidents for discussion at meetings</p>