Kindly note all appendices are available upon request from KSEMS.

Final Environmental Impact Report

Clairwood Logistics/Distribution Park

eThekwini Municipality
November 2013

EIA Number: DM/0033/2012

Conceptual Building Design for the proposed Clairwood Logistics Park (Source: ICM Architecture, 2013).

Applicant:	Capital Property Fund
Contact:	Nico Prinsloo
Phone:	011 612 6900
Fax:	011 612 6899
Email:	NicoP @capitalproperty.co.za

Prepared By:

KERRY SEPPINGS ENVIRONMENTAL MANAGEMENT SPECIALISTS

www.ksems.co.za
Kerry Seppings Environmental Management Specialists cc

Phone: 031 769 1578 Fax: 086 535 5281 Cell: 082 823 1844 E- Mail: kerry.seppings@telkomsa.net
P. O. Box 396, 3603
Company Registration no: 1999/049452/23
Members: K.A. Stanton (Director)

The information in this report is based on information supplied by the client, Capital Property Fund. All information is given in good faith, however, no physical testing or chemical analyses were performed by Kerry Seppings Environmental Management Specialists cc during the course of this assessment.

Although every effort was made to request and obtain all pertinent information for this assessment Kerry Seppings Environmental Management Specialists cc cannot be held accountable or accept responsibility for any discrepancies in this information or for the disclosure or review of information which has not been presented to the consultant. All reports presented to the consultant for review have been referenced.

As per Regulation 31 (2) (a) of the NEMA EIA regulations herewith (ii) the expertise of the EAP to carry out an environmental impact assessment;

Expertise to Conduct Scoping and EIAs

Kerry Seppings Environmental Management Specialists cc (KSEMS) has been based in KZN since 1998. The consultancy is responsible for numerous Environmental Impact Assessments per annum and all consultants managing our EIAs have a minimum of a Master of Science degree in the Environmental Sciences. In early 2008 the business was converted to a closed corporation (cc). In the new organisation each project is reviewed by at least 3 qualified staff. The increased staff component has allowed for specialised staffing in the following areas; linear EIAs, large developments, ecological expertise, coastal and estuarine ecology, ECO provision, petrol stations, roads development and industrial development. There is also a legal expertise to complement all work done by KSEMS cc.

Integrity and Independence:

Our independence in assessing environmental impacts is paramount to the EIA process. We support sustainable development and believe that as independent consultants our role is to represent the interest of the environment first and foremost and ensure an effective and efficiently conducted environmental assessment process.

Environmental Legal Knowledge:

Kerry Sepping has extensive environmental legal knowledge regarding not only the EIA process and requirements but also with regards to all other legislation at a national, provincial and local level and how these affect environmental management issues. KSEMS has compiled a number of environmental legal registers for several industries in the chemical, paint and manufacturing sector as well as for companies involved in green field developments. Kerry has also carried out several environmental legal audits and as such is conversant with a wide range of legislation relating to various aspects of industry and development.

Specialist Training:

Kerry Seppings has been extensively involved in implementing ISO 14001 Environmental management systems for a number of industries and has good industrial knowledge as well as sound ecological experience when it comes to green field development. Kerry is an ecologist by training and has experience in terrestrial and estuarine environments having obtained her honours degree working on the St Lucia estuary. She was awarded her Master of Science (cum lauded) for work done on a thesis on Environmental Management and Open Space Planning. Her continued involvement in the EIA process has resulted in her being an experienced facilitator of the public participation process and is often contracted to resolve environmental related conflict. Kerry has also been certified as an Environmental Assessment Practitioner by the EAPSA and is a GCX certified Carbon Footprint Analyst (Level 1). Kerry is also registered as a Professional Natural Scientist by the South African Council for National Scientific Professions.

Detailed CV's and proof of certifications and degrees of all KSEMS cc staff are available on request.

Major Clients and Projects:

KSEMS cc is involved with the full range of environmental assessments from a client developing a site for a single resident to some of the Nation's biggest corporations, government departments and parastatal organisations.

Key Areas of Focus Include:

Ecological system planning, hydroelectric power plant and dam construction, retail and residential developments, road and bridge development, transmission and power line installation, gas pipelines and metering stations, filling stations development, multi–use complex development, EIA and ECO work, 24G applications, carbon footprint calculations and analyses, development of rural roads, water use licensing and waste licenses and management of diverse specialist teams on major projects.

As per Regulation 31 (2) (a) of the NEMA EIA regulations herewith details of – (i) the EAP who compiled the report;

AUTHORS

This Report was prepared by *Kerry Seppings Environmental Management Specialists cc*

Kerry Seppings BSc (Hons) MSc EAPSA certified (Pr Natural Scientist) — **Lead Environmental Consultant and Director**

Certifications:	Certified by the Environmental Assessment Practitioners of South Africa (EAPSA) Certified Professional Natural Scientist (400167/12) Certified GCX Carbon Footprint Analyst (Level 1)
Tertiary Education:	University of Natal, Durban BSc (Hons) - Estuarine Ecology (Major), Urban Biogeography (Ecology) (Major) *MSc awarded cum laude* Environmental Management and Open Space Planning Thesis *"Developing an Open Space System for the Queensburgh Municipal Area"*
Work Experience:	1993 - 1994 Queensburgh Municipality - Unofficial Environmental Advisor for duration of MSc 1994 - 1995 IDEAS- Partner in Environmental Consultancy 1995 - 1998 Environment Branch, North and South Central Local Council- Professional Environmental Officer 1999 - present; Director Kerry Seppings Environmental Management Specialists cc.

Stephanie Williams BSc (Hons) MPhil Marine and Environmental Law — **Lead Environmental Scientist**

Tertiary Education:	University of Cape Town, Cape Town BSc (Hons) - Botany (Major), Zoology and Ecology. MPhil Marine and Environmental Law
Work Experience:	2012 Environmental Control Officer for the Transnet multi-purpose pipeline. 2012 – 2013; Environmental Consultant for Kerry Seppings Environmental Management Specialists cc. 2013 – present; Lead Environmental Scientist for Kerry Seppings Environmental Management Specialists cc.

Detailed CVs and proof of certifications and degrees are available on request.

EXECUTIVE SUMMARY

Capital Property Fund proposes to develop a Logistics/Distribution Park on the current Clairwood Racecourse in the South Durban Basin, eThekwini Municipality. Infrastructure such as warehouses and offices will cover 60% of the 72.6 hectare privately owned property. Bulk services associated with the proposed development are considered in the Environmental Impact Report and include sewer connection, water supply, electricity supply and the upgrading of relevant road intersections. Rail sidings on the north-west boundary of the site have been considered as alternative transportation opportunities for the proposed Logistics/Distribution Park.

Since the land is privately owned, there are no feasible site alternatives however the applicant has considered different land uses and alternative layout options for the site. An independent economist has ruled out construction of an office park on this strategically located piece of land. Air pollution problems are a long-standing concern in this area and therefore the option to develop the site for heavy industry was also not supported by the Environmental Assessment Practitioner (EAP). Developing the site for residential purposes is not in line with the "needs and desirability" according to eThekwini Municipality's Central Spatial Development Plan for the area, which has been marked as an important development node. After consultations with wetland, fauna and vegetation specialists, the applicant has developed a sustainable layout creating an economically practical Logistics Park retaining key environmental services currently provided by the site. The no go alternative will see the site left undeveloped however unmaintained as the current tenants, Golden Circle, will no longer continue to manage the site.

An application for environmental authorisation was submitted to the Department of Agriculture and Environmental Affairs (DAEA) on the 25th June 2012. Notification of interested and affected parties (I & APs) commenced on the 03rd July 2012 and the relevant adverts placed as required by the 2010 EIA regulations in terms of Chapter 5 of the National Environmental Management Act, 1998 as amended. An information evening was held at the Clairwood Racecourse on 20th August 2012. The Draft Scoping Report was submitted to I & APs for review and comment on the 27th August 2012. The Final Scoping Report was submitted to the DAEA along with all comments received on the 19th November 2012. The DAEA approved the Scoping Report on 19th December 2012. After receiving all specialist reports and input on the various aspects of the proposed development, the Draft EIR was compiled and submitted to I & APs for comment on 18th June 2013. An open evening was held on the 18th July 2013 where further comments on the Draft EIR were recorded. At the open evening, KSEMS and various specialists were requested to attend a community meeting hosted by the Krishna Rabilal Foundation on the 31st July 2013. Upon further request, traffic and chrome specialists from Aurecon presented to members of the community in more detail on their relevant areas of expertise. The additional meeting was held on the 12th September 2013. Two further community meetings were held at the Clairwood Racecourse on the 02nd October 2013 and 22nd October 2013. The aim of these additional meetings was to clarify traffic and chrome concerns that community representatives had raised at the previous meetings. A representative from CPF, as the developer, was present at both meetings to directly address further concerns. The Draft EIR comment period was extended till the 23rd October 2013. All comments received at the various meetings and throughout the process have been included in the Final EIR submitted to the DAEA for environmental authorisation (Appendix 25.9).

The proposed Clairwood Logistics/Distribution Park layout is provided in Figure 3 of the EIR. The potential development footprint will cover an area of 437 493m^2 (excluding covered parking bays) with 74 600m^2 being used as a rehabilitated wetland area in the north-east corner. Since the Draft EIR was released, an additional 38 224 m^2 is being retained in the south-west corner of the site to avoid the existing chrome remediation activities. A water body and associated heronry are therefore being retained in this portion. Two continuous grass swales lining the central road will expand the amount of green open space by 26 000m^2. The total open green space is therefore approximately 13.87 hectares in extent. The "wetland conservation area" and grass swales will be landscaped to provide an appropriate habitat for associated rare, endangered and endemic fauna and flora identified on the site by the specialists. The proposal is for the plant species to be located and transferred into the area. Faunal species (amphibians and avifauna) will be attracted to the same area prior to construction thereby creating a biodiversity hotspot. Some of the significant species identified include the Racecourse Lily (*Kniphofia pauciflora*) and other endangered plant species such as *Aristea* and *Disa* species, a pair of semi-resident crowned cranes and several amphibian species (including the Pickersgill's Reed Frog). Although the populations of these species may be reduced, all measures possible will be taken to ensure that the species are conserved within the designated area and that they are carefully monitored throughout the operation of the proposed Logistics/Distribution Park. The rehabilitated wetland should retain and improve wetland services currently provided by the site. The Rehabilitation Proposal has been included in Appendix 27.

As a social offset to the development of the racecourse, the applicant propose to contribute to the local community by upgrading, investing or supporting educational/youth projects in the immediate area. The applicant is in consultation with the social specialist who will advise on an appropriate contribution. The applicant has stated that as part of Capital Property Fund's

corporate social responsibility, R2 million is to be allocated to the project for specifically uplifting education facilities in the Clairwood area.

The retention of the entire green area on the site for conservation purposes is not economically feasible and a large tract of unmanaged open space in the area is undesirable for safety and security reasons. This has been considered by the EAP as well as a number of other factors including the isolated position of the site in comparison to other ecologically functional systems, the strategic location within the designated Back of Port area and the large demand for Logistic related land uses in this area. The EAP is of the opinion that the proposed activity should be granted environmental authorisation provided that specialist recommendations are adhered to and the conditions provided in section 10 of the EIR are upheld. The preferred layout, as illustrated in Figure 3, provides a sustainable footprint whereby the applicant's economic requirements are fulfilled, significant environmental services conserved and a substantial contribution made to improving education in the local community of the South Durban Basin.

A Waste Management Plan (WMP) has been prepared for the construction and operational phase of the development to ensure that the solid and liquid wastes are effectively and efficiently identified, handled, stored and disposed of. The WMP includes the management of the large volume of rubble that will be generated during the demolition of the grand stand and various other buildings currently on the site.

The attached Environmental Management Programme (EMPr) should be adhered to during all phases of development: pre-construction, construction and operational. Specialist input provided during the Environmental Impact Assessment has been incorporated in the EMPr to ensure that potential impacts of the proposed development are minimized, mitigated against or prevented. Of particular importance is the pre-construction phase where a detailed Rehabilitation Plan needs to be designed for the wetland conservation area and carried out as soon as possible before construction commences.

CONTENTS

APPENDICES

LIST OF FIGURES

LIST OF TABLES

ACRONYMS

BID	Background Information Document
BOPLAP	Back of Port Local Area Plan
CPF	Capital Property Fund
CSDP	Central Spatial Development Plan
DAEA	Department of Agriculture and Environmental Affairs
DEA	Department of Environmental Affairs
D'MOSS	Durban Metropolitan Open Space System
DP	Development Planning
DSW	Durban Solid Waste
DWA	Department of Water Affairs
DWAF	Department of Forestry and Fisheries
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMPr	Environmental Management Programme
EPCPD	Environmental Planning and Climate Protection Department
ETA	eThekwini Transport Authority
GDP	Gross Domestic Product
HDPE	High Density Polyethylene
I & AP	Interested and Affected Party
KSEMS	Kerry Seppings Environmental Management Specialists
LOS	Level of Service
LAP	Local Area Plan
MHI	Major Hazardous Installation
NEMA	National Environmental Management Act 107 of 1998 as amended
NDP	National Development Plan
NMPP	National Mulit-Purpose Pipeline
PGDS	Provincial Growth and Development Strategy
SAPOA	South African Property Owners Association
SDB	South Durban Basin
SDCEA	South Durban Community Environmental Alliance
SDP	Spatial Development Plan
SIA	Social Impact Assessment
SWMP	Stormwater Management Plan

1.0 Introduction

1.1 Description of the Proposed Activity [Regulation 31 (2b)]

The Clairwood Racecourse, previously owned by Gold Circle (Pty) Ltd, was purchased by the applicant, Capital Property Fund (CPF) for the sum of R430 million in June 2012. CPF owns a portfolio of properties which include offices, industrial and retail throughout a variety of the provinces across South Africa. The Clairwood Racecourse site is 76.4 hectares in extent and is currently utilised as a horse racing, stabling and training venue. CPF propose to develop a Logistics/Distribution Park on the piece of land strategically located within 11.2km driving distance of the existing container terminal entrance at the Durban Harbour. The Clairwood Racecourse is located in the South Durban Basin and is conveniently accessible from the M4/ Inkosi Albert Luthuli Highway. Figure 1 is an aerial photograph showing the location of the proposed site. The relatively flat topography of the land as well as the demand for freight and logistics in that area, make the Clairwood Racecourse site desirable for the proposed Logistics/Distribution Park. Please refer to section 1.3 of the Environmental Impact Report (EIR) which describes the need and desirability for the project in more detail.

Kerry Seppings Environmental Management Specialists cc (KSEMS) were appointed by CPF to conduct an Environmental Impact Assessment (EIA) for the proposed Logistics/Distribution Park. Please refer to Table 7 for a list of the activities associated with the proposed development which trigger Environmental Authorisation (EA) from the Department of Agriculture and Environmental Affairs (DAEA) prior to construction. Section 1.5 outlines details of the scoping process that has been carried out to date.

The Clairwood Turf Club was established in the early 1920's with the primary architect, Alan Woodrow, receiving his first commission in 1934[1]. There are therefore a number of historical structures on the site associated with horse racing such as the stables, the Totalisator building, entrance pavilion and Members Club House. The heritage value of the site and the impact that the development will have on these structures is discussed in section 4.6 of the EIR. The actual race track area, which occupies the majority of the site, currently consists of a mosaic of parklands and mowed grasslands. The wetland system and vegetation on site is largely transformed as a result of the long-term disturbance from horse racing activities (e.g. irrigation and frequent trampling). Specific environmental characteristics are discussed in sections 3.0 and 4.0 where specialist input is used to accurately describe the sites current conditions, identify the potential impact that the proposed activity may have on these environmental features and recommend measures that can be taken to mitigate these potential impacts.

When developing the layout of the proposed Clairwood Logistics/Distribution Park, the applicant has taken into careful consideration the principle of sustainable development. This is defined in the National Environmental Management Act 107 of 1998 (NEMA) as: "the integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure that development serves present and future generations". In achieving this sustainable development, CPF have consulted a range of environmental specialists to ensure that important environmental services are identified and retained on the site where possible. Specifically, the applicant proposes to retain and rehabilitate 7.46 hectares of a currently degraded man-made wetland area in the north-east corner of the site (indicated in the layout in Figure 3). Additionally, a portion in the south-west corner of the site is to remain undeveloped contributing to the environmental component. Including the grass swales which line the central road, the total area therefore being retained and rehabilitated amounts to approximately 13.87 hectares. Please note that the wetlands on site are further discussed in section 4.2.

The preferred alternative is to develop 60% (excluding covered parking bays) of the site excluding the restricted area in the south-west of the site as illustrated in Figure 3 below. The potential footprint will therefore amount to 437 493m^2. Please note that the proposed layout has been adjusted since the release of the Draft EIR. After detailed discussions with Lanxess representatives and various engineers from Aurecon and Worley Parsons, a new layout was proposed whereby the development footprint will not encroach into the existing chrome remediation activities (i.e. repositioning of Block 1). Chrome contamination on the site is detailed in section 4.2 of the EIR. The layout that was originally proposed in the Draft EIR are illustrated in Figure 4 however are no longer regarded as the preferred layout option since Block 1 encroaches into the chrome remediation area.

A Logistics Park generally consists of a variety of buildings and warehouses that are involved with the organisation and management of local and international goods. At this stage of the project, the number of individual buildings to be developed within the proposed building footprint will vary depending on the tenant composition and their individual requirements. An example of the possible layout of the individual buildings/ warehouses is shown in Figure 3. Infrastructure established in these zones will mainly consist of warehousing and offices varying in sizes ranging from approximately 4 500m^2

[1] Archaic Consulting: 'Heritage Impact Assessment', October 2012.

to 63 000m[2]. Vehicular parking and distribution yard areas are to receive hard surface treatment by means of interlocking pavers and concrete hardstands with all remaining areas to be landscaped (Figure 4C). The figure on the cover page shows an architectural impression of what the proposed infrastructure on site could look like. As mentioned above and clearly illustrated in the layout figures below, the applicant is rehabilitating 7.46 hectares of wetland area in accordance with specialist's reports and guidelines (discussed in section 4.2.3 of the EIR).

The retention and rehabilitation of the proposed "wetland conservation area" in the north-east corner of the site requires specialist input to ensure that the functionality and maintenance is improved and upheld during construction and operation of the Logistics Park. The Rehabilitation Plan Proposal has been included in Appendix 27 of the Final EIR, which outlines the objectives and contents of the Rehabilitation Plan. A variety of specialist, as tabulated in the Rehabilitation Plan Proposal, will create the ideal design for the proposed wetland area in terms of hydrology, soil and habitat composition. Curriculum Vitae's of the specialists contributing to the Rehabilitation Plan have also been attached as part of Appendix 27. Over a period of 5 months, a vegetation specialist has sampled the site identifying and recording the location of rare and endangered indigenous flora. Major earthworks will be required to extend the north-east section of the dam that currently exists on site. The applicant proposes to relocate species identified by the specialist, including the endemic Racecourse Lily (*Kniphofia pauciflora*), into the designated wetland conservation area thereby conserving biodiversity. The wetland specialist has identified the functions that the wetland provides (see section 4.2.3), which the wetland conservation area will aim to retain and enhance these functions creating an educational, practical environmental feature on site.

As an offset to the development, CPF propose to improve the educational facilities in the immediate area, which was identified as the main area requiring support by the local community during the EIA[2]. The Resilient Educational Trust was set up by CPF to manage social development projects funded by the applicant. The Trust has embarked on various projects ranging from installing networked computers, upgrading computers, upgrading toilet facilities, classroom refurbishments, general upgrades of schools etc. in various areas across the country. R2 million has been allocated for specifically upgrading educational facilities in the Clairwood area. There has however been a negative response from a fraction of the community, who are not comfortable with the reasons as to why the R 2 million has been included in the EIR (see Appendix 25.9 for the comments and response table). The EAP is of the opinion that the proposed contribution provides a social benefit in line with the social aspect of the "environment" as defined in terms of the National Environmental Management Act 107 of 1998 as amended. The social responsibility of the applicant is discussed in more detail under section 4.4 of the EIR.

Existing services associated with the functioning of the Logistics/Distribution Park will require upgrading or extending with new services being installed. These services include bulk sewer connection to accommodate a maximum ultimate annual average flow of 688 kl/day[3], water supply for a proposed annual average daily demand of 917kl/day[4] and electricity supply for an estimated electrical load of 6 463 kVA for the entire development[5]. Due to the increase in hardened surfaces, stormwater will need to be tightly controlled and managed during construction and operation. These associated services as well as transportation infrastructure (roads and rail) within and around the proposed development are included in the scope of this study and discussed under section 3.0 relating to bulk service provision.

Due to the nature of any Logistics Park, there will be a variety of heavy vehicles transporting containers to and from the development during operational phase. The main entrance to the Logistics Park will be off Basil-February Road (under the M4 Highway and marked with a blue x on Figure 1 below). Even without the proposed development, this intersection below the M4 requires upgrading to accommodate the expected natural increase in traffic volume in this area.[6] Since the relevant roads are within an urban area, the proposed upgrades do not trigger environmental authorisation however as a duty of care measure, the construction associated with the road upgrades will be monitored in conjunction with the development of the Clairwood Logistics/Distribution Park (i.e. the road upgrades are in the attached Environmental Management Programme). The applicant has also taken into consideration, the conveniently located railway line with siding opportunities across the north-west boundary of the site. The potential to utilize the rail network was considered feasible in the Transportation Study and the Civil Engineering Planning Report (both reports summarised in section 3.0).

The site is deemed ideal for the development of a Logistics Park because of its location within the "Back of Port" area and its connectivity to the Durban Harbour via key road infrastructure. The proposed "Dug-Out Port", will be situated approximately 3.5

[2] Perry E, Bob U and Munien S, 'Social Impact Assessment', March 2013
[3] Aurecon 'Civil Engineering Planning Report', March 2013.
[4] As above
[5] Rawlins Wales & Partners 'Electrical and Telecommunication Services Report', March 2013.
[6] Aurecon: 'Transportation Study', March 2013

km by road to the south of the site. Provided that the Dug-Out Port is granted environmental authorisation (EA), the Clairwood Logistics Park will be a key asset to freight and trading opportunities on a regional and national level. A description of the property is provided in greater detail in the following section. It should, however, be noted that the proposed development is self-sustaining in the event that the ports are not further developed.

Back of Port - Area surrounding the Port of Durban within the South Durban Basin which is in the process of being upgraded to accommodate and support an increase in trade.
Dug-Out Port - Land at the old Durban International Airport handed over to Transnet as the future site for the proposed new dug-out port.

The environmental, social and economic impacts for the proposed Clairwood Logistics/Distribution Park are discussed throughout the EIR and a summary of all the potential impacts is provided in Table 10 under section 6.

Figure 1: Aerial photograph showing the location of the proposed development within the South Durban Basin outlined in red. Access to the site will be from Basil-February Road marked with a blue cross (Source: Google Maps, 2013).

Figure 2: Suburbs within the Back of Port area outlined in black with the proposed new Dug-Out Port outlined in red (Source: Iyer and Graham Muller Associates: Spatial Framework, Precinct Plans and Zoning Framework –Back of Port, May 2011).

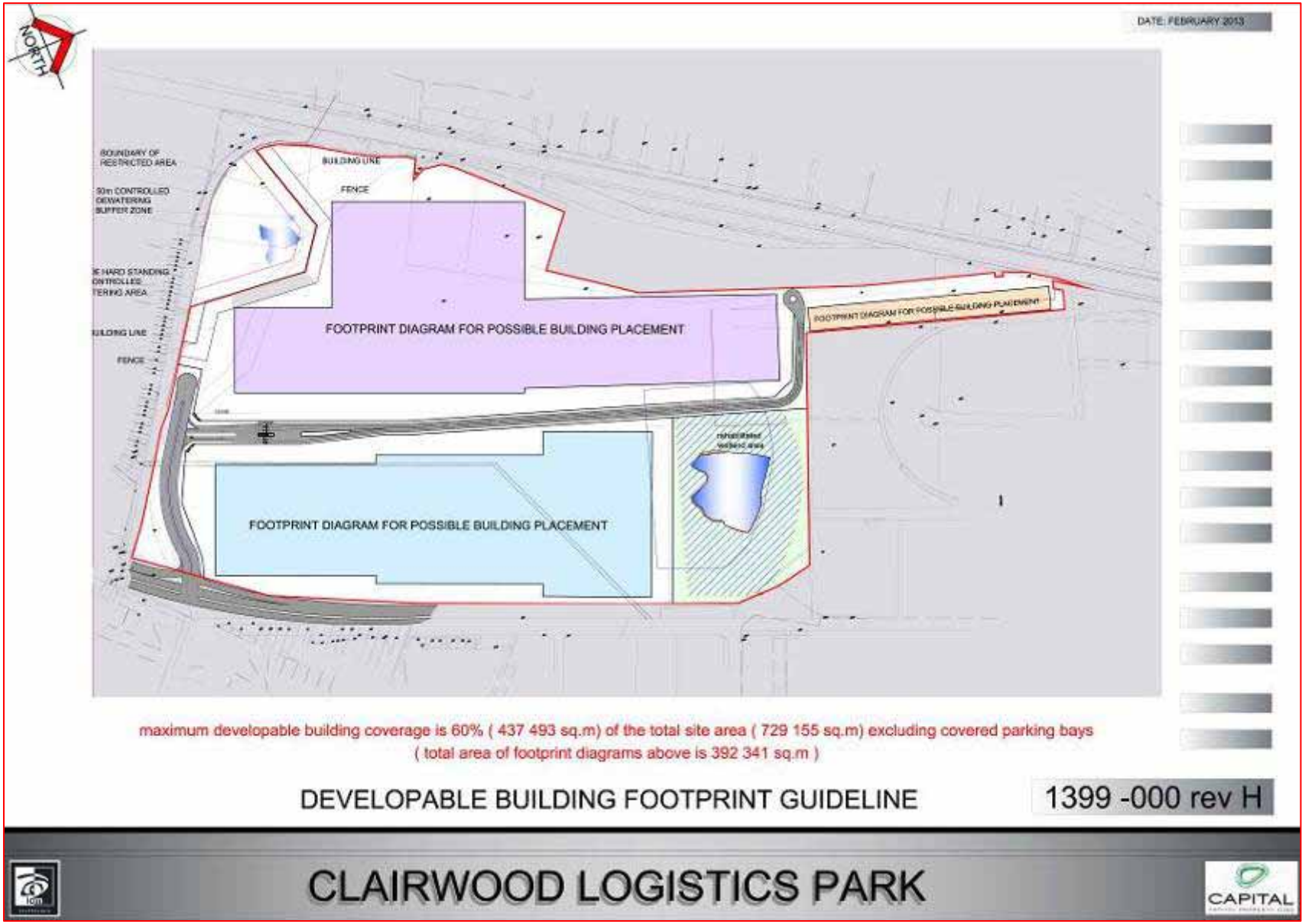
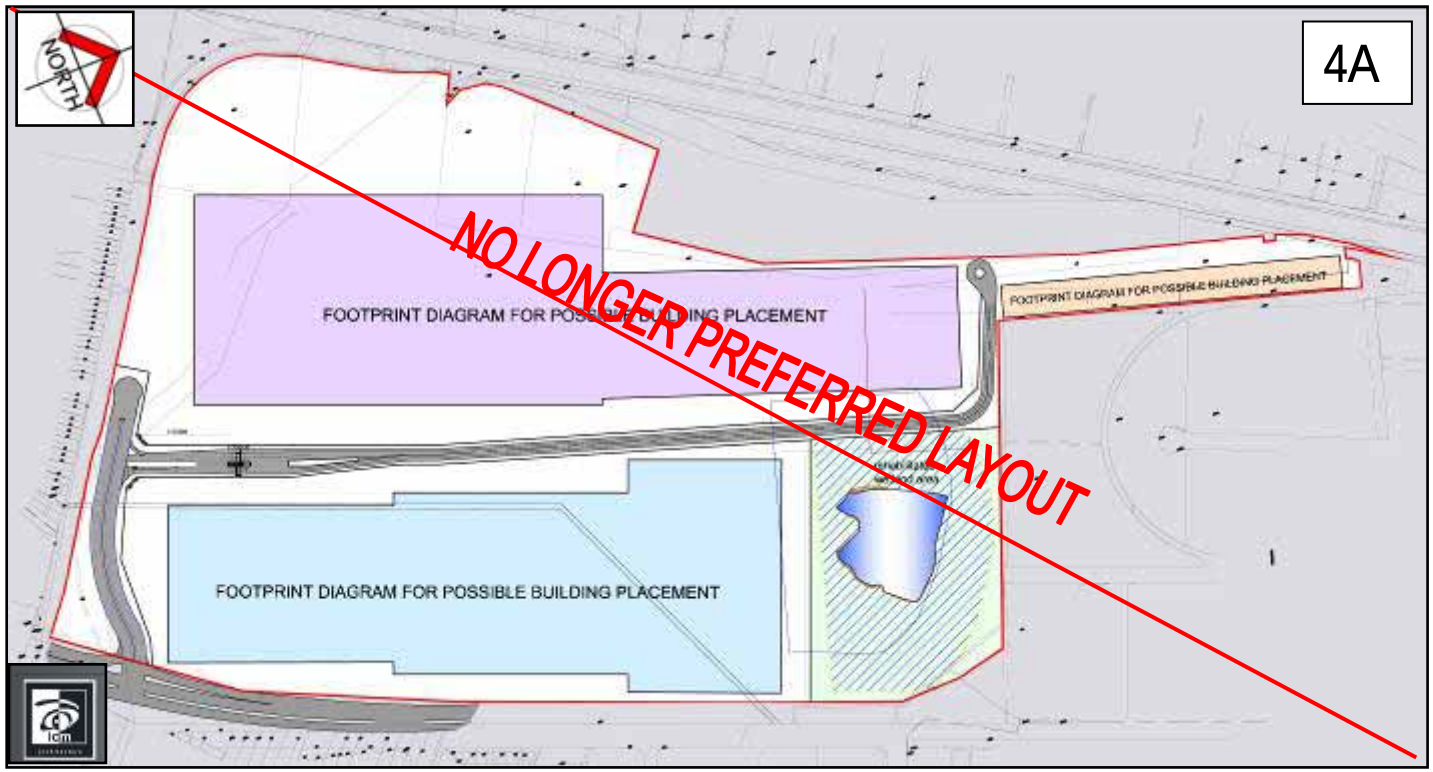
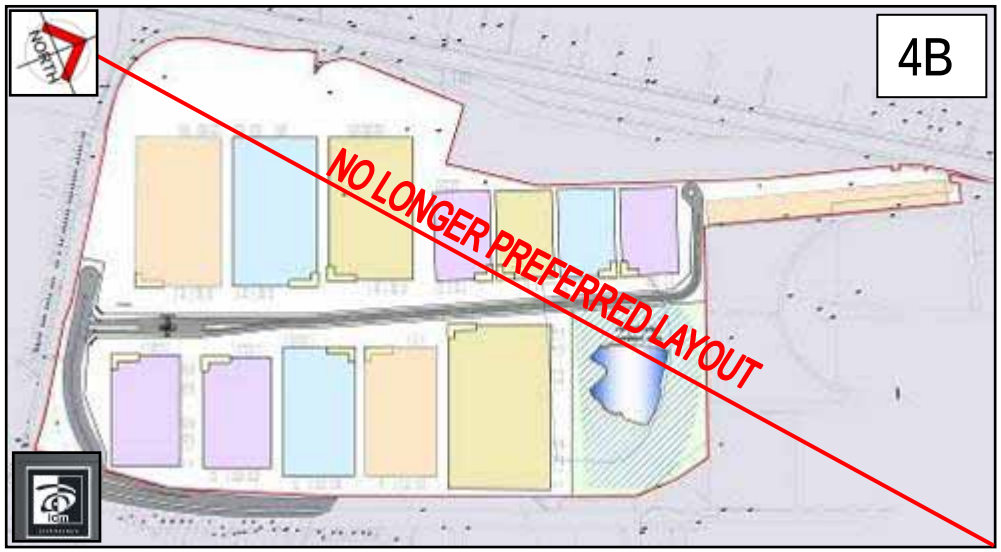


Figure 3: Proposed maximum development footprint (warehouse sizes will depend on the tenant's specific requirements; ICM 2013).





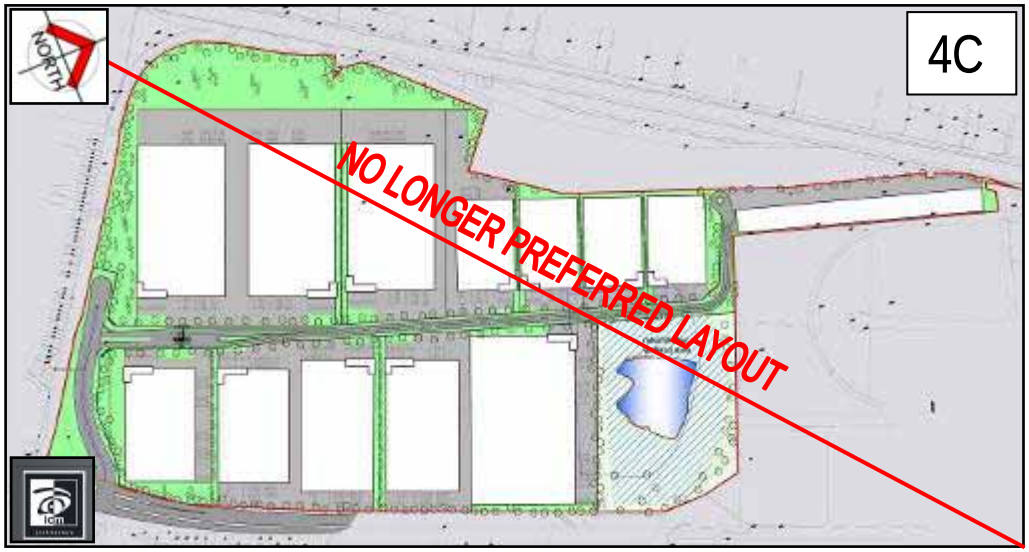


Figure 4: Initially proposed footprint for the proposed Logistics Park within the site (source: ICM Architecture, February 2013).

4A - Maximum developable building coverage (60% of entire site).

4B - Potential break down of the buildings on site. This will depend on the tenant's specific requirements, which are unknown at this stage.

4C - Proposed surface treatment layout illustrating parking and loading areas as well as the areas that will be carefully landscaped on completion of construction.

PLEASE NOTE THAT THESE FIGURES DO NOT INCLUDE THE CHROME VI EXCLUSION ZONE HOWEVER GIVE AN IDEA OF THE POTENITAL WAREHOUSE SIZES/POSITIONS.

Figure 5: Proposed architectural design concepts for the structures to be developed within the proposed Clairwood Logistics Park including a list of green items to be considered by the architect (source: ICM architecture, 2012).

1.2 Description of the property on which the activity is to be undertaken and the location of the activity on the property [Regulation 31 (2c)]

The Clairwood Racecourse is located in the Durban Central Business District within the eThekwini Municipality at the nexus of the Clairwood, Mobeni and Jacobs suburbs. The co-ordinates for the centre of the site are 29°56'25.78"S and 30°58'05.31"E. The property is privately owned and consists of 13 portions of land. Seven portions are currently zoned as Private Open Space, six as Noxious Industry and the final portion as Transport. The site has been demarcated as a part of the Durban Metropolitan Open Space System (D'MOSS). The aim of D'MOSS is to preserve the city's ecological diversity and enhance living environments. A network of open space conservation and recreation areas, linked by open space corridors was created in municipal areas aiming to provide a range of open space services. These services include sustaining habitats and ecological systems as well as providing human life support requirements in the form of clean air, fresh water and flood attenuation. The site however has limited and tenuous physical links with any other significant D'MOSS area. Each environmental service provided by the site has been assessed (highlighted in bold in Table 10) to ensure that, where possible, retention and improvement of the service has resulted.

The location of the proposed site is vitally important to take into consideration as the planner has indicated that the Clairwood Racecourse is one of the only significant pieces of privately owned land left in the area that is available for large-scale private development purposes. It also falls within an important development node which has been earmarked within the Back of Port Plan commissioned by the Municipality as a key investment node (Figure 2).

The applicant is applying for the entire property to be consolidated and rezoned to a proposed new "Logistics Zone". This specialised zone has already been discussed as part of the Back of Port plans for the eThekwini Municipality. TC Chetty & Associates are in the process of lodging an application for the introduction of the new zone into the eThekwini Central Town Planning Scheme in terms of the Planning and Development Act of KwaZulu-Natal (Act No. 6 of 2008).

TC Chetty & Associates compiled a report motivating for the introduction of the new "Logistics Zone" and describing what infrastructure/ land uses the zone will allow. The proposed Clairwood Logistics/Distribution Park Development will therefore conform to the limitations associated within the Logistics Zone. It is important to reiterate that the proposed zoning will not make allowance warehouses storing hazardous or noxious materials[7]. The report has been summarised below and is attached as Appendix 1.

1.2.1 Summary of Specialist Planning Report [Regulation 31 (2) (j)]

The purpose of the report is to motivate and apply for the introduction of a new "Logistics Zone", into the eThekwini Central Town Planning Scheme and to rezone the subject properties from the existing zones to the new Logistics Zone.

Currently, the properties are zoned as private open space, noxious industry and transport zones. There are some residual uses to the south and south-west of the site however the predominantly neighbourhood characteristics surrounding the site are a mixture of industrial and business uses. The Transnet Rail line is immediately adjacent to the western part of the site. The site is in close proximity to engineering services such as water, waste water, stormwater and electrical reticulation.

There is a large demand for logistic uses in this area with the eThekwini Back of Part Area being identified as a key node for the proposed development. The specialist proposes to seek approval from the relevant authorities to develop and introduce a new "Logistics Zone" into the eThekwini Central Town Planning Scheme, to rezone the relevant properties to the logistics zone and to consolidate the properties to form a single property. This application and approval in terms of the Planning and Development Act 2008, is being run parallel with the environmental process.

The proposed Logistics Zone's intention is to provide, preserve, use land or buildings for

- Warehousing of materials considered non-obnoxious or non-hazardous.
- Transportation, trans-shipment and related uses.
- Outdoor storage as an ancillary use.
- Office uses.
- Retail stores and certain eating establishments for the purposes of servicing primary uses in the employment industrial zones, and may only be permitted as an ancillary use when on an Erf with other permitted uses.
- Financial Institutions, kennels, pet services, service shops, and showrooms.

[7] TC Chetty & Associates 'Application to eThekwini Municipality in terms of Schedule 1, Chapter 2 and Chapter 3 of the KZN Planning and Development Act 2008 (Act No. 6 of 2008)', March 2013.

- Extractive and noxious industrial activities are prohibited.

Primary, special consent and precluded buildings and activities included in the logistics zone as well as additional controls and the specific parameters are listed by the specialist on page 12 of the report.

The new zone will minimize the opportunity for further air quality degrading industries associated with the "noxious zones" which currently exist in the Back of Port Area. The BOPLAP states that the proposed properties be rezoned for office use however Ken Davies, a Property Economist, has dismissed the feasibility of an office park development in his specialist report. The assessment conducted by Ken Davies specifically considered whether an office park development would be financially viable on the Clairwood Racecourse Site is included in section 1.3 of the EIR.

National and international businesses have identified the need for logistics facilities in close proximity of the Durban Port and therefore the Clairwood Logistics Park Development is well supported increasing the local economy, creating employment and adding further revenue streams to the municipal tax base. The specialist concluded that in addition to the proposed development being in line with various planning frameworks, the logistics zone is also an appropriate interface with the surrounding land uses.

Identified environmental impacts: provide temporary and permanent employment opportunities, increase in municipal rates contributing to better service delivery to poorer residential communities, proposed development aligned with national, provincial and local planning frameworks and strategies and satisfies the national and international demand for logistic related development enhancing trade on a provincial and national scale.

1.3 Description of the Need and Desirability [Regulation 31 (2f)]

The following information regarding the need and desirability for the project has been provided by TC Chetty of TC Chetty and Associates in the Planning Report attached as Appendix 1.

In November 2011, the National Development Plan (NDP) released by the National Planning Commission places strong emphasis upon reduced unemployment, and enhanced economic efficiency. Provincially an important policy document for understanding the wider context for the proposed development is the Provincial Growth and Development Strategy (PGDS). The province's economic fortunes will therefore clearly have a significant impact on the broader South African economy. The KZN PGDS was adopted by the KZN Cabinet in August 2011. The objectives of the PGDS were to set a long term vision (+20 years) and direction for development in KZN and to provide a spatial context and prioritization for such development.

One of the key strategic priorities to arise out of the PGDS was Job Creation through Economic Growth and the provision of Decent Work opportunities. A key aspect in order to achieve this was to focus on KZN as the gateway to the South African economic centre, particular the Durban-Gauteng linkage. KZN (and particularly Durban) was seen as a key logistics hub with impact well beyond the South African borders. Furthermore, a rapid response to changing global economic trends, such as effective and efficient logistics platforms and infrastructure, was seen to be a requirement for success and competitiveness. As with the NDP, it emphasises employment as a priority.

KZN is the most populous province in South Africa, with the highest level of unemployment and the most severe incidence of HIV/Aids. Moreover, KwaZulu-Natal is the second largest economy in the country, has a disproportionately high share of South Africa's manufacturing sector and is home to the most important logistics platform for South Africa's trade. It also contributes around 16.5% towards the Gross Domestic Product (GDP) of the country.

The key opportunities within the provincial economy include:

- The buoyant growth of a number of industries in the secondary and tertiary sectors in a context of trade liberalisation, suggests that they have made the necessary adjustments to their cost structures to become players in the global arena;
- Initiatives currently underway to restructure South Africa's port system, and the decision to fast-track the process of concessioning the Durban Container Terminal will increase the volume of cargo flowing through the port and act as a catalyst for the development of 'back of port' manufacturing and logistics capacity.

KZN offers a highly competitive advantage in capital-intensive manufacturing, logistics, storage and communications, as well as finance and business services. It is also well positioned in agriculture, forestry and fishing, agricultural resource-intensive manufacturing sectors; and in the tourism and accommodation sectors.

Boasting the highest export propensity and the highest level of industrialisation in the country, the economic structure in KZN is based on a large manufacturing sector. The provinces emergence as a hub of industrial development in Sub-Saharan Africa may be attributed to its natural resource endowments, productive capacity, well-developed first-world infrastructure and advantageous coastal location. Economic activity is concentrated in the metropolitan areas of Durban, Pietermaritzburg and Richards Bay. Two of Africa's primary seaports found in KZN, and the world class King Shaka International Airport, provide a key competitive advantage and ensure the province's importance for economic growth, effectively repositioning the country to increase its share of the global market.

Catalytic project identified out of the PGDS include industrial regeneration of areas, the Durban Back of Port development, and the expansion of the Durban Harbour including the proposals for the new Dug-Out Port. With the envisaged increase in trade between South Africa and BRICS countries, the Port of Durban is set to experience a spike in volume and port traffic. The new dig-out port will assist in this regard. The logistics sector in Durban could also experience substantial growth as a result of BRICS over time.

Dealing specifically with the South Durban Basin within which the Clairwood Logistics Park falls, this area is a national economic powerhouse which consists of an industrial area interspersed with a substantial residential population. The basin is bordered by major transport linkages and a spectacular but sensitive coastal strip, and is comprised of areas of varied social, economic and environmental conditions. According to information from the municipality, major infrastructure upgrades aimed at improving service delivery will be rolled out in an area previously neglected by the racially defined considerations of apartheid. These include a major traffic interchange, electrical substation upgrades and storm water upgrades as well as the improvement of the public realm through urban greening.

As one of Africa and the world's busiest ports, Durban Harbour is currently working beyond its capacity. An extensive upgrade is currently underway, with the top priority being the sustainable development of Durban as a premier status Port. These changes will transform the harbour and its adjacent periphery into a well-defined logistics hub. As previously mentioned, the harbour is also being physically expanded, including the proposed Dug-Out Port. A joint port/city plan includes the upgrading of the existing container terminal, a new container terminal, and a new general-cargo terminal on the Point. Besides these expansion projects, the entrance channel to the Port has been deepened and widened in an effort to improve efficiencies.

Considering the current economic climate and global recession, significant strides have been made to address the key development challenges in the Municipality, particularly job creation, economic growth and poverty alleviation, together with environmental sensitivity. The Municipality is striving to ensure that people are brought closer to where they live, work, study and relax. While the Council is committed to bringing people closer to areas of economic activity, the principle of sustainability will be the driver to ensure that people are living in harmony with the environment. Using the municipal Spatial Development Framework (SDF) and supporting package of plans, the Municipality is committed to the zoning of land in appropriate areas, particular infill development, in order to increase densities and reduce urban sprawl. The Municipality will also limit urban sprawl and associated development costs through the prioritization of infrastructure provision to support new growth areas. Brownfield developments, regeneration, and reclaimed land will also be supported through infrastructure upgrades in specific areas with economic value.

The SDF is the primary spatial response to the development context, needs and development vision of the municipality. It is the primary level of translation of social, economic and environmental development and management policy into spatial terms and is the primary Land Use Management tool of the Municipality. The SDF was translated into more tangible, geographically specific physical development and land use management guidelines through the preparation of Spatial Development Plans (SDP's).

The eThekwini Municipality's SDF key features include:

- An Urban Core, being the urban centre, which generally has servicing capacity and thus opportunity for densification and to support thresholds for a range of services, industry and public transport.
- Smaller urban investment nodes that provide convenient and efficient access to a hierarchy of commercial, community and social facilities. These nodes have number of characteristics and may include higher residential densities, mixed use, public transport and pedestrianisation, public amenities and good infrastructure.
- Emphasis on accessibility and convenience in more densely populated urban areas including the provision of priority route and rail linkages.

The Municipality has identified a number of Special Projects in their planning, which include the eThekwini Industrial Spatial Strategy that aims to unlock industrial development opportunities (both spatially and non-spatially) for the entire City. The

Central Spatial Development Plan (CSDP) differs from other SDP's in that it is more focused as a highly developed and serviced area that is under constant change. The subject site is located in one such area. Substantial portions of the eThekwini Municipal Area's economic development opportunities are concentrated in the Central Spatial Region with industry, commerce and tourism being the leading sectors. The vision for spatial development of the Central Spatial Region has been formulated in accordance with the strategic role this region serves in the wider context of eThekwini and has been underpinned by its inherent characteristics and capacities to support development.

Logistics uses have been replacing traditional industrial uses in Durban's Back of Port area for the past decade due to the increased demand for space by logistics uses and the concurrent decline in the demand for traditional manufacturing oriented industrial space. The lack of availability of large open spaces of land required to develop modern logistics facilities have, however, restricted the development thereof.

Given its location in close proximity to the Port, and other land based forms of transport infrastructure, and the size of developable land available, together with initiatives and objectives arising out of the KZN PGDS and the eThekwini Municipality's own vision and planning, Clairwood Logistics Park offers the business employing modern logistics methods, the opportunity to develop state-of-the art logistics facilities at a location will served by both maritime and land based transport infrastructure. The short distances from both the Durban Harbour and the proposed Dug-Out Port, and easy accessibility to major roads and railway networks, makes the proposed Clairwood Logistics Park an obvious choice for the modern logistics practitioner.

Recent research indicates that a substantial portion of all containers shipped & landed at the Port of Durban do not leave eThekwini Municipality but 70% - 80% of all cargo landed in containers nonetheless does leave eThekwini Municipality. Research conducted by the municipality indicate that of 1,320 logistics companies identified within eThekwini Municipality, 1,021 (77%) are trucking related. Of these, 60% are located within 15km of Durban Container Terminal (DCT). Furthermore the same research indicates that 90% of all trucking related logistics companies are located within 30km of the DCT.

Logistics companies need to be located close to the Port for the following reasons:

- Unpredictable berthing stack dates
- Slow truck turnaround times in the port causing congestion at various points
- Limited and/or inefficient rail service.
- The truck dependant logistics industry is highly sensitive to the fuel price & therefore looks to minimise truck distances travelled.
- Imbalance between 6 metre & 12 metre containers and seasonality of freight movement leads to large numbers of empty containers being trucked around the Metro & imported & exported from the Port of Durban.

The applicant is supportive of the notion, as stated in the Back of Port Local Area Plan (BOPLAP), that the implementation of the BOPLAP will "facilitate the clustering of logistics related land uses rather than encourage the seemingly random distribution of such uses" as is currently happening within the metropolitan area. The applicant agrees with the view that, as per the BOPLAP, Clairwood is the closest area to the Port that would be ideal for utilisation for much needed logistics space. Furthermore, the idea of rezoning areas within the Back of Port area in order to give finality to investor and the community alike is supported. The applicant is of the view that, particularly with reference to some of the current zonings in the Clairwood area, rezoning areas to more logistics oriented/ Back of Port related zones will rectify what they believe are inappropriate Noxious Zones in the area and will minimize chances of further degrading air quality in an area already under pressure.

With specific reference to the Clairwood Racecourse, there appear to be conflicting sentiments expressed within the BOPLAP document regarding the zoning. The applicant is not supportive of the rezoning of the properties to only open space/recreation and offices (as is stated in one part of the BOPLAP), but is fully supportive of the rezoning of the property to a zone catering for Logistics, related Offices and Open Space usage, referred to in another portion of the same BOPLAP document. Ken Davies, a Property Economist, has dismissed the feasibility of an office park development in his specialist report (included on page 20 of TC Chetty & Associates Planning Report, Appendix 1).

The assessment conducted by Ken Davies specifically considered whether an office park development would be financially viable on the Clairwood Racecourse Site. The Back of Port plan sees the Clairwood Racecourse being retained mostly as a "green lung" and be developed as a combination of recreation and office parks that will serve the dig-out port. It is noted that one third of the racecourse be retained as open space. This essentially leaves 51 hectares available for development. The office demand survey in the Back of Port plan indicated that there is a current demand for 200 000m^2 of office space amounting to 30 hectares of site required.

The specialist assessed the eThekwini Office Market using the South African Property Owners Association (SAPOA) office vacancy survey and take-up office space in other a business nodes. The SAPOA schedule shows there is currently 198 908m^2 of vacant office space in the Durban area (excluding Ballito) of which 78.1% is in close proximity to the existing port. With the total current vacant office space in eThekwini being 198 908m^2, the specialist concluded that the current demand figure for office space of 200 000m^2 is patently wrong. Taking into account the high current rental cost of office space (R135-150 per m^2 per month) as well as the size of office space that the relevant logistics companies would require, to propose an office park development on such a strategically located site, makes no sense.

Market research has indicated a desperate need by national and international businesses for modern logistics facilities in close proximity to the Durban Port. Due to the previous lack of availability of developable land, large enough to accommodate modern logistics facilities, a clear need exists in the property market for a development of this nature. Basic supply and demand market forces in co-operation with other macro factors have created a quantifiable need for this development. Furthermore research by the applicant concluded that such a development would be well supported and would add value to the eThekwini Municipality in terms of increasing the local economy, creating employment and adding further revenue streams the municipal tax base, a view confirmed by the applicant's own research.

The development of the Clairwood Logistics Park will incentivise development in the area in conjunction with and supportive of the dig-out port development and other government initiatives. The desirability argument is further supported by the economic research indicating that the project will stimulate job creation in temporary/construction related jobs and permanent jobs, while at the same time allow the Municipality to raise millions of additional rands in property rates as a consequence of this proposed development.

The proposed development is deemed to be in line with the national, provincial and metropolitan planning policy and the potential required benefits in terms of job creation, economic growth and poverty alleviation, and is therefore deemed to be necessary and desirable for the Back of Port area and the eThekwini Metropolitan Area as a whole.

The clear intention is to build on the existing investment destined for the area and generate further interest in the area and thereby safeguard the sustainability and economic viability of the area. The town-planning scheme is the mechanism used to record the suitable and desirable mix of land uses. The existing neighbouring zoning established this compatibility and it is entrenched into the town-planning scheme. This application does not propose any change to this mix of existing uses, and in fact seeks to insert a zone into the scheme and rezone the subject properties to such zone that will act as an appropriate interface between the existing industrial zonings and uses and the neighbouring residential uses in the area. It is proposed to accommodate the proposed development in such a way that no anticipated negative impacts will be imposed on any of the surrounding existing land uses.

The Clairwood Logistics Park is likely to result in temporary jobs during the site preparation and construction making a meaningful contribution to construction sector employment as well as permanent jobs during the operation of the Logistics Park. Rates income to the Council will be significant with the exact value depending on the final mix of tenants. Rates typically subsidise poorer residential communities and therefore this will be a positive social contribution. Job opportunities will be available to the local community thereby reducing commuting time and costs (a key objective of national and provincial government).The specialist states that there will be a net positive impact on society.

1.4 Purpose and Structure of this Report

The EIA process is a planning tool that assists with the assessment of social, economic and environmental impacts through independent specialist input and public participation. The role of the Environmental Assessment Practitioner (EAP) is to provide independent specialist input, manage the public participation and consolidate all relevant information culminating in the EIR and Environmental Management Programme (EMPr) [Regulation 32 (2) (o)].

The purpose of the EIR is to assess environmental impacts as identified during the scoping phase and illustrate significance according to the extent, intensity and duration, taking into account specialist input and Interested and Affected Parties (I&APs) comment. All of this is done with the intent of making recommendations to reduce or avoid the negative impacts of the proposed development. Ultimately a statement on whether or not the project should go ahead is made (section 9). Another important function of the EIR is the inclusion of an EMPr. The EMPr is a document where the findings of the EIR have been translated into measurable actions that must occur during construction and operation in order to mitigate identified

environmental impacts. The EMPr (Appendix 2) is intended as a stand-alone, public document that becomes legally binding should the EIA be approved and the activity go ahead.

This EIR has been structured according to the requirements of the NEMA (107 of 1998) EIA 2010 regulations. The proposed project is subject to a two phase EIA. The initial Scoping Report was completed in 2012 with this EIR being compiled for the second phase of the assessment process. Section 1.5 below provides an overview of the scoping process indicating key issues that were identified, raised and investigated. Through each of the following sections leading up to the table of assessment of impacts in section 6.2, impacts that have been identified have been highlighted in *italics* to ensure that all impacts have been included in the table for assessment. Where specific issues for assessment have been newly identified as a result of specialist report reviews or due to further investigation, these have been added to the impacts identified in the scoping phase and are shown in the table in section 6.2 in purple.

In section 3.0 the development proposal including associated aspects such as management of stormwater, sewage, water and electricity supply as well as traffic impacts are described and discussed. Once again potential environmental risks identified in each section are listed for review and assessment in section 6.2. Section 4.0 describes the environment of the site in terms of physical, biological, social, economic and cultural characteristics. Throughout this section, potential environmental risks are identified for further assessment and rating under section 6.0. Valuable independent specialist input is also provided in this section to enable the EAP and authorities to make an informed decision on the proposal.

Public participation carried out during scoping is included in section 5.0 and comments raised are discussed throughout the report in the relevant sections. In section 5.4, the reader is directed to the comments and responses tables which are provided in Appendix 25.9. Section 6.0 commences with the identification and assessment of issues and impacts, identifying the underlying principles used to determine the importance of certain impacts identified and how these are rated once the mitigation measures have been taken into account.

Finally the report concludes by identifying assumptions gaps and uncertainties in terms of information used in the assessment (section 8.0), ending with an Environmental Impact Statement intended to summarise significant impacts (section 9.0) with the conclusion and opinion on authorisation provided in section 10.0. A copy of the specialist reports has been included in volume two of the EIR.

1.5 Summary of Scoping Process

A Scoping Report was submitted to the DAEA on the 19 November 2012. The content of the report was in line with Regulation 28 of the NEMA EIA Regulations and was accepted by the Department on the 19 December 2012. Since the Scoping Report was accepted, specialist reports have been commissioned by the applicant and reviewed by the EAP. The specialist reports are summarised in sections 3.0 and 4.0 and included in appendices to this EIR. The Draft EIR was released for comment on the 18 June 2013. Various meetings were requested by members of the community and all comments received during this time period have been included in the comments and response table (Appendix 25.9). The final was submitted to the DAEA on 11th November 2013.

Below is a summary of the process that has been followed to date:

EIA PROCESS

The current application is undergoing Scoping and EIA and as such the following steps have or will be followed:

An application form was submitted to the Provincial Environmental Authority: Department of Agriculture and Environmental Affairs (DAEA) on the 25th June 2012.

The application has been advertised in the local newspaper (The Rising Sun on the 3rd July 2012) and the regional newspaper (Isolezwe on the 04th July 2012). Notices were place around the site on the 03rd July 2012. Notices were also handed out to adjacent neighbors on the boundary of the site on the 3rd July 2012. An information evening was held at the Clairwood Racecourse on the 20th August 2012.

I&AP Input

The scoping report and plan of study for EIA was produced detailing impacts to be investigated. This was made accessible to all registered I &APs and to the authorities for comment and review on the 27th August 2012.

I & APs were requested to provide comment within 40 days. All comments received were included in a final scoping report which was submitted to the DAEA for approval on the 19th November 2012.

The DAEA approved the scoping report on 19th December 2012. All I & APs were notified of the acceptance on the 08th January 2013.

I&AP Input

KSEMS proceeded with the Draft EIR. This was submitted to all I&APs and authorities for review on the 18th June 2013. This report assesses the impacts identified during the scoping and investigates mitigation measures.

All I & APs had a further 40 days to comment on the draft report. The comment period therefore ended on the 31st July 2013.

I&AP Input

An Open Day was hosted by KSEMS on the 18th July 2013. KSEMS attended and presented at a community meeting on the 31st July 2013. The comment period was extended till the end of August to allow I & APs additional time to provide input after the presentation. Another meeting was held on the 12th September 2013 to present the traffic impact assessment and provide more detail on the existing chrome contamination on site. Two additional meetings were held at the Clairwood Racecourse with the community and a representative of CPF as the developer on the 02nd and 22nd October 2013. Various specialists were available to present and answer questions. The comment period was further extended to the 23rd October 2013. Meeting minutes including all comments and responses are provided in Appendix 25.11.

Once this comment period ended, the Final EIR with all comments received was submitted to the DAEA on the 11th November 2013. The DAEA have two weeks to acknowledge receipt of the Final EIR, 60 days after acknowledging receipt of the report to accept the EIR and a further 45 days to provide Environmental Authorization approving or rejecting the proposal.

Current status

1.6 Key Amendments / Clarification of Information Provided in Scoping

The following amendments were made following the release of the Draft Scoping Report and should be noted:

During the Draft Scoping Report comment period it was bought to the EAP's attention by the Environmental Planning and Climate Protection Department in eThekwini Municipality that the Clairwood Racecourse site falls within an habitat known as North Coast Grassland. The North Coast Grassland habitat is listed in terms of section 52 of the National Environmental Management: Biodiversity Act, 2004 as "Critically Endangered" and therefore environmental authorisation is required prior to the clearance of 300m^2 or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation. This activity was therefore added to the list of activities requiring environmental authorisation (Table 7). I & APs were notified of the additional activity on the 21 November 2012. A reassessment of the site was conducted by a vegetation specialist (summarised in detail in section 4.1) who has stated that "very little indigenous vegetation occurs on the site" as a result of the current land use where trampling and mowing are regular activities.

Activity 12 of Government Notice 544 of 18th June 2010 for "the construction of facilities or infrastructure for the off-stream storage of water, including dams or reservoirs, where such storage occurs in containers with a combined capacity of 80 but not exceeding 500m³", has been removed from the list of triggers. The engineering service report has confirmed that bulk water connections can be made to existing water pipelines provided by eThekwini Municipality (see section 3.1 for more details on bulk service provisions) and therefore the trigger is no longer applicable to this project. An extra activity has been added to the EIR, which was originally not included in the Scoping Report. This activity 24 of GN 545 of 18th June 2010 for "the transformation of land bigger than 1000m² in size, to residential, retail, commercial, recreational, industrial or institutional use, where, at the time of the coming into the effect of this Schedule or thereafter such land was zoned open space, conservation or had an equivalent zoning" Seven portions of land are currently zoned as "private open space". The entire area is going to be zoned as a new "Logistic Zone".

Subsequent to the information evening, which was held at the Clairwood Racecourse in August 2012, it was evident that the local community were concerned that the development of the Racecourse may result in the relocation of residents in adjacent areas. It is of high importance to clarify that the development will take place within the development footprint (as depicted in Figure 1) and no residents will need to be relocated outside this footprint. Subsequent to the results of the Social Impact Assessment (summarised in section 4.4.1), respondents stated that they would prefer to be informed through flyers/brochures. A flyer was therefore compiled by the EAP and was submitted to I & APs simultaneously to the release of the draft EIR. A copy of the brochure is included in Appendix 25.10 and aimed to inform community members of the proposed development ensuring that specific concerns identified during the scoping phase are addressed. The flyer is a brief over-view of the proposed activity which refers to the EIR for further details. A further open day was held at the Clairwood Racecourse on the 18th July 2013 where the Draft EIR was available and any comments received by the public, discussed.

2.0 Legislation and Guidelines Considered in Developing this Environmental Impact Report

The following section contains a list of relevant legislation, guidelines and regulations that were consulted during the EIA process. This section aims to provide an overview of the key legal requirements that apply to the proposed Clairwood Logistics/ Distribution Park. Legislation will be addressed in terms of its relevance to environmental protection and conservation, water use and protection, health and safety, waste management, noise management, as well as the activities requiring an impact assessment under the NEMA regulations.

2.1 Environmental Protection and Conservation

Environmental legislation provides for the effective protection and controlled use of the environment and its services. Although development is seen as key to economic growth, it has the potential to negatively impact the environment through altering biological functions and affecting fauna and flora. Table 1 provides a list of applicable legislation to the proposed development in terms of environmental protection and conservation.

Table 1: List of legislation key to environmental protection and conservation

National Environmental Management Act, 1998	This Act places an onus on all levels of government to ensure that risk to the environment is identified and where it cannot be avoided, is minimised and mitigated against. Should there be any impact on the environment during or after construction, Capital Property Fund, as the responsible party, have a duty to take measures to address these impacts and undertake the necessary clean up and mitigation measures (section 28). The attached EMPr includes mitigation measures, recommended by specialists that are required to be implemented to ensure that environmental resources are protected.
National Environmental Management: Biodiversity Act, 2004	The Act lists critically endangered, vulnerable and protected species & habitats. The site is located with the demarcated "North Coast Grassland" habitat which is listed as critically endangered in terms of section 52 of this Act. Please refer to section 4.1 for a summary of the vegetation specialist's findings are

	recommendations.
National Heritage Resources Act, 1999	The Act provides protection of and management of conservation worthy places, areas and objects by heritage authorities, by means of registration and the implementation of certain protections. A Heritage Impact Assessment has confirmed that there are currently a variety of structures on the site that are of cultural significance. The impacts of the development on the heritage resources are assessed in section 4.6 of the EIR.
Environment Conservation Act, 1989	The act empowers government authorities to prohibit any action which, in their opinion, may cause serious damage to the environment, or to instruct responsible parties to any take steps that they deem fit to remedy or rectify the situation. The Act also provides for declaration of conservation areas and protected natural environments.
Conservation of Agricultural Resources Act, 1983	The Act contains measures for the prevention of soil erosion, the development of soil conservation schemes, the protection of wetlands and associated vegetation, the utilisation and protection of the veld and the prevention of the spread of declared weeds and invader plants. During both the construction and operational phase of this development provision has been made for the protection of the remaining wetland area and removal of declared weeds and alien invader plants within the green open space areas. Indigenous vegetation will be utilised to landscape the Logistics Park.
Relevant International Environmental Conventions	
Kyoto Protocol to the United Nations Framework Convention on Climate Change	Requires developed country signatories to implement and/or further elaborate policies and measures in order to achieve quantified emission limitation and reduction commitments in order to promote sustainable development. The proposed development will incorporate sustainable principles where possible by including “green” infrastructure (natural lighting, smart glass, rain water collection etc) and rehabilitating a wetland area, which will contribute to an overall reduction in the carbon footprint of the proposed activity.
Paris Convention for the Protection of the World Cultural and Natural Heritage	Imposes an obligation on State Parties to ensure that effective and active measures are taken for the protection, conservation and presentation of the cultural and natural heritage situated on its territory. The heritage resources identified on site by the heritage specialist will be managed in accordance with the recommendations provided in the report (Appendices 23 and 24). AMAFA, the heritage authority in KZN, has been consulted throughout the process. During construction, should any artefacts or buildings of historical significance be discovered, these will be managed according to the National Heritage Resources Act, 1999.

2.2 Water Use and Protection

According to the Department of Water Affairs (DWA), water in South Africa is viewed as a national asset. In global terms, South Africa's water resources are scarce and extremely limited, and poor spatial distribution of rainfall means that the natural availability of water across the country is also highly uneven. However, provided South Africa's water resources are judiciously managed and wisely allocated and used, sufficient water of appropriate quality will be available to sustain a strong economy, high social standards and healthy aquatic ecosystems for many generations. Legislation such as the National Water Act of 1998 and the Water Act of 1956, provide regulations to govern the use, management and protection of water. Table 2 provides a list of legislation that applies to the proposed retail/mix use centre in terms of water use and protection.

Table 2: List of legislation key to water use and protection

Legislation	Description
National Water Act (Act 36 of 1998)	Aims to ensure that water resources are protected, used, developed, conserved, managed and controlled in a sustainable manner, for the benefit of everyone in South Africa. Section 19 includes various requirements to prevent and control water pollution. Water use is defined broadly and includes taking and storing water, activities which reduce stream flow, waste discharges and disposals, controlled activities, altering a water course and removing water from underground. Unless the water use is for basic human needs, is an existing lawful use of is permitted under general authorisation, it must be licensed. Given that there will be a variety of tenants operating on the site, duty of care must be undertaken to ensure that measures are in place to reduce the velocity of stormwater runoff and ensure that limited contaminated runoff is allowed to enter the rehabilitated wetland system in the north-east corner of the development. The DWA has confirmed that a section 21 Water Use License is not required as long as the full 7 460m^2 of wetland is rehabilitated and maintained (Appendix 3).
National Water Resources Strategy 2004	Describes how the water resources of South Africa will be protected, used, developed, conserved, managed and controlled in accordance with the requirements of the National Water Policy and the National Water Act.

2.3 Health and Safety

Regulations in terms of the Occupational Health and Safety Act, 1993, address the health and safety of the employer and workers during both construction and operation of the proposed development. Table 3 provides a list of legislations that apply to the proposed Clairwood Logistics/Distribution Park in terms of health and safety.

Table 3: Health, safety and major hazardous installations regulations

Legislation	Description
Occupational Health and Safety Act 1993	Main objective is to provide for the health and safety of persons at work, including aspects which are hazardous to health and safety. In terms of major hazardous installation, the regulations shall apply to employers, self employed

	persons and users, who have on their premises, either permanently or temporarily, a major hazard installation or a quantity of a substance which may pose a risk that could affect the health and safety of employees and the public. During both the construction and operational phase of this development all the requirements of Occupational Health and Safety Act 1993 will need to be adhered to.
Hazardous Chemical Substance Regulations 1995	These regulations stipulate requirements for storage and handling of hazardous chemical substances and provide guidelines for training of staff. Any hazardous chemical substances used during construction must be identified, stored used and disposed of in accordance with this legislation. A Spill Contingency Plan has been compiled for managing spills during construction and operation of the proposed Logistics Park (Appendix 5).
Environmental Regulations for Workplaces 1987	These regulations specify optimal working conditions for staff including thermal conditions, illumination requirements, requirements for ventilation; noise levels etc and also specify requirements for housekeeping.
General Administrative Regulations 2003	These regulations stipulate the administration of the various Occupational Health and Safety regulations incusing designation of health and safety committees, reporting and recording of incidents and occupational diseases.
Construction Regulations 2003	These Regulations apply to any persons involved in construction work and are therefore applicable to the construction phase. The regulations provide guidelines for safe operation during construction.

2.4 Noise Management

There is a potential for the generation of noise during construction of the proposed Logistics Park. The Environment Conservation Act of 1989 has included a regulation pertaining to noise management. Table 4 lists this regulation and other by-laws which apply to the current project in terms of noise management.

Table 4: Legislation applicable to noise management

Legislation	Description
Environment Conservation Act (Act 73 of 1989)	The Act outlines general prohibitions for noise control. It is also specifies noise management during construction. Specifically section 3(i) states that no person shall use any power tool or power equipment for construction, earth drilling or demolition works, or allow it to be used, in a residential area during the following periods of time: i) Before 06:00 and after 18:00 from Monday to Saturday; and ii) At any time on any Sunday, Good Friday, Ascension Day, Day of the Covenant and Christmas Day, or any other day as may be determined by a local authority; The provisions of the regulations may not apply if any person may by means of a written application, in which the reasons are given in full, apply to the local authority concerned for

	exemption from any provision of these Regulations.
eThekwini Municipality by-laws (General By-laws)	The by-law outlines actions that may be viewed as a nuisance. Specifically, Section 3 states: 3.1.1 (1) A person commits an offence if in a street or public place or on premises he by act or omission causes or creates a nuisance or allows a nuisance to arise or exist in circumstances which are under his control; provided that the a foregoing shall not apply to the extent that a person acts lawfully in the exercise of a right or in the performance of a duty. 2. Without limiting the generality of the provisions of subsection (1) the following shall constitute nuisances thereunder: (a) the reproduction of noise or vibration which arises from or is caused by the operation or use of equipment or machinery;
Noise induced Hearing Loss Regulations 2003	These regulations specify safe working conditions in environments where noise levels exceed safe levels and gives guidelines for assessment of noise, training measures, provisions of information to staff etc.
National Standards (SANS10103:2003)	Specifies the maximum ambient noise level acceptable in various land use type zones

2.5 Air Quality Management

There is a potential impact on air quality during the construction phase of the development. Monitoring air quality is governed by the Air Quality Act of 2004.

Table 5: Air quality management legislation

Legislation	Description
National Environmental Management: Air Quality Act 2004	Aim is to reform the law regulating air quality in order to protect and enhance the quality of air in the South Africa.

2.6 Waste Management

During construction and operation, the production of wastes, either liquid, solid or and/or hazardous, will require that they be adequately disposed of. To regulate waste disposal and management several legislations and regulations have been formulated. Table 6 provides a list of these as well as a short description.

Table 6: Legislation for waste management which applies to the current project

Legislation	Description
Environment Conservation Act 1989	Section 31A provides that the Minister of Environmental Affairs or the Administrator, local authority or government institution concerned may take specified action if any person performs any activity or fails to perform any activity as a result of which the environment is or may be seriously damaged. Section 20(6) of the Act states that, subject to the provisions of any other law, no person shall discard waste or dispose of it in any manner, except at a disposal site for which a permit has been issued, and in a manner or by mean of a facility or method and subject to such conditions as the Minister may

	prescribe. All waste generated during both the construction and operational phase of the development must be disposed of appropriately and is outlined in the EMPr. A Waste Management Plan has also been formulated and is attached as Appendix 4.
National Environmental Management Act 1998	Outlines principles that serve as the general framework within which environmental management and implementation plans must be formulated: "4 (iv) that waste is avoided, or where it cannot be altogether avoided, minimised and reused or recycled where possible and otherwise disposed of in a responsible manner;" The proposed development will incorporate sustainable principles into the building design where possible by including "green" infrastructure and rehabilitating a wetland area, which will contribute to an overall reduction in the carbon footprint of the proposed activity.
National Environmental Management: Waste Act 2008	To reform the law regulating waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development; institutional arrangements and planning matters; national norms and standards for regulating the management of waste by all spheres of government; to provide for specific waste management measures; the licensing and control of waste management activities; the remediation of contaminated land; the national waste information system and to provide for compliance and enforcement measures. The proposed development must comply with the requirements of this Act in terms of the waste management on site. The regulations relating to the requirements for a waste license are discussed in Table 8. A Spill Contingency Plan has also been included in Appendix 5.
eThekwini Municipality by-laws (Solid Waste By-law)	The By-law specifies the appropriate management, removal and control of solid, hazardous and industrial waste. These requirements will need to be adhered to in both the construction and operational phase of the development.

2.7 Environmental Impact Assessment

NEMA (107 of 1998) requires that the potential impact on the environment, socio-economic conditions and cultural heritage of activities that require authorisation or permission by law, and which may significantly affect the environment must be considered, investigated and assessed prior to implementation. The proposed Clairwood Logistics/Distribution Park is undergoing a full scoping and EIR assessment. NEMA regulations specify which activities require environmental authorisation prior to construction. The activities which apply to the current project and for which environmental authorisation is being sought are listed in Table 7 below.

Table 7: List of activities requiring impact assessment identified for the proposed Clairwood Logistics/Distribution

Park.

Government Notice No.	Activity No(s)	Description
Government Notice No. 544 of 18th June 2010	1	*The Construction of facilities or infrastructure for the generation of electricity where:* *i. the electricity output is more than 10 megawatts but less than 20 megawatts; or* *ii. the output is 10 megawatts or less but the total extent of the facility covers an area in excess of 1 hectare.* The estimated electrical load for the entire development is 6 463 kVA or 6.5 megawatts. Electrical requirements are discussed in section 3.1.6.
Government Notice No. 544 of 18th June 2010	9.	*The construction of facilities or infrastructure exceeding the 1000 metres in length for the bulk transportation of water, sewage or stormwater-* *i) with an internal diameter of 0.36 metres or more; or* *ii) with a peak throughput of 120 litres per second or more,* *Excluding where:* *a. such facilities or infrastructure are for bulk transportation of water, sewage or stormwater drainage inside a road reserve; or* *b. where such construction will occur with urban areas but further than 32 metres from a watercourse, measured from the edge of the watercourse.* Infrastructure relating to stormwater control and management of sewage will be required to support a maximum ultimate annual average flow of 688 kl/day for the proposed development. See section 3.0 of the EIR for more details.
Government Notice No. 544 of 18th June 2010	10.	*The construction of facilities or infrastructure for the transmission and distribution of electricity-* *i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or* *ii) inside urban areas or industrial complexes with a capacity of 275 kilovolts or more.* Infrastructure relating to electrical distribution will be required.
Government Notice No. 544 of 18th June 2010	11.	*The construction of:* *i) canals;* *ii) channels;* *iii) bridges;* *iv) dams;* *v) weirs;* *vi) bulk stormwater outlet structures;* *vii) marinas;* *viii) jetties exceeding 50 square metres in size;* *ix) slipways exceeding 50 square metres in size;* *x) building exceeding 50 square metres in size;* *xi) infrastructure or structures covering 50 square metres or more* *Where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.* The proposed development requires the construction of bulk stormwater outlet structures and/or infrastructure within 32 metres of the existing wetland on site.
Government Notice No. 544 of 18th June 2010	13	*The construction of facilities or infrastructure for the storage and handling, of dangerous goods, where such storage occurs in containers with a combined*

		capacity of 80 but not exceeding 500 cubic metres. Depending on the tenant composition, there is the potential for the storage of "dangerous goods" such as oils and paints.
Government Notice No. 544 of 18th June 2010	18.	*The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock from:* *i) a watercourse;* *ii) the sea;* *iii) the seashore;* *iv) the littoral active zone, an estuary or a distance of 100m inland of the high-water mark of the sea or an estuary, whichever distance is the greater-* *but excluding where such infilling, depositing, dredging, excavation, removal or moving* *i) is for maintenance purposes undertaken in accordance with a management plan agreed to by the relevant environmental authority;* *ii) occurs behind the development setback line.* The construction phase of the development requires the infilling and depositing of more than 5 cubic metres material of into the onsite wetland.
Government Notice No. 544 of 18th June 2010	*24*	*The transformation of land bigger than 1000 square metres in size, to residential, retail, commercial, recreational, industrial or institutional use, where, at the time of the coming into the effect of this Schedule or thereafter such land was zoned open space, conservation or had an equivalent zoning.* Seven portions of land are currently zoned as "private open space". The entire area is going to be zoned as a new "Logistic Zone".
Government Notice No. 544 of 18th June 2010	37.	*The expansion of facilities or infrastructure for the bulk transportation if water, sewage or stormwater where:* *a) the facility or infrastructure is expanded by more than 1000 metres in length; or* *b) where the throughput capacity of the facility or infrastructure will be increased by 10% or more-* *excluding where such expansion:* *i) relates to transportation of water, sewage, or stormwater within a road reserve; or* *ii) where such expansion will occur within urban areas but further than 32 metres from a watercourse, measured from the edge of the watercourse.* The expansion of infrastructure for the bulk transportation of water (proposed annual average daily demand of 917kl/day), sewage or stormwater that is required for this development.
Government Notice No. 544 of 18th June 2010	38.	*The expansion of facilities for the transmission and distribution of electricity where the expanded capacity will exceed 275 kilovolts and the development footprint will increase.* The proposed development may require the expansion of existing infrastructure for the distribution of electricity.
Government Notice No. 544 of 18th June 2010	47	*The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre-* *(i) where the existing reserve is wider than 13.5 metres; or* *(ii) where no reserve exists, where the existing road is wider than*

		8 metres *excluding widening or lengthening occurring inside urban areas.* Access roads and roads within the current Clairwood Racecourse will be upgraded and lengthened to accommodate the change in land use.
Government Notice No. 545 of 18th June 2010	15.	*Physical alteration of undeveloped, vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more;* *except where such physical alteration takes place for:* *i) linear development activities; or* *ii) agriculture or afforrestation where activity 16 in this Schedule will apply.* The development of the Logistics/Distribution Park will require physical alteration of undeveloped, vacant land currently used for horse racing.
Government Notice No. 545 of 18th June 2010	18	*The route determination of roads and design of associated physical infrastructure, including roads that have not yet been built for which routes have been determined before 03 July 2006 and which have not being authorized by a competent authority in terms of the Environmental Impact Assessment Regulations, 2006 or 2009, made under section 24(5) of the Act and published in Government Notice No. R.385 of 2006,-* *(i) it is a national road as defined in section 40 of the South African National Roads Agency Limited and National Roads Act, 1998 (Act NO.7 of 1998);* *(ii) it is a road administered by a provincial authority;* *(iii) the road reserve is wider than 30 metres; or* *(iv) the road will cater for more than one lane of traffic in both directions.* Multiple access roads will be required to service the proposed development.
Government Notice No. 546 of 18th June 2010	12	*The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation.* *(a) Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;* *(b) Within critical biodiversity areas identified in bioregional plans;* *(c) Within the littoral active zone or 100 metres inland from high water mark of the sea or an estuary, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas.* The Clairwood Racecourse falls within a critically endangered ecosystem (North Coast Grassland). The entire race track will be cleared for re-development.

2.8 Mitigation of Environmental Impacts

Section 28 of NEMA (107 of 1998) places a duty of care on every person who causes, has caused or may cause pollution or degradation of the environment to take responsible measures to prevent, minimise and rectify such pollution or degradation. Such measures may include the investigation, assessment and evaluation of the impact on the environment; informing and educating employees about the environmental risk of their work and the manner in which the task must be performed to avoid causing significant pollution or degradation of the environment; modifying or controlling any activity causing the pollution or degradations; containing or preventing the movement of pollutants or the cause of degradation; eliminating any source of the

pollution or degradation; or remedying the effects of the pollution or degradation.

In terms of the Section 19 of the National Water Act of 1998, the owner of land, person in control of land or person who occupies or uses any land in which any activity or processes performed or undertaken which causes or may cause pollution a water source, must take all reasonable measures to prevent such pollution from occurring, continuing or recurring. Such measures may include modifying or controlling the act or process causing the pollution; complying with any prescribed waste standards or management practice; containing or preventing the movement of pollutant; eliminating any source of the pollution; remedying the effect of the pollution; and remedying the effect of any disturbance to the bed and banks of a water course.

2.9 Permit Requirements

Table 8 summarises the permits and authorisations that will be required for the construction of the proposed development. Only permits pertaining to the environmental impact assessment of the current project are included in this section.

Table 8: Permit and authorisation requirements for the proposed Clairwood Logistics/Distribution Park

Permit/Authorisation	Description
General Environmental Authorisation	Authorisation required under regulations GNR 544 and 545 of the 18th June 2010 in terms of the National Environmental Management Act 1998. In the current project, authorisation will be issued by the KZN Department of Agricultural and Environmental Affairs.
Abstraction of Water	A permit is required from the Minister of Water Affairs and Forestry for the abstraction of water from a public stream in excess of 50 000 cubic metres if this is required during construction. If water is to be abstracted from water of which the rights of use belong to the private landowners, it will be necessary to establish whether their water user rights are still valid in terms of the provisions of the National Water Act, negotiate with relevant landowners and then to obtain a permit from DWAF in terms of Sections 21, 40 and 41 of the National Water ACT (No 36 of 1998).
Waste Disposal	Domestic and other wastes generated during the construction of the project will be disposed of to appropriately licensed sites (in terms of Section 20 of the Environment Conservation Act, 73 of 1989). Relevant provincial legislation must be taken note of in this regard. Waste Management is covered in the Environmental Management Programme attached to the EIR and a Waste Management Plan is also provided (Appendix 4). The EAP has confirmed with the KZN DAEA: Waste and Chemicals Management section that no waste management license is necessary during the construction phase of the proposed Logistics/ Distribution Park (Appendix 3). Tenants on site during the operational phase who are carrying out a listed waste activity may however still need to apply for the relevant waste management license.
Application for additions, alterations or demolition	In terms of the KwaZulu -Natal Heritage Act No.10 of 1997 (Section 26 (1) (a), a permit is required prior to demolition or alteration of any structure or part thereof which is older than 60 years. The Heritage Impact Assessment conducted by Archaic Consulting has confirmed there are structures that are older than 60 years, which require a permit from AMAFA. Once building plans have been formalised an application will be made to AMAFA, who will stipulate conditions and recommendations before the structures are completely demolished.
Protected Plants	In terms of section 200 of the KZN Nature Conservation Ordinance 17 of 1974 an application may be required to be submitted to Ezemvelo KZN Wildlife regarding the "gathering" of certain specially protected indigenous plant species ("gathering" includes picking, uprooting, cutting, damaging or destroying). Species are listed in

	schedule 12 of the Ordinance and include all species in the Liliaceae family. The specialist has identified *Kniphofia pauciflora* (Racecourse Lily), *Cyrtanthus breviflorus* (Yellow Fire Lily), *Nymphaea lotus* (White Waterlily), Iridaceae species and *Disa woodii* on site and therefore permission will need to be granted for the removal/relocation of the species. Species will need to be located and transplanted into the proposed wetland conservation area. Please refer to section 4.1 for more details of the vegetation found on site.

3.0 Detailed Description of the Proposed Activity [Regulation 31 (2b)]

Section 3 provides a detailed description of the activity in terms of the services that are currently available at the Clairwood Racecourse and what will be required for the proposed Clairwood Logistics/Distribution Park. Potential environmental risks have been identified throughout the sub-sections and are included in *italics* below the descriptions. These risks have been tabulated with measures provided to mitigate the impacts in section 6.2 (Table 10). A comparison of all proposed alternatives is also provided in this section. The alternative comparison includes the effect that the identified alternatives may have on the environment and the surrounding communities.

The infrastructure within the proposed Clairwood Logistics/Distribution Park will cover a maximum of 437 493m^2. This 60% coverage excludes the area that is required for covered parking bays, 7.46 hectares of wetland conservation area and approximately 3.82 hectares of land in the south-west. The Racecourse is situated approximately 2.5km from the coastline and is comprised of low lying estuarine flats with a relatively level gradient sloping slightly from south-west to north-east[8]. Due to the level gradient, drainage is very poor and the presence of clayey materials results in perched water tables. The findings of the geotechnical investigation are discussed in more detail in section 4.2.1. The site can be divided into three major catchments, which will be maintained throughout the development with existing stormwater facilities being utilised. Stormwater runoff is required to be efficiently controlled and consistently managed to ensure that the wetland that is to be retained on site is not negatively impacted on in terms of excess sediment input and pollution. The proposed rehabilitation and management of the wetland conservation area is discussed under section 4.2.

The land surrounding the Clairwood Racecourse is used for residential, industrial and transport purposes. Water, sewerage, sanitation and road services are therefore well developed in the area and have been identified by the Civil Engineer (Figure 3). Other services provided on the site include extraction wells and boreholes, the Transnet National Multi Purpose Pipeline (NMPP) and potentially Telkom services. The extraction wells and boreholes are being utilised by Lanxess to monitor the existing chrome contamination in the south-western corner of the site (red in Figure 3) and will not be impacted on by the proposed development. The boreholes will be within a "restricted area" surrounded by a 50m controlled dewatering buffer zone and a further 25m hard stand area (as shown in Figure 6 below). Additional monitoring boreholes are to be installed prior to excavation activities to detect any movement of the chrome plume. The existing chrome contamination on the site is discussed in more detail in section 4.2 below. Transnet's NMPP 24 inch trunk line runs along the northern and western boundaries (yellow in Figure 3). Transnet has no objection to the proposed development provided their standard crossing conditions and requirements are complied with (proof and conditions provided in Appendix 5 of the Civil Engineering Planning Report). The EMPr has included the required conditions (section 3S). Telkom has been contacted regarding the position of Telkom's underground existing infrastructure and according to the plan provided by Telkom, no important optic fibre or copper cables could be identified crossing the racecourse (Appendix 6 of the Civil Engineering Planning Report). Telkom has however stated that optic fibres or copper cables may exist on the site and therefore the applicant is advised to take a precautionary approach.

Existing infrastructure and proposed upgrades are discussed in more detail in the following section. Please refer to Figure 6 below illustrating the layout of all existing services on site.

Identified environmental risk for assessment: increase in impermeable surfaces resulting in less water infiltration, higher run-off volumes and increased velocities, potential for the wetland conservation area to be polluted by contaminated stormwater, potential to spread the chrome contamination found in the south-west corner of the racecourse site during the earthworks phase, construction may impact existing extraction wells and boreholes in the south-west corner of the site, potential to impact on Transnet's NMPP and Telkom's optic fibre/copper cables which may exist on the Racecourse.

[8] Drennan, Maud and Partners 'Geotechnical Investigation for Development Purposes' March 2013.

3.1 Bulk Services

A Civil Engineering Planning Report was prepared by Aurecon in March 2013 (Appendix 6). The report outlines the existing bulk services available in the area, the requirements to serve the development and the proposals for the provision of these services. The services discussed include water provisions, sewerage, stormwater provisions, the potential use of rail, upgrade of roads and solid waste management. In order to provide a more detailed investigation on certain services in the area, additional specialists were commissioned to report on their specific area of expertise. The additional specialist studies include details on the transportation opportunities (Aurecon), stormwater management (Aurecon) and electrical services (Rawlins Wales & Partners). Solid waste management is also mentioned under this section.

The sections below are dedicated to each of the bulk services required. Findings from the specialist Civil Engineering Planning Report are included in the sections and where the additional specialists have provided input; their reports have also been included in the summary and referenced.

Since the release of the Draft EIR, the Civil Engineer from Aurecon met with the relevant personnel to ensure capacity requirements in terms of water and sewerage. Proof of correspondence regarding service agreements has been included in Appendix 26 of the EIR.

Figure 6: Identified existing services within the Clairwood Racecourse site (source: Aurecon, October 2013).

3.1.1 Water Provision

The water demand was calculated on 200 litres per day per 100m^2 of floor area. The expected water requirements were calculated for each proposed warehouse in terms with an average total of 917kl/day. Currently, the buildings in the racecourse are serviced with a piped water reticulation system. There are two existing boreholes on site and a storage reserve currently used to irrigate the race track[9]. Supplementary water is provided by municipal supply/ extraction from the dam. Municipal water reticulation is found adjacent to the southern and eastern sides of the racecourse. The proposed bulk water connection will be off the existing 600mm diameter steel bulk water pipeline running along the southern boundary of the site. An alternative second bulk water connection will be off the existing 525mm diameter bulk water pipeline running along the eastern side of the site.

[9] River-Wise Aquatic and Wetland Ecologists 'Wetland Functional & Impact Assessment' September 2012.

Reticulation pipes, sized according to peak demand and fire fighting requirements, will be laid in the internal road servitudes where possible. The pipes are expected to range from 110 to 300mm in diameter and will be lined with PVC-U unless other materials are required due to the significant chrome contamination in the south western portion of the site. Further design parameters are listed on page 4 of the Aurecon Civil Engineering Planning Report in Appendix 6. The overall water layout is shown in Appendix 7 of the Aurecon report.

Identified environmental risk for assessment: increased pressure on existing water services in the surrounding area.

3.1.2 Sewerage

The specialist has estimated that 75% of the estimated water demand will be returned as sewage. It is recommended that a maximum ultimate annual average flow of 688kl/d be accepted. The existing buildings within the racecourse are serviced with a fully reticulated sewerage system. The 1 500mm diameter municipal outfall sewer crosses under the racecourse within a registered servitude (orange/red line in Figure 6 above). For the proposed development, a water-borne sewerage collection system will be provided to all the warehouses which will lead to the main sewer outfall. This 1 500mm diameter sewer outfall will however need to be relocated through the site as indicated in Appendix 8 of the Civil Engineering Planning Report. The water-borne sewerage will gravitate to the ting eThekwini Southern Wastewater Treatment Works.

A section of the existing 1 250mm diameter sewer outfall that runs along the southern boundary of the site will have to be relayed in order to accommodate the access arterial to the proposed development (Appendix 8 of the Civil Engineering Planning Report).

Abbreviated design parameters are proposed for the outfall sewer and internal reticulation (page 5 of the Civil Engineering Planning Report). The overall sewer layout is shown in Appendix 8 of the Civil Engineering Planning Report.

Identified environmental risk for assessment: increase in sewage to the eThekwini Southern Waste Water Treatment Works and the potential of a leak when relaying the existing 1250mm diameter sewer outfall along the southern boundary of the site.

3.1.3 Stormwater

Aurecon was commissioned to develop a Stormwater Management Plan (SWMP) to address stormwater issues generated from the proposed development and discuss management measures to be implemented (Appendix 7). Stormwater management takes into account run-off quality and quantity to protect downstream water courses and ecosystems as well as ensuring abnormal rain events/flooding are included. The Clairwood Racecourse does not fall within the 1:100 year floodline.

The **objectives** of the SWMP are to protect life and property from damage by uncontrolled stormwater, to prevent erosion, conserve flora and fauna and to prevent degradation of the local and downstream, watercourses, wetlands and their ecosystems.

Given the flat topography of the site, little overland flow is expected to enter the site from surrounding areas therefore stormwater management will consist of controlling stormwater run-off generated internally from the development. The existing stormwater system was broken down into three major catchments as shown in Figure 7 below.

Catchment A (red) discharges into a piped stormwater system which crosses under the railway line in a south-west direction. Catchment B (green) discharges into a piped stormwater system which follows the western service road. Catchment C (blue) stormwater flows into open channels draining into the dam/wetland at the north-eastern corner. Any outflow from the dam flows directly into the Amanyazama Canal.

The proposed development will maintain the three catchments to utilize the existing stormwater infrastructure (especially the closed system), thereby limiting the sizes of attenuation interventions. The majority of the site will still drain towards the main wetland and catchments A and B will reduce in size to ensure that post-development flows into the closed system will not exceed pre-development levels.

Figure 7: The three major catchments on the Clairwood site (drawing from Aurecon's Stormwater Management Plan as shown in Appendix 2 of the Aurecon report)

PLEASE NOTE THAT THE LAYOUT OF BLOCK 1 HAS BEEN ALTERED, AS ILLUSTRATED IN FIGURE 3, TO EXCLUDE THE CHROME AREA. THE CATCHMENTS AS OVERLAID IN THIS FIGURE REMAIN UNCHANGED.

A variety of stormwater guidelines have been utilised to ensure that the development does not result in higher peak concentrated flows and increased velocity which could cause flooding and erosion. Measures are required to minimise contamination of the stormwater by silt, solid waste and pollutants from the roofs and hardened surfaced parking and roads of the proposed development.

The Stormwater Management Philosophy can be summarised as follows:

- Maintain adequate ground cover at all places and at all times to negate the erosive forces of water and all forms of traffic.
- Prevent concentration of stormwater flow at any point where the ground is susceptible to erosion.
- Reduce stormwater flow peaks as much as possible by the effective use of attenuation devices.
- Ensure that the development does not increase the rate of stormwater flow above that which the natural ground can safely accommodate.
- Ensure that all stormwater control works are constructed in a safe and aesthetic manner in keeping with the overall development theme for the area.

The specialist listed a number of design aspects that will be considered further and documented during the detail design phase of the project:

- The size, capacity and condition of any existing stormwater infrastructure (within the site) will be assessed to determine whether they need maintenance, refurbishment/replacing.
- The existing wetland/dam water quality will be tested to provide a benchmark for post development quality levels.
- The post-development stormwater runoff peak flow that discharges into the receiving watercourses will need to be controlled so it does not exceed their pre-development levels. Retention and or detention features will be utilised. It is estimated that the total volume of stormwater required to be attenuated for a recurrence interval of 1:50 years is approximately 20 000m^3. This calculation will need to be refined using more detailed pre- and post-development site information.
- Energy dissipating structures, where appropriate.
- Allowance for re-establishment of sheet flow at the exits of stormwater drains into the wetland area alongside roads and parking areas.
- Provision of stormwater servitudes where runoff is diverted through property boundary.
- Need for and choice of lining materials for open stormwater drains/channels to reduce erosion.
- Need for and choice of materials for surface roughening and flow restricting devices to reduce scouring velocities.
- Measures to ensure water quality in the receiving watercourses is not degraded (includes silt, oil, grease and litter traps to "clean" stormwater, litter traps incorporated into the detention facilities/first flush detention basins and the need and desirability of constructing reed bed buffer zones/ artificial wetland areas).

During the construction phase the following recommendations are to be followed across the entire site:

- Removal of vegetation cover should be carried out with care and attention to the effect that this removal will have on erosion potential.
- Landscaping and re-vegetation of areas not occupied by buildings/paving shall be implemented immediately after building works are complete.
- Earthworks kept to a minimum. Stabilisation and erosion control measures should be implemented immediately if any embankments are constructed.
- All construction waste is to be properly disposed of off-site. There should be no temporary storage of rubble in natural waterways.
- Temporary cut off drains and berms may be required during construction in order to divert concentrated stormwater flow.
- Run-off from fuel depots, workshops and machinery washing areas and concrete batching areas shall be diverted through silt and grease traps before discharged to the environment.
- As far as reasonably possible, work in watercourses and wetland areas shall take place outside of the expected rainy season and allow sufficient time for rehabilitation process to be affected before the rains commence (March through August). This includes stabilisation of eroded drainage lines and any construction activities involving the crossing of watercourses and wetland areas.
- All watercourses and wetlands to be protected from erosion and direct/indirect spills. In the event of a spill, the Contractor shall take prompt action to clear polluted areas and prevent spreading of the pollutants.
- The grassing, stone pitching, lining of earth channels with erosion control systems should commence as soon as possible after the channels have been constructed.
- All stormwater infrastructure discharging stormwater into the wetland should be constructed as early as possible. These should include attenuation features, energy dissipating structures, litter traps as well as rehabilitation of the existing wetland area.

In terms of the individual warehouse sites, the following measures need to be taken into account:

- Ensure the site is adequately protected against erosion
- Minimize the amount of impermeable areas to maximise infiltration.
- Stormwater runoff disposed in municipal drains cannot contain waste/waste water therefore each site is to be provided with oil, grease and litter traps for “cleaning”: the stormwater.
- Access to the warehouses should not obstruct/concentrate flow of stormwater otherwise appropriate measures should be taken to prevent erosion.
- No diversion/concentration of stormwater must be created that could increase the likelihood of flooding/risk of structural damage to surrounding warehouses.
- All building designs to provide for maximum on-site stormwater attenuation.

The specialist made further recommendations for each stage of the development process with stormwater management requirements contained in documents and drawings at the design stage. eThekwini approval is required prior to construction. A stormwater control plan to comply with the Stormwater Management Plan is to be prepared at the construction phase. The control plan is to be reviewed by the engineer and approved by eThekwini Municipality. On completion of the works, a site inspection will be carried out to check for compliance with the stormwater management requirements prior to the Certificate of Occupation.

The Civil Engineering Planning Report makes reference to the SWMP summarised above and provides details such as the pipe criteria for the closed system on page 6 of the report (Appendix 6). The Civil Engineering Planning Report notes that the increase in impermeable surfaces will result in less infiltration, higher run-off volumes and increased velocities. The quantity and rate of stormwater therefore needs to be controlled adequately through:

- Stormwater harvesting (reusing stormwater for irrigation e.g. rooftop collection);
- Attenuation (retention/detention/features for each individual warehouse site, energy dissipating structures, grass swales with check dams, possible utilization of wetland to attenuate); and
- On-site infiltration (minimize impermeable surfaces; construct infiltration trenches i.e. rock filled ditches).

The quality of stormwater is required to be within acceptable levels according to the DWA for disposal of stormwater runoff from any premise which may contain any waste or water containing wastewater from industrial activities and premises. The specialist therefore recommends that:

- Each warehouse site install a suitable filtration system to prevent pollution and silt from entering the wetland/piped system,

- Each warehouse site to have a demarcated area for 'dirty' stormwater and provide necessary oil, grease and litter traps to clean the stormwater before it is released,
- Hydrodynamic separators or other inlet protection devices used to separate/remove sediments, oil, grease, trash etc. These devices can potentially be used as pre-treatment for other stormwater management devices. This could be regarded as a hazardous waste management activity and thus a waste license could be required for the use of these devices.
- Install and rehabilitate wetlands for them to act as natural filters
- Sand filters/traps incorporated into stormwater detention facilities/roadside manholes.
- Screens/gratings in inlets to reduce ingress of litter into the closed stormwater system.

To ensure that the general quality of the stormwater is not compromised the specialist has stated that a *buffer zone* will be provided between the warehouses and the wetland. This buffer zone would consist of a reed bed acting like a wetland. *Energy dissipating structures* will be provided where the buffer zone joins the wetland. *Vegetated swales* will also be located alongside the main access road providing qualitative and quantitative stormwater improvements.

Identified environmental risks for assessment: higher peak run-off flows from hard surfaces resulting in concentrated flows and increased velocities causing flooding potentially impacting neighbouring property, erosion caused by uncontrolled stormwater runoff, potential for high stormwater volumes to impact the fauna and flora of the natural environment within the development footprint and the potential degradation of local and downstream watercourses, wetland areas and associated ecosystems. Stormwater entering the adjacent Amanyazama Canal possibly being contaminated on site by silt, solid waste and pollutants from the proposed development and stormwater quality not within the required DWA limits before being discharged off the site. Positive impacts associated with stormwater are to harvest the stormwater on the site and the development of other sustainable opportunities for the warehouses.

3.1.4 Transportation

A Transportation Study for the proposed Clairwood Logistics Park was conducted by Aurecon in March 2013 (Appendix 8). The report addresses the traffic impact of the proposed logistics park on surrounding road networks and makes recommendations on access requirements and road network improvements to accommodate the increase in heavy vehicle traffic. The specialist determined the current traffic conditions on the existing road network, calculated the expected traffic increase associated with the proposed development, extrapolated these traffic generation figures using a 10 year forecasted rate and finally recommends road upgrades where the existing intersections and roads will not cope with the predicted increase in traffic.

Existing Traffic Conditions

The relevant existing road network that is associated with the proposed Clairwood Racecourse is illustrated in Figure 8 below. The main access to the Clairwood site is at the northern end of Basil February Road with a secondary access at the north-western corner of the site off Quality Street. The access to the proposed Clairwood Logistics Park via Basil February Road will enable good access to the higher order road network such as the M4 Highway. The access point at Quality Street will be gated as an emergency access.

The traffic specialist stated that no other new developments in the area needed to be taken into consideration for the calculations and that all roads fall under the jurisdiction of the eThekwini Municipality. eThekwini Transport Authority (ETA) propose to extend Grimsby Road (Higginson Highway) over the R102 (South Coast Road), over the railway line through the Clairwood Racecourse connecting to the M4. The proposed layout as illustrated in Figure 3 of the EIR accommodates this extension through the southern end of the site.

Both Metro Rail commuter lines and Transnet Freight Rail lines pass by the western boundary of the Clairwood site (shown in red on Figure 8 below). There is also a shunting yard and several rail sidings in the vicinity of the site which Transnet Freight Rail has confirmed can service the proposed Logistics Park at very little cost. The developers will therefore provide freight rail access to all internal sites located along the western boundary of the property with rail forming an integral part of the transport modes to and from the site. Due to the close proximity of residential and employment zones in the area, there is extensive public transport activity on the road network. The main entrance to the site is currently used as an informal pick-up point for minibus taxis.

Existing traffic conditions were calculated by counting traffic at a variety of intersections and using the SIDRA intersection computer program. Traffic operational performance can be measured in terms of "Level of Service" (LOS) which is a measure of delay along with other indicators of congestion at an intersection. LOS A represents the best operating conditions whereas LOS F represents the worst. LOS E is generally accepted under peak hour conditions. The following intersections were assessed with the current calculated LOS shown in brackets for existing peak hour traffic volumes:

- Basil February Road/Site Entrance and M4 Service Road (west; lowest LOS D)
- Basil February Road and M4 Service Road (east; lowest LOS C)
- Basil February Road and Lansdowne Road (lowest LOS C)
- Himalayas Road and M4 Service Road (lowest LOS D)
- Travancore Drive and M4 Service Road (east; lowest LOS C)
- Jammu Road and M4 Service Road (lowest LOS D)
- Dacca Road and M4 Service Road (lowest LOS E)
- Krishna Rabilal Road and M4 Service Road (lowest LOS F)
- M4 Highway (lowest LOS E)

Traffic conditions for each lane are summarised in the report as well as figures of all the intersections listed above.

Expected Traffic Generation for Proposed Development

A logistics park consists of large separate developments that do not have high numbers of employees but operate 24 hours a day 7 days a week thereby generating consistent volumes of heavy vehicle traffic over a 12 hour period. It is unlikely that high concentrations of traffic will occur during the traditional morning and afternoon peak periods. The proposed use of rail transport reduced the trip generation rate.

The specialist used the Department of Transport's Manual RR 92/228 titled SA Trip Generation Rates (for medium to large industries) to generate the expected trip rate. Based on a trip generation rate of 0.6 vehicles per hour two way per 100m^2 floor area with a directional split of 80:20, the Logistics Park is expected to generate a total of 2 262 vehicles per hour during both AM and PM peak hours. This trip generation model does not take into account existing and future public transport facilities. A formal on-street rank will be provided as part of the external road network improvements required for the development therefore the specialist stated that the above trip generation rate can be reduced by 25% due to travel using public transport. The revised trip generation rates are thus 1 725 vehicles per hour during both AM and PM peak hours.

The distribution of traffic will be similar to the existing traffic flows with a slight bias to the south due to the proposed new Dug-Out Port. The distribution of the development generated traffic on the surrounding road network is shown in Figure 26 of the Transportation Study (Appendix 8).

Ten Year Traffic Forecast

The existing AM and PM peak hour traffic calculations were increased by growth rates expected over a ten year period. A ten year growth rate was chosen to take into account the anticipated increase in traffic resulting from the proposed new port construction and operations. Traffic analysis for each intersection was carried out using SIDRA for the 10 year forecasted traffic volumes **without** the proposed development and **with** the development. This analysis provides the actual Clairwood Logistics Park's impact on the road network and determines which intersections require upgrading.

- Basil February Road/Site Entrance and M4 Service Road
  WITHOUT DEVELOPMENT: Worst LOS being 'E' with queues extending significantly.
  WITH DEVELOPMENT: Intersection will fail with traffic movements operating at a LOS 'F'. Queue lengths are expected to be excessive and will impact operation of adjacent intersections. This intersection will require a major upgrade.

- Basil February Road and M4 Service Road (east)
  WITHOUT DEVELOPMENT: Worst LOS remains at level 'C'.
  WITH DEVELOPMENT: M4 off-ramp approach will operate at a LOS of 'F' and queues will back up onto the M4 freeway. This intersection will require a major upgrade including increasing the distance between the two intersections and the Lansdowne Road intersection.

- Basil February Road and Lansdowne Road
  WITHOUT DEVELOPMENT: Worst LOS remains at level 'C'.
  WITH DEVELOPMENT: Intersection will still operate with spare capacity however the queue back from the two M4 interchange intersections will severely impact on the conditions at this intersection (not taken into account in the SIDRA analysis). This intersection will need upgrading to increase the space it and the adjacent interchange intersections or rationalisation of these intersections.

- Himalayas Road and M4 Service Road
  WITHOUT DEVELOPMENT: Worst LOS is level 'D' with queues extending at all three approaches becoming problematic. Likely that queues could back up along the off-ramp to M4.
  WITH DEVELOPMENT: Intersection will fail during both peak periods. This intersection will require a major upgrade.

- Travancore Drive and M4 Service Road (east)
  WITHOUT DEVELOPMENT: Worst LOS remains at level 'C'.
  WITH DEVELOPMENT: Operate at an acceptable LOS with spare capacity for the 10 year plus development scenario. Queue back up from adjacent intersections is expected to reach this intersection and therefore if the proposed upgrades do not reduce queue length, this intersection will require upgrading as well.

- Jammu Road and M4 Service Road
  WITHOUT DEVELOPMENT: Worst LOS is level 'E' however actual operating of this intersection is likely to be better than this as the SIDRA analysis does not take into account the gaps in traffic as a result of the signalised intersection before vehicles arrive at this intersection. The traffic gaps reduce the traffic volume and therefore no improvements to this intersection will be required.
  WITH DEVELOPMENT: Operating at LOS 'F' however, as stated above, this does not take into account gaps in the traffic and therefore no upgrades are required for this intersection.

- Dacca Road and M4 Service Road
  WITHOUT DEVELOPMENT: Worst LOS level is 'C'.
  WITH DEVELOPMENT: Operating at LOS 'F' however, as stated above, this does not take into account gaps in the traffic and therefore no upgrades are required for this intersection.

- Krishna Rabilal Road and M4 Service Road
  WITHOUT DEVELOPMENT: Worst LOS level is 'F'. Actual operating of this intersection is likely to be better than this and therefore no improvements to this intersection will be required.

WITH DEVELOPMENT: Still operate at LOS 'F' however; this does not take into account the gaps in the traffic due to the upstream signalised intersection. No upgrades to this intersection are recommended.

- M4 Highway
  WITHOUT DEVELOPMENT: Highest forecast volume were 5 076 vehicles per hour during the peak PM hour. The general lane capacity for a highway is between 2 000 – 2 400 vehicles per hour, indicating that the M4 will be operating within capacity for its three lane cross section by direction.
  WITH DEVELOPMENT: Highest forecast volume were 5 432 vehicles per hour during the peak PM hour and therefore the M4 will still be operating within capacity for its three lane cross section.

Recommended Traffic Solutions

All intersections cannot be viewed in isolation because of their close proximity and their connection via the split diamond interchange. A holistic traffic solution is therefore proposed. Two key issues were identified:

1. The two M4 interchange intersections and the Lansdowne Road intersection along Basil February Road are very closely spaced and all three affect the operation of the others during peak periods.
2. The M4 Service Road east of the M4 is a two-way roadway at the M4 southbound off-ramp intersection and this impacts the capacity of this intersection which is also misaligned with Lansdowne Road, its natural connection.

The specialist recommends the following upgrades which are shown schematically in Figure 46 in the Transportation Study:

- The M4 / Basil February Road west intersection is re-aligned into the site so that additional space is created between the two interchange intersections. The Lansdowne Road and M4 southbound off-ramp intersection are combined into one intersection aligned directly opposite the M4 Service Road east of the M4. The Lansdowne Road northbound carriageway is grade separated beneath the M4 southbound off-ramp.
- The M4 Service Road east of the M4 is re-aligned as far east as possible so as to create further space between the two interchange intersections.
- The M4 Service Road east of the M4 be converted to a one-way southbound along its entire length so as to formalise this split diamond arrangement and provide additional road network capacity.

All intersections requiring upgrades are shown in figures 47 – 57 in the Transportation Study. SIDRA results show the new layouts provide sufficient capacity for the forecast traffic increase with acceptable to good LOS levels. Some of the upgrades will be required regardless of whether the logistics park is developed. A summary of all recommendations and road network improvements is provided in Table 3 of the Transportation Study.

Identified environmental risks for assessment: positive impacts include the formalisation and improvement of the on-street taxi rank near the formal entrance to the racecourse and the incorporation of rail access to all internal sites along the sites western boundary. There will however be congestion and disturbance to traffic during the construction phase of the road upgrades and a nuisance impact on the surrounding residents in close proximity to the proposed upgrades (specifically residents along Lansdowne and Basil February Road).

3.1.5 Solid Waste

The specialist stated that in terms of the "*Red Book*", the solid waste from the proposed development will fall within the business and commercial and non-hazardous industrial waste categories. The solid waste will be stored on site where it will be collected by a private operator or eThekwini Municipality. Temporary storage of more than 100m^3 of general waste will trigger a waste license in terms of section 19 (1) of the National Environmental Waste Act, 2008. A separate Waste Management Plan (WMP) has been prepared for the construction and operational phase of the development to ensure that the solid and liquid wastes are effectively and efficiently identified, handled, stored and disposed of (Appendix 4). The WMP includes the management of the large volume of rubble that will be generated from the demolishing of the grandstand currently on the site. The applicant proposes to reuse a large amount of the building rubble. Despite economic benefits, the reuse of this rubble is a sustainable means of disposing this form of solid waste. Materials from building demolition will need to be selected, processed further and reused as selected fill materials (such as platforms). Materials that are not suitable will be disposed of as spoil. Recycling the rubble in this manner will reduce the volume of excess materials leaving the site.

KZN DAEA: Waste and Chemicals Management section have confirmed that no waste management license is necessary during the construction phase of the proposed Logistics/ Distribution Park (Appendix 3). Tenants on site during the operational phase who are carrying out a listed waste activities may however still need to apply for the relevant waste management license.

Identified environmental risks for assessment: large amounts of solid general waste (i.e. rubble) being generated and accumulating on site (>100m^3), potential to recycle building rubble generated during the demolition of the grandstand and other structures on the site and the potential to increase the pressure on receiving landfills.

3.1.6 Electricity Supply

An electrical and telecommunication services report was prepared by Rawlin Wales and Partners in March 2013 outlining the electrical requirements for the proposed Clairwood Logistics Park development (Appendix 9). The specialist notes that the major roads in the development will be public with no gatehouse or guard huts with access control that will prevent municipal workers from accessing the site. The site will be surrounded by an electrical fence.

The developments total electrical load was estimated at 6 463kVA (a breakdown of the calculations have been included on page 2 of the report). This figure excludes diversity that may reduce the requirements however the tenant mix is not known as yet and therefore diversity does not apply. eThekwini have confirmed that they have the capacity available to supply power to the development however the service agreements will be contained in the Planning and Development Act application (proof of correspondence is included in Appendix 26).

All internal electrical services will be provided by the Developers. Substation and minisub positions will be agreed as part of each tenant's application process and will comply with eThekwini Electricity's policies and requirements. Electrical services will be underground.

Medium Voltage Connection: supplied by eThekwini at 11 000V
Internal Medium Voltage Reticulation: eThekwini will design, procure and install underground cables from existing infrastructure at Mobeni into the development. A substation containing medium voltage switchgear, will be required at the site boundary (electricity bulk metering also installed by eThekwini Electricity in this substation). Miniature substations will be mounted on concrete platforms alongside the internal road/brick substation buildings will be required on the larger consumer sites.
Low Voltage Electrical Reticulation: low voltage kiosk will be located adjacent to each miniature substation from where underground low voltage cables will run to each site.
Site Internal Electrical Reticulation: Tenant responsibility
Street Lighting: eThekwini will install standard streetlights along the internal roads.
Area Lighting: Tenant responsibility

Identified environmental risks for assessment: nominal pressure on the eThekwini Municipality local major substation in the area.

3.2 Description of Identified Potential Alternatives to the Proposed Activity, including Advantages and Disadvantages that the Proposed Activity or Alternatives may have on the Environment and the Community that may be Affected by the Activity [Regulation 31 (2) (g)]

The Western Cape Department of Environmental Affairs and Development Planning (DEA & DP) guideline[10] on alternatives has been used as a guide to the identification of feasible alternatives to the proposed activity. The NEMA EIA Regulations define alternatives as a "*different means of meeting the general purpose and requirements of the activity*".

Alternatives to the proposed activity were identified according to the following criteria:

i. Is the alternative feasible and reasonable?
ii. Does the alternative suit the general purpose of the proposed activity?
iii. Does the alternative align with the need and desirability considerations of the proposed activity?
iv. Is the alternative designed to prevent and minimise negative impacts and to maximise benefits?
v. Does the alternative compromise the integrity of the proposal?
vi. Does the alternative comply with policy and legal requirements?

The desired proposed activity for which the environmental process is being conducted is for the development of a Logistics Park or similar development of the site for commercial gain. As per criteria (ii) above, any alternative identified for investigation has to suit the general purpose of the proposed activity or it would not be considered a "feasible and reasonable" alternative. A full investigation of the best environmental option for this site is therefore beyond the scope of this assessment and rules out various land use alternatives by nature of the proposed activity.

[10] DEA&DP 'Guideline on Alternatives, NEMA EIA Regulations Guideline and Information Document Series' (2011).

The site is the only large "undeveloped" site available for large scale industrial or logistics/distribution purposes in the South Durban Basin area. Since no other sites of this size are available for the intended development purpose in the required location no site alternatives are investigated in the EIA.

The strategic location of the site renders it very valuable from an economic perspective (upwards of R400 million rand) and even though the site has been available for sale for a number of years the site has only recently been sold to CPF. The high price paid for the site by private developers is reflective of the aim of CPF, which is to utilise the site for commercial purposes.

As stated in Regulation 28 (1) (c) of the 2010 EIA regulations, KSEMS has been appointed to identify and explore all "feasible and reasonable alternatives". During the feasibility phase, a number of development options were suggested and considered by the applicant. These included utilizing the land for:

- Residential purposes
- Retaining site as a "green-lung" for community purposes
- Offices
- Logistics
- Industrial
- No-Go

Due to the strategic location of the Clairwood site, in close proximity to Durban Harbour, as well as the heavy industry in the immediate area, it is not economically feasible for CPF to develop the site for residential purposes. Falling within an area earmarked in the eThekwini Municipality CSDP as an important node for future development, it would not be aligned with the needs and desirability, as discussed in section 1.3, to utilise the land for residential purposes.

Since the EIA process requires that only feasible alternatives be considered any alternative that would require large tracts of the site to be reserved for public or conservation purposes (i.e. not income generating) were not considered feasible as the developer (applicant) would not pursue this option due to lack of financial return. For this reason retention of the land as a public open space or for residential purposes has not been investigated as an alternative but this has been considered as part of the no-go alternative, whereby the Clairwood Racecourse site would not be developed.

As discussed in section 1.3, the economic feasibility report carried out by Ken Davies from Ken Davies & Associates assessed whether the Clairwood Racecourse could be developed for a combination of recreation uses and a series of office parks that will serve the proposed Dig-Out Port. The report concluded that "to propose an office park development that clearly would not be financially viable, on such a strategic located site makes no sense." Ken Davies report has been outlined in more detail in section 1.3 of the EIR. As this site has been privately purchased, exploring the predominantly office use alternative is clearly not feasible.

The only uses that would generate the required financial return would be logistics, distribution or industrial use. The aim of this environmental assessment is not to investigate the best environmental option for the site but assess the impacts (including the no-go alternative) of feasible alternatives should the site be developed for commercial gain.

The no-go option is considered as a feasible alternative to compare the potential impacts any development may have with the possible impact of leaving the site undeveloped. The no-go alternative is used as a baseline against which all the other alternatives are measured.

Based on the DEA & DP's above mentioned criteria and given the background of the project, three land use alternatives and the No-Go alternative are investigated in the EIR:

Alternative 1: Entire site developed for Logistics/Distribution Park.
Alternative 2 (preferred option): Logistics/Distribution Park developed on most of the site and retaining important environmental services areas where possible.
Alternative 3: Industrial development on the site.
No-Go Alternative: No development on the site.

3.2.1 Alternative 1: The development of the entire site for a Logistics/Distribution Park.

Alternative One is to develop the entire site for logistics and distribution purposes maximising the financial return for the development and providing higher employment opportunities. This alternative supports the Back of Port Area Plan providing

logistical support to the expansion of the existing Durban Harbour. It will also efficiently service the proposed Dug-Out Port, should environmental authorisation be granted. In terms of transport, the Logistics/Distribution Park will increase the volume of heavy traffic in the area however will also make use of the rail network located adjacent to the western boundary. This is the applicants preferred alternative as it will provide the maximum financial gain.

To fully develop the racecourse site for logistics/distribution purposes would result in the loss of the last remaining significant open space in the area and all associated environmental services currently provided by the site, which are already largely compromised by the surrounding heavy industrial presence. The environmental characteristics of the site are in no way pristine as the current land-use has largely altered the natural environment (e.g. mowed grass and frequent trampling) however the site still provides a variety of environmental services (detailed in section 4.0 below). Of particular importance is the wetland and associated indigenous vegetation and fauna on the site. To develop the entire site for commercial gain, is not considered the best environmental option and does not take into consideration the needs of the local community.

3.2.2 Alternative 2 (preferred option): The development of a Logistics/Distribution Park on most of the site, retaining important environmental services where possible.

Alternative Two is to develop the site for logistics and distribution purposes taking into consideration key environmental services currently provided by the onsite wetland and the presence of rare and endangered species identified on the site (refer to section 4.0 for further details on the environmental services provided). This alternative provides similar planning advantages to Alternative One however the financial return would not be as significant due to the reduced footprint area for bulk storage. The proposed development will still increase the volume of traffic in the immediate area however not as much as if the entire site was developed. The use of the rail network will still be incorporated into the design of the proposed Logistics/Distribution Park.

The significant difference between Alternative One and Two is that Alternative Two incorporates environmental services into the layout. Since the existing environmental services are generally degraded, there is an opportunity for the proposed development to improve the functionality of the wetland and monitor endangered vegetation growth within the proposed wetland conservation area. The wetland conservation area is to be designed as a fully functional wetland system providing the required ecosystem to sustain the rare Racecourse Lily and other relevant flora and fauna currently associated with the Racecourse. Wetland and vegetation specialist input has been imperative in determining the size of the designated area that is required to sustain the desired ecosystem. 7 640m^2 has been allocated for retaining the environmental services to ensure a sustainable environmental outcome. "Green" items have been considered by the architect, which are to be incorporated into the infrastructure on site reducing the carbon footprint of the proposed development. These include sun screens for large windows to absorb and dissipate solar heat and glare, low-e single glazing smart glass, allowing natural light into the warehouses, motion sensitive lighting, energy efficient light fittings, heat pump I.L.O geysers, VRV air-conditioning systems and efficient waste and water management strategies.

Due to the large amount of culturally significant structures on the site (refer to section 4.6), which reflect the long historical use of the site for racing purposes, the architect will take into consideration the incorporation of elements/features of the structures into the proposed design concept. The heritage authority, AMAFA, will be required to review the building plans and suggest recommendations. It is further recommended by the EAP that features of the Clairwood Turf Club be relocated into the wetland conservation area thereby retaining the history of the site. This is discussed further in section 4.6 of the EIR.

3.2.3 Alternative 3: The development of the heavy industry on the site.

Alternative Three is an economically viable alternative and will involve the development of the site for heavy industrial purposes similar to those surrounding the site (e.g. Revertex Chemicals (Pty) Ltd in Lansdowne Road). Key features of an industrial park were identified during the Scoping Phase of the EIA and have been considered at this stage of the process. Amongst other things, this alternative has a high possibility to significantly increase emissions in the area. It is well known that the air quality in the South Durban Basin is already compromised as a result of other heavy industrial activities in the area. From an environmental and community perspective this alternative has been disregarded as constructing additional industries will exasperate the air-quality problem and is therefore not feasible from an environmental perspective.

3.2.4 The No-Go option: The Clairwood Racecourse will remain undeveloped

The site would remain undeveloped however horse racing will no longer continue as Gold Circle (Pty) Ltd has sold the land to CPF. It is expected that the site will need to be developed by the applicant for financial gain some time in the future. In terms of the environmental system on the site, due to the sites isolated position within the South Durban Basin, environmental services associated with the site are not linked with any other ecosystem. Water from the Racecourse drains into the highly polluted Amanyazama Canal and vegetation on site has been largely altered from the consistent mowing and trampling that has occurred over a long period of time. Avifauna are however largely associated with the open space provided by the race track

and are considered further in section 4.1 below. Without management of the open space, it is likely that the race track will become overgrown with alien invasive species taking over the site. The pair of Crowned Cranes currently visiting may not have sufficient landing area which is currently available on the mowed racetrack. Wet depressions in the area, once maintained by irrigating the entire site, could potentially dry up and associated wetland vegetation and fauna reduced/removed.

Table 9 summarises the main advantages and disadvantage of each alternative discussed above thereby providing a comparative assessment.

Table 9. Advantages and disadvantages of each alternative for the development of the Clairwood Racecourse.

	Advantages	Disadvantages
Alternative 1	• Provide logistics/distribution support for the Back of Port Area and potentially the proposed Dug-Out Port. • Employment opportunities during construction and operational phase. • Maximum financial return for the applicant. • Stimulate investment and trading opportunities in eThekwini and South Africa on a larger scale. • Potential to incorporate elements of existing structures on the site that are historically/culturally significant (refer to section 4.6). • Lower impact of air emissions compared to Alternative 3. • Opportunity to develop and apply for the new "Logistics Zone: to be incorporated into the eThekwini Central Town Planning Scheme, providing an example to future developments in the zone.	• Total loss of open space associated with the site. • Significant increase in heavy traffic on the immediate road network. • Potential loss of the rare Racecourse Lily site. • Loss of wetland system and associated services within the site. • Loss of fauna species on the property as there is no other large area of open space available in the area for the species to relocate to. • Loss of the Heronry in the south-west corner of the site. • Total loss of landing area available to the Crowned Cranes which will result in the relocation of the Cranes to a more preferable site.
Alternative 2 (Preferred Option)	• Provide logistics/distribution support for the Back of Port area and potentially the proposed Dug-Out Port. • Employment opportunities during construction (4725 jobs) and operational phase (4667 permanent)[11]. • Stimulate investment and trading opportunities in eThekwini and South Africa on a larger scale. • The retention of open space elements associated with the proposed wetland conservation area. • Retention of the heronry in the south-west of the site. • There is sufficient economic return to develop the Logistics/Distribution Park preserving environmental services where possible. • The development is in line with sustainable principles allowing development taking into consideration environmental services. • Opportunity to protect and conserve the rare	• Partial loss of the private open space associated with the racecourse. • Increase in heavy vehicles on the immediate road network. • Partial loss of wetland system currently on site and associated ecosystems. ~~• Loss of the Heronry in the south-west corner of the site.~~ • Reduction in landing area available to the Crowned Cranes likely to result in the relocation of the Cranes to a more preferable site.

[11] Ken Davies & Associates 'Justification for the proposed re-development of the Clairwood Racecourse site by Capital Property Fund' May 2013.

	Racecourse Lily. • Upgrading the road network in the vicinity which would have required upgrading with the naturally increase in traffic volumes. • Potential to incorporate elements of existing structures on the site that are historically/culturally significant (refer to section 4.6). • Low impact of air emissions compared to Alternative 3. • Opportunity to develop and apply for the new "Logistics Zone: to be incorporated into the eThekwini Central Town Planning Scheme, providing an example to future developments in the zone.	
Alternative 3	• Employment opportunities during construction and operational phase. • Stimulate investment in eThekwini.	• Loss of open space and associated environmental services. • Increase emissions in an already problematic area. • No logistics/distribution support for the Back of Port area and proposed Dug-Out Port. • Increase in heavy traffic on the immediate road network. • Potential loss of the rare Racecourse Lily site. • Difficult to retain any culturally significant structures that exist on the site. • Loss of the Heronry in the south-west corner of the site.
Alternative 4 (No-Go)	• Entire "green lung" retained in the South Durban Basin. • There would be no heavy traffic increase in the immediate area. • The wetland system on site will not be disturbed at this stage. • Heronry will continue to function as a nesting ground for herons, sacred ibis and cormorant species in the south-west corner of the site[12].	• Degradation of the entire site over time impacting negatively on the immediate neighbourhood resulting in the possible increase in crime. • Possible increase in illegal dumping etc. • No new employment opportunities. • Lost opportunity to provide a sustainable means to development the strategically located piece of land and maintain a wetland conservation area. • Increased demand for trade and logistics in this area. • Potential decrease in land values surrounding the area.

4.0 Description of environment and the manner in which the physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed activity [Regulation 31 (2) (d)]

The NEMA (107 of 1998) states that the "environment" is made up of:

(i) The land, water and atmosphere of the earth;
(ii) Micro-organisms, plant, and animal life;
(iii) Any part or combination of (i) and (ii) and the inter-relationships among and between them; and
(iv) The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

[12] Bruce Page & Associates 'Clairwood Racecourse Development: Vegetation and Faunal Assessments' April 2013.

This section aims to describe the various aspects of the environment that may be affected by the proposed development. The physical and biological characteristics of the proposed site are therefore discussed utilizing specialist reports which were commissioned to identify potential impacts that the proposed development could have on the environment as well as recommending mitigation measures to minimize or alleviate these impacts. Social, economic and cultural features within and surrounding the site has all been assessed to reach a holistic description of the environment that the proposed Clairwood Logistics/Distribution Park is located in.

4.1 Surrounding Land Use

The site is currently being used for horse racing and associated activities including horse stables, accommodation, stands, restaurants, conference venues, training areas, gardens and parade grounds. The site is bordered by noxious industry, residential developments, transport corridors and service servitudes. Neighbouring residential properties that have the potential to be impacted on in terms of noise and air pollution during the construction phase are outlined in blue in Figure 8 below. The other surrounding land uses are comprised of light and heavy industry and the railway line. Although the majority of the site is currently zoned as private open space, the eThekwini Municipality has developed an area plan to accommodate and plan for the existing and expected market related pressures on the Durban South Basin[13]. This plan is called the Back of Port Local Area Plan (BOPLAP).

The property is strategically located within the Back of Port Area shown in red in Figure 2. The Draft BOPLAP states that in order for land uses in Clairwood to function efficiently, a total new layout will be required, including wider roads with improved access from truck freight routes. Residential and non-logistics related uses would be rezoned to logistics uses in order to accommodate the circulation of larger trucks and on-site parking and handling. As discussed in the Planning report (section 1.2.1) the property is located approximately 11.2km by road from Durban Harbour and 3.5km by road from the proposed Dug-Out Port.

Should the proposed development be approved it will see a change in land use from private open space to a logistics and distribution. The proposal will require an improvement of infrastructure both on site and in the surrounding areas including the upgrading of road networks. The development as proposed would result in much needed logistics and distribution support for the Back of Port Area as required in the BOPLAP.

Stormwater runoff from the site drains into the Amanyazama Canal (indicated in Figure 9 below). The State of the Fresh Water Resources Report states that the waters are exposed to contamination, especially nutrient enrichment[14]. The Amanyazama Canal originates at the Clairwood Racecourse and drain into Durban Harbour after passing through a heavily industrial area. The surrounding land uses are important to take into consideration when determining the physical conditions of the site and the biological characteristics and connectivity of habitats in the area. The impact that the proposed development will have socially on the local community as well any culturally significant impacts will be directly related to surrounding land uses as well. Finally, surrounding land users will be influenced in terms of the economic impact that the Logistics/Distribution Park may have. Section 4.5 therefore highlights the estimated economic impact of the proposed development on surrounding communities and businesses.

Identified environmental risk for assessment: Loss of private open space land, provides logistics support for the Back of Port area and expanding Durban Harbour, cumulative impact of the change in land use within the area and the potential to impact on adjacent residents and land users in terms of visual and noise impacts particularly during the construction phase.

Figure 9: Surrounding land uses with residential areas that could potentially be impacted during the construction phase of the Clairwood Logistics/Distribution Park outlined in white. The location of the Amanyazama Canal (yellow) and railway line (red) are indicated. Other large areas of open space include the old Durban Airport, Treasure Beach and the Bluff Golf Course. These areas are also indicated in the aerial photograph (Source: Google Earth, 2013).

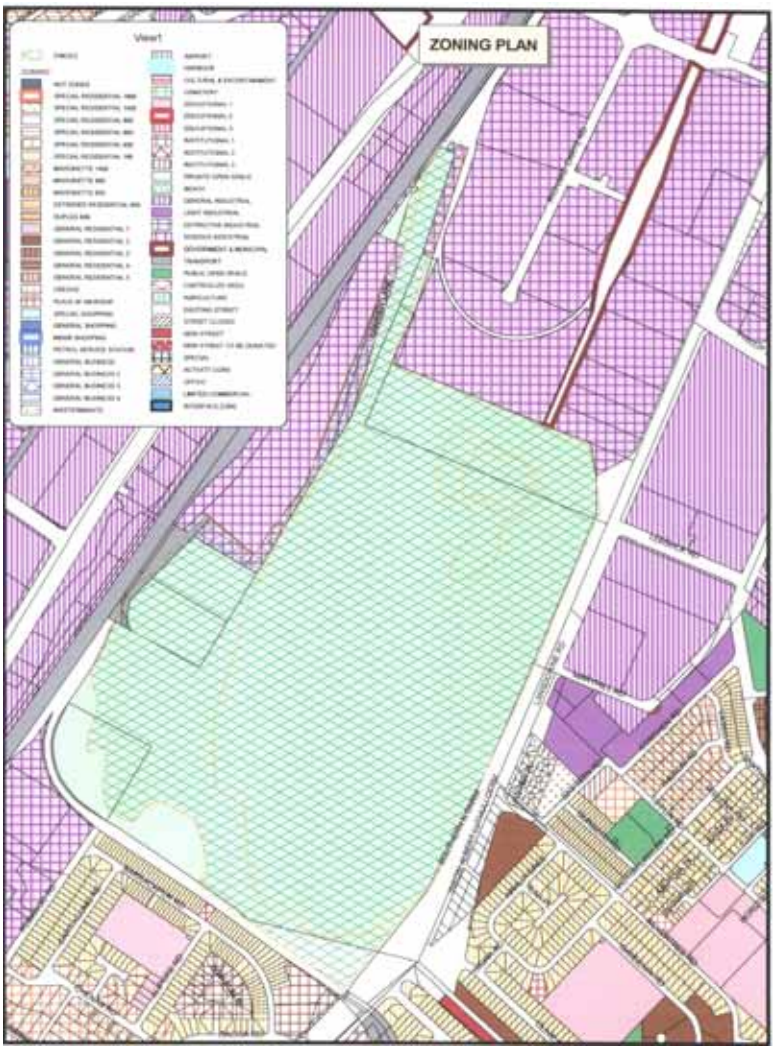


Figure 10: Existing zoning plan of Clairwood Racecourse and surrounding properties (Source: Planning Report, TC Chetty & Associates March 2013).

4.2 Physical

The topography of the proposed site is relatively level with the elevation dropping by only 3.5m over a distance of 550m[15]. A geotechnical study was conducted to ascertain the underlying geology of the site and identify any potential risk areas. The report found that there is a wide variety of sands and soils across the site as a result of the racecourses close proximity to the coastline (Figure 9). Historically, meandering river deltas and estuaries would have deposited a range of materials in this area varying locally and seasonally before flowing into the sea. The geotechnical study found underlying clayey materials which have resulted in perched water tables and therefore a geohydrological investigation was commissioned to determine the impact of the proposed development in terms of the geohydrological components highlighting potential issues and risks. Water quality trends and groundwater movement were investigated. Existing aquifer layers and vulnerability were specifically examined to gain insight into the degree of chrome contamination existing on site.

It is public knowledge that there is extensive Chrome-6 contamination in Merebank caused by historical industrial operations of a plant owned by Bayer. Lanxess, has been given the task of remediating the polluted soil and groundwater in the area. Approximately 200 boreholes have been sunk to map the contamination with 57 boreholes monitoring the chrome contamination in the Clairwood area specifically. Chrome-6 is a carcinogen that enters the body by inhalation, ingestion or through the eyes or skin and is therefore hazardous if one comes into direct contact with contaminated water or breathes in chrome-contaminated dust.[16] Lanxess has been openly involved throughout the EIA, identifying any potential environmental impacts that could be associated with the Logistics/Distribution Park, specifically the construction phase. The geotechnical and geohydrological investigation have taken into consideration the chrome contamination on site.

[15] Drennan, Maud & Partners 'Geotechnical Investigation for Development Purposes' March 2013.
[16] Newspaper articles: Bayer/Lanxess: Suburb hit by cancer scare in the *Sunday Times* (29 May 2005) and Pipelines to be replaced in polluted area in *The Mercury* (03 June 2005) *http://www.cbgnetwork.org/742.html.*

All construction workers on site will be made aware of the possible risks associated with working adjacent to the restricted area (included in the EMPr under Health and Safety). From an environmental perspective, it is important to ensure that the chrome does not extend into areas where groundwater is currently not contaminated. This is discussed further in the geohydrological investigation summarised below. The applicant is not responsible for any remediation activities that are being carried out on site by Lanxess and will therefore be co-operating with Lanxess throughout their remediation process. Communications with Lanxess have been provided in Appendix 25.10 (General Communications). After in depth discussions, Lanxess and CPF have agreed that there should be no construction within the south-west corner of the site during remediation of this area and therefore the layout initially proposed in the Draft EIR has been amended. There will therefore be no impact on the extraction boreholes or the immediate area. Furthermore, Lanxess has indicated that additional boreholes are to be installed to monitor chrome contamination levels throughout construction in order to detect any movement of the chrome during excavation.

The geological conditions and associated geohydrological characteristics have resulted in water accumulating on site contributing to wetlands on portions of the racetrack. A wetland specialist delineated the areas and assessed the systems ecological importance, sensitivity and functionality. Whilst the wetland system may originally have been natural, it has become highly modified through artificial inputs driving the hydrology. Water used to currently irrigate the site is supplied by the "dam" in the north-east corner and boreholes on site. When required, this water is supplemented by municipal water. Water overflow drains directly into the north-east dam and the Amanyazama Canal. The specialist is satisfied that the proposed wetland conservation area in the north-east significantly reduces the loss of the total wetland area that would be lost to the development and retains the functionality currently provided by the wetland system. The specialist recommended further mitigation measures to reduce the cumulative impact of the development which are discussed further in the wetland assessment summary below.

A meeting was held between the EAP and a representative from the DWA who agreed that no Water Use License is necessary for the proposed development provided that:

- A full wetland rehabilitation plan is submitted to the authorities,
- The chrome contamination on site is fully dealt with and
- The wetland conservation area of 7.46 hectares is included in the layout

The DWA took into account the fact that the wetland drains directly into the Amanyazama Canal (not considered a "watercourse"), which is highly polluted and contains limited life, that the wetland is considered to be a highly isolated system completely surrounded by heavy industry and residential units making any conservation difficult and that once the pumping of borehole water ceases, there is also a high possibility that the wetland area will naturally reduce with the wetland becoming seasonal. Meeting minutes have been included in Appendix 3.

The geotechnical, geohydrological and wetland specialist input is summarised in the sections below and the full reports attached in Appendix 10 to 13. Mitigation measures and recommendations provided have been incorporated into the attached EMPr.

4.2.1 Summary of Findings of Specialist Geotechnical Report [Regulation 31 (2) (j)]

Drennan, Maud and Partners conducted a geotechnical investigation on the Clairwood Racecourse site (Appendix 10). Recommendations were given and limitations were pointed out by the specialist include existing structures, services and ongoing racing and coaching activities. The TLB could not move along any sand lanes within the inner circle, areas of the inner circle containing surface water had to be avoided due to the likelihood of the TLB getting stuck and data collection in the south-eastern area was prohibited to prevent the spread of identified chrome contamination.

A field investigation was carried out to classify the suitability of the materials for further use in construction. Inspection pits (x=25) with a maximum reach of just over 3m below existing ground level (EGL) were excavated to examine the soils in the upper horizons. The profiles were logged in terms of the Guidelines for Soil and Rock Logging for South Africa (Appendix 1 of Geotechnical report). The inspection pits were supplemented by dynamic core penetrometer tests to establish the consistency of the subsoil at shallow to moderate depth as well as to establish upper ground water/seepage level. Results of the subsoil consistency are provided in Appendix 2 of the Geotechnical report. Four Dynamic Probes Super Heavy tests were also carried out across the inner circle of the racecourse to gain deep geotechnical data from past borehole campaigns west and south west of the racecourse at 20m below EGL. Results are provided in Appendix 3 of the Geotechnical report.

Two past investigations were utilised and results are included in Appendix 5 of the geotechnical report. These include a past investigation carried out by Drennan, Maud and Partners in 1998 as well as a ground water monitoring investigation carried out

by LANXESS in the south-western part of the Racecourse. A site plan illustrating all relevant observation points is included in Figure 1 of the Geotechnical report.

The Racecourse is located on low lying estuarine flats commonly known as the "Harbour Beds" in Durban and is relatively level in gradient sloping slightly from south-west to north-east. The Harbour Beds overly the weathered bedrock of the Ordovician Natal Group Sandstone at depths in excess of 25m. Elevation drops by 3.5m over 550m and therefore drainage is very poor. There is a wide variety of soils and sands across the site as a result of their deposition from meandering river delta's and estuaries. Deposition mechanisms change locally and seasonally. Results show loose alluvial and estuarine sediments varying in composition and consistency with locally soft compressible peaty horizons as well as locally soft to firm estuarine sandy clays at various depths. Underlying there loose/soft sediments, there are dense sands at depths of 5-10m. Below the dense sands conditions are expected to vary locally in their consistency.

In terms of the ground water, subsoil seepage was encountered across the site. Perched water tables are building up on less permeable clayey materials especially during/after heavy rainfall. Shallow water levels were found in the south-western area ranging from 0.5m to slightly over 2.0m below existing ground level (Lanxess).

The results section is divided into the different horizons of soil including the top soil, upper fill material and alluvial / estuarine sediments (harbour beds). In depth results are provided on page 6-9 and summarised in Table 3b of the Geotechnical report. The top soil was classified as excellent-good subgrade suitable for re-use as bulk fill at the discretion of the Engineer. The upper fill material was also classified as excellent-good subgrade material. The results for the alluvial / estuarine sediments varied according to the different inspection pits ranging from excellent-good to fair-poor subgrade material. Generally materials classifying as G8-G10 materials were identified within the upper 3m of the alluvial/estuarine sediments underlying the site. Excavatability is expected to be soft through the underlying sediments in excess of 20m. Trenchability may be reduced locally within the upper few meters due to abnormal fill material/buried foundations. Excavations exceeding 1.2m below existing ground level must be discussed with the engineer. Founding conditions are generally considered fair-poor but will depend on the type of structure proposed.

Geochemistry results (pH-values and conductivity) indicate if there is any aggressively towards concrete. pH values between 6.5 – 5.5 indicated a possible acid attack on standard concrete. Any soil with a pH below 5.5 should be considered as susceptible to acid attacks and concrete used in these areas should be composed accordingly. Conductivity results showed that the soil is non-corrosive to steel. Soil with conductivity rates of 200mS/m or higher should be considered corrosive to steel. The shear strength of underlying sediments was determined for design purposes and consolidation tests were also carried out to predict the time to achieve 90% consolidation of the compressible clays.

The specialists concluded that the proposed development is feasible as long as recommendations are considered during the planning and development stages:

Earthworks: preferable to maintain the present ground level/raise it when creating building platforms/terraces, sufficient subsoil drainage must be incorporated into the earthworks design.
Cutting: cut embankments in the sandy and clayey materials must not exceed angles of 1:2 otherwise lateral support will be required. All permanent cut batters must be adequately secured against erosion.
Filling: long-term settlements of the fill bodies must be taken into account. Prior to filling all vegetation should be stripped as well as the soft compressible peaty clays. Fill material and depth are described in detail. Compaction of the alluvial / estuarine sediments using a grid roller may be required or the installation of rock drainage layers or subsoil drains in the shallow subsoils.
Founding: shallow foundations for single storey structures, warehouses and structures implementing light loads. It may be necessary to over excavate trenches and engineer backfill to ensure foundations placed in alike materials. Deep foundations through loose sediments and all fill materials required to accommodate higher loads. Very heavily loaded structures are likely to require bearing piled foundations into the bedrock and therefore further geotechnical investigations.
Surface beds: will have to be engineered. It is recommended that surface beds be isolated from all foundation, walls etc to allow for any differential settlements. Structures should be regularly joined to accommodate such differential settlements.
Retaining structures: may be required for support of basement excavations below final ground level. Consideration needs to be taken of the underlying, loose sands dominating the upper few meters of the site. Founding of any retaining structures should be based on the deep founding solutions outlined above. The structures must be suitably damp proof and incorporate subsoil drainage behind the structure.
Site Drainage: stormwater from all roof and paved surfaces must be piped/ collected in surface drains to discharge via a suitably designed retention system into the stormwater system provided for in the area.

Identified environmental risks for assessment: potential to spread the existing chrome contaminated water in the south-west of the site during construction, potential risk of erosion where the upper soils consist of loose/soft material, foundings unstable due to perched water table and low trenchability. There is the potential for sourcing of materials for backfill to come from unsustainable sources and potentially unstable structures due to the wide variety of soil conditions. The increase in hardened surfaces will result in increased stormwater runoff & higher potential for erosion.

4.2.2 Summary of Findings of Specialist Geohydrological Investigation [Regulation 31 (2) (j)]

The geohydrological investigation determined the impact of the proposed development in terms of the geohydrological components highlighting potential issues and risks, their significance and recommend mitigation measures. A variety of geological and hydrogeological data sources were consulted and listed in section 3 of the report (Appendix 11). Data indicates the sites geology, geological structural features, relevant geohydrological formation, inferred water quality trend and groundwater movement. Together these site conditions will reflect the site suitability for the proposed development.

GEOLOGY: The site is characterized by loose alluvial and estuarine sediments varying in composition and consistency with locally soft compressible peaty horizons as well as locally soft to firm estuarine sandy clays at various depths. Underlying the loose and soft sediments are in general dense sands at depth between 5 to 10m. Below the dense sands conditions are expected to vary locally in their consistency. At a desktop level, no regional geological lineaments appear to intersect the site. Minor geological lineaments may be inferred from the aerial photographs.

HYDROGEOLOGICAL: The soils and geology described above would general result in a perched water table at various depths across the site indicating uneven distribution of less permeable clayey layers underlying permeable sandy layers. Three shallow estuarine horizons/primary aquifers comprised of fine grained sand separated by consecutive clay layers acting as aquitards (impermeable barriers between the thin sand aquifers). A seasonal aquifer perched on the clayey horizons forms in this layer, especially after high rainfall events. Flow would be expected to follow the surface contours closely. The next tens of meters will be highly to moderately weathered, fractured sandstone bedrock with low to medium hydraulic conductivity. The permanent groundwater level resides in this unit and is expected to be about 10 – 30mbgl. The water level is influenced by regional topography and for the site it would be in general south-easterly. Below a few tens of meters the fracturing of the aquifer is expected to be less frequent and the fractures less open due to increased pressure. This results in an aquifer of low hydraulic conductivity and slow groundwater flow velocities. As in the previous unit the flow is expected to be south-easterly.

Note: the first and second primary aquifer layers have been polluted in the western section of the site due to the known chrome contamination however the third layer remains unpolluted. The average water level depth is approximately 0.5 – 2.1m below ground level (mbgl). The 1:100 year floodline is not applicable to the proposed development (see Figure 6 in Appendix 11).

To determine the impact of the proposed development in terms of the geohydrological components a risk assessment was carried out determining the aquifer vulnerability potential and the pollution risk. GRDM software was used to determine the sustainable volume of groundwater or groundwater potential of the underlying aquifer. A low recharge value was conservatively assumed and the western sections of groundwater were summarized as "category C" (moderately modified with low levels of localized contamination). The remainder of the site is expected to be neutral, fresh, and soft with little or no contamination. The specialist concluded that limited pollution has spread from the known polluted western section. Significant pollution threats to the groundwater resources include:

- Domestic waste generated and not properly disposed of resulting in potential leachate formation,
- Spillage of hazardous material that may occur during operations and unforeseen breakages,
- Leaking storage facilities and fittings,
- Dysfunctional sewerage facilities and sewerage spills.

The specialist adds that if the above risks are managed, the aquifer will maintain its "low" vulnerability status and it is expected that the proposed development poses a low potential pollution risk.

Section 7 of the Hydrological Assessment identifies the data gaps (page 17-18 of Appendix 11) however the risk of cross contaminating the lower lying primary aquifers and expected secondary aquifer by drilling and pump testing additional monitoring boreholes, does not warrant further investigation.

The specialist's recommendations include:

- Construction of foundations should not impact on the existing aquifer status and therefore the proposed facilities should be constructed upon a sufficiently designed platform of imported, stable and compacted material that is to be obtained commercially

- Special consideration will need to be given to pile design as well as construction techniques to ensure that cross contamination between aquifers do not occur during or after construction.
- No significant puncturing of the aquitard underlying the site through excavation or construction should be allowed,
- The applicants are to discuss details for the protection or replacement of existing monitoring or extraction boreholes with Lanxess.
- A detailed geohydrological investigation including an augmented risk assessment may be required.
- A monitoring system should be put in place to detect any changes in the aquifer system, control pollution, monitor water levels, flow rates, water quality and trends. Monitoring is outlined in detail in section 9 of the hydrological assessment. All monitoring requirements prescribed by the specialist have been included in the attached EMPr.

Identified environmental risks for assessment: over extraction of groundwater resulting in a regional lowering of the groundwater table negatively impacting on neighbouring users and changing the current groundwater flow direction, speed and hydraulic head. Poor waste management potentially resulting in leachate formation infiltrating into the perched water level, spillage of hazardous material and leaks from storage facilities and fittings. Poor sewerage facilities potentially contaminating groundwater resources and the potential for the development to change the aquifers current status, particularly the third aquifer which is currently unpolluted.

4.2.3 Summary of Findings of Specialist Wetland Assessment [Regulation 31 (2) (j)]

An initial wetland delineation and assessment was carried out in July 2012 (Appendix 12) however due to the large overlap of the proposed development layout with the wetland on site, a second phase wetland study assessment was undertaken in September 2012 (Appendix 13) to provide offset measures for the development based on the functionality of the existing wetland system. Any stormwater or run-off from the site ultimately drains into the Amanyazama Canal, which takes the water to Durban Harbour (approximately 5km away). The site falls within the U60D/Umlazi quaternary catchment.

The wetland specialist identified wetland vegetation, invasive alien species associated with the dam and artificial water features as well as birdlife present. This is however covered in more detail in the Fauna and Flora Reports (section 4.3 of EIR).

Wetlands were identified and delineated according to the delineation procedure as set out by "*A Practical Field Procedure for the Identification and Delineation of Wetlands and Riparian Areas*" as described by DWAF 2005. The delineation was then classified using a hydro-geomorphic classification system based on the SANBI 2009 report "*Further Development of a proposed National Wetland Classification System for South Africa*". Present Ecological Status (PES) and Ecological Importance Sensitivity (EIS) assessments were conducted by the wetland specialist.

Figure 11: Wetland delineation shown in blue with the proposed development footprint overlaid in red. The white dotted line illustrates the wetland area that should be retained (source: Wetland Delineation and Assessment, RiverWise July 2012).

The wetland delineation is shown in Figure 11 and comprises of a depression (dam) to the north and a large area towards the south which is seasonally wet becoming temporary wet further south. Whilst the depression may originally been natural, it has become highly modified by the surrounding land uses and inputs driving the hydrology. The current area of the wetland (excluding areas considered to be artificially driven) is 11.3 hectares.

Water is currently pumped from two boreholes on site to sustain two other depressions and the stormwater infrastructure. A reservoir was installed to store the water abstracted from the boreholes and is filled up with municipal water when required. This

water is used for supplying the dam in the north with water for irrigating the racecourse. Any overflow is diverted back into the large depression to the north or directed into the Amanyazama Canal. Water pumped from the boreholes as well as water pumped from the depression is currently used for irrigation.

The wetland is isolated due to surrounding land-uses being used by industries and for residential purposes. Wetland inputs are from precipitation, stormwater runoff and borehole water. The wetland is largely modified with a large loss of natural habitat and basic ecosystem function. It was rated as having moderate ecological importance and sensitivity with a recommended ecological management class of C (considered to be ecologically important and sensitive on a provincial/local scale. The biodiversity of these wetlands is not usually sensitive to flow and habitat modifications. They play a small role in moderating the quantity and quality of water of major rivers).Due to the wetlands isolation, the specialists considers the system to be of importance to biodiversity maintenance at a very local scale. The wetland achieved a category "D" health score meaning that it is "largely modified and that a large loss of natural habitat and basic ecosystem functioning has occurred."

A detailed functional and impact assessment was conducted during the second phase of the wetland impact assessment in order for the specialist to make appropriate recommendations. A WET-EcoServices was conducted on the hydrogeomorphic (HGM) unit to evaluate the importance of the ecosystem services by assessing the benefits associated with the system. The assessment found that the functions of the wetland system are:

- Flood attenuation and storage (Primary).
- Creates an ecosystem for birds, reptiles, amphibians and endangered marshy-grassland plant *Kniphofia pauciflora* thereby maintaining local biodiversity in an area where very little suitable habitat remains (Primary).
- Aesthetic value (secondary)
- Partial removal of nitrates and phosphates from stormwater and sediments entering the system (secondary).
- Promoting the settling of sediments in suspension improving water quality (secondary).

Anticipated impacts were outlined in section 5 of the Phase I Wetland Assessment however a complete lists of impacts was identified in the second phase report, which is summarised below. The specialist described the impacts and the resulting consequences:

IMPACT	CONSEQUENCE
Direct loss of wetland	Influence the quantities and pattern of drainage in the system. The temporary and seasonal zones of wetness will be lost and therefore the loss of infiltration area. The permanent wetland zone will likely expand in surface water volume because it is a closed system.
Reduction in abstraction of water from dam.	Increase surface volume of dam.
Increase in surface water volumes	Significant reduction in adjacent grassland.
Reduced habitat adjacent to water	Reduction in available nesting, breeding, foraging and shelter for fauna decreasing biodiversity.
Hardening of surfaces	Increased run-off, concentrated flows, exposure to pollutions such as petrochemicals from road runoff.
Diverting stormwater into the wetland system	Transportation of water at a higher rate and could result in overflow of the system and flooding of the logistics park and surrounding areas if there are no control mechanisms in place.
Visual aesthetics	Provide a public open space element which is visually pleasing provided that the wetland system is maintained and not neglected.

The specialist notes that infrastructure and development to the north of the current race track has not deterred/displaced the birdlife around the wetland and therefore believes that further development should not deter the birdlife either. The impacts on wetland functionality cam be mitigated and the overall impact for most impacts was considered acceptable by the specialist.

The following mitigation measures were prescribed:

- The impacts on flood attenuation and storage will be low and cannot be mitigated against.
- The impacts on water quality enhancement are low and cannot be mitigated against.
- The loss of aesthetic appeal can be compensated for by creating an aesthetically appealing habitat out of the remaining area. By conducting a specialist biodiversity survey sensitive species can be identified and the impacts on these species reduced.

- The loss of grassland area cannot be mitigated, unless a buffer is implemented such a buffer would depend on species specific requirements.
- Increased runoff into the system can be mitigated through the management of runoff. The additional runoff from the development should be routed into the municipal infrastructure or stored and released in a controlled manner.
- Regular water quality monitoring can be conducted to ensure water quality does not deteriorate within the wetland system.

With a health score of D and the wetlands isolated location, the system is considered important on a local scale. Conservation of the wetland would be beneficially from a biodiversity maintenance perspective (i.e. retaining the grassland habitat). Due to the unique characteristics of the site, it is not possible to relocate it to another area.

Recommendations include:

- Artificial opportunities for water storage and groundwater infiltration would serve the same function as a buffer zone and therefore these opportunities can be utilised instead of a buffer zone.
- Infiltration on site should be maximised.
- Biodiversity survey should be conducted.
- 5.6 hectares of wetland area remain (as shown by the white dotted line in Figure 11) and that the dam is centrally located within this system. The areas currently not wetland within this area are to be rehabilitated.
- The wetland system should not be incorporated into the stormwater management plan as water runoff should not be directed into the wetland system unless it is from roofs and is directly discharged into the system. Alternatively stormwater can be attenuated on site and treated to an acceptable level before being released. Critical to implement an overflow mechanism.
- Ongoing water quality monitoring to track any changes in the quality.
- A public open space element should be retained (e.g. bird park, educational etc).
- Rehabilitation of the wetland area must include an alien plant removal programme.

The wetland specialist concludes that the current layout is supported, provided the recommendations are followed, with an expansion of the wetland area around the dam, reducing the loss of total wetland area to approximately half (~67% retained).

Identified environmental risks for assessment: increase in run-off from precipitation resulting in concentrated flows, potential decrease in water quality within the wetland system, decrease biodiversity associated with the open water and a negative impact on the birdlife that potentially forage and nest around the wetland. There will be a direct loss in wetland area, a loss of visual aesthetics to the public and will impact the quantities and pattern of drainage within the system. There will be a decrease in the grassland area around the open water (south of the wetland conservation area). The reduced area for infiltration will potentially result in flooding of the site. Potential positive opportunity to rehabilitate the downgraded, modified wetland retaining an isolated but biodiverse wetland hotspot in the future (i.e. during the operation of the Logistics Park).

4.3 Biological

In terms of the natural biology of the site, it has been largely transformed as a result of the long-term horse racing activities which began in the 1920's[17]. The large open field associated with the race track as well as the wetland system on site has however created a heterogeneous habitat for fauna and flora species. According to the Environmental Planning and Climate Change Department within eThekwini Municipality, the racecourse consists of a type of habitat knows as North Coast Grassland representing a remnant of what would previously have been a vast system in the South Durban area. North Coast Grassland is listed as critically endangered in terms of the National Environmental Management: Biodiversity Act (no. 10 of 2004). This being said, the vegetation specialist stated that the herbaceous layer is regularly disturbed by trampling and mowing with "very little indigenous vegetation" occurring on the site.

Dr Bruce Page surveyed the site extensively over an eight month period identifying and recording the locations of plant, reptiles, amphibians and bird species found on the site. Notably, the rare Racecourse Lily, pair of Crowned Cranes, Black Storks and the critically endangered Pickersgill's Reed Frog have been identified on site. After early morning and late evening searches, no dwarf chameleons were found on the site. The specialist identified the vlei areas as biodiversity hotspots hosting plant species which are a food source to the crowned cranes and providing the ideal ecosystem for the amphibians and rare wetland plant species. The applicant's intention is to maintain the northern vlei/wetland system mimicking the hydrology thereby providing the desired ecosystem for the plants and amphibians. During the construction phase, it is unlikely that the bird species

[17] Archaic Consulting 'Heritage Impact Assessment' (October, 2012).

associated with the vlei, will remain on the site due to the high level of disturbance. Once operational, the wetland conservation area will however create a foraging and nesting area for the birds.

The wetland and vegetation specialist along with a landscaper will have to be consulted during the design phase of the wetland conservation area and a Rehabilitation Plan created as soon as possible. The Rehabilitation Plan is to begin as soon as possible before construction commences. During the survey, the vegetation specialist noted that there are relatively undisturbed soils in centre of the site. These soils could possibly be used to rehabilitate the north-east section of wetland. During the translocation period, it is important to note that the Racecourse Lily specimens will be difficult to locate during the winter months when not flowering as the bulbs will be below ground. In addition to conserving rare plant and amphibian species in the wetland are, there is also the potential for a new heronry to be established along the northern boundary of the wetland conservation area. Further recommendations and mitigation measures are provided by the specialist in the fauna and flora reports summarised below.

The Rehabilitation Plan Proposal has been attached as Appendix 27. An initial workshop was held on the 22nd October 2013 where a number of specialists met to discuss the design and incorporation of specific habitats into the conservation area. The stormwater specialist and wetland specialist have discussed the incorporation bio-attenuation swales to extend the wetland ecosystem on the site. This will effectively mean that the wetland habitat will be extended by up to 2.6 hectares (the proposed swales are 10 meters wide on each side of the 1.3km central road). Indigenous wetland vegetation is be introduce to the swales but not interfere with the services servitude that will be located beneath or adjacent to the road. On completion, the Rehabilitation Plan is to be submitted to the DAEA, DWA and eThekwini Municipality for review and comment. Earthworks and landscaping are to commence as soon as the plan has been approved.

Since the release of the Draft EIR, the applicant has excluded the current chrome contaminated area in the south-west corner. In doing so, the existing heronry surrounding the "duck pond" is to be fenced and retained. Poor waste management surrounding the duck pond has however resulted in this area being highly degraded state (Figure 12). Litter is to be removed and the possibility to plant additional trees in this area will be explored in the proposed Rehabilitation Plan. The heronry provides a rich source of bird diversity, as outlined in the Fauna and Flora Assessment summarised below.

Figure 12: Photographs of the existing "duck pond" located in the south-west corner of the site where chrome remediation activities are being carried out.

4.3.1 Summary of Findings of Specialist Fauna and Flora Impact Assessment [Regulation 31 (2) (j)]

Bruce Page was engaged to assess the impact of the proposed development on the vegetation and fauna on site. The specialist conducted an initial study specifically looking at the importance of the two functioning wetlands on site in terms of wetland biodiversity conservation, the importance of the site for birds, reptiles and amphibians that potentially frequent the site. Initial surveys were conducted between August to October 2012 and a Phase I report submitted (Appendix 14) however, conditions were extremely dry over this sampling period and a Phase II survey was carried out to cover the summer period. The Phase II fauna and flora survey was carried out from November to March 2013 (Appendix 15).

A desktop analysis was conducted researching the history of the site, links with surrounding habitat and determining where on the site indigenous vegetation and fauna were likely to occur. Interviews, photographs and internet searches were carried out prior to the site inspections. Distribution maps (including the Ezemvelo KZN Wildlife database), the Bird Atlas, field guides and

expert knowledge was used to determine what species are likely to occur on site. The specialist visited the site three times in the first phase of the study during early August, September and October. The site manager accompanied the specialist on site during August to point out the location of rare plants. The site was re-visited four times in late January and early-February during the early morning and late afternoon.

During the Phase II vegetation assessment, the entire site was traversed intensively whereby the specialist noted species encountered. Notes were made and photographs taken of the patchiness and changes in species mix. The fauna identified on site consisted of birds, reptiles and amphibians. Birds were surveyed by direct observation and from calls, reptile surveys were conducted in sites were snake, lizard and dwarf chameleons were likely to occur and amphibian surveys were carried out concurrently. Different wetland types were surveyed under varying conditions. Calls were also identified.

Although early aerial photography from 1937 shows the racecourse is already developed, it was clear that the land is part of an extensive wetland system. The specialist noted three implications associated with the history of the site:
1. Drainage onto the site, whilst extensively reduced still occurs, and drainage off the site is low.
2. One can expect high diversity of wetland fauna and flora in such a system.
3. Because of the almost complete destruction of coastal dune wetlands along the KZN coast, remnant elements from such a large system are likely to be regionally rare or endemic to the site.

The racecourse still has connections to the Umbilo-Umlaas Wetland System namely the old Durban Airport, Treasure Beach and the Bluff Golf Course (indicated on Figure 9). Populations of plants, birds, reptiles and amphibians found on the racecourse are most likely going to be distributed in these other remnant sites. The linkages for terrestrial organisms are via depressions adjacent to the roads and railway lines and through gardens. The distance to travel for wind born or flying species is relatively small.

Vegetation Assessment

Very little indigenous vegetation occurs on site with very little woody vegetation in particular noted. The specialist identified four main areas were woody vegetation occurs (illustrated in Figure 13: a patch of mainly *Eucalyptus* surrounding a constructed pond in the south-west corner of the site (A), planted gardens surround most of the buildings on the south and east boundaries of the racecourse (C), and finally windbreaks are planted that also consist mainly of *Eucalyptus* (B). The area labelled D in Figure 13 shows exotic gardens around a small wetland and area E is remnant wetland elements with exotic and naturalized invasives.

Figure 13: Location of the different components of woody vegetation on the racecourse site (source: Vegetation & Faunal Assessments, Page 2013)

It appears that the area is filled with soils from offsite and compacted however the central section of the site appear relatively undisturbed.

Due to the nature of the Racecourse, the site is actively drained and mowed on a regular basis. The site is trampled often and invaded by exotic herbs, forbes and grasses. The actual race track consists of planted grasses. Three completely different wetland systems with open water were identified by the specialist. The first is in the western most corner (constructed dam), the second in the north-east against the outermost track and within the inner most track in front of the grandstands. Prior to development the site was clearly a hygrophilous grassland or vlei area as many of the species that occur on the site occur in vlei areas. Regular disturbance has resulted in the majority of species encountered being exotic weeds.

Despite the Racecourse Lily (*Kniphofia pauciflora*) not being found during Phase I, the specialist located five widely separated specimens during Phase II sampling. The species is confined to depressions in areas of relatively undisturbed vlei soil that have poor infiltration with water standing on the surface for a few days after the rain. The specialist notes that most geophytes die

back below ground during the winter months with flowering occurring in early to mid-summer (December – March). Mowing the site would remove older leaves making it difficult to locate when not flowering. *Disa woodii* (CITES Appendix II Listing) and two rare Irises (*Aristea compressa* and *Gladiolus papilio*) were also encountered on the site however the full list of species in provided in Table 1 of the Vegetation and Fauna Report (Appendix 15).

Faunal Assessment

The fauna on site with particular emphasis on **birds** is very rich. A wide range of wetland birds occurs on site either as permanent residents or occasional visitors. Two species of rare, threatened or endangered species were encountered. These were a pair of *Balearica regulorum* (Grey Crowned Cranes) that utilize the racecourse and the adjacent airport site and *Ciconia nigra* (Black Storks). Several of the wetland species however are not overly common and do not occur widely throughout the province. The full list of species encountered is in Table 2 of the report (Appendix 15).

Despite early morning and late evening searches, no **reptiles** were encountered on the site.

A relatively wide diversity of **amphibians** was encountered which are listed in Table 3 of Appendix 15 however the specialist considers the list to be incomplete, as low encounter rates of amphibians was experienced in all localities in the Durban area over this past season. Several rare and one critically endangered species, Pickersgill's Reed Frog (*Hyperolius pickersgilli*) were encountered.

The specialist identified three habitats on the site important for biodiversity. The vlei areas with the central vlei being the least disturbed hosting the Racecourse Lily and the fringes of the northern pond which undergo regular wetting and drying. Many plant species in the vlei areas are a food source for the pair of cranes and provide habitat for frogs promoting wetland persistence. A wide variety of birds and amphibians are therefore associated with this vlei. The pond area is a constructed dam in the south-west of the site surrounded by *Eucalyptus* trees. These are a nesting site for herons and egrets as well as a range of other wetland birds thereby acting as a heronry. Several frog species also occur in this pond. A variety of birds and amphibians are also associated with this pond and appears to be confined to this area. Wind breaks surrounding the race track provide perching and roosting sites for several bird species however no nests were found in the trees.

Impacts of the development of biodiversity:

- The impact on the species diversity of the woody component will be minimal.
- Although the trees surrounding the southern pond are exotic, these trees are an important nesting site in a major heronry. Removal of these will significantly impact bird diversity and population sizes on and off the site.
- The removal of one of only half a dozen known heronries in eThekwini Municipality.
- Totally clearing the central vlei will extirpate the population of Racecoure Lilies and other rare herbaceous species as well. Hydrological changes will however occur with whatever development commences and it is unlikely that the central vlei will persist for much longer. The plant species will die out as the area dries up.
- It is unlikely that the grey crowned cranes will be able to tolerate even moderate development of the site and reduction of the area available to them. The cranes require long glide paths for landing and open space for take-off. They also forage over wide areas. Even moderate reductions in size of the area available to the cranes, as well as increased disturbance from logistics activities are likely to result in them avoiding the site.
- Reduction in functional vlei areas will result in the reduction of frog species populations.

Five important biodiversity aspects emerged from the fauna and flora reports and recommendations prescribed to mitigate/reduce the impact that the proposed development may have on these aspects:

1. Endemic, rare and threatened wetland plants

Translocate as many of them by as many propagates as possible from the central area to an area in which the wetland functioning can be retained as normally as possible. The northern pond area and its surroundings have been suggested as a likely site. Flows to this pond will have to be maintained and flooding regulated to ensure periods of inundation on the fringes of the pond area. An area of at least 100 m surrounding the pond is suggested (the bigger the area the more likely more species are to survive, and the higher the diversity that can be maintained).

The specialist commented that it would not be possible to create a vlei with proper hydrological characteristics by moving soils and that it is not recommended. Soil relocation may be desirable however as a means of optimizing survival of translocated plants.

2. Rare and threatened amphibians

Calls are to be used to attract the different species to the pond area.

3. The importance of the heronry
As there are only a few heronries left in Durban, the heronry should be preserved and its functionality preserved in terms of the hydrological aspect of pumping water into the pond. Seedlings of large wetland trees should be planted along the boundary adjacent to the northern pond to establish a new heronry there.

4. The semi-resident crowned cranes
Since it is unlikely that the cranes will tolerate any sort of disturbance, it is expected that they will move off and attempt to find a new habitat. The crane foundation should be contacted to monitor the impact on the birds and their fate. Capture and translocation is not recommended.

5. The importance of the site for resident and transitory wetland birds
Imperative that the northern pond and as much of the area surrounding it as possible is maintained in a functioning state as it is used extensively by resident and migratory species. This involves monitoring the hydrological inputs and outputs of the system.

In terms of mitigation measures, the specialist listed:
- Reduce impact on woody vegetation,
- Replace as many as possible of the removed exotics with suitable indigenous trees,
- Plant as many indigenous trees associated with wetland environments in the north-east section of the wetland conservation area,
- Maximise the area around the northern pond,
- Ensure proper hydrological functioning of the pond and surrounding vlei,
- Maximise the number of propagules (whole plants, bulbs, seeds) from endemic, rare and threatened plants translocated and the range of microrelief on which they are planted,
- Maximise the area of vlei around the northern pond.
- Ensure hydrological functioning of pond and vlei maintained,
- Protect the heronry and establish a second heronry alongside the boundary close to the northern pond,
- Monitor impact and fate of crowned cranes and
- Maximise the area around the northern pond as vleis to accommodate reptiles and amphibians.

Although the specialist considers retaining the site as a remnant of the Umbilo-Umlaas Wetland System, the feasibility in the context of the surrounding developments was questioned. Surrounding land uses have had a huge influence on the hydrological conditions on the site such that it cannot function as a proper coastal wetland.

Identified environmental risks for assessment: extirpation of the population of the Racecourse Lily as well as a potential negative impact on the three endangered Aristea and Disa species and any other rare wetland species not identified by the specialist. There will be a loss of food source for the grey crowned cranes on visiting the site, the buffer around the wetland potentially too small to sustain the crowned cranes foraging habits, the change in vegetation resulting in a decrease of amphibian and other faunal specie populations. The heronry in the south-west functioning as a bird nesting habitat will be lost effecting herons, egret and other wetland bird specie populations. Potential for the hydrological characteristics of the wetland conservation area not to be maintained in its current state affecting wetland fauna and flora species.

4.4 Social

The social dynamics of the South Durban Basin (SDB) are complicated with a history of conflict between industry and the local community. Air quality issues are well documented and are the main reason why Alternative Three, to develop the site for industrial activities, has been excluded during the assessment. There are a range of stakeholders within the SDB contesting environmental concerns and therefore the re-development of the racecourse, which has been a part of the areas history since the early 1920's, is a sensitive subject within the local community. Positive social impacts associated with the re-development include local job provision (temporary and permanent) and economic stimulus for the area. Logistics support will also be created in the Back of Port area where this is a high demand. The current land use is private open space that is generally used by the public with 44% stating that they personally benefit from the open space provided by the Racecourse. This is primarily because of the racecourses environmental and social aspects. The proposed site is therefore viewed as an important piece of green land by the local community.

After conducting public participation, the EAP advised that a social survey be conducted to ascertain the local communities concerns and misunderstandings regarding the proposed development. Professor Urmilla Bob co-ordinated a survey in the

immediate area to broaden the public participation and highlight key social issues (Appendix 17). The Social Impact Assessment (SIA) found that the main concerns that the local community had with the re-development of the racecourse were the increase in traffic congestion, relocation, the loss of open/green space and an increase in crime. Residents and businesses stated that they want to be informed further through flyers/brochures. The EAP therefore prepared information brochures for all registered I & APs which were submitted concurrently with the Draft EIR (Appendix 25.10). The intention was to further inform I & APs about the details of proposed development and for I & APs to provide comment on the content.

Naturally, nearly all respondents believe that the Clairwood Logistics/Distribution Park should support community projects. Educational projects and health care were identified as the main projects requiring support. As mentioned in section 1.1, the applicant proposes to give back to the community by improving the educational facilities in the immediate area. The Resilient Education Trust was developed to provide an opportunity to support sustainable educational investment in rural schools, dedicated to help young adults in South Africa with their academic development. The Trust offers bridging interventions that marries supporting community enrichment with measurable educational initiatives thereby improving the competitiveness of Learner's skills development. The biggest national campaign to date in 2013 was done with the Nedbank My Future, My Career annual initiative. The project showed career-inspired movies detailing sixteen different options of possible career paths for the Learners broadening the scope of knowledge in respect of viable and scarce fields of work. Other projects include sponsorship for the Zululand Fever and assisting in the development of the Selowe Primary School in Silvermine. Electricity was provided to the school, a new principal's office, fully equipped kitchen, toilets and water storage tanks were built for the school. These are just two examples of a list of projects the Trust has been involved with (Appendix 16 provides a list of some of the other projects that the Resilient Education Trust has been involved with). The Trust will be involved with developing a project in which the applicant can give back to the local community. The Trust is specifically involved with improving education and therefore the R2 million allocated to the project will be used to upgrade educational facilities in the immediate Clairwood area. There has however been a negative response from a fraction of the community, who are not comfortable with the reasons as to why the R 2 million was included in the Environmental Impact Report (EIR; see Appendix 25.9 for the comments and response table). The EAP is of the opinion that the proposed contribution provides a social benefit in line with the social aspect of the "environment" as defined in terms of the National Environmental Management Act 107 of 1998 as amended.

The wetland conservation area will function to retain and improve the environmental services currently on the site but will also contribute positively from a social perspective. The area can also function as an educational facility where boardwalks and signboards are to be incorporated into the design. Controlled public access into the wetland conservation area will benefit students and other interested parties, who will be able to identify and learn more about the endangered/rare species that can be found in the area.

During the scoping phase of the EIA, potential noise and air quality issues were identified as a concern to the local community who associated the development with an increase in noise and a further decrease in air quality in the area. As a precautionary approach, an environmental noise assessment (Appendix 18) and an investigation of possible air quality conditions (Appendix 19) was conducted by Occutech, an approved inspection authority. In both cases, the construction phase was identified as having the greatest potential for noise and air pollution to impact the surrounding community. The impacts can however be managed and mitigated to ensure the community is not significantly affected. The EMPr is an important tool in this regard ensuring a complaints register is kept and identified problems dealt with accordingly.

Due to the surrounding land uses, specifically the location of Transnet's NMPP, a risk assessment was undertaken to determine if the proposed Clairwood Logistics Park would be considered a Major Hazardous Installation (MHI). The specialist confirmed that without the storage of flammable and/or toxic chemicals or has bulk LPG gas facilities; a Logistic Park is not considered a MHI. The risk assessment is summarised below and included as Appendix 20. Recommendations are provided for areas in close proximity to Transnet's NMPP during the construction phase. To ensure a timeous, well co-ordinated plan of action in the event of any emergency situation or major incident which may arise on the premises, an Emergency Response Plan has been developed specifically for the site (Appendix 21).

After presenting at a number of public meetings, it is evident that members of the community do not support the development of the Clairwood Racecourse site. Members of the community envisage the site for residential purposes or ultimately, retaining the site as a "green-lung" for the benefit of the surrounding community and residents. While these alternatives were considered during the Scoping Phase of the EIA, they are not in line with the applicants "general purpose" nor eThekwini Municipality's planning framework. The proposed road network is also not supported by members of the community as this will allow additional heavy vehicles and traffic into the area. While a number of site access alternatives were considered by the traffic engineer, the upgrade of the Basil-February intersection was recommended with direct access on and off the M4 Highway. It was reiterated by members of the community during the meetings that a large number of scholars utilise this area for public

transport and are going to be expose to a greater risk associated with the trucks accessing the proposed Logistics/Distribution Park. While the traffic impact assessment states that existing informal taxi ranks and pedestrian sidewalks are to be upgraded and improved as part of the new intersection, the impact of trucks on pedestrians is only partially mitigated.

4.4.1 Summary of Findings of Specialist Social Impact Assessment [Regulation 31 (2) (j)]

The SIA supplements the public participation process undertaken by the EAP to notify adjacent property and landowners of the proposed development. A desktop study was initially conducted with the SIA attached in Appendix 17 complimenting it. There are a range of stakeholders within the South Durban Basin area, which has several contestations pertaining to environmental concerns. The aim of the report was to capture views and concerns regarding the proposed Clairwood Logistics Park as well as expanding the original notification area to ensure that the public within 1km radius were aware of the project. The I & AP register was significantly expanded during the assessment process. The SIA has identified a number of community concerns which have been included in the impacts table in section 6 of the EIR.

Household/resident (n = 102) and business (n = 20) survey's were developed to cover key thematic issues that were mainly identified during the Scoping phase of the EIA process. Main roads were identified and interviews conducted along these roads. A map of the area where the surveys were conducted is shown in Figure 1 of the SIA (Appendix 17). Data was captured using the Statistical Package for Social Sciences. A range of socio-demographic backgrounds were interviewed and equal amounts of males and females to reflect the different resident and business profiles in the area.

Section 3 of the SIA analyzes all data collected but is summarised below:

The majority of respondents interviewed were between 21 to 60 years reflective of the adult population in the area. Most of the business respondents did not live in the area which their businesses were located with 40% living in the area. 67.6% of the resident respondents had secondary level schooling with very few of the respondents having post-matric qualifications. It is therefore important for information to be shared in a manner that is understandable to the broader community. The businesses interviewed comprised of food establishments (30%), retail establishments (15%), repairs (15%), petrol stations (15%), hardware supply stores (10%) and beauty salons (10%).

Half of the businesses and 14.7% of the respondents stated that they did not experience any problems in their area however 61.8% of the households identified environmental problems as the main problem with lack of employment opportunities being the second biggest problem. Businesses identified insufficient customers as the main problem with 10% identifying environmental problems as the main concern. There was a general positive response regarding choice of location however 82% and 80% of residents identified crime and poor environmental quality respectively as disadvantages in the area.

49% of the residents suggested that repair and maintenance services should be encouraged to develop in the area with only 7.8% encouraging Logistic activities. 45% of the businesses were open to food establishments being developed in the area with 25% encouraging logistic activities. Most respondents therefore support mixed land uses in the area. The majority of resident respondents and almost half the businesses discouraged further industrial activities to be developed in the area. 31% of the residents discouraged storage facilities. The specialist noted however that there is no consensus in the community pertaining to the types of activities that should be encourages and those that should be discouraged.

Traffic congestion was raised as a key issue in the initial desktop study however during this SIA, 58% of the residents and 60% of the businesses felt there was no traffic congestion. The residents felt that the main causes of traffic congestion were too many heavy/commercial vehicles on the road, that the roads are too narrow, too many vehicles are used by the residents and that the roads are badly constructed. Suggestions were provided to reduce the traffic. These include the implementation of traffic control mechanisms and improving road design and infrastructure.

Currently the majority of residents and business accessing the Clairwood Racecourse do so for leisure purposes (87% and 83% respectively). The results show that the Racecourse is currently used by the community and therefore effective communication to the residents and businesses in the area was recommended. 44% of respondents stated that they personally benefit from the open space provided by the Racecourse primarily because of environmental and social aspects. The benefits have been listed below in order of importance:

1. Visually
2. Bird attraction
3. Other environmental benefits
4. Stormwater attenuation/flood prevention
5. Entertainment

The majority of the respondents did not feel that negative social behaviour was associated with the Racecourse.

The specialist examined the respondent's knowledge of the change of land use of the racecourse to the Clairwood Logistics/Distribution Park and the impacts associated with the proposed development (section 3.7 and 3.8 of Appendix 17). 75 new I & APs registered during the process of the SIA and have been included in the I&AP register attached in Appendix 25.2.

The main concerns raised by the residents specifically relating to the proposed Clairwood Logistics/Distribution Park were:
- Increase in traffic congestion (68%)
- Relocation (53%)
- Loss of open/green space (47%)
- Increase in crime (43%)

Positive impacts were identified as:
- Job creation (76%)
- Decrease in crime (18%)

The specialist determined what the respondents thought were the most likely impacts of the proposed development specifically on the community. The main concerns were linked to environmental concerns (pollution & destruction of ecosystems) with the positive impacts associated with economic benefits.

During the development phase, residents and businesses are most concerned about the impact of:
- Noise
- Increase in traffic
- Dust
- Disruption of services

When asked what the preferable land-use would be, the community responded, amongst other things, the retention of open space (43%), retention as a racecourse (37%) and a logistics park retaining environmental features (15%). 67% of residents and 83% of businesses who want to be informed further want information to provided through flyers/brochures. Nearly all respondents believe that the Clairwood Logistics/Distribution Park should support community projects with educational projects and health care being identified as the main projects requiring support.

Additional community comments are tabulated in Appendix 1 of the SIA. The recommendations given by the specialist include:
- To respond to the willingness of businesses and residents to be informed about the development and planning processes linked to the Clairwood Logistics/ Distribution Park. This should include an information dissemination strategy that reflects the multiple ways in which the respondents would like to receive the information.
- There is generally misinformation about the project within the community, specifically concerns about relocation and the site being used for storage. It is therefore important that the specifics pertaining to the project needs to be communicated to limit confusion and alleviate (often unfounded) fears and concerns such as the relocation of residents and destruction of the environment/ open space in the Racecourse.
- The broader quality of life and environmental issues are important to consider since the majority of the respondents raised concerns pertaining to the project development to these aspects. The respondents also felt that the Clairwood Logistics/ Distribution Park should support a range of community projects linked to addressing these issues, especially those that can create job opportunities. It is suggested that together with other stakeholders (including community organisations and other enterprises in the area), projects and programmes are developed to collectively address these issues.
- A significant proportion of residents currently use the Racecourse for a range of purposes. The possibility of having limited and controlled access to the green space for leisure purposes should be examined.

Identified environmental risks for assessment: increase in traffic congestion, loss of open/green space, increase in crime/ safety concerns, negative impact on the youth in terms of drugs, loss of aesthetic value currently associated with the Racecourse, loss of community heritage, increase in pollution including dust pollution, noise increase during the construction phase, decrease in electricity and water availability, destruction of ecosystems found on the site, loss of community recreational space and roads destroyed by trucks. Positive impacts included job creation, a decrease in crime, increasing customer base for businesses in the area and support of community educational projects.

4.4.2 Summary of Findings of Specialist Environmental Noise Assessment [Regulation 31 (2) (j)]

The noise impact assessment was carried out in January 2013 to determine if a noise problem occurs in the area and the type and magnitude of the noise problem (Appendix 18). The assessment aimed to determine the contribution of noise a Logistics/Distribution Park would have on the existing ambient noise levels and to establish if the noise generated poses a noise problem. Recommendation measures are included to reduce and control noise impacts. The specialist has stated that the exact operations of the Logistic Park are unknown as well as the operation hours, which are limitations of the study.

Existing noise levels are those associated with open land developments, the southern freeway (line noise of equal intensity) and industrial properties in Lansdowne Road (varying noise levels). The specialist has stated that Logistics/Distribution Parks tend to generate low noise levels and are often restricted to day periods. On page 2 of the Noise Impact Assessment, Occutech notes that the "day period" refers to the hours between 06h00 – 22h00. Noise levels can however be problematic to residents during the construction phase.

The existing ambient noise levels is low fluctuating between 40.1 and 60.8 dB(A)Equivalent Noise Level with the primary source being the southern freeway. The potential for the Logistics Park to contribute to this noise level was assessed under three conditions: preparation, construction and operational phase.

Preparation of Clairwood Logistics Park

Existing road and new access roads to the site and demolishing of existing buildings will result in noise. These activities will require graders, bulldozers, other heavy duty equipment and haulage trucks which will generate and release noise impacting on surrounding communities increasing ambient noise levels on site by 30 to 50dB(A).

Construction Phase

A large number of equipment will be used which will generate and release noise. Haulage truck movement is expected to be high over a short duration of time. The number of haulage trucks and distance between the removal of material and/supply of material to the proposed development will influence the impact of vehicle movement on the surrounding community. Noise levels generated by moving haulage trucks is usually above 70 to 90dB(A) 20 metres from the roads. The noise impact due to haulage truck movement is likely to produce a major impact should access be through the east of the property or through areas with residential properties. The projected noise from haulage trucks was calculated to be between 60 – 80dB(A) on the boundary fence. This is similar to the traffic noise from the Southern Freeway.

Other typical construction equipment includes equipment powered by internal combustion engines (graders, bulldozers, front end loaders etc) and impact equipment (pile drivers and pneumatic wrenches etc). The equipment produces a variety of noise levels however the specialist has concluded that any person within 150m of the construction site will be impacted on.

Operational Phase

Warehouses and associated activities generate little to no noise with vehicle movement, loading and unloading being the activities generating noise. The specialist concludes that the Logistics Park is unlikely to cause a noise increase in the existing areas which would be significant.

Recommendations were included and are summarised below:

- Noise management during each phase is to be undertaken to identify noise issues and consider mitigation measures.
- Establish operating time limits preferably between 07h30 to 17h00. Where not feasible the community and relevant authorities are to be consulted to obtain advanced agreement.
- Keep stationary plants (generators, compressors etc) far away from residential properties.
- Use natural screening to reduce noise impacts if any complaints occur.
- Use site buildings/screens/barriers to limit noise impact.
- Install operational barriers, as early as possible to provide ongoing screens for possible construction activities.
- Modify construction equipment/methodology/programmes. This can entail operating a noisy activity whilst other less noisy activities also operate.
- Liaise with affected parties to ensure the public are consulted.
- A Noise Management Programme must be developed to monitor noise throughout the project specifically in sensitive receiver areas (adjacent residential properties). Programme to include a community information programme, regular monitoring programme, complaints hotline & register and a system to investigate the complaints.

The specialist concludes that the general construction noise generated will range between 100 – 115dB(A). This level will drop to 70-75dB(A) 50m away from site and 45 – 55dB(A) 150m away from the site. The location of access to the site could be a factor and result in environmental noise problems especially at night.

Identified environmental risks for assessment: construction of additional roads and demolishing of existing structures contributing to ambient noise levels in the area, noise impact during construction phase to residents adjacent to the Clairwood Racecourse and truck haulage movements negatively impacting residents if the trucks utilize the residential roads and piling driving particularly.

4.4.3 Summary of Findings of Specialist Air Quality Conditions Report [Regulation 31 (2) (j)]

The assessment aimed to determine the type of pollutants that could be generated by the proposed Logistics Park and to assess the potential levels of these pollutants (Appendix 19). Natural forms/causes of pollution were excluded from the report. The assessment was conducted over a period in January and February 2013. The report identifies and assesses air and noise pollution in both the construction and operational phases of the development.

Air Pollution

Operational Phase: Handling of any flammable materials to comply with Major Hazardous Installation Regulations and Local Authorities Fire Bylaws. These would not however generate/release air contaminants affecting air quality under normal conditions. Small leaks could occur. In the unlikely event of a fire, this could reduce air quality. Toxic chemicals that may be stored on site would have specially designed packaging substantially reducing any risk to the air quality. Since no products are manufactures, only stores, the generation of air pollutants/contaminants is greatly reduced.
Construction Phase: Construction vehicles will release air pollutants in the form of exhaust emissions and noise. Destruction of the existing grand stand will generate dust and noise. Underdeveloped roads on site will also create dust.

The report (Appendix 19) includes specific tables summarising the type and source of potential pollutants. Recommendations were included and are summarised below.

Noise Pollution

Community noise problems were assessed and evaluated. The primary noise source risks were identified as vehicles, brush cutters, graders and bulldozers during the pre-construction phase, haulage vehicles, front end loaders, pile drivers, movement of material and equipment, saws and hammering during construction and noise from hysters and delivery vehicles during the operational phase. A specific Noise Impact Assessment was carried out and is summarised in section 4.4.2 of the EIR.

The report includes specific tables summarising the type and source of potential noise pollutants. Recommendations were included and are summarised below.

Recommendations:

- ✓ Fire fighting equipment required
- ✓ Controlled destruction of the grandstand to reduce dust and noise impact
- ✓ Maintain all vehicles on site
- ✓ Train and educate drivers/others with regards to air pollution on site
- ✓ Use wet methods for dust suppression
- ✓ Monitor dust on site
- ✓ Perform work which causes dust at times of low wind
- ✓ Inform residents and others of proposed activities and possible issues
- ✓ Retain complaints register for air and noise pollution
- ✓ Consider road access away from residential properties
- ✓ Limit noisy activities to daytime after 08h00 and before 17h00.
- ✓ Evaluate environmental noise during preparation of the site
- ✓ During the operational phase at night, educate and train hyster drivers to be aware of noise,
- ✓ Periodic night audits may be used to monitor hyster noise.
- ✓ Investigate all complaints.

The specialist concluded that the proposed Logistic Park will not significantly decrease the air quality in the area. Once operational, the Logistics Park will cause insignificant noise pollution as well.

Identified environmental risks for assessment: dust from structure demolition and site preparation, pollution of land and wetland from vehicle fuel or oil leaks/spillages, noise from demolition, site preparation activities and construction activities (such as pile driving) and vehicle exhaust emissions.

4.4.4 Summary of Findings of Specialist Risk Assessment [Regulation 31 (2) (j)]

The aim of the report was to determine if the Clairwood Logistics Park site is considered a Major Hazard Installation (MHI). The Transnet Pipeline transports liquid fuel fluids passes through the site and runs along the northern and western boundaries (see Appendix 4 of the MHI report attached as Appendix 20 of the EIR). The potential of liquid release resulting in possible toxic gas release, jet fire or an explosion was considered to be small. The specialist confirms that without the storage of flammable and/or toxic chemicals or has bulk LPG gas facilities; a Logistic Park is not considered a MHI. The Transnet pipeline has also not been declared a MHI by Transnet.

The purpose of the desk top risk assessment was to determine whether the proposed Development Park would be a hazard/risk, establish a management plan should an incident occur, determine the magnitude of an incident (worst case scenario) and determine the possible magnitude of an incident (alternative case scenarios). The MHI Regulations require a risk assessment to be undertaken should the proposed activity be classified as an MHI. The MHI Regulations require certain tasks to be carried out if the activity is a MHI. These are listed on page 10 and 11 of the MHI report (Appendix 20). The major potential hazards identified by the specialist for the Clairwood site include:

- The release of a toxic cloud
- Ignition of gas cloud through jet fire or vapour cloud explosion

Methodology includes a site visit, interviews and inspection, collection of data, literature studies, research and other documentation review. Consequences were calculated from worse case and alternative case scenarios conditions using ALOHA, a computer-based program for chemical spillages and emergency planning. ALOHA are recognised models for determining the consequence of a worst case and alternative case scenarios, and have been validated.

The Transnet pipeline was identified as the main hazard on site, transporting crude oil, diesel and petrol. These liquids can be toxic and flammable with the latter posing a greater risk to persons around the pipe. The toxic risk is an environmental risk. The worst case and alternative case scenarios were determined to be a gas leak which ignites. The released gas could also present a health risk. The gas cloud plume was also calculated using ALOHA. There are currently a range of mitigation factors in place reducing the risk of a gas leak, for example, Transnet's maintenance system and anti-cracking/fracture protection installation. The full list is presented on page 6 of the MHI report (Appendix 20).

Within the Clairwood site, the areas around the Transnet pipeline could present a significant risk should a leak in the pipeline occur. These areas are indicated on the site master plan in Appendix 4 of the MHI assessment. This includes the wetland area. A consequence analysis was carried out taking into account the specific climatic conditions identifying major incidents that have occurred in the area, potential incidents and the consequences of such incidents occurring.

Major incidents: No previous spills/releases from the pipe in the area.
Potential incidents:- Existing pipeline (release of toxic vapour cloud without ignition, and/or a liquid and vapour release which ignites. Two potential ignition scenarios: jet fire and/or vapour cloud explosion.)
:- Pipeline without existing mitigation measures (a liquid release could occur but could be contained by the soil. This would contaminate the soil, underground water table and the wetland.
Consequences of incidents: The consequences for the two potential incidents were identified in terms of the worst case scenario and the alternative case scenario.

The two potential incidents were identified as jet fire at the source of the leak and a vapour cloud explosion affecting the immediate area. In the worst case the consequences for the existing pipeline would be a full rupture resulting in diesel and/or petrol escaping. Gas would also be released at this point. It would take approximately 2 hours to stop the leak. This consequence poses a health risk within 500m of the source of release. Since this is the worst case scenario, the probability of the consequence is low and it is more likely that alternative scenarios will occur. The specialist took into account Transnet pipeline data, failure rate data and activities surrounding the site.

The specialist found that a pipeline failure is uncommon and since the pipeline is located underground, the likelihood of the hazard occurring is further reduced. The Event Tree Analysis approach was used to determine the consequences of the hazardous event. The detailed event tree is provided on page 18 of the MHI assessment. To reduce the inhalation of vapour

and the potential for the liquid/vapour to ignite, the specialist recommends that an alarm system be installed to allow early evacuation of the Logistics Park.

Liquid fuel release from the pipeline would present an inhalation health risk to all persons within 500m radius under worst case scenario. The potential for this is reduced by design and maintenance. The frequency of these types of occurrences is rare and therefore the probability of this occurring was identified as low.

Mitigation measures to manage an unwanted incident and reduce health effects if an incident occurs have been prescribed by the specialist for each stage of the project.

Construction

- Contractors must be informed of the potential risks, the area near the pipeline must be demarcated and the contractors must have an emergency plan.
- The area demarcated around the pipeline must have signage to prohibit smoking or fires.
- Provided adequate fire equipment and a fire marshal at all times in the pipeline areas.
- Consider the provision of an alarm to detect a release/leak.
- Restrict access to the site and the area where the pipeline is located.

Operational

- Develop an Emergency and Crisis Management plan for the facility. Once developed, this must be tested, practised regularly (at least once per year).
- Educate all employees, contractors of health risks of exposure to liquid fuel and also the fire risks associated with liquid fuel releases, the emergency plan and their role, should an emergency occur.
- Provide adequate emergency equipment. This would include fire fighting and first aid.
- Consider the provision of an alarm for gas leaks.
- Restrict smoking on the site.
- Provide warning signs.
- Restrict access into the Transnet servitude.
- Ensure that emergency signage is visible and the location of emergency assembly points is logical and can be altered if wind change indicates that the gas leak could flow into the assembly point.

In conclusion the specialist is comfortable that the Transnet gas pipeline design, management and maintenance is adequate. The risk assessment identified that the Transnet pipeline presents a low risk, however recommends that it be considered to be a Major Hazardous Installation around the pipeline. Mitigation measures include covering the pipeline with a concrete slab at the road and ensuring that the Transnet servitude and a distance of 3 m on either side of this servitude is separated and used as a buffer zone. These will enable the risk to be contained on site.

Identified environmental risks for assessment: liquid from a leak in the Transnet NMPP contaminating soil, groundwater and the wetland conservation area.

4.5 Economic

The BOPLAP has identified the South Durban Basin as a key support node for port activities. Specifically Congella, Umbilo industrial, Jacobs, Rossburgh, Clairwood and Mobeni as well as the former Durban International Airport have been identified as the suburbs comprising the study area. The need for logistics and distribution has been highlighted in the plan and the proposed development aims to unlock these opportunities positively contributing to the Back of Part Area Plan.

The proposed development will dramatically increase the annual rates payable to council as well as providing a large number of job opportunities during construction and operational phase. Please note that the rate increase is specifically a result of the Logistics Park and should not increase the residential rates. Ken Davies and Associates are property consultants, development advisors, researchers and rating specialists have justified the re-development of the Clairwood racecourse in terms of the economic feasibility and return (Appendix 22). There is no doubt that the proposed site is ideal for logistic use from a planning and economic perspective.

4.5.1 Summary of Findings of Specialist Economic Impact Assessment [Regulation 31 (2) (j)]

Ken Davies and Associates researched the current logistics trends, the locality of logistics companies, the Back of Port constraints, the economic value of the study area and the potential employment opportunities (Appendix 22). Comments and observations were provided.

Current logistic trends indicate that a substantial portion of all containers shipped & landed at the Port of Durban do not leave eThekwini Municipality but 70% - 80% of all cargo landed in containers nonetheless does leave eThekwini Municipality. Cargo from the ports needs to be placed into containers or removed from containers and placed on trucks for transportation inland or to container terminals. Warehouse or logistic facilities are therefore required to be in close proximity to the ports. The subject property is well located to serve the existing port and the proposed Dug-Out Port. The lack of available land has limited such developments with the Economic Status Quo Assessment (March 2009) identifying the need for an additional 137 0777 hectares of land for warehousing/logistics by 2021.

Apart from being close to the Port, warehousing facilities need to be located in areas where the cost of land is lower and where accessibility is high. They tend to be clustered around harbours and airports and vary in size. The warehouses generally generate heavy road traffic which is discouraged in some areas. The subject property satisfies all the listed variables. Enhanced rates revenue will result if the property is developed as proposed (commensurate increase in rates to about R35 million per annum). The current rateable value of the Clairwood Turf Club property is R183 million however once fully developed, the rateable value will increase to approximately R1.5 – R1.75 billion.

Currently the development of the proposed "Back of Port" area is constrained by outdated road infrastructure, congestion on the roads, under-utilisation of the rail increasing trucking in the logistics area and high property values. Specifically in the Clairwood area, the local community are sensitive to land use changes however large portions of Clairwood are being used illegally for business and logistic purposes, even though zoned as residential. The proposed development will facilitate the Back of Port Area Plan by utilising the rail siding adjacent to the site thereby reducing road congestion as well as upgrading road networks in the immediate area. The development will also increase the supply of warehousing which is severely limited in this area.

The specialist considered the economic value within the study consisting of sub-areas Congella, Rossburgh, Clairwood, Jacobs and Mobeni. Jacobs (131 ha) contributed 40.32% of the total value added GDP in the area and 40.45% of employment. Demand and industrial land prices generally decrease as distance from the core city or South of Durban Basin increase.

In terms of employment, the specialist estimates that considering both direct and indirect employment, 18 900 jobs will be created during the construction phase. General local retail economy will also increase with construction related workers spending their wages. Employment within the Logistics Park during its operational phase will vary depending on the tenant composition. The specialist estimated that the Logistics Park will yield 4 667 employees. The Economic Status Quo Assessment of March 2009 states that "an increase in the scale of logistics in the study area and in Durban as a whole would be of enormous benefit to the local economy; in fact of more benefit than increases in other activities such as manufacturing".

The annual GDP for the South of Durban Basin is R47.3 billion with logistics industry contributing R10.4 billion in upstream GDP (i.e. a portion of 22.1%). The transport, storage and communications sector within eThekwini was identified as having a comparative advantage over any others and therefore eThekwini should be focussing on these sectors. Economist Jon Van Coller stated that "efficient cost competitive transport logistics is the most important aspect of Durban's economy".

Identified environmental risks for assessment: increase in property value in the immediate area, satisfy the large demand for logistics/warehousing in the Back of Port Area and an increase in the Clairwood suburbs contribution to the local GDP as well as eThekwini Municipalities economy.

4.6 Cultural

The site proposed for the development has been extensively modified for racing purposes. The majority of the site has been cleared of the natural vegetation type and has been modified in some form. The Clairwood Turf Club was however established during the 1920's and therefore there are a substantial amount of historically significant structures existing on the site. The architect was Alan Woodrow who was first commissioned in 1934 to construct the now demolished Stewards Dining Hall. From this point onwards, the heritage specialist has stated that a series of "interesting, yet incoherent structures" were erected on the racecourse. Due to the nature of a Logistics/Distribution Park, consisting mainly of large warehouse facilities and vehicle handling areas, it is the intention to fully demolish all structures on the site.

An initial heritage impact assessment was conducted identifying potential heritage sites (Appendix 23) after which a more detailed second phase heritage study was conducted by a built environmental specialist. Archaic Consulting identified 12 structures on the Clairwood site which architecturally, historically, technically, socially or scientifically significant. Any structures which are, or which may reasonably be expected to be older than 60 years falls under the protection of the KwaZulu-Natal Provincial Heritage Resources Act, requiring permission from the heritage authority before the structure is demolished, altered or added to. Archaic Consulting concluded that retention of the structures identified in the heritage assessment would be "impractical and irresponsible", given their condition, however a number of recommendations were included to ensure that the memory and significance of the Clairwood Racecourse is retained. The Heritage Impact Assessment is summarised below but the full report, including photographs is attached in Appendix 24.

The proposed wetland conservation area could significantly contribute to maintaining the historical value of the Clairwood Turf Club whereby structures or important features (such as the Racecourses Coat of Arms) could be relocated into this area as well. The wetland conservation area would therefore provide an educational facility from an environmental/biological perspective but also a local history tribute.

4.6.1 Summary of Specialist Findings in Heritage Impact Assessment [Regulation 31 (2) (j)]

An initial heritage survey was conducted by Frans Prins of Active Heritage in August 2012 which identified nine heritage sites on the Clairwood Racecourse site (Appendix 23). The nine sites are protected by provincial heritage legislation and therefore a second phase heritage impact assessment was commissioned to arrange mitigation measures.

An archaeological history of the area was provided by the Phase I Heritage Impact Assessment (HIA) as well as the historical background of the Clairwood site in particular. Clairwood Racecourse was officially opened on 24th May 1921. The nine existing buildings and features include four residential homes, horse stables, some outbuildings and the actual racing track and associated lunging rings. As per the specialist's recommendations, a Second Phase HIA was carried out by Archaic Consulting to investigate the history of the buildings further and accurately state their significance and motivate for their demolition / retention. The Second Phase HIA was compiled by Debbie Whelan of Archaic Consulting in compliance with the KZN Provincial Heritage Resources Act No 4 of 2008 (Appendix 24).

A site visit was conducted on 12 September 2012 where a site map was consulted. Little literature exists for the Turf Club however the Alan Woodrow Papers at the Killie Campbell Collection provided valuable information. A site Survey Map of 1955 showed all relevant buildings to be extant at the time. The architect for the Clairwood site was Alan Clement Carr Woodrow who appears to have received his first commission in 1934. Other structures were incoherently erected after this leading to a contemporary state rather than dislocated planning, with constant erection and demolition of buildings as well as reuse of old structures.

During the Second World War, the Clairwood Racecourse was closed as a racing venue and was utilized to accommodate the Italian Prisoners of War and Polish refugees. The specialist notes that the most important aspect of the history of the Clairwood Turf Club is its long association with Alan Woodrow who recorded 28 separate projects for the Hollis family over three decades. It is believed that not all his work was recorded in the Project Register lodged at the Killie Campbell Collections.

A map of the general layout of the buildings is included as Figure 4 in the Report (Appendix 24). The specialist identified 12 buildings/features that are of heritage significance. The specialist notes that the buildings are alienated from their original function however memory of the process and events are important features that was recommended to be retained. A more detailed description of the building design is provided as well as photographs in the HIA (Appendix 24).

1. Old Off Course Tote / Old Gold Ring Tea Room / Yellow Building

The specialist estimates that the building was in existence during the 1930's however it is not clear when this building was constructed or whether it was even designed by Woodrow. It could have medium social significance from a local point of view but low from an architectural, historical, technical and scientific perspective.

2. Old Non-Reserved and Native Entrance

This consists of two small ticket offices, separated by a columned space. It is suspected that the buildings form part of the 1956 developments. Although not falling under protection of the KwaZulu-Natal Provincial Heritage Resources Act in terms of age, it is noted since it does form part of a layer of history which deals with separation and Group Areas, with African and Indian race-goers a strong part of the Clairwood Turf Club's history. It is therefore considered to have potential mdium social significance from a local point of view but low from an architectural, historical and scientific perspective.

3. Old Totalisator Silver Ring Building / Current Day Workshop

The specialist assumes that this building, proposed in 1949, was constructed around this time although altered in 1953. Nothing of the original building survives, except for elements such as the
louvres in the gable which were reused. There is a possible value in the technical aspect of the Totalisator in terms of racing history.

4. Oregon Inn / Old Ladies Toilet Block

This building appears to have been constructed in 1937-8 as the toilet block. It has been ill-maintained in recent years and is borderline dilapidated. It was rated as a medium local architectural significance.

5. Entrance Pavilion and Ticket Booth

These structures appear to be the second commission for Clairwood Turf Club that Woodrow received, being reflected on his Project Register for 1935. The Ticket Booth has a large fig growing close beside it, and between the Entrance Pavilion and the Ticket Booth are two symmetrically placed palms. Although ill-maintained, these buildings potentially represent the heyday of the racecourse the most. The specialist indicated they have medium local value architecturally and socially.

6. Jockey Room / Race Day office/ Old Administration Block

This building was designed in 1946 primarily as a 'Weighing Room'. It is a nostalgic structure typical of Woodrow although impractical for re-use. It has medium local architectural significance.

7. Old Lady Member's Building / Clairwood Charlies Club House

This is another whimsical building of no particular style. The building has had unfortunate alterations to the south east elevation, and a large meranti double door now graces the extreme left of the north-east elevation. The specialist describes the building as "cumbersome with little architectural merit".

8. Old Members Dining Room

The original parts of this building are very early. While the core of the building was in existence in 1938, little of its original state remains with alterations being carried out quite badly. In its current state it has little merit or significance.

9. Utilitarian Structures: Stables, Loose Boxes, Saddling Stalls

There is no record of any stable blocks in Woodrow's Project Register, although it is highly suspected that he built the more recent ones, given the level of detailing. A leaflet on Clairwood Turf Club supplied by Mr Wayne Simpson notes that the first stables were only built in the 1930s. It is suspected that Polish refugees were housed in the large stable block during the Second World War. The stable yard and stable blocks are ill-maintained. The utilitarian structures have been labelled with medium historical significance.

10. Cottages along the Railway Edge

There are four cottages with associated outbuildings. They were constructed in 1953 by Woodrow however they are not referred to in his Project Register. They are typical examples of domestic buildings in a Tudor /Arts and Crafts Revival style, and many of this type exist in suburbs around Durban.

11. Old SAR Ticket Booth

With Clairwood's close proximity to the railway, there is a small brick building of indeterminate age, which apparently was the South African Railway Ticket Booth (Simpson pers. comm). It is indistinct on the 1953 aerial photograph. It has little architectural merit and possibly has some social merit.

12. Shelter in Parade Ring

The shelter has not been recorded however looks undeniably like a Woodrow building possibly in existence in Woodrow's 1955 site survey.

The specialist concludes that given the scale of the site and the extent of works, retention of the structures in their entirety is impractical and irresponsible, given their condition. The demolition of all structures on the site is possible however a number of recommendations were prescribed to ensure that the venue which "had such pomp and fanfare at its opening" does not completely disappear.

- In order to preserve the links between the railway line and the turf club, it is recommended that the raised causeway be retained in the new development, as well as its current planting of trees

- In order to preserve the fantasy of the space and the event, as well as to recognise the architectural contributions of Alan Woodrow, it is recommended that the ticket booth and the Fig tree currently associated with it, and the Entrance pavilion together with the palm trees currently associated with it, be retained in the new development, for reuse as a central canteen/ coffee shop.
- In order to preserve the memory of the racing event, and highlight the space in which every horse at Clairwood Turf Club had its day, it is recommended to retain the memory of the parade ring as a planted garden/ traffic island and interpret it in a suitable fashion.
- It would be highly acceptable if the Administration Block could be reused, although priority is given to the above points.
- It is considered vital that the research commenced in this report be fleshed out by a suitable researcher to form a more comprehensive history of the race course and Turf Club, incorporating more archival information, if available, as well as oral histories and a full documentation of the works of Alan Woodrow on the site.

Identified environmental risks for assessment: potential for the cultural heritage associated with existing structures on the Clairwood Turf Club to be lost due to the re-development of the site.

4.7 Specialist studies [Regulation 31 (2) (q)]

The following specialist studies were conducted and have been summarised in the above sections:

1. Final Report to Capital Property Fund for a Geotechnical Investigation for Development Purposes: Clairwood Racecourse (Drennan, Maud and Partners, March 2013).
2. Stormwater Management Plan (Aurecon, March 2013)
3. Clairwood Racecourse Development: Vegetation and Faunal Assessments Phase I (Bruce Page and Associates, October 2012)
4. Clairwood Racecourse Development: Vegetation and Faunal Assessments Phase II (Bruce Page and Associates, March 2013)
5. Heritage Impact Assessment of the Proposed Clairwood Logistics Park, eThekwini Municipality (Active Heritage, August 2012)
6. Phase II Heritage Impact Assessment for the properties constituting Clairwood Turf Club on portions of the farms Dunn Grant 859 and Umlaas 873, southern Durban Region (Archaic Consulting, October 2012)
7. Clairwood Logistics/Distribution Park: Civil Engineering Planning Report (Aurecon, March 2013)
8. Proposed Clairwood Logistics Park Development: Electrical and Telecommunication Services Report (Rawlin Wales and Partners, March 2013)
9. Major Hazard Installation – Risk Assessment – Transnet Pipeline (Occutech, January 2013)
10. Investigation of Possible Air Quality Conditions (Occutech, January 2013)
11. Environmental Noise Assessment (Occutech, January 2013)
12. Transportation Study for the Proposed Clairwood Logistics Park (Aurecon, March 2013)
13. Application to eThekwini Municipality in terms of Schedule 1, Chapter 2 and 3 of the KZN Planning and Development Act 2008 (Act No. 6 of 2008 (TC Chetty and Associates, March 2013)
14. Social Impact Assessment (SIA) of the Change in Land Use of the Clairwood Racecourse to the Clairwood Logistics/ Distribution Park: Resident and Business Survey Report (Dr Edwin C. Perry, Prof Urmilla Bob and Suveshnee Munien; March 2013)
15. Assessment of Anticipated Geohydrological Conditions for the Proposed Logistics Park - Clairwood Race Course Development (Engeolab, April 2013)
16. Wetland Delineation and Assessment, Logistics/ Distribution Park, Clairwood, eThekwini Municipality Phase I. (River-Wise; July 2012)
17. Wetland Functionality and Impact Assessments, Logistics/ Distribution Park, Clairwood, eThekwini Municipality Phase II. (River-Wise; September 2012)
18. Economic Impact Motivation for the Proposed Re-Development of the Clairwood Racecourse Site By Capital Property Fund (Ken Davies and Associates, April 2013)

The above listed specialist studies have been summarised in the sections above however as per Regulation 31 (2) (q), copies of the reports have been provided in full in Appendices 1 to 24.

5.0 Public Participation Process [Regulation 31 (2) (e) and [Regulation 54, 55, 56]

(e) details of the public participation process conducted in terms of subregulation (1), including – (i) steps undertaken in accordance with the plan of study;

As per the plan of study, I &APs were given the opportunity to provide comment on the Draft Scoping Report and Draft EIR. As per regulation 28 (1) (h), the following section provides "*details of the public participation process conducted in terms of regulation 27 (a)* ".

5.1 Timeline for Public Participation

Activity	Date
Submission of Application to DAEA	25th June 2012
Notification of application to Authorities and Community groups	6th July 2012
Notification of neighbours within 100m of the site boundary	3rd July 2012
Placement of site notices	3rd July 2012
Placement of adverts in the Isolezwe (regional paper) and Rising Sun (community paper)	3rd and 4th July 2012
Notification of time and venue for public meeting	30th July 2012
Distribution of BID	11th July 2012
Information Evening	20th August 2012
Distribution of record of information evening findings	22nd August 2012
Notification of release of scoping report	04th September 2012
Scoping report placed at Montclair and Merebank libraries and submitted to authorities	3rd September 2012
40 day comment period ended	15th October 2012
Submission of scoping report to DAEA	19th November 2012
Acceptance of scoping report	19th December 2012
Notification of release of Draft EIR	18th June 2013
Draft EIR placed at Montclair and Merebank libraries and submitted to authorities	18th June 2013
KSEMS Open Evening at the Clairwood Racecourse	18th July 2013
Initial 40 day comment period ended	31st July 2013
Public Meeting at the Parashakthie Temple (specialist attendance)	31st July 2013
Comment Period Extension	08th August 2013
Public Meeting with Traffic and Engineer from Aurecon	12th September 2013
Comment Period Extension	04th October 2013
Public Meeting with Developer	01st October 2013
Comment Period Extension	23rd October 2013
Final Public Meeting with Developer, Traffic and Chrome Specialists	22nd October 2013
Submission of Final EIR to I & APs	11 November 2013
Submission of Final EIR to DAEA	12th November 2013
Acknowledgement of receipt (2 weeks)	27th November 2013
Assessment of EIR (60 days)	17th February 2014
Compilation of EA (45 days)	07th April 2014

5.2 Notification

54. (2) The person conducting a public participation process must take into account any guidelines applicable to public participation and must give notice to all potential interested and affected parties of the application which is subjected to public participation by –
(a) fixing a notice board at a place conspicuous to the public at the boundary or on the fence of -
(i) the site where the activity to which the application relates is or is to be undertaken; and
(ii) any alternative site mentioned in the application;
(4) A notice board referred to in subregulation (2) must –
(a) be of a size at least 60cm by 42cm; and

(b) display the required information in lettering and in a format as may be determined by the competent authority.

Three site notices (60cm by 42cm) in English were placed on the 3rd of July 2012. Proof of notice placement is provided in Appendix 25.1.

54. (2)(b) giving written notice to –
(i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
(ii) occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
(iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site;
(iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represents the community in the area;
(v) the municipality which has jurisdiction in the area; and
(vi) any organ of state having jurisdiction in respect of any aspect of the activity;

Neighbours/occupiers/land owners adjacent to the property were notified by hand delivered notice (see Appendix 25.1). Where possible, people were requested to sign a register indicating that they had received the notice (Appendix 25.1).

All relevant authorities as well as the various community interested groups and ward councillor were notified by phone, fax and email on the 06th July 2012 (Appendix 25.1).

Background Information Documents were sent to DWA, DAEA, KZN Wildlife, eThekwini Municipality, AMAFA, WESSA, the local Rate Payers Association, the Ward Councillor and all other registered interested and affected parties on the 21th July 2012 (Appendix 25.3).

54. (2)(c) placing an advertisement in –
(i) one local newspaper; or
(ii) any official Gazette that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations; and
(d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or local municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official Gazette referred to in subregulation (c)(ii).

An advert was placed on the community paper, the Rising Sun on the 03rd July 2012 and a regional paper, the Isolezwe on the 04th July 2012 (Appendix 25.4).

54. (3) A notice, notice board or advertisement referred to in subregulation (2) must –
(a) give details of the application which is subjected to public participation; and
(b) state –
(i) that the application has been or is to be submitted to the competent authority in terms of these Regulations, as the case may be;
(ii) whether basic assessment or scoping procedures are being applied to the application, in the case of an application for environmental authorisation;
(iii) the nature and location of the activity to which the application relates;

(iv) where further information on the application or activity can be obtained; and
(v) the manner in which and the person to whom representations in respect of the application may be made.

All notices, signboards and advertisements (Appendix 25.1 and 25.3) stated that the application in question is subject to scoping and EIA and that it had been submitted to DAEA. Each notice also stated the nature and location of the activity along with a brief description. The contact details for the company (phone, fax and e-mail) were provided where further information could be obtained.

54. (7) When complying with this regulation, the person conducting the public participation process must ensure that -

(a) information containing all relevant facts in respect of the application is made available to potential interested and affected parties; and
(b) participation by potential interested and affected parties is facilitated in such a manner that all potential interested and affected parties are provided with a reasonable opportunity to comment on the application.

56. (2) Before the EAP managing an application for environmental authorisation submits a report compiled in terms of these Regulations to the competent authority, the EAP must give registered interested and affected parties access to, and an opportunity to comment on the report in writing.

56. (3) Reports referred to in subregulation (2) include –
(c) scoping reports;
(d) scoping reports amended and resubmitted in terms of regulation 30 (3);
(e) specialist reports and reports on specialised processes compiled in terms of regulation 32;
(f) environmental impact assessment reports submitted in terms of regulation 31; and
(g) draft environmental management plans compiled in terms of regulation 33.

All parties who registered for the process by contacting KSEMS were provided with copies of the BID on the 11th July 2012 (Appendix 25.3). An information evening was set for 20th August 2012 and registered I &APs were given details of the time and venue on the 30 July 2012 (Appendix 25.5). The information evening was held as proposed and participants were given the opportunity to provide comment on the impacts to be investigated in the EIR. Comments from the information evening were recorded and also submitted to the I &APs on the 22nd August 2012 (Appendix 25.5). I &APs were afforded the opportunity to comment on the recorded information. The draft scoping report was prepared and I &APs were notified of its availability at the Montclair and Merebank libraries and on the KSEMS cc website on the 27th August 2012 (Appendix 25.6). Hard copies of the draft scoping report were couriered or hand delivered to the following bodies:

Name	Authority / Group / Company
N. Leburu	DWA
W. Rozani	DAFF
A. Blackmore	EKZN Wildlife
D. Van Rensburg	eThekwini Municipal planning contact
B. Pawandiwa	AMAFA
C. Schwegmann	WESSA
Sandile Ndlovu	Ward councillor
R. Ryan	DoT
Desmond D'Sa	SDCEA
Montclair Library	Registered I & APs
Merebank Library	Registered I & APs

I &APs were instructed that they had 40 days to comment on the draft scoping report with comment period ending on the 15th October 2012. A final scoping report including all comment received by the 15th October 2012 was submitted to the DAEA on the 22nd October 2012 by courier.

The report was officially acknowledged and accepted on the 19th December 2012.

The draft EIR was prepared and I &APs were notified of its availability at the Montclair and Merebank Libraries as well as the KSEMS cc website on the 18 June 2013 (Appendix 25.8). Hard copies of the draft EIR were couriered or hand delivered to the following bodies:

Name	Authority / Group / Company
N. Leburu	DWA
W. Rozani	DAFF
A. Blackmore	EKZN Wildlife
D. Van Rensburg	eThekwini Municipal planning contact
B. Pawandiwa	AMAFA
C. Schwegmann	WESSA
P.R. Zibani	Ward councillor

R. Ryan	DoT
Desmond D'Sa	SDCEA
Montclair Library	Registered I & APs
Merebank Library	Registered I & APs

I &APs were instructed that they had 40 days to comment on the draft EIR with comment period ending on the 31 July 2013. An additional four public meetings were held, where specialists presented on their relevant area of expertise. The commend period was extended after each meeting to accommodate any further comments. The final comment period officially ended on 23rd October 2013. Members of the community have been assured that any comments received after this date, will still be forwarded to the DAEA.

The final EIR was submitted to eThekwini Municipality, DWA, the Merebank Library and the SDCEA offices on the 11 November 2013. A copy was also uploaded onto the KSEMS website. As per Regulation 56(2), I & APs were notified that the Final EIR had been released and was available for final comment to be submitted directly to the assessing officer at the DAEA (proof attached in Appendix 25.8). A copy of the Final EIR including all comment received was submitted to DAEA on 12 November 2013.

5.3 Register of Interested and Affected Parties [Regulation 31 (2) (e) (ii); 55 and 56]

55. (1) An EAP managing an application must open and maintain a register which contains the names and addresses of –
(a) all persons who, as a consequence of the public participation process conducted in respect of that application in terms of regulation 54, have submitted written comments or attended meetings with the applicant or EAP;
(b) all persons who, after completion of the public participation process referred to in paragraph (a), have requested the applicant or the EAP managing the application, in writing, for their names to be placed on the register; and
(c) all organs of state which have jurisdiction in respect of the activity to which the application relates.
(2) An applicant or EAP managing an application must give access to the register to any person who submits a request for access to the register in writing.

Regulation 31 (2) (e) ii- a list of persons, organisations and organs of state that were registered as interested and affected parties;

A register of all I &APs who registered for the project as well as the organs of state with jurisdiction in respect of the activity was maintained and is provided in Appendix 25.2.

5.4 Registered Interested and Affected Parties Entitled To Comment On Submissions (Regulation 56 & 57) Comments Of Interested And Affected Parties To Be Recorded In Reports Submitted To Competent Authority (Regulation 56) and Regulation 31

56. (1) A registered interested and affected party is entitled to comment, in writing, on all written submissions made to the competent authority by the applicant or the EAP managing an application, and to bring to the attention of the competent authority any issues which that party believes may be of significance to the consideration of the application, provided that –
(a) comments are submitted within –
(i) the timeframes that have been approved or set by the competent authority; or
(ii) any extension of a timeframe agreed to by the applicant or EAP;
(b) a copy of comments submitted directly to the competent authority is served on the applicant or EAP
(c) the interested and affected party discloses any direct business, financial, personal or other interest which that party may have in the approval or refusal of the application.
57. (1) The EAP managing an application for environmental authorisation must ensure that the comments of interested and affected parties are recorded in reports.

Regulation 31 (2) (e) (iii) a summary of comments received from, and a summary of issues raised by registered interested and affected parties, the date of receipt of these comments and the response of the EAP to those comments; and
(iv) copies of any representations, objections and comments received from registered interested and affected parties;

Comments received from I &APs from the draft scoping report have been included in a comments and response table in Appendix 25.9. All comments received have also been included in full in Appendix 25.9. Comments have been considered and used to establish the list of identified impacts for investigation in the following section. Comments received on the draft EIR will also be considered in the final EIR submitted to the DAEA.

The South Durban Community Environmental Alliance (SDCEA) have queried the public participation process however all concerns have been dismissed with proof provided in the general communication appendix. KSEMS has provided both the draft and final scoping report to SDCEA who have been encouraged to submit comments. All comments received to date have been included in the comments and response table (Appendix 25.9). KSEMS hosted an open day on 18th July 2013 at the Clairwood Racecourse where the draft EIR was available for review. Any concerns raised by the community could be discussed at this open evening. The venue, time and date of the open day were advertised in the Rising Sun and a flyer/brochure was submitted to I & APs simultaneous to the release of the draft EIR, which describes the overall project proposal and advertised the open day (see Appendix 25.10 for a copy of the advert and flyer).

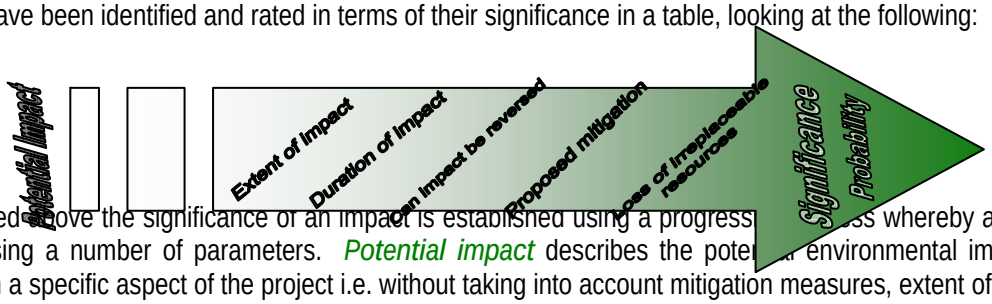
KSEMS was invited by Mr Roshan Ramdheen to present at a meeting hosted by the Krishna Kabilal Foundation on the 31st July 2013. All specialists who contributed to the EIR were also invited to attend. KSEMS contacted all specialists and those who were available, attended the meeting to answer any queries relevant to their area of expertise. Due to detailed queries regarding the traffic impact and construction within the chrome area on site, a further meeting was arranged by KSEMS and held at the Clairwood Racecourse on the 12 September 2013 where the traffic and chrome specialists from Aurecon presented to members of the community. A request was made that the developer be available to answer questions regarding the current land-use on site and project vision. This meeting was arranged and held on the 01st October 2013. Nico Prinsloo attended the meeting describing Capital Property Fund as a company, the company's intention with the land and the existing zoning associated with the Clairwood Racecourse. Gold Circle are currently leasing the site from CPF and will cease all activities in August 2014. As the landowner Mr Prinsloo made it clear that he will be answering all questions relating to the site. Since additional queries were raised regarding the proposed Higginson Highway Link, KSEMS agreed to arrange a final meeting which was held on 22nd October 2013. The following presentations were requested by the community and carried out: KSEMS presented on the alternatives, Tony Smith (Lanxess) on the chrome contamination and Mike van Tonder (Aurecon) on the Traffic Impact Assessment. Nico Prinsloo attended the meeting as well. All meeting minutes were distributed to I & APs with proof of distribution attached under Appendix 25.11. Where email addresses were not provided the EAP sent sms's to I & APs informing them that the meeting minutes were available on the KSEMS website (www.ksems.co.za). Presentations and comments received have also been attached under Appendix 25.11.

The comment period was extended from the 31 July 2013 to 23 October 2013. Comments received after submission of the Final EIR, will be directly forwarded to the DAEA.

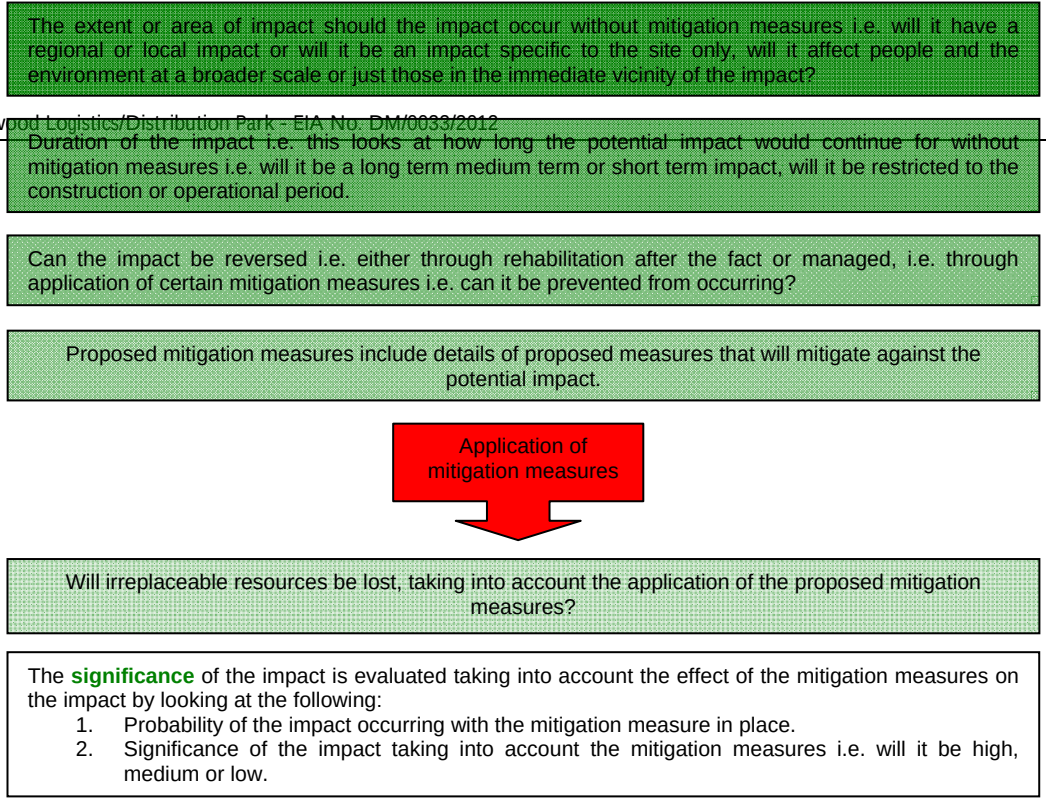
6.0 Environmental Issues and Investigation of Potential Impacts

6.1 Methodology Used In Determining Significance of Potential Environmental Impacts [Regulation 32 (h)]

In terms of how impacts have already been assessed in the Scoping Report, aerial photos and the 1:50 000 map for the area have been reviewed. Site visits have been conducted during which information on the surrounding environment as well as photographs of the affected areas has been gathered. The professional judgment of the EAP based on previous EIA experience in the industrial and ecological fields has been used. The potential impacts associated with the proposed development have been identified and rated in terms of their significance in a table, looking at the following:



As demonstrated above the significance of an impact is established using a progressive process whereby a potential impact is investigated using a number of parameters. *Potential impact* describes the potential environmental impact that might be associated with a specific aspect of the project i.e. without taking into account mitigation measures, extent of impact duration, or intensity of the impact. All of these factors have to be considered before the significance and probability of an impact can be established.



In addition, DEA the following (formerly known as DEAT) guideline has been used to assess impacts and Alternatives *"DEAT (2006) Guideline 5: Assessment of Alternatives and Impacts in support of the Environmental Impact Assessment Regulations, 2006. Integrated Environmental Management Guideline Series, Department of Environmental Affairs and Tourism (DEAT), Pretoria".*

6.2 Description Of Environmental Issues Identified, Assessment Of The Significance Of Each Issue And An Indication Of The Extent To Which The Issue Could Be Addressed By The Adoption Of Mitigation Measures [Regulation 31 (2) (h, k)]

The following impacts were identified for further investigation during the scoping phase and all potential impacts have been listed, been where these can be mitigated against. Additional potential impacts identified through the impact assessment phase and review of the specialist reports have been added and are shown in purple in the table below.

Table 10 provides an assessment of each identified potential impact (construction and operational phase), which includes:

(i) the nature of the impact;
(ii) the extent of the impact (i.e. spatial area that may be affected by the impact);
(iii) duration of the impact (long-term / short-term, construction / operation);
(iv) the probability of the impact occurring before and after mitigation, i.e. the likelihood of impact occurring with or without any mitigation measures in place = low/medium/high);
(v) the degree to which the impact can be reversed;
(vi) the degree to which the impact may cause irreplaceable loss of resources; and
(vii) the degree to which the impact can be mitigated, i.e. the *mitigatory potential* which has been classified as follows:

- Low (little or no mitigation measure exists to mitigate negative impacts),
- Medium (mitigation measures exists however some negative effects cannot be fully mitigated)
- High (can be fully mitigated);

The assessment into potential impacts also considered the type of impact i.e. is the impact direct or indirect; whereby the definition is as follows:

Direct Impact: Impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity, e.g. noise generated by blasting operations on the site of the activity). These impacts are usually associated with the construction, operation or maintenance of an activity and are generally obvious and quantifiable.

Indirect Impact: Induced changes that may occur as a result of the activity. These types of impacts include all the potential impacts that do not manifest immediately when the activity is undertaken or which occur at a different place as a result of the activity.

The significance of each impact after mitigation has also been evaluated according to the following criteria:

(i) Will the impact result in an alteration to the environment?
(ii) Does the level of public concern (including both norms and values) influence the impact?
(iii) Is there scientific and professional evidence against/for the impact?
(iv) Will there be environmental loss or degradation?
(v) Will the environmental impact result directly or indirectly in social change?
(vi) What is the likelihood and acceptability of the residual risk?

Based on the above criteria, *significance of the impact after mitigation* has been classified as follows:

- low (little or no residual negative impact occurs after mitigation; probability of impact occurring after mitigation is low)
- medium (residual impact is acceptable to society but has an undesirable effect – impact can be further reduced through rehabilitation / abatement measures; impact will occur to a lesser extent after mitigation)
- high (impact cannot be mitigated and will result in alteration of environment impact will definitely occur even after mitigation; potential investigation into offsets or alternative designs/proposals)
- very high (impact results in loss of irreplaceable resources even after mitigation i.e. protected areas, world heritage sites, etc.)

Table 10: Assessment of identified potentially significant impact [Regulation 31 (2) (k, l)i-vii] (impacts are relevant to all alternatives unless otherwise specified).

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
SOIL										
Erosion of stockpiled material (stone, sand and gravel) resulting in the potential for excess sediments to enter the wetland area and the loss of material across the site.	Direct	Local	Construction phase (short-term)	Yes – can be managed.	No	Medium	High	Material must be stocked in such a way that they cannot fall or cause injury or damage to properties or the natural environment (i.e. the wetland conservation area). Any stockpiles must not exceed 2m in height and must be covered if exposed to heavy wind or rain. Alternatively, low walls or berms must be constructed around the stockpiles. Materials from stockpiles are to be used as soon as is practically possible or spread and spoiled in designated areas. No stockpiles are to be located in the vicinity of the wetland conservation area. An Environmental Management Programme (EMPr) has been designed to manage construction activities and is attached under Appendix 2.	Low	Low
Risk of contamination to soil during concrete mixing.	Direct	Local	Construction phase (short-term)	Yes – can be prevented.	No	High	High	Cement mixing will need to take place on a hard surface or cement mixing trays will need to be used. Cement mixing will not be permitted to occur where run off can enter stormwater drains. Construction will be monitored by an Environmental Control Officer	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								(ECO) who will ensure compliance with the construction EMPr.		
GEOTECHNICAL STABILITY										
Perched water table and low trenchability resulting in the creation of unstable foundations	Direct	Local	Construction phase (short-term)	Yes – can be prevented.	No	Medium	High	Earthworks contractors are to refer to the Geotechnical report (Appendix 10), which states that the site is stable in its existing conditions but recommends that subsoil drainage be implemented during earthworks. It is preferable to maintain the present ground level/raise it when creating building platforms/ terraces. Specifically the founding section describes shallow and deep founding techniques that should be utilised as a result of the geohydrological conditions on the site. The geohydrologist has recommended that for significant construction, a more detailed geohydrological assessment including an augmented risk assessment may be required.	Low	Medium
High risk of erosion where the upper soils consist of loose/soft material resulting in the potential for excess sediments to enter the	Direct	Local	Construction phase (short-term)	Yes – can be prevented	No	Low	High	The relatively level gradient of the site, will reduce the velocity of the water travelling through the site however the geotechnical specialist recommends that if embankments are cut in the sandy areas, angles must not exceed angles of 1:2 otherwise lateral support will be required. All	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
wetland area and the loss of material across the site. (Geotechnical Assessment, march 2013).								permanent cut batters must be adequately secured against erosion. Stormwater runoff is to be further controlled by the SWMP (Aurecon, March 2013).		
GROUNDWATER										
Increase in impermeable surfaces with the change in land use resulting in reduced water infiltration and lowering of the groundwater level potentially effecting wetland recharge (Aurecon, March 2013).	Indirect	Local	Operational phase (long-term)	Yes – can be managed.	No	High	Medium	Groundwater is one of the key inputs into the wetland conservation area and therefore a drop in groundwater recharge could potentially affect water levels within the wetland. In terms of each warehouse site, the amount of impermeable area is required to be minimized (SWMP, March 2013). Attenuation (retention/detention) features should be installed for each warehouse site with energy dissipating structures and/or grass swales which check dams. On-site infiltration measures include minimizing the impermeable surfaces by constructing infiltration trenches/rock filled ditches etc. (Civil Engineering Planning Report, March 2013). Infiltration should be maximised across the site and the level of water in the wetland monitored.	Medium	Low
Potential to	Direct	Regional	Construction	Yes – can be	No	Medium	High	All measures must be taken to	Low	Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
spread chrome contamination found in the groundwater in the south-west corner of the racecourse i.e. a change in the third aquifers current unpolluted status (Geotechnical Report, March 2013).			phase (short-term)	prevented				ensure that the third aquifer layer remains unpolluted. Earthworks and laying foundations are required to be tightly monitored with a Health and Safety Officer on site at all times. Deep foundations for heavy loaded structures will require further geotechnical investigations to ensure the aquifers are not impacted on. Construction of foundations should be constructed upon a sufficiently designed platform of imported, stable and compacted material that is to be obtained commercially. Special consideration will need to be given to pile design as well as construction techniques to ensure that cross contamination between aquifers do not occur during or after construction. No significant puncturing of the aquitard underlying the site through excavation or construction should be allowed. There will be no construction in the south-west corner to avoid any potential impact on the remediation activities. Additional monitoring boreholes are to be installed to detect any movement		

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								in the existing chrome plume. A Spill Contingency Plan has been developed for the construction and operation of the Logistics Park (Appendix 5) which will minimise the potential for any spills to leach into the groundwater. All contractors and workers will be made aware of the potential location of the chrome on site. The chrome is hazardous if workers come into contact with the water contaminated by the chrome or inhale dust containing chrome. Health and safety is included in the EMPr and workers must be informed on how to identify potentially chrome contaminated areas.		
Chrome contaminated water from the dewatering process not disposed of safely during construction potentially spreading the contamination.	Indirect	Regional	Construction phase (short-term)	Yes – can be prevented	Yes	High	High	Lanxess have advised that any water from dewatering the site during construction, particularly dewatering taking place in the south-west of the site, be contained in a suitable tankage within a bunded area on site for testing, possible treatment and appropriate disposal with safe disposal records being retained for audit purposes. In case of treatment, the drainage of the treated groundwater may require	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								special authorisation. The Spill Contingency Plan (Appendix 5) as well as the WMP (Appendix 4) address this impact as well.		
Over extraction of groundwater resulting in a regional lowering of the groundwater table negatively impacting on neighbouring users and changing the current groundwater flow direction, seed and hydraulic head (Geohydrological Investigation, April 2013)	Direct	Regional	Construction phase (short-term)	Yes – can be prevented.	Yes	Medium	High	The geohydrological specialist recommends that a monitoring system be put in place to detect any changes in the aquifer system, control pollution, monitor water levels, flow rates, water quality and trends. Monitoring is outlined in detail in section 9 of the geohydrological assessment (Appendix 11). All monitoring requirements prescribed by the specialist have been included in the attached EMPr.	Low	Medium
Poor waste management potentially resulting in leachate formation impacting in the perched water level (Geohydrological	Direct	Local	Construction phase (short-term)	Yes – can be managed and prevented	No	High	High	Waste management area should be located on an impermeable surface to prevent leachate from coming into direct contact with the soil. Waste management is outlined in the attached EMPr (Appendix 2) as well as the site specific Waste Management Plan (Appendix 4). The waste management area should not be	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Investigation, April 2013).								located in the north-western section of the site, where the water level is very high or adjacent to the north-eastern wetland conservation area.		
Spillages of hazardous material, leaking storage facilities and fittings and poor sewerage facilities potentially contaminating groundwater resources (Geohydrological Investigation, April 2013).	Direct	Local	Construction phase (short-term)	Yes – can be managed and prevented	No	High	High	"Hazardous materials" in this impact refers to materials that could potentially be on site during construction. For example oils and herbicides are classified as "hazardous". As described above, efficient and effective waste management is included in the EMPr however a designated hazardous store will be set up which must be located within a bunded area on a hardened surface and under cover. Toilets on site are to be monitored regularly to ensure that no leaks or overflow is permitted. Safe-disposal slips are to be retained on site for auditing purposes. A Spill Contingency Plan (Appendix 5) has been compiled to manage and mitigate any potential impacts caused by the spill of hazardous or flammable materials during construction and operation.	Low	Medium
STORMWATER										
Increase in	Direct	Local	Operational	Yes – can be	No	High	High	Infiltration must be maximised in	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
stormwater run-off volume and increased velocities due to the hard surfaces, potentially resulting in offsite flooding.			phase (long-term)	managed and prevented.				the site however the Stormwater Management Plan is to followed during the design, construction and operational phases (Appendix 7). On completion of works, a site inspection will be carried out to check compliance with the stormwater management requirements prior to the Certificate of Occupation being issued. Existing stormwater infrastructure will be utilised with stormwater draining to the main north-east wetland. Temporary cut off drains and berms may be required during construction in order to divert concentrated stormwater flow. No diversion/concentration of stormwater must be created that could increase the likelihood of flooding/risk of structural damage to surrounding warehouses.		

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Structures releasing stormwater directly into the wetland resulting in erosion and sedimentation.	Direct	Local	Operational phase (long-term)	Yes – can be managed.	No	High	Medium	The SWMP states that the removal of vegetation cover adjacent to the wetland conservation area should be carried out with care to ensure erosion potential does not increase. Landscaping and re-vegetation of areas not occupied by buildings/paving shall be implemented immediately after building works are complete. Earthworks are to be kept to a minimum. Stabilisation and erosion control measures should be implemented immediately if any embankments are constructed. The SWMP also aims to re-establish sheet flow at the exits of the stormwater drains into the wetland area alongside roads and parking areas. All mitigation measures and recommendations made in the SWMP have been included in the EMPr.	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Polluted/ contaminated stormwater from the site entering the wetland conservation area.	Direct	Local	Operational phase (long-term)	Yes – can be managed.	No	High	Medium	During the design phase, the SWMP states that the existing wetland/dam water quality will be tested to provide a benchmark for post development quality levels. During operation, routine water quality tests should be conducted to ensure that the quality is not dropping. Pollution prevention methods such as silt, oil, grease and litter traps should be utilised during construction and operation of the proposed Logistics Park. The SWMP requires individual warehouses have its own demarcated area for "dirty" stormwater with the necessary silt, oil, grease and litter traps. This will reduce the likelihood of pollution and sediments entering the system. All construction is to be properly disposed of off-site. There should be no temporary storage of rubble in natural waterways. Run-off from fuel depots, workshops and machinery washing areas and concrete batching areas shall be diverted through silt and grease traps before discharged to the environment. The Rehabilitation Plan design is	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								to ensure that water entering the proposed wetland conservation area is of an adequate standard prior to entering the area.		
Increased pressure on existing stormwater	Direct	Local with potential to effect regional	Construction and operational phase (long-	Yes – can be managed.	No	Medium	High	Existing stormwater services in this area drain into the Amanyazama canal which is in close proximity to the Clairwood	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
services in the area.			term)					Racecourse (Figure 9). By installing attenuation features on site required by the SWMP as well as utilizing existing infrastructure on site, the pressure on the stormwater services is expected to be insignificant. The Amanyazama Canal releases the stormwater directly into the sea.		
Contaminated stormwater run-off entering the Amanyazama Canal.	Indirect	Local	Operational phase (long-term)	Yes – can be prevented.	No	Low	Medium	The current water quality of the Amanyazama Canal can be rated as "poor" however it is unlikely that polluted stormwater will enter the Canal due to the range of stormwater attenuation and pollution prevention measures described above. The wetland will continue to function as a filter enhancing water quality.	Low	Low
Stormwater features accumulating litter/excess vegetation resulting in blockages or directing debris into the wetland conservation area.	Direct	Local	Construction and operational phase (long-term)	Yes – can be prevented and managed.	No	High	High	The SWMP states that all stormwater infrastructure discharging stormwater into the wetland should include attenuation features, energy dissipating structures and litter traps. Stormwater infrastructure is required to be monitored and cleaned during construction and operational phase to ensure the wetland does not receive excess silt or vegetation debris transported in the water running	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								off the site. Bio-attenuation swales are to be incorporated into the design acting as an attenuation feature.		
Potential for high stormwater volumes to impact fauna and flora (SWMP, March 2013). High volumes could result in scouring of the vegetation, flooding of sensitive habitats or excess deposition of sediments.	Direct	Local	Operational phase (long-term)	Yes – can be managed.	Yes	Medium	High	Recommendations outlined in the SWMP prepared by Aurecon are required to be adhered to during the construction phase. The recommendations are summarised in section 3.1.3 of the EIR and specifically include the installation of attenuation features and energy dissipating structures reducing the flow rate. Materials used to line stormwater channels should contribute to a reduction in the water flow. The level of water in the wetland is to be controlled using the proposed Rehabilitation Plan.	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Stormwater quality not within the required Department of Water Affairs limits before being discharged off the site (SWMP, March 2013).	Indirect	Local, with the potential to effect regional.	Operational phase (long-term)	Yes – can be prevented	No	Medium	High	The SWMP provides for measures to be taken to ensure water quality in the receiving watercourses is not degraded. This includes the use of silt, oil, grease and litter traps to "clean" stormwater. Litter traps are to be incorporated into the detention facilities and first flush detention basins. There is also the potential for the construction reed bed buffer zones/ artificial wetland areas. During the construction phase stormwater quality should be tested to ensure it is in the required DWA limits.	Low	Low
Positive impact with the potential to reduce the proposed developments carbon footprint.	Indirect	Local	Operational phase (long-term)	Positive impact whereby stormwater can be harvested on the site. Green architectural designs have also been incorporated into the building plans which will decrease the carbon footprint of the proposed development. These include sun screens for large windows to absorb and dissipate solar heat and glare, low-e single glazing smart glass, allowing natural light into the warehouses, motion sensitive lighting, energy efficient light fittings, heat pump I.L.O geysers, VRV air-conditioning systems and efficient waste and water management strategies (ICM, March 2013).							
WETLANDS										
Loss in overall wetland area in terms of the direct number of hectares.	Direct	Local	Construction and operational phase (long-term)	Yes – can be partially prevented.	No	High	Medium	The wetland specialist delineated approximately 11.3 hectares of wetland on the site (excluding areas considered to be artificially driven). The applicant proposes to retain and expand the largest wetland in the north-east of the site therefore approximately half the area of currently existing	Medium	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								wetland will be retained (7.46ha). 3.9 hectares in the south-west is to be retained including the "duck-pond" which was included in the wetland delineation. 2.6 hectares of vegetated swales along the central road will drain in to the wetland conservation area thereby extending the wetland habitat on the site to a total of approximately 14 hectares. It is unknown at this stage if the central vlei will continue to function as a wetland once irrigation on the site inevitably ceases. Gold Circle (Pty) Ltd and all activities currently associated with the horse riding will cease after the two year lease period is complete (August 2014). If the 7.46 hectares of wetland conservation area are rehabilitated as recommended, the area should retain all the environmental services currently provided by the site. Management of this area will in fact improve the services provided by the wetland (flood attenuation and storage, biodiversity maintenance, aesthetic appeal and water quality enhancement).		
Hydrological	Direct	Local with	Operational	Yes – can be	Yes	High	Medium	The vegetation specialist has	High	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
changes related to the change in land use likely to decrease the volume of surface water/ extirpate the central vlei, which is rich in biodiversity (Vegetation & Faunal Assessment Phase II, April 2013).		the potential to effect regional	phase (long-term)	partially reversed.				stated that no matter the development, hydrological changes of the racecourse (i.e. not irrigating the race track) will result in the expiration of the central vlei. The majority of endangered/rare flora are associated with the central vlei as it is the least disturbed wetland system. These species will therefore be lost with the vlei if nothing is done. CPF therefore propose to translocate these species into the rehabilitated section of wetland in the north-east of the site. This will accommodate for the loss of the central vlei. CPF are required to manage and control the hydrological inputs to the wetland conservation area ensuring a sufficient volume (and quality) of surface water is retain in the wetland system to sustain the species translocated into it.		
FAUNA										
Total removal of the heronry in the south-west of the site (Vegetation & Faunal Assessment Phase II, April 2013).	Direct	Local with potential to effect regional	Operational phase (long-term)	Yes – can be prevented and reversed.	No	Low	High	The heronry located in the south-west of the site is to be retained. The heronry falls in the existing chrome contaminated area which will be fenced off during construction. Proposed buffers surrounding the contamination will be advantageous to the heronry.	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								Additionally, the applicant proposes to establish a new heronry. The specialist recommends that seedlings and saplings of large indigenous wetland trees should be planted along the northern boundary of the wetland conservation area to create the new heronry (Vegetation & Faunal Assessment Phase II). The EAP recommends that the rehabilitation of the wetland conservation area begins as soon as possible ~~so that birds are able to relocate to the newly established heronry before the old heronry is destroyed.~~		
Removing the nesting ground for heron and egret species potentially reducing population sizes.	Direct	Local	Operational phase (long-term)	Yes – can be prevented.	No	Low	High	As state above, the existing heronry will be retained in the south-west of the site and a new heronry will be established in the wetland conservation area. As migratory species, the birds are likely to either relocate to this newly established heronry or an alternate suitable location. The fauna specialist has stated that, should the existing heronry be removed, bird diversity and population sizes could be reduced	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								with the removal of the heronry.		
~~Removal of the exotic trees within the heronry~~	~~Direct~~	~~Local~~	~~Operational phase (long-term)~~	~~Positive impact whereby exotic trees will be removed and the proposed new heronry will involve the planting of indigenous trees. As many as possible of the removed exotic species should be replaced with suitable indigenous trees.~~						
Reduction in wetland/vlei surface area, decreasing the semi-resident crowned cranes food source (Vegetation & Faunal Assessment Phase II, April 2013).	Direct	Local	Operational phase (long-term)	Yes – can be partially prevented	No	High	Low	Since it is unlikely that the cranes will tolerate any sort of disturbance it is expected that they will not return to the site and therefore the reduction in available food source on the site will not be significant	High	Low
Development to decrease the landing area available to the pair of crowned cranes currently visiting the site (Vegetation & Faunal Assessment Phase II, April 2013).	Direct	Local with the potential to effect regional	Operational phase (long-term)	No	No	High	Low	The maintained mowed grass on the racetrack currently provides an ideal landing space for the Crowned Cranes. The change in land use will result in a loss of this large area of mowed grass. The Cranes are unlikely to return to the site with the disturbance and loss in landing space. The offset proposed by the faunal specialist is for the applicant to contact the Crane Foundation to monitor the impact on the birds and their fate. Other nearby areas that could potentially accommodate the cranes would be the old Durban International Airport and the Bluff	High	High

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								Golf Course.		
Loss/reduction in functional vlei areas resulting in the reduction of amphibian species populations specifically the Pickersgill's Reed Frog (*Hyperolius pickersgilli;* Vegetation & Faunal Assessment Phase II, April 2013).	Direct	Local with the potential to effect regional	Operational phase (long-term)	Yes – can be partially prevented	Yes	High	Medium	The area around the northern pond is to be maximised to accommodate reptiles and amphibian habitats, in particular the Pickersgill's Reed Frog (*Hyperolius pickersgilli*). The fauna specialist has stated that calls can be used to attract the different species to the pond area. A temporary low wall can be installed to ensure the rare and threatened amphibian species are retained in this area during construction. The wetland conservation area should be monitored constantly during all phases of the development.	Medium	Medium
Loss in habitat for Bonn Convention migratory species *Ciconia nigra* (eThekwini Municipality Draft EIR comments).	Direct	Regional	Operational phase (long-term)	Yes, can be reversed.	No	High	High	The fauna specialist contributing to the Rehabilitation Plan is to ensure that habitat is provided for the Black Stork species (*Ciconia nigra*). This includes wading habitat for large long-legged birds.	Medium	High
FLORA										
Loss of the rare Racecourse Lily (*Kniphofia pauciflora*) currently existing in the central vlei area.	Direct	Local with the potential to effect regional	Operational phase (long-term)	Yes – can be prevented.	Yes	High	High	The vegetation specialist has recommended that as many of the propagates as possible be translocated to the wetland conservation area where the wetland functionality is to be retained as normal as possible to	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								mimic the Lily's natural habitat. Water entering this dam will need to be maintained and flooding regulated to ensure periods of inundation of the fringes of the pond area. The specialist stated that the bigger the buffer areas around the pond, the more likely species are to survive and the higher the biodiversity that can be maintained (Vegetation & Faunal Assessment Phase II, April 2013). The vegetation specialist located 5 propagates of the Racecourse Lily, which will all be relocated. It has also been recommended that a permanent ECO be on the site the initial vegetation clearing during the earthworks phase to make sure any of the relevant species (fauna and flora) have not been left on the site. If any species are found at this stage, they are to be relocated into a similar habitat created in the wetland conservation area.		
Reduction in other wetland herbaceous plant species currently existing on the fringes of the vlei	Direct	Local	Operational phase (long-term)	Yes – can be managed.	No	High	High	As described above, rare and endangered herbaceous species will be identified and re-located into the wetland conservation area. Soil relocation, particularly from the central vlei area, is	Medium	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
areas including the endangered *Iridaceae* and *Disa* species (Vegetation & Faunal Assessment Phase II, April 2013).								recommended to create the species preferable habitat as a means of optimizing the survival of the translocated plants. The ECO on site during initial site vegetation clearing must be trained in identifying the relevant herbaceous wetland species.		
Loss of the critically endangered North Coast Grassland.	Direct	Local with potential to effect regional	Operational phase (long-term)	No	No	High	Low	The vegetation specialist reassessed the ecosystem on the site and found that there was very little indigenous vegetation with the racetrack in particular consisting of planted grass which is regularly mowed. The high level of disturbance and trampling from the horses has resulted in the encroachment of alien species and weeds. Although the site may fall within the North Coast Grassland according to its geographical co-ordinates, it is highly modified due to the current land-use. Endangered and rare species will be translocated to the wetland conservation area as described above.	Low	Low
Difficulty locating endangered and endemic plant species during the translocation	Direct	Local	Construction phase (short-term)	Yes – can be prevented	Yes	High	High	The vegetation specialist and Clairwood Racecourse manager are aware of the locations of the rare Racecourse Lily. Professor Bajnath ("Snowy"), is currently	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
phase (e.g. Racecourse Lily propagate is below ground during winter).								monitoring the survival of the Racecourse Lily on the Clairwood site and is contributing to the Rehabilitation Plan. A survey must be conducted prior to any construction activities and a hand-held GPS utilized to record the exact location of the propagates. The vegetation specialist has surveyed, recorded and photographed various species locations over a 5 month period covering the Racecourse Lily and other important herbaceous wetland species flowering season. The Rehabilitation Plan, to be utilised when establishing the wetland conservation area should include a list of all species that should be found on the site and translocated to the designated area.		
The loss of a portion "open space" in the South Durban Basin.	Direct	Local	Operational phase (long-term)	No	No	High	Low	In order to fully assess the loss of open space, the services provided by the open space are broken down in the following section of the table. The services potentially provided by the area could include retaining ecological links, provision of a "green-lung", visual aesthetics, water attenuation, water quality enhancement, habitat provision, biodiversity	High	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								stimulation and social benefits.		
Stripping of vegetation in the potentially chrome contaminated area potentially blowing contaminated soil across the site (Lanxess).	Direct	Local	Construction phase (short-term)	Yes – can be prevented.	No	low	High	~~The removal of vegetation from the potentially contaminated area may increase the potential for wind to disperse potentially contaminated across the site. Regular wetting of the dust in this area and dust monitoring must take place.~~ There will no stripping of vegetation in the chrome contamination area in the south-west.	Low	Low
Stripping of vegetation in the potentially chrome contaminated area potentially exposing contaminated soils which may erode during high rainfall events and deposit the soil in adjacent areas (Lanxess).	Direct	Local	Construction phase (short-term)	Yes – can be managed.	No	Medium	High	~~The removal of vegetation from the potentially contaminated area will expose potentially contaminated soil which could erode and deposit the soil in other areas across the site. Stormwater should be monitored in this area with no stockpiling of the sand to occur near the borders of the demarcated area. The flat gradient of the site reduces the likelihood of this impact occurring~~. There will no stripping of vegetation in the chrome contamination area in the south-west.	Medium	Low
Removal of the large trees along the north-western boundary	Indirect	Local	Construction phase but long-term impact.	Yes – can be prevented.	No	High	High	~~The Contractor is to be aware of the high water table in this area and to train personnel working in this area about the potential~~	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
increasing localised groundwater levels (Lanxess).								~~chrome contamination. Dewatering in any trenches should take place and the water tested from the presence of chrome before being disposed of.~~ Due to the huge amount of water drawn up from the Eucalyptus trees, it is advised that the trees be incorporated into the development layout.		
Positive opportunity to conserve and protect the species that are translocated to the wetland conservation area	Direct	Local with potential to effect regional	Operational phase (long-term)	Positive impact. The inevitable development of this piece of strategically owned property could potential result in the entire site being utilised however the applicants have committed to conserving 7 640m^2 of the on site wetland.						
Positive increase in indigenous woody vegetation across the site.	Direct	Local	Operational phase (long-term)	Positive impact where the exotic weeds are removed across the site and indigenous vegetation used to revegetate the Logistics/Distribution Park and wetland conservation area.						
SENSITIVE ENVIRONMENTAL AREAS (incl D'MOSS)										
Potential loss of an area providing ecological links with other natural systems (i.e. providing for species immigration and emigration).	Direct	Local	Operational phase (long-term)	No	No	Low	Low	Due to the isolated nature of the Clairwood Racecourse site, it is highly unlikely that the area is providing for significant ecological links with other natural areas. The Racecourse potentially still has connections to the old Durban Airport, Treasure Beach and the Bluff Golf Course (indicated on Figure 9) where wind born or flying	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								species have a short distance to travel to get to these areas Ecological linkages for these species will be much higher compared to terrestrial species. The fauna and flora specialist has stated that strictly terrestrial organisms may be linked to the above mentioned areas via depressions adjacent to the roads and railway lines and through gardens. These linkages will not be lost with the development of the Logistics Park.		
Potential loss of the "green-lung" providing an environmental service to the site.	Direct	Local	Operational phase (long-term)	No	No	High	Low	A "green lung" is a space in an urban area where there are lots of plants using carbon dioxide from the air to provide a good source of oxygen. Carbon sequestration rates vary between different vegetation types and the characteristics of the soil with the storage of carbon in woody vegetation being higher as it builds up over time in the above-ground biomass specifically in wood.[18] The majority of the site currently consists of mowed grasses and herbaceous vegetation with only four clumps of woody vegetation.	High	Low

[18] Alonso I, Weston K, Gregg R and Morecroft M 'Carbon storage habitat: Review of the evidence of the impacts of management decisions and condition of carbon stores and sources' (2012) NERR043 *Natural England Research Report.*

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								The carbon sequestration rate of the site is therefore likely to low.		
Loss of visual aesthetics associated with the open space in a heavily developed/ industrialised area.	Direct	Local	Operational phase (long-term)	Yes – can be partially prevented	No	High	Low	There will be a loss of open space previously associated with the racetrack. 44% of the respondents in the SIA stated that they personally benefit from the open space provided by the Racecourse. Visual aesthetics is a subjective impact however 7 460m^2 of open space has been allocated to wetland habitat conservation, which will be aesthetically pleasing. This area will be accessible to the public. The architect has also provided design concepts of what the proposed infrastructure will look like (cover page and Figure 5), with the buildings appearing more aesthetically pleasing compared to surrounding land uses, "Green ideas" will also be incorporated into the buildings with indigenous trees and vegetation improving the aesthetics across the remainder of the site.	High	Medium
Potential reduction in flood attenuation capability of the site (Wetland Impact	Indirect	Local	Operational phase (long-term)	Yes – can be managed	No	High	High	Because the system is closed, the wetland specialist has stated that the impact on flood attenuation and storage will be low but cannot be mitigated against. By retaining the wetland conservation area, the	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Assessment Phase II, Sept 2012).								specialist rated the impact as acceptable. The SWMP requires the installation of attenuation features and energy dissipating structures which will assist in reducing the probability of flooding. The SWMP will also re-establish sheet flow at the exits of the stormwater drains into the wetland area alongside roads and parking areas. Excess water flowing off the site drains into the Amanyazama Canal.		
Potential for the proposed development to reduce the quality of water on the site.	Indirect	Local, with the potential to affect regionally	Operational phase (long-term)	Yes – can be managed	No	Medium	High	The SWMP will reduce the likelihood of this impact occurring. During the design phase, the SWMP states that the existing wetland/dam water quality will be tested to provide a benchmark for post development quality levels. During operation, routine water quality tests should be conducted to ensure that the quality is not dropping. Pollution prevention methods such as silt, oil, grease and litter traps should be utilised during construction and operation of the proposed Logistics Park. All construction is to be properly disposed of off-site. During operation, run-off from fuel depots, workshops and machinery washing areas and concrete	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								batching areas shall be diverted through silt and grease traps before discharged to the environment. The WMP and Spill Contingency Plan (Appendix 4 and 5 respectively) will also contribute to reduce the likelihood of this impact from occurring.		
Loss of habitat availability.	Direct	Local	Construction and operational phase (long-term)	Yes – can be prevented	No	High	Medium	Although the overall size of open space will decrease, the quality of habitat for identified species will be mostly improved. Certain species such as the crowned crane are however likely to vacate the site due to habitat unsuitability. It is important for the rehabilitation of the wetland conservation area to commence as soon as possible before construction to ensure all species are accommodated (e.g. establishment of indigenous trees for the new heronry and the proposed reed buffer zone).	Medium	Medium
Potential decrease in biodiversity.	Indirect	Local with potential to effect regional	Operational phase (long-term)	Yes – can be partially prevented and managed.	No	High	High	The proposed wetland conservation area aims to provide for a biodiversity hotspot counteracting the loss of certain species on the site. Relevant fauna and flora species are to be translocated to the north-east wetland. The various habitats will	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								be improved potentially increasing species diversity in the wetland conservation area. The proposed development will however likely result in the loss of the crowned crane to a more suitable habitat. The hydrology of the wetland conservation area is required to be monitored during construction and operational phase of the development as biodiversity maintenance in this area is imperative. Periods of inundation on the fringes of the pond area are required. The specialist stated that the bigger the buffer area around the pond, the more likely species are to survive and a higher the degree of biodiversity can be maintained (Vegetation & Faunal Assessment Phase II, April 2013).		
Potential loss of social/ recreational benefits associated with the open space.	Indirect	Local	Operational phase (long-term)	Yes – can be managed.	No	Medium	High	Currently the Clairwood Racecourse does not allow private recreational use apart from horse racing activities. Public partaking in horse racing activities can utilise the Greyville Racecourse as an alternate venue. The proposed Logistics Park will be providing a variety of social benefits which are further discussed in the socio-economic section of the table. CPF's corporate social	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								responsibility will be highly beneficial to the local community in terms of contributing to education facilities in the immediate area.		
Potential for workers to interfere with the wetland conservation area during the construction phase.	Direct	Local	Construction phase (long-term)	Yes – can be prevented or managed	No	High	High	The area is to be clearly demarcated so all workers on site are aware of the conservation area. The SWMP has stated that where reasonably possible, work in watercourses and wetland areas shall take place outside of the expected rainy season and allow sufficient time for rehabilitation process to be affected before the rains commence (March through August). This includes stabilisation of eroded drainage lines and any construction activities involving the crossing of watercourses and wetland areas.	Low	Low
Sedimentation build up in the north-eastern wetland system reducing wetland attenuation and water quality enhancement through filtration.	Direct	Local	Construction and operational phase (long-term)	Yes – can be prevented or managed	No	High	High	Erosion control systems should commence as soon as possible after stormwater channels have been constructed (i.e. the grassing, stone pitching, lining of earth channels). Infrastructure discharging stormwater into the wetland should include attenuation features, energy dissipating structures and litter traps. Stormwater infrastructure is	Medium	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								required to be monitored and cleaned during construction and operational phase to ensure the wetland does not receive excess silt or vegetation debris transported in the water running off the site.		
Decrease in wetland recharge due to the decrease in infiltration on site.	Direct	Local	Construction and operational phase (long-term)	Yes – can be managed	No	High	High	Infiltration must be maximised on the site with the SWMP being followed during the design, construction and operational phases (Appendix 7). A Rehabilitation Plan is to be developed by a wetland, fauna and flora specialist and an experienced landscaper. Hydrology of the wetland conservation area is required to be monitored during construction and operational phase of the development as biodiversity maintenance in this area is imperative. Controlled stormwater run-off should significantly contribute to the maintenance of water within the wetland system.	Low	Low
Loss in wetland buffer zone on the site thereby reducing protection to the wetland system and associated	Direct	Local	Construction and operational phase (long-term)	Yes – can be managed	No	High	Medium	As stated above, the area is to be clearly demarcated so all workers on site are aware of the conservation area and do not encroach into the buffer zone. No stockpiling or waste management area should exist within or	Medium	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
fauna & flora species.								adjacent to the wetland. All stormwater draining into the area is required to pass through pollution prevention infrastructure such as grass swales and silt traps. The ECO will audit the buffer zone constantly to ensure it is not significantly impacted on.		
Reduction and/or damage to grassland area associated with the fringes of the wetland conservation area.	Direct	Local with the potential to effect regional	Construction and operational phase (long-term)	Yes – can be prevented or managed	No	High	High	The grassland surrounding the wetland area is where the majority of endangered and rare fauna and flora species will be relocated into and therefore maintenance and management of this area is imperative. This grassland area is to be demarcated as it is complimentary to the wetland conservation area. The size of the area which the applicant proposes to conserve is approximately 7.5 hectares. Discussions with the wetland and vegetation & faunal specialists concluded that 6.6 hectares should adequately provide for a functional wetland ecosystem.	Medium	Low
Change in wetland input from diffuse to point source water input from stormwater infrastructure	Direct	Local	Operational phase (long-term)	Yes – can be managed	No	High	High	The SWMP recommends that energy dissipating structures be utilised where appropriate. Materials used for lining the open stormwater drains/channels be chosen to reduce erosion. Materials to roughen the surface	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
potentially increasing the risk of erosion.								of the channels and further flow restricting devised should be used to reduce scouring velocities (SWMP, March 2013). Potential to utilize reed bed buffer zones within the wetland conservation area to reduce scour. The SWMP also aims to re-establish sheet flow at the exits of the stormwater drains into the wetland area alongside roads and parking areas.		
Degradation of the wetland conservation areas from deposition of construction sediment and rubble.	Direct	Local	Construction phase (short-term)	Yes – can be prevented.	No	High	High	The north-east portion of the racetrack will be avoided where possible. No stockpiling or dumping of construction material should occur within or directly adjacent to the demarcated wetland conservation area. No dumping of construction rubble or spoil is to occur in completed stormwater drains, pipes, channels or natural drainage lines. Weekly checks are to be carried out during construction. These are to be repaired or cleared of silt if required.	Low	Low
Below ground infrastructure in the area contaminated by chrome potentially being contaminated	Direct	Regional	Construction phase but long term effect.	Yes – can be prevented and managed.	No	Medium	High	Since there will be no construction in the chrome contaminated area, it is unlikely that below ground infrastructure will be removed from this area. Below ground infrastructure such	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
resulting in hazardous material being disposed of at the incorrect landfill (Lanxess).								as foundations or buried services adjacent to the demarcated area should be considered as potentially contaminated during demolition. Infrastructure could be broken up and the rubble stockpiled at an agreed location on the site. The rubble should then be tested for the presence of chrome-6. Rubble that is found to be contaminated should be disposed of at a registered hazardous landfill site and the safe disposal slips retained. The disposal of the below ground infrastructure has also been included in the WMP (Appendix 4) to ensure that it is appropriately managed and disposed of.		
Opportunity to rehabilitate the downgraded, modified wetland retaining the isolated wetland in the future (i.e. during the operation of the Logistics Park; Wetland Impact Assessment, September 2012)	Direct	Local	Operational phase (long-term)	Positive impact. The applicant has committed to incorporating 7 460m^2 of wetland area into the layout of the Logistics Park. This will support the rare and endangered species re-located into the area.						
WASTE										

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Improper storage of hazardous waste i.e. used oils from vehicles; old cement bags etc. resulting in possible contamination to the surrounding environment.	Direct	Local	Construction phase (short-term)	Yes – can be prevented.	No	High	High	Hazardous waste must be stored on a hard surface within a bunded area and must not be allowed to enter stormwater drains and the surrounding environment. Waste must be disposed of regularly by a reputable contractor. Hazardous waste such as oils, contaminated rags etc. must be disposed of at a hazardous class landfill. Safe disposal certificates must be provided and retained for audit purposes. The WMP has been designed to ensure that all waste streams on the site during construction and operation of the Logistics Park are efficiently and effectively managed.	Low	Low
Potential for improper storage and disposal of waste materials generated during construction resulting in possible contamination to the surrounding environment.	Direct	Local	Construction phase (short-term)	Yes – can be prevented.	No	High	High	Waste must be stored in the bins within the waste collection area in the construction camp and must not be allowed to blow around the site or be placed in piles adjacent the skips / bins. Separate waste bins for each of the waste streams generated must be provided. The waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered. Waste must not be allowed to accumulate on site but should be disposed of regularly by	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								a reputable contractor and must be disposed of at an appropriate landfill site. Detailed in the WMP in Appendix 4.		
Littering around the site.	Direct	Local	Construction phase (short-term)	Yes – can be managed.	No	High	High	Littering will not be permitted on the site and general housekeeping will be enforced. Construction will be monitored by an ECO who will manage compliance with the construction EMPr (Appendix 2).	Low	Low
Large amounts of rubble leaving the site when the grandstand is demolished. This could significantly increase the number of heavy vehicles on the immediate road network and potentially add pressure to landfill sites.	Indirect	Local	Construction phase (short-term)	Yes – can be prevented and managed	No	High	High	The applicant proposes to reuse the huge volume of building rubble that will be generated during the demolishment of the grandstands and other structures on the site. Despite economic benefits, the reuse of this rubble is a sustainable means of disposing this form of solid waste. Materials from building demolition will need to be selected, processed further and reused as selected fill materials (such as platforms). Materials that are not suitable will be disposed of as spoil. Recycling the rubble in this manner will reduce the volume of excess materials leaving the site.	Low	Low
Improper disposal of rubble i.e. burying or neglecting building rubble	Direct	Local	Construction phase (short-term)	Yes, the impact can be prevented.	No	Low-Medium	High	All excess material and rubble not being utilized on the site must be removed from site so not to restrict the rehabilitation process. All excess material and rubble must	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
resulting in direct mechanical damage to surrounding vegetation and untidiness of the site.								go to an approved, designated landfill and a safe disposal certificate must be obtained.		
Potential for construction waste to be disposed of at incorrect landfill resulting in contamination at the landfill site.	Indirect	Local	Construction phase (short-term)	Yes – can be prevented.	No	Low-medium	High	Recycling should be undertaken where possible to limit waste added to the landfill site. Waste to be sent to registered landfills and safe disposal certificates must be retained for hazardous waste.	Low	Low
Litter and solid waste accumulating on site due to delay in servicing by Durban Solid Waste (DSW).	Direct	Local	Construction phase (short-term)	Yes – can be prevented and managed.	No	High	Medium	Solid waste will be stored on the site where it will be collected by a private operator or eThekwini Municipality. During construction, a waste management area is required to ensure that al waste types are contained and effectively managed. Safe disposal slips should be retained on site for audit purposes. Section 3F of the EMPr outlines waste management. Large amounts of solid general waste (>100m^3) should not be allowed to accumulate on site. Detailed further in the WMP (Appendix 4).	Low	Low
Nominal increase in pressure on	Direct	Local	Construction phase	Yes – can be managed.	No	Low	Medium	Solid waste will be collected by eThekwini Municipality for disposal	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
local landfill.			(short-term)					or a private operator depending on the type and quantity of waste. A Waste Management Plan has been developed for the site for the construction and operational phases of the development to ensure that the solid and liquid wastes are effectively and efficiently identified, handled, stored and disposed of (Appendix 4).		
HAZARDOUS CHEMICALS / FUELS										
Bulk storage of dangerous fuels i.e. spillage of diesel during construction potentially contaminating groundwater and surrounding environment.	Direct	Local	Construction phase (short-term)	Yes – can be prevented.	No	High	High	Cement mixing will need to take place on a hard surface or cement mixing trays will need to be used. If the creation of a permanent bunded area is not feasible, these materials must be stored on drip trays capable of holding at least 110% of the spilled volume. Any construction equipment that could leak oil must be placed on a drip tray. All equipment must be in good working order to reduce the likelihood of oil leaks occurring. Any re-fuelling of equipment must occur on a hardened surface, within a designated re-fuelling area where any spills can be contained. A designated hazardous store will be set up which must be located within a bunded area on a hardened	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								surface and under cover. Construction will be monitored by an ECO who will manage compliance with the construction EMPr. The Spill Contingency Plan (Appendix 5) has been compiled to manage and mitigate against any potential impact caused by the spill of hazardous or flammable materials at the Clairwood Logistics/ Distribution Park during its construction and operation.		
Risk of spills from construction equipment (oils, fuels etc) contaminating soil and stormwater.	Direct	Local	Construction phase (short-term)	Yes, the impact can be prevented.	No	High	High	As mentioned above, a designated re-fuelling area is required to contain spills, cement mixing is to take place on a hardened surface and a designated hazardous store will be set up within a bunded area capable of holding at least 110% of the spilled volume.	Low	Low
Improper storage of hazardous waste i.e. used oils from vehicles, old cement bags, contaminated soil etc.	Direct	Local	Construction phase (short-term)	Yes, the impact can be managed.	No	Medium	High	A separate bin dedicated to the storage of hazardous waste will be required. The bin should be clearly labelled as such and frequently emptied with the contents being disposed of at a registered hazardous landfill site. Safe disposal records are required to be kept on site for audit purposes. The hazardous storage area will be monitored according to the	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								EMPr by an independent ECO.		
NOISE										
Noise generated by construction workers, machinery and construction vehicles disturbing surrounding residents. Additional road construction and the demolishing of existing structures is likely to be the source of the majority of the noise during the construction phase (Environmental Noise Assessment, January 2013)	Direct	Local	Construction phase (short-term)	Yes – can be managed	No	Medium	Medium	Excessive noise must be controlled on site specifically the destruction of the grandstands. Workers will be trained regarding noise on site and construction hours will be kept to working hours (06h00 to 18h00). The construction will need to be monitored by an ECO who will ensure compliance with the construction EMPr. All precautions must be taken to ensure that noise generation is kept to a minimum. If excessive noise is expected during certain stages of the construction, residents must be notified prior to the event. The EMPr has been designed to manage construction activities and is attached under Appendix 2. Buildings/Screens/Barriers can be used to limit noise impact and a complaints register should be assessable and maintained.	Low	Low
Truck haulage movements will negatively impact residents if the trucks utilize the residential roads and piling driving	Direct	Local	Construction phase (short-term)	Yes – can be managed	No	Medium	Medium	A complaints register is to be maintained for air and noise pollution, which will be reviewed by the ECO on a regular basis. Noise is to be evaluated during the preparation of the site. Screening can be used to reduce noise if any	Medium	Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
particularly (Environmental Noise Assessment, January 2013).								complaints occur. It is important to liaise with the affected parties to ensure the public are consulted.		
Noise associated with night time activities during operational phase of the Logistics Park (Environmental Noise Assessment, January 2013).	Direct	Local	Operational phase (long-term)	Yes – can be managed	No	Medium	Medium	During the operational phase at night, educate and train hyster drivers to be aware of the noise. Periodic night audits may be used to monitor hyster noise. A complaints register is to be maintained on the site.	Medium	Low
AIR QUALITY										
Emissions generated from construction vehicles	Direct	Local	Construction phase (short-term)	Yes – can be managed.	No	Medium	Low	The only emissions that will be generated will be from construction vehicles which are expected to be minimal and are not expected to significantly affect the surrounding communities or the environment. Air emissions should be monitored daily by the onsite ECO and a complaints register available to surrounding communities.	Medium	Low
Dust generated from construction vehicles and other on site activities impacting on-site	Direct	Local	Construction phase (short-term)	Yes – can be managed.	No	High	Medium	Dust control measures (the use of water cart/ truck) must be used to wet exposed soil thereby maintaining low dust levels. The dust levels must be kept below the required SANS Standards to	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
workers as well as surrounding communities and road networks (i.e. demolition of grandstand).								ensure minimal impact on the surrounding community and environment. The ECO should monitor the dust levels daily. Drivers and workers on the site should be educated with regards to the air pollution on site. A complaints register is to be maintained recording any air quality/dust complaints.		
Increase in carbon monoxide pollution with the increase in trucks during operational phase (community concern, Draft EIR comments)	Indirect	Local	Operational phase (long-term)	No	No	Medium	Low	There will be an increase in vehicles and associated increase in carbon monoxide. The traffic specialists has recommended direct access on and off the M4 Highway which aims to reduce the vehicle duration in the area. This impact cannot however be fully mitigated.	Medium	Medium
RESOURCE USE & CONSERVATION										
Sourcing of raw materials i.e.: (gravel, stone, sand, cement and water) from unsustainable sources resulting in illegal sand winning and mining operations causing significant environmental	Indirect	Potential to be regional	Construction phase (short-term)	Yes – can be prevented.	Yes, potential loss of irreplaceable soil and water resources.	Medium	High	Materials are to be sourced on site where possible and rubble from demolished infrastructure utilised as fill material. All sourced materials must be obtained from a registered and sustainable source and all delivery notes and slips must be made available to the ECO e.g. mined material such as stone must only be obtained from permitted quarries.	Low	Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
damage.										
TRAFFIC										
Increase in traffic disruptions on surrounding access roads during construction.	Direct	Local	Construction phase (short-term)	Yes – can be managed.	No	High	High	Points man in attendance to control traffic where road disruption is most likely. Alert traffic department if road closure is required, conduct road closures during off peak hours and place notices of intent in advance. Construction vehicles to comply with the speed limits.	Medium	Medium
Increase in the volume of traffic on the congested roads during the operation of the proposed Logistics Park.	Indirect	Local	Operational phase (long-term)	Yes – can be managed.	No	High	High	The Transportation Study has identified intersections/roads requiring upgrades. Once the upgrades are complete, the road network should cope with the calculated predicted traffic flows.	Low	Low
Nuisance impact on surrounding residential communities with the upgrading of nearby roads (Transportation Study, March 2013).	Indirect	Local	Construction phase (short-term)	Yes – can be managed.	No	High	Medium	Keep points man in attendance to control traffic where road disruption is most likely. Alert traffic department if road closure is required, conduct road closures during off peak hours and place notices of intent in advance. Specifically residents along Lansdowne and Basil-February Road.	Medium	Medium
Potential impact on heavy vehicle traffic on pedestrian safety.	Indirect	Local	Construction and operational phase (long-term)	Yes – can be prevented	No	Low	Medium	Vehicles will be required to adhere to speed limits and the upgrade of roads in the area will encourage direct access onto the M4 Highway reducing the route	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								through the residential areas. The traffic specialist has stated that the existing informal taxi rank will be formalised and sidewalks will be expanded to accommodate scholars utilising the intersection. Incorporating lighting will improve the condition of the intersection as well.		
Positive impact with the formalisation and improvement of the on-street taxi rank near the main entrance to the Racecourse (Transportation Study, March 2013).	Indirect	Local	Operational phase (long-term)	Positive impact.						
Incorporation of the rail access to all internal sites along the sites western boundary (Transportation Study, March 2013).	Direct	Local and Regional	Operational phase (long-term)	Positive impact reducing the volume of traffic entering and exiting the Logistics Park.						
INFRASTRUCTURE & SERVICES										
Damage to existing services (electricity, water	Direct	Local	Construction phase (short-term)	Yes – can be prevented.	No	High	High	This impact can be fully mitigated against by identifying services prior to construction and avoiding	Low	Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
and sewer pipeline traversing site).								damage to existing services. Alternatively, if service disruption is unavoidable, the parties affected must be notified in advance.		
Increased pressure on water services in the South Durban Basin.	Direct	Local	Operational phase (long-term)	Yes – can be managed.	No	High	High	eThekwini Municipality's water reticulation is found adjacent to the southern and eastern sides of the racecourse (Civil Engineering Planning Report, March 2013). Reticulation pipes will be relayed to provide bulk water supply access to the proposed development.	Low	Low
Increased pressure on eThekwini's local major substation.	Indirect	Local, with potential to effect regional	Operational phase (long-term)	Yes – can be prevented.	No	High	High	eThekwini have confirmed that they have the capacity to supply power to the development (Electrical & Telecommunication Services report, March 2013). Internal electrical services will be supplied by the developers with substation and minisub positions being agreed on as part of each tenant's application process.	Low	Low
Potential leak when relaying the existing 1250mm diameter sewer outfall along the southern boundary of the site (Civil Engineering	Direct	Local	Construction phase (short-term)	Yes – can be prevented.	No	High	High	Contractors are to ensure that all precautions have been taken to ensure that sewage does not flow out of the existing pipeline into the environment. The existing sewer pipeline is not in the wetland conservation area.	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Planning Report, March 2013).										
Potential to impact the Transnet NMPP running adjacent to the northern and western boundaries of the site (Civil Engineering Planning Report, March 2013).	Direct	Regional and potential to effect national	Construction phase (short-term)	Yes – can be prevented	Yes	Medium	High	The engineer has contacted Transnet who outlined standard crossing conditions (Appendix 5 of the Civil Engineering Planning Report; Appendix 6 of EIR). On finalisation of the design, all layout drawings are to be forwarded to Transnet. Transnet have stated that prior to commencement of work, a Transnet Pipelines representative be present to indicate the position of the pipeline and to undertake any work on Transnet's pipeline that may be necessary. Arrangements will be made to visit the site periodically whilst work is in progress. Heavy plant or mechanical driven equipment shall not be used in the pipeline servitude. All excavations must be done by hand and hand-held compactors shall be used in the servitude area. An Excavation Permit is required from Transnet before any excavation takes place in the servitude. Transnet's standard crossing conditions are included in section 3S of the EMPr.	Low	Medium
Potential leak in the Transnet	Indirect	Regional and	Construction phase	Yes – can be prevented	Yes	Medium	High	Once the Transnet servitude is identified, a Transnet	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
NMPP contaminating soil, groundwater and wetland in the area (Risk Assessment, January 2013).		potential to effect national	(short-term)					representative should be contacted as discussed above. Transnet's standard crossing conditions outlined above should be adhered to. Transnet's standard crossing conditions are included in section 3S of the EMPr.		
Potential to damage existing extraction wells and Lanxess' boreholes in the south-west corner of the site.	Direct	Local	Construction phase (short-term)	Yes – can be prevented	No	High	High	~~The applicant is to discuss details for protection or replacement of existing monitoring or extraction boreholes with Lanxess~~. All extraction wells and boreholes have been clearly identified on maps and will be marked on site. Contractors and workers are to be made aware of there locations and construction plans formulated to accommodate the locations accordingly. Should damage to any of the wells or boreholes occur, Lanxess should be contacted immediately. The amended layout ensures that existing boreholes in the south-west are within a restricted fenced area where no construction will occur.	Low	Medium
Potential to damage Telkom's optic fibre/copper cables which may exist on the	Direct	Local with the potential to effect regional.	Construction phase (short-term)	Yes – can be prevented.	No	Medium	High	It is unclear at this stage whether Telkom's optic fibre/copper cables dross the racecourse. According to the map provided by Telkom, the engineer did not locate any	Low	Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
racecourse (Civil Engineering Planning Report, March 2013).								such cables. A precautionary approach is however advised by the engineer and Telkom should be contacted if the cables are discovered (Civil Engineering Planning Report, March 2013).		
Buried services (cables and pipes) extending below the groundwater interface, creating preferential drainage pathways within or through the chrome contaminated area potentially expanding the footprint of the impacted area (Lanxess).	Direct	Local	Construction phase but long-term impact.	Yes – can be prevented.	No	High	High	During the installation of buried services consideration should be given to prevent the creation of preferential drainage pathways through or within the contaminated area. Consideration should be given to the type of bedding sand used in the trenches and the location of the excavation channels. Subsurface pipes installed in the area of groundwater contamination should be sealed systems to prevent the ingress of potentially contaminated groundwater into the pipe network (e.g. continuously welded HDPE pipelines). Accurate service plans should be developed and maintained showing where the services exists and identifying potential preferential drainage pathways which may require further monitoring.	Low	Low
Potentially positive impact on surrounding property values.	Indirect	Local	Operational phase (long-term)	Positive impact increasing the surrounding property values (Economic Impact Motivation, April 2013).						

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
VISUAL										
Loss of open space in a heavily developed area.	Direct	Local	Operational phase (long-term)	Yes – can be partially prevented	No	High	Low	There will be a loss of open space previously associated with the racetrack. 44% of the respondents in the SIA stated that they personally benefit from the open space provided by the Racecourse. Visual aesthetics is a subjective impact however 7 460m^2 of open space has been allocated to wetland habitat conservation, which will be aesthetically pleasing. This area will be accessible to the public. The architect has also provided design concepts of what the proposed infrastructure will look like (cover page and Figure 5), with the buildings appearing more aesthetically pleasing compared to surrounding land uses, "Green ideas" will also be incorporated into the buildings with indigenous trees and vegetation improving the aesthetics across the remainder of the site.	High	Medium
SOCIO-ECONOMIC										
Unauthorised access to property.	Indirect	Local	Construction phase (short-term)	Yes – can be prevented.	No	Medium	High	The applicants are the landowners and thereby will authorize access to the property. The entire site should however be fenced so ensure workers do not cross boundary lines particularly where	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								the development footprint runs adjacent to residential communities.		
Potential for an associated increase in crime and drugs due to the influx of workers into the area.	Direct	Local	Construction phase (short-term)	Yes – can be managed.	No	High	High	As mentioned above, the entire site should be fenced to prevent workers from accessing adjacent properties. Security personnel on site should be strategically positioned at exit and entry points as well as paying attention to the neighbouring residential communities.	Low	Medium
Potential for an increase in public availability of the open space around the wetland area.	Indirect	Local, potentially regional	Operational phase (long-term)	Positive impact where there may be controlled public access to the site where interested groups may visit the wetland conservation area for educational and recreational purposes.						
Change in the sense of place associated with the Clairwood Racecourse which has been part of the Clairwood heritage for a long period.	Indirect	Local	Operational phase (long-term)	No	No	High	Low	The proposed re-development will completely change the sense of place currently associated with the racecourse. There is the potential for elements of the culturally/historically significant structures on the site to be incorporated into the building designs where possible. Features from existing infrastructure and smaller structures are to be relocated into the wetland conservation area which will act as a tribute to the historical Clairwood Turf Club.	High	Medium

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Potential impact on small businesses and communities in the area because of high electrical consumption and water use during construction.	Indirect	Local	Construction phase (short-term)	Yes – can be managed	No	Low	Low	It is unlikely that large amounts of electricity and volumes of water will be used during the construction of the proposed Logistics Park. Where necessary, generators will be utilised on the site. eThekwini Municipality will be supplying water and electricity to the development during the construction phase and will be responsible for ensuring all other users in the area do not have reduced access to these two resources. The Civil Engineering Planning Report (Appendix 6) and Electrical Report (Appendix 9) have indicated that eThekwini will have the capacity to supply the proposed Logistics/Distribution Park during operational phase.	Low	Low
Positive impact for temporary and permanent local employment opportunity for skilled and unskilled community members (Economic Impact	Direct	Local	Construction and Operational phase (long-term)	Opportunity for 4725 construction jobs created and an estimated 4667 permanent employees (Economic Impact Report, April 2013)						

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Report, April 2013).										
Positive impact of increased rates payable to the Council, improving local GDP and economic development in the South Durban Basin (Economic Impact Report, April 2013)	Direct	Local	Operational phase (long-term)	Positive impact with rates increasing nearly tenfold (Economic Impact Report, April 2013). Municipal rates contribute to service delivery in poorer residential communities.						
Opportunity to stimulate further trade and logistics in the Back of Port area (TC Chetty & Associates, March 2013).	Direct	Regional	Operational phase (long-term)	Positive impact satisfying the national and international demand for logistic related development enhancing trade on a provincial and national scale.						
Synergy between overall spatial development for the area and proposed development (TC Chetty & Associates, March 2013).	Direct	Regional	Operational phase (long-term)	Positive impact supporting the BOPLAP as the proposed development is aligned with national, provincial and local planning frameworks and strategies (TC Chetty & Associates, March 2013)						
Increase in purchasing of	Indirect	Regional	Operational phase (long-	Positive impact.						

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
locally produced goods and services.			term)							
Increase in customer base for businesses in the area (SIA, March 2013)	Indirect	Regional	Operational phase (long-term)	Positive impact for adjacent businesses.						
Potential for support of local community projects (SIA, March 2013)	Indirect	Local	Operational phase (long-term)	The local community identified educational projects and health care as the two most important areas requiring support. CPF's corporate social responsibility will be beneficial to the local community in terms of contributing to education facilities in the immediate area. More information on this will be discussed between the applicant and the social specialists to determine the way forward.						
Potential impact on sustainability of horseracing in KZN.	Indirect	Regional	Operational phase (long-term)	Positive impact for Gold Circle (Pty) Ltd, who have the funds to upgrade existing horseracing facilities in the KZN region.						
CULTURAL										
Potential unearthing and damage to items of cultural or historical significance.	Direct	Local	Construction phase (short-term)	Yes - can be prevented.	No	Low	High	Heritage Impact Assessments have been conducted and have been included in Appendix 23 and 24. During the construction phase, should any culturally significance artifacts be discovered, construction is to cease immediately and the heritage authority contacted (AMAFA).	Low	Low
Unintentional damage to the culturally significant infrastructure on site as identified	Direct	Local	Construction phase (short-term)	Yes - can be prevented.	Yes	High	High	The applicant proposes to demolish all existing infrastructure on the site to develop large areas into warehousing facilities. An application will be lodged with AMAFA for the demolition,	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
in the Phase II Heritage Impact Assessment. All structures are over 60 years old.								alteration or alteration to a structure which is over 60 years old. There is the potential for elements of the culturally/historically significant structures on the site to be incorporated into the building designs where possible. Features from existing infrastructure and smaller structures are to be relocated into the wetland conservation area which will act as a tribute to the historical Clairwood Turf Club. Care should be taken when relocating the infrastructure to ensure that no damage is caused.		
Potential for the cultural heritage associated with existing structures on the Clairwood Turf Club to be lost due to the re-development (Heritage Impact Assessment, Phase II).	Direct	Local	Operational (long-term)	Yes – can be prevented.	Yes	High	High	There is the potential for elements of the culturally/historically significant structures on the site to be incorporated into the building designs where possible. As stated above, an application will made to AMAFA whereby recommendations and conditions will be prescribed for the preservation of certain culturally significant features to be preserved. The wetland conservation area will also host features and structures currently associated with the Racecourse. Educational signboards will be	Medium	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								accessible in this area as well to inform the public of the historical Clairwood Turf Club.		
HEALTH & SAFETY										
Speeding construction vehicles resulting in safety issues for surrounding residents.	Direct	Local	Construction phase (short-term)	Yes - can be prevented.	No	High	High	Speeding will be prohibited.	Low	Low
Safety concerns related to the operation of the new roads within the development.	Direct	Local	Operational phase (long-term)	Yes - can be managed.	Yes	Medium	High	Strict speed limits will be prescribed within the development. The layout also provides for pedestrian walkways ensuring that pedestrians do not have to walk directly on the roads.	Low	Medium
Lack of toilet facilities resulting in unsanitary conditions.	Direct	Local	Construction phase (short-term)	Yes - can be prevented.	No	High	High	Adequate toilet facilities will be provided for all staff members as standard construction practice.	Low	Low
Improper disposal of toilet waste from chemical toilets resulting in contamination of the surrounding environment.	Direct	Local	Construction phase (short-term)	Yes - can be prevented.	No	High	High	The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record. The WMP (Appendix 4) includes management and disposal of liquid effluent.	Low	Low
Workers on site coming into contact with chrome	Direct	Local	Construction phase (short-term)	Yes – can be prevented.	No	Medium	High	Health and Safety measures are outlined in the EMPr and chrome contamination has been included as a separate section (section	Low	High

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
contaminated water/soil.								3M). Since the layout has been amended, it is highly unlikely that workers will come into contact with any chrome contamination. Lanxess has stated that PPE will be essential for workers. Tool box talks should also be conducted informing all personnel entering the site of areas where possible chrome contamination exists. ~~Medical screening may be required to confirm suitability to work in a potentially hazardous environment as well as establishing baseline concentrations of chromium in the blood. An exit medical should also be conducted once an individual has finished work in the area.~~ Lanxess recommends that this area be fenced off to control access to the potentially contaminated area.		
Increase in traffic to potential impact on emergency services in the neighbouring	Indirect	Local	Operational phase (long-term)	Yes – can be managed	No	Low	Medium	It is unlikely that the vehicles will negatively impact the emergency services in the immediate area. Once the relevant intersections are upgraded as proposed by the traffic specialist, traffic should flow	Low	Low

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
area.								onto the M4 Highway reducing the need for the trucks to travel through residential areas.		
IMPACTS OF THE NO-GO OPTION										
Potential for surface water associated with the wetlands to increase as a result of the change in hydrology (Wetland Impact Assessment, Sept 2012).	Direct	Local	Long-term	No	Yes	Medium	n/a	Water is currently drawn from two boreholes on the site, which is stored in a reservoir on the site. This store is supplemented by abstractions from the north-eastern dam and municipal water. Without the water actively being withdrawn from the wetland, it is likely that the surface water volumes within the dam will increase. Other wetland areas, such as the central vlei, currently receive water from irrigation of the racetrack and therefore could potentially dry up once this activity ceases (Vegetation & Faunal Assessment Phase II, April 2013).	n/a	n/a
Increase in demand for Logistics/ warehousing in the Back of Port area.	Direct	Regional	Long-term	No	No	n/a	n/a	The Clairwood Racecourse is extremely well positioned to satisfy a significant portion of the demand, should the development be permitted. The BOPLAP identifies the need for an additional 137,0777 hectares of land for warehouse/logistics use by 2021, and a further 256,3560 hectares of land for container storage, within the B.O.P study area, close to the port/container	n/a	n/a

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								terminal (total 393,4337 hectares).		
Green open space would be retained reducing public availability to the site.	Direct	Local	Short-term	No	No	n/a/	n/a	The open space would be retained for a short period of time until the owners of the land propose an alternative development idea. The open space would however not be made accessible to the public as the land is privately owned. The vacant land may potentially attract undesirables including drugs and crime in the area.	n/a	n/a
Green open space would be retained promoting alien vegetation growth and reduction in landing area available for the Crowned Cranes.	Direct	Local	Long-term	No	No	n/a/	n/a	Without the management of the site and mowing of the lawn, it is highly likely that alien invasive species will take over the site and the vegetation will become over grown. The maintained mowed grass on the racetrack currently provides an ideal landing space for the Crowned Cranes however this area would be reduced when the site becomes over grown. The Crowned Cranes could potentially vacate the site once Gold Circle (Pty) Ltd ceases management activities.	n/a	n/a
Open space retained improving the general aesthetics an area surrounded by industry.	Direct	Local	Long-term	No	No	n/a/	n/a	An open green area will be provided by the racecourse however as stated above, the site will not be maintained in its current condition, with vegetation becoming overgrown and public access restricted. The lack of	n/a	n/a

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								security on site could potentially result in vagrants utilizing the site.		

From the assessment of impacts identified, the most important impacts that the proposed development will have are those where the specialists cannot fully provide mitigation measures. ~~Ten~~ Nine key impacts have been identified and are discussed below:-

Loss of overall wetland area

There will be a loss of overall wetland area on site. The wetland specialist delineated 11.3 hectares of wetland (excludes areas considered to be artificially driven). Approximately 7.5 hectares (~67%) of wetland and riparian habitat will be retained as the wetland conservation area in the north-east of the site within the proposed development footprint. The wetland specialist recommended that 5.6 hectares remain and that the dam be centrally located within this system. The EAP and wetland specialist are therefore confident that the 7.5 hectares of wetland conservation area, if rehabilitated as recommended, should retain all the environmental services currently provided by the site. Management of this area will in fact improve the quality of the habitats within the area and the services provided by the wetland. The wetland services include flood attenuation and storage, biodiversity maintenance, aesthetic appeal and water quality enhancement. Habitat improvement excludes the habitat currently available to the pair of crowned cranes and other avifaunal species, which are likely to relocate off the site to a more preferable, less disturbed area.

An additional 3.8 hectares is being retained in the south-west, which includes the existing heronry. Swales on either side of the 1.3km central road will increase the Green Open Space on site by approximately 2.6 hectares. During the Rehabilitation Plan Workshop held on 22nd October 2013, the wetland specialist, landscaper and engineer discussed the potential to utilise the swales as bio-attenuation devices, expanding the wetland habitat on site as well as providing additional attenuation from warehouse runoff. The total Open Green Open Space within the development footprint amounts to approximately 13.87 hectares.

The semi-resident Grey Crowned Cranes

The pair of Crowned Cranes will most likely vacate the site with the disturbance associated with construction activities. The faunal specialist has stated that even with a small amount of disturbance, the Cranes are unlikely to remain on the site. The loss of the large open area of mowed grass will directly result in a reduced landing area available to the Cranes. The offset proposed by the fauna specialist is that the applicant contacts the Crane Foundation to monitor the impact on the birds and their fate.

It should be noted however that once Gold Circle (Pty) Ltd vacates the site, the racecourse will no longer be maintained in its current condition with the racetrack frequently being mowed. Herbaceous vegetation, shrubs and alien invasive species are likely to increase in density and expand across the site. This will effectively also reduce the surface area available to the Cranes for landing. There is a possibility that the Cranes will therefore no longer be able to visit the site in the future anyway.

~~Loss of the heronry~~

~~In terms of avifauna, one of the main impacts that the proposed development will have is the loss of the heronry in the south-west of the site. Although the pond associated with the nesting ground is man-made and the quality of that water unknown as well as the trees being exotic *Eucalyptus*, the heronry is one of a handful of known breeding grounds for herons and egrets. The faunal specialist has stated that the removal of the trees will impact significantly on bird diversity and populations both on and off the site.~~

~~The applicant therefore proposes to replace the heronry with a new heronry being created along the northern boundary of the wetland conservation area. As many as possible of the removed exotic trees should be replaced with suitable indigenous trees. The landscaping and rehabilitation of the wetland conservation area is to begin as soon as possible so that the birds nesting in the existing heronry do not move off the site when construction begins but relocate to the proposed new heronry. The sooner the trees are planted, the faster the new heronry will establish and the lower the impact of the loss of the current heronry will be.~~

There will no longer be the loss of the heronry in the south-west of the site (as shown in Figure 12). This will be fenced off as restricted access. The Rehabilitation Proposal will include measures to clean up the area as currently, there is little in terms of waste management being carried out adjacent to the "duck pond". Additionally, the faunal specialist contributing to the Rehabilitation Proposal, is incorporating different bird habitats into the wetland conservation area in the north-east encouraging birds to utilise this area of the racecourse. Indigenous vegetation will be used when re-vegetating the wetland conservation area.

Stormwater management

Stormwater will continue to naturally drain into the wetland conservation area however the volume of stormwater runoff will

increase with the increase in hard surfaces associated with a Logistics Park. There will also be a change in hydrological inputs from diffuse to direct sources. The quantity, quality and velocity of stormwater will therefore need to be tightly controlled during the construction and operational phase. The Stormwater Management Plan (SWMP) requires that attenuation features be constructed to slow the flow of water into the wetland area thereby reducing the risk of erosion and sedimentation. Energy dissipating structures are also to be incorporated into the stormwater infrastructure, which is to be constructed as early as possible. The SWMP also aims to re-establish sheet flow at the exits of the stormwater drains into the wetland area alongside roads and parking areas.

Initially the quality of the water in the wetland should be tested to obtain a benchmark for post construction quality levels. During the operation of the Logistics Park the quality of the water is required to be periodically tested as part of the maintenance and management of the area. Each warehouse should have its own demarcated area for "dirty" stormwater with the necessary silt, oil, grease and litter traps. This will reduce the likelihood of pollution and sediments entering the system. The initial SWMP also suggests that a reed buffer zone is established to further reduce any pollution from stormwater runoff. This reed bed would need to be established as soon as possible before construction commences (i.e. during the landscaping and rehabilitation of the proposed wetland conservation area).

The stormwater engineer and wetland specialist are in communication to ensure that the correct volume of water enters the wetland and the desired rate. This involves landscaping the area to provide a terraced habitat with different levels of water providing various habitats for the fauna and flora. A biodiversity hotspot will therefore be provided.

Loss of endangered habitat

Initially, it was expected that developing the site would result in the loss of a section of North Coast Grassland however after reassessment; the vegetation specialist has concluded that there is very little indigenous vegetation remaining on the site as the actual race track consists of planted grasses. Woody vegetation mainly consists of clumps of *Eucalyptus* functioning as a windbreak and planted gardens. The racetrack in particular is comprised of planted grass and is regularly mowed. The high level of disturbance and trampling from the horses has resulted in the encroachment of alien species and weeds. There are however areas where significant herbaceous vegetation does exist and this is mainly associated with the wetland areas.

The proposed Rehabilitation Plan will identify all species requiring translocating (fauna and flora), provide a description of the habitats associated with these species and detail techniques for relocating the species. Ezemvelo KZN Wildlife should be contacted for advice and conditions during the relocation of the various protected species. The Rehabilitation Plan is to also prescribe a monitoring plan for during construction and the operation of the Logistics Park to ensure the habitats are maintained for species survival.

Loss of the site functioning as a green-lung

The industrial nature of the surrounding land uses emphasizes the Clairwood Racecourse's ability to function as a "green-lung" for the area providing a carbon sequestering environment whereby carbon dioxide is removed from the air and oxygen is given off enhancing air quality. In effect, it is suggested that the area acts like a lung, filtering the air. It is unknown without specialist input, the exact carbon sequestration value of the site however studies have shown that forests are generally able to store more carbon than grasslands.[19] The carbon is stored for a long period of time in above-ground biomass/bark. There is however a restricted amount of woody vegetation currently on the site reducing the potential of the site to store large volumes of carbon. The unnaturally modified condition of the grasses currently maintained on the site as well as the variety in soil characteristics is likely to reduce the functionality of the site as a "green-lung".

Soil plays an important role in storing the carbon that grasses sequester from the atmosphere in the form of organic matter.[20] The higher the organic matter of the soil the higher the potential is for the soil to store carbon. The geotechnical report has stated that there is a wide variety of sands and soil across the site with the upper soil horizon largely consisting of fill material from surrounding areas. It is therefore unlikely that the soil contributes to the sites capability to sequester large amounts of carbon from the atmosphere.

[19] Hu S, Chapin F.S, Firestone M.K, Field C.B and Chiariella N.R 'Nitrogen limitation of microbial decomposition in a grassland under elevated CO_2.' (2001) 409, 188-911 *Nature*

[20] Conant R.T 'Challenges and opportunities for carbon sequestration in grassland systems' (2010) Vol 9 *Integrated Crop Management.*

Heritage significance of the Clairwood Turf Club lost

Due to the nature of a Logistics Park, consisting of large warehouses and vehicle handling areas, it is the intention of the applicant to fully demolish all existing infrastructure currently on the site. As outlined in section 4.6, the early establishment of the racecourse and associated structures has resulted in there being a number of culturally significant structures on the site. The heritage specialist has however reported that the buildings are poorly maintained and therefore recommends that the buildings are demolished provided that certain features are retained. Further details will be provided in the AMAFA application for demolishing structures older than 60 years of age.

The wetland conservation area however makes provisions for the preservation of certain features of the longstanding Clairwood Turf Club thereby contributing to retaining a historical element of the site prior to the development of the proposed Logistics/Distribution Park. Certain culturally significant features could be retained in the wetland conservation area such as the shelter in the parade ring (Figure 14). For security reasons, schools and other interested groups will need to be granted prior consent before visiting the site.

Figure 14: Shelter in the parade ring that could be relocated into the designated wetland conservation area to retain a feature of the historical Clairwood Turf Club (source: Heritage Impact Assessment Phase II, Archaic Consulting, 2012)

Chrome contamination

All measures are to be taken to ensure that the chrome on site does not spread. Lanxess has provided input throughout the assessment and polluted areas have been identified, in particular the south-west corner where chrome levels are currently being monitored by Lanxess (Figure 15). ~~Lanxess has provided the EAP with considerations to follow when working in this area~~. All impacts potential identified by Lanxess have been included in Table 10 above and a section dedicated to chrome management has been included in the EMPr (section 3N in Appendix 2). The geohydrological assessment acknowledges three aquifers underneath the site. The top two are contaminated with Chrome-6 however the third remains unpolluted. Recommendations were therefore provided by the specialist to ensure that the third aquifer's status does not change. A more detailed geohydrological investigation including an augmented risk assessment may be required in the south-west section to ensure groundwater resources are not impacted on.

Effective monitoring is to be carried out during construction in the south-west corner of the site ~~in particular dewatering activities and the laying of foundations~~. A variety of health and safety precautions will also be taken to ensure that access to this area is restricted to informed personnel. ~~An agreement is to be reached between the applicant and Lanxess ensuring that the boreholes are not significantly impacted on during the development and operation of the proposed Logistics/Distribution Park.~~

As shown in Figure 15, the existing remediation activities will be fenced off as a restricted area. This restricted area will be surrounded by a 50m buffer zone where controlled dewatering will take place. A further 25m wide hard stand over controlled dewatering area will be established. Boreholes will monitor the existing chrome plume and detect any movement.

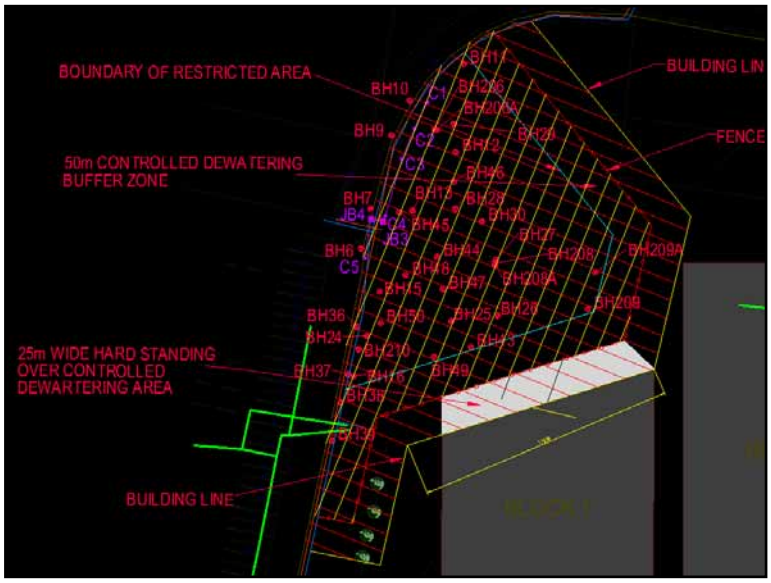


Figure 15: Proposed restrictions for the chrome contamination area in the south-west (source: Aurecon, October 2013).

Perched water table on site

Precaution is drawn to the perched water table across the site resulting in low trenchability. Construction of the infrastructure on the site, in particular the laying of foundations, needs to take into account the high water table. It will also be essential for waste (general and hazardous materials required for the construction phase) to be stored on an impermeable surface to ensure any

leachate does not soak into the soil polluting the groundwater.

The groundwater inevitably drains into the north-eastern wetland conservation area which could pollute the water in this system. As described in the stormwater section above, the quality of the water in the wetland should be tested to obtain a benchmark for post construction quality levels. The quality of the water is required to be periodically tested thereafter to detect any changes.

Traffic impact

Heavy vehicles transporting large containers to and from the Logistics Park will increase the traffic and put pressure on the road networks in the immediate area. This was one of the main concerns initially raised by the local community. The Transportation Study has outlined the required intersection upgrades which will ensure that the road network is not jeopardised by the increase in heavy vehicles and will improve the current conditions and functionality in the area. The proposed Logistics/Distribution Parks main entrance will have direct access to the Southern Freeway (M4 Highway) which will significantly reduce the impact of trucks on residential roads. By incorporating the rail network as a means of transport along the western boundary of the site, this will also reduce the quantity of vehicles utilising the road. The use of rail has been highlighted as a positive impact for the proposed development.

It is highly evident that members of the community are concerned about the increase in traffic impacting on pedestrians, namely scholars, which currently utilise the Basil-February / M4 Highway intersection. The traffic impact assessment recommends direct access onto and off the M4 Highway and improved public transportation facilities. While these upgrades will improve the existing intersection drastically, there are residential areas directly south and east of the intersection which will be impacted during construction.

Positive impacts

The majority of positive impacts that the proposed development will have are associated with the surrounding communities. These include the increase in local property values, the formalisation and improvement of the on-street taxi rank near the formal entrance to the Racecourse and the increase in rates payable to the Council, improving local GDP and economic development in the South Durban Basin. Further trade and logistics will be stimulated in the Back of Port area creating synergy between the overall spatial development for the area and proposed development. There is the potential for 4725 construction jobs to become available and an estimated 4667 permanent jobs offered. There is also likely to be an increase in the purchasing of locally produced goods and services with the applicants allocating R2 million towards improving education in the local community. A portion of this R2 million allocated by CPF for social development will be used to provide boardwalks and signboards within the wetland conservation area. The wetland conservation area will therefore not only important for retaining biodiversity on the site but providing an opportunity for the creation of an educational excursion venue. Signboards will illustrate the location and provide a description of the rare/endangered fauna and flora species as well as indicating the importance of the heronry within the conservation area.

A positive environmental impact is the opportunity to conserve 7 640m^2 of the onsite wetland and associated fauna and flora species. The wetland conservation area is required to be maintained using the Rehabilitation Plan during the operation of the logistics Park thereby providing a long-term opportunity to rehabilitate the currently downgraded, modified wetland.

Table 10 above has confirmed that the majority of identified construction related impacts can either be fully mitigated or the impact minimized. All recommendations and mitigation measures have been included in the attached EMPr.

6.3 Environmental Management Programme [Regulation 31 (2) (p) and 33]

An Environmental Management Programme (EMPr) in accordance with EIA Regulation 33 has been compiled and is included as Appendix 2. The objective of the EMPr is to provide measures to mitigate and manage construction, operation and decommissioning activities in order to minimize potential negative impacts on the surrounding environment. The EMPr serves as a standalone document required to be kept on site during the construction phase. It typically forms the basis for monitoring compliance with the Environmental Authorisation during the construction and operational phase.

An independent Environmental Control Officer (ECO) will be required to ensure that the applicants as well as all contractors on site comply with the requirements of the EMPr. Frequent audits will be conducted and submitted to the Department of Agriculture and Environmental Affairs. Due to the magnitude of the proposed development as well as the requirement for frequent monitoring, the EAP proposes that weekly audits be carried out through site rehabilitation in preparation for development (i.e. pre-construction). Weekly audits are to continue during the construction and post-construction phase until rehabilitation of the site is complete.

6.4 Determination and Assessment of Cumulative impacts [Regulation 31 (2) (l) (i)]

The NEMA EIA regulations define cumulative impact as follows:

> *"the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area;"*

The DEA guideline on the assessment of alternatives and impacts[21] identifies two types of cumulative impacts:

(1) Additive cumulative impact, i.e. where the identified potential impact adds to the impact which is caused by other similar impacts; or

(2) Interactive cumulative impact, i.e. where a cumulative impact is caused by different impacts that combine to form a new kind of impact. Interactive impacts can be further classified:

   a. Counterveiling: the net adverse cumulative impact is less than the sum of the individual impacts; or

   b. Synergistic: the net adverse cumulative impact is greater than the sum of the individual impacts.

Table 11 provides an assessment of potential cumulative impacts that may arise from the development proposal:

[21] Perry E, Bob U and Munien S (note 2).

Table 11: Assessment of potential cumulative impacts for the proposed Clairwood Logistics/Distribution Park.

Nature Of Impact	Extent of Impact	Duration of Impact	Type of Cumulative Impact	Mitigatory Potential	Mitigation Measure	Probability after mitigation	Significance after mitigation
The development will place added pressure on existing services in the area, namely electricity, water and sanitation	Local (Traffic) & potentially regional impact if services are impacted.	Operational phase (long-term)	Additive	Medium	The Civil Engineering Planning Report (Appendix 6) and Electrical Report (Appendix 9) have indicated that eThekwini will have the capacity to supply the proposed Logistics/Distribution Park with the required services however service agreements will be established and contained in the "Planning and Development Act" application.	Low	Low
Change in land use in the South Durban Basin contributing to the aesthetics of the area (i.e. industry)	Local	Operational phase (long-term)	Interactive, synergistic	High	Heavy industrial developments in the South Durban Basin have resulted in poor aesthetic/visual characteristics of the area. Aesthetic appeal is a subjective impact however the figure on the cover page as well as Figure 5 illustrates the potential building design concept, which appears to be relatively aesthetically pleasing especially if compared to other developments in the area (e.g. SAPREF and Revertex Chemicals (Pty) Ltd). Green landscaping will be utilised throughout the Park where possible with indigenous species being planted. The wetland conservation area will also be aesthetically pleasing and accessible to the public.	Medium	Medium
Increase in noise levels with regards to other industries in the South Durban Basin.	Local	Construction and potentially operational phase (long-term)	Additive	Low	The Environmental Noise Assessment (Appendix 18) considered the contribution that the proposed Logistics Park will have on the existing noise level during site preparation, construction and development phases. The specialist concludes that the general construction noise generated will range between 100 – 115dB (A). This level will drop to 70-75dB (A) 50m away from site and 45 – 55dB (A) 150m away from the site. The existing ambient noise level is low fluctuating between 40.1 and 60.8 dB (A) Equivalent Noise Level with the primary source being the southern freeway. While the operational phase of the Logistics Park is unlikely to generate high levels of noise, during construction a number of recommendations were made by the specialist. These are outlined in the noise section in Table 10 above.	Medium	Medium
Cumulative increase in traffic	Local	Operational	Additive	High	Traffic congestion was identified as a major concern during the scoping phase however during the SIA, 58% of the residents and 60% of the	Low	Low

Nature Of Impact	Extent of Impact	Duration of Impact	Type of Cumulative Impact	Mitigatory Potential	Mitigation Measure	Probability after mitigation	Significance after mitigation
associated with all other developments in area.		phase (long-term)			businesses interviewed felt that there was no traffic congestion. The entrance to the proposed Logistics Park will be directly associated with the M4 highway and therefore residential roads will not be utilised by the heavy vehicles. The Traffic Impact Assessment (Appendix 8) has identified intersections that require upgrading to ensure traffic flow and the road networks are not negatively impacted by the increase in traffic volume. There is the opportunity to utilise the rail network, which will allow warehouse sites on the western side of the Logistics Park to be connected to the railway. This alternative means of transport will reduce traffic volume and congestion in the area.		
Potential decrease in air quality in the South Durban Basin.	Local	Construction and potentially operational phase (long-term)	Additive	Low	The site is located immediately adjacent to a variety of industrial activities and therefore there may be a cumulative decrease in the air quality of the area. The only emissions that will be generated will be from construction vehicles which are expected to be minimal and should not significantly affect the surrounding residents or the environment. Air emissions will however be monitored daily by the onsite ECO and a complaints register available to surrounding communities.	Medium	Low
Increased risk for pedestrians, including scholars, currently utilising the Bail-February intersection (community identified impact during Draft EIR).	Local	Operational phase (long-term)	Additive	Medium	While this was included in the impacts table (section 6.2), this impact has been included as a cumulative impact as well. The positioning of the site and proposed road upgrades will mean direct access from the Logistics Park onto the M4 Highway and service roads. A recommendation has been included in the Final EIR which states that pedestrian safety is to be addressed once detailed design of road upgrades have been approved. This should include pedestrian access over the new intersection during the road upgrades (e.g. a temporary steel pedestrian bridge to be erected). Ashleigh Stephenson (Aurecon) stated that approved safety protocol is required before construction commences.	Medium	Medium
Cumulative development of BOP area and the New Port. A 'Piecemeal	Regional	Operational phase (long-term)	Interactive, synergistic	n/a	It is not within the scope of this EIA to consider the holistic planning impact within the BOP area however this cumulative impact has been included for DAEA consideration. The EIA process is "activity" based. It is not a strategic assessment tool although cumulative impacts are investigated. This can only be properly assessed in a Strategic	High	Low

Nature Of Impact	Extent of Impact	Duration of Impact	Type of Cumulative Impact	Mitigatory Potential	Mitigation Measure	Probability after mitigation	Significance after mitigation
development' lacking strategic planning (community identified impact during Draft EIR).					Assessment of the region. With the increase in development throughout the Durban South, there will be a cumulative loss in open green areas and ecosystems in this area.		
Cumulative impact on environmental services in the South Durban Basin.	Local	Operational phase (long-tem)	Additive	With the correct recommended rehabilitation there should be an overall increase in environmental services on the site. Wetland, vegetation and fauna specialists have confirmed that 7.46 hectares should provide for all the environmental services currently being provided by the site excluding provisions for the pair of crowned cranes and other avifaunal species sensitive to development. The north-eastern wetland conservation area will function to retain and significantly improve the environmental services. The overall size of the wetland area will be reduced however the function, value, hydrology and associated fauna and flora will be retained thereby maintaining a biodiversity hotspot.			
Impact on economy within the eThekwini area.	Local with potential to effect regionally	Operational phase (long-term)	Interactive, synergistic	The proposed development has the potential to create both new business and employment opportunities within eThekwini and particularly in the Back of Port area. The economist has confirmed that rates revenue will be enhanced as a result of the proposed development[22]. The proposed development will facilitate the Back of Port Area Plan by utilising the rail siding adjacent to the site thereby reducing road congestion as well as upgrading road networks in the immediate area. The development will also increase the supply of warehousing which is severely limited in this area. 18 900 jobs will be created during the construction phase both directly and indirectly. With logistics industry contributing 22.1% to the annual GDP of the South Durban Basin, an increase in Logistic activities will increase the GDP further.			
Positive Impact of upgrading access roads to improve services in the area.	Local	Operational phase (long-term)	Additive	The impact is positive. Once construction is complete the road network will be upgraded to withstand an increase in traffic volume and congestion.			
Positive social impact in the local	Local	Operational (long-term)	Interactive, synergistic	There are a range of advantages associated with the proposed development that will cumulatively benefit the local community. Primarily the injection of R2 million into upgrading and improving educational facilities within the Clairwood area. The public will also be able to access and utilise the wetland conservation area as an educational excursion venue for			

[22] Ken Davies & Associates 'Justification for the proposed re-development of the Clairwood Racecourse Site by Capital Property Fund' (April, 2013).

Nature Of Impact	Extent of Impact	Duration of Impact	Type of Cumulative Impact	Mitigatory Potential	Mitigation Measure	Probability after mitigation	Significance after mitigation
community.				environmental/biological and history purposes. The area will retain environmental services; indicate endangered/rare species and preserving the history of the Clairwood Turf Club. The large open space will be managed effectively, reducing crime, drugs and prostitution that is associated with other open spaces in the area. The formalisation and improvement of the on-street taxi rank currently located near the main entrance to the Racecourse. Other road upgrades and the use of the rail network will also benefit the local community. Finally, there will be economical advantages linked to the increase in skilled and unskilled job opportunities and increase in rates received by the Council from the Logistics/ Distribution Park.		

All cumulative impacts identified in table 11 above can be sufficiently mitigated apart from the cumulative increase in the development of open spaces within the Durban South area. Although it is not the function of an EIA to provide a strategic environmental assessment of the general area, the EAP notes that over time there will be a reduction in various habitat availability to fauna and flora. This is to be taken into consideration during the decision making process. Although the wetland conservation area is a segment of the existing wetland habitat currently associated with the site, it is an opportunity for long-term environmental conservation providing a sustainable development footprint.

There will be a cumulative increase in pressure on services that are required for the functioning of the proposed Logistics/Distribution Park. This includes water, sewerage and electrical services however the specialist reports have indicated that eThekwini has the capacity to supply these services with a substation being constructed on the site (Appendix 26). The cumulative contribution that the proposed development will have on the aesthetics of the area will be relatively pleasing compared to other surrounding land uses. The development incorporates green architectural designs as listed in section 3.2.2 of the EIR and includes the wetland conservation area (a design concept is provided in Figure 5 of the EIR).

The potential cumulative noise level increase and air quality decrease in the area have been rated as nominal and relatively insignificant during operation of the Logistics/Distribution Park. Construction vehicles will be the main source of noise with heavy vehicles contributing to the reduced air quality. Noise levels and air quality are required to be monitored during construction and a complaints register maintained to ensure that the neighbouring communities are not negatively impacted on.

Due to the cumulative increase in heavy vehicles associated with any Logistics/Distribution Park a Transportation Study was commissioned to assess the current state of the roads and predict traffic scenarios for the future (see section 3.1.4 for the detailed summary). The specialist has indicated the necessary upgrades that are required to ensure a smooth flow of traffic in the area. The railway network will also be important in reducing the amount of heavy vehicles on the road with all sites on the western boundary having access to the railway.

There are a number of identified positive cumulative impacts. Firstly, the applicant proposes to establish the wetland conservation area which will function to compensate for the overall loss in environmental services currently provided by the site. The area will be landscaped and rehabilitated to improve the current conditions of the wetlands on the site and a variety of species relocated and transplanted into the area creating a biodiversity hotspot. Wetland, vegetation and fauna specialists have confirmed that 7 460m^2 should provide for all the environmental services currently being provided by the site excluding provisions for the pair of crowned cranes and other avifaunal species sensitive to development.

There is a range of cumulative social advantages associated with the proposed development. The injection of R2 million into upgrading and improving educational facilities within the Clairwood area is a major positive from a social development perspective. In addition the provision of an educational excursion venue on site (the wetland conservation area) will retain environmental services; indicate endangered/rare species and preserving the history of the Clairwood Turf Club. Other social benefits are listed in Table 11 above with skilled and unskilled job creation being important to mention.

There will be a positive impact on eThekwini Municipalities economy in terms of stimulating further investment and trading opportunities as well as fulfilling the spatial planning framework for the Back of Port area. The proposed development will improve the road services in the local area once the intersection has been upgraded.

7.0 Comparative assessment of all alternatives identified during the environmental impact assessment process including the advantages and disadvantages that the proposed activity may have on the environment and the community that may be affected by the activity [Regulation 31 (2) (i) and (g)]

As discussed in section 3.2 above, the applicant has identified three development alternatives for the Clairwood Racecourse site. Alternative 1 is to develop the entire site as a Logistics/Distribution Park, Alternative 2 (preferred) is to develop the site as a Logistics/Distribution Park retaining environmental features where possible and Alternative 3 is to develop the site for industrial activities. The no go alternative is also considered in the comparison whereby the Clairwood Racecourse would not be developed.

Please note that information used in the comparison tables in this section are for the long-term operation phase of the proposed development. Section 6 above included all potential impacts (construction and operational) and proposed mitigation measures. It was concluded that the majority of construction related impacts could be fully managed or avoided by utilising the attached EMPr.

Table 12: No Go Option vs Alternative

Advantages and disadvantages are clearly labelled. If not stated as being advantageous or disadvantageous, the point can be interpreted as both depending on one's point of view.

	ENVIRONMENAL SERVICES/ BIOLOGICAL	SURROUNDING COMMUNITIES/ BUSINESS (SOCIAL)	ECONOMIC FEASIBILITY & OPPORTUNITY
No Go	• Irrigation of the racetrack will cease once horse racing stops and some of the natural depressions previously filled with water will dry up reducing the area of surface water on the site (disadvantage). • The reduction in wetland area will consequently decrease the vegetation associated with the surface water (disadvantage). • The reduction in wetland area will consequently decrease the habitat available for the several amphibian species on the site (disadvantage). • Entire green area and associated aesthetics retained in the South Durban Basin (advantage). • The heronry will continue to function as a nesting ground for herons, sacred ibis and cormorant species in the south-west corner of the site (advantage). • There is the potential for the pair of grey crowned cranes to continue utilising the site however once maintenance ceases, the site is likely to become overgrown reducing the landing space required by the Cranes. The Cranes may potentially vacate the site regardless. • Lost opportunity to provide a sustainable means to development the strategically located piece of land and maintain a wetland conservation area.	• Vacant open space has the potential to attract undesirables increasing drugs, crime and prostitution (disadvantage). • Open space contributing visually to residents and businesses surrounding the Clairwood Racecourse site. • There would be no heavy traffic increase in the immediate area (advantage). • Possible increase in illegal dumping on the site (disadvantage). • No new employment opportunities (disadvantage).	• The no go option is not economically feasible for the applicant as the owner of the land and an alternative development will likely to be proposed when funding is available (disadvantage). • Increased demand for trade and logistics in this area (disadvantage).
Alternative 1: Entire site Developed as a Logistics/ Distribution Park	• Total loss of open space and associated environmental services currently provided by the racecourse (disadvantage). • Likely loss of the rare Racecourse Lily (disadvantage). • Loss of entire wetland system associated with the site	• Opportunity to develop and apply for the new "Logistics Zone" to be incorporated into the eThekwini Central Town Planning Scheme, providing an example to future developments in the zone (advantage). • Potential to incorporate elements	• Provide logistics/distribution support for the Back of Port area and potentially the proposed Dug-Out Port (advantage). • Maximum financial return for the applicant. • Stimulate investment and

	(disadvantage). • Loss of fauna species across the property as there is no other large area of open space available in the area for the species to relocate to (disadvantage). • Loss of the heronry in the south-west corner of the site (disadvantage). • Total loss of green area (disadvantage).	of existing structures on the site that are historically/culturally significant (advantage). • Increase in heavy traffic on the immediate road network (disadvantage). • Employment opportunities during construction and operational phase (advantage). • General local retail economy will also increase with construction related workers spending their wages in the area (advantage).	trading opportunities in eThekwini and South Africa on a larger scale (advantage).
Alternative 2: Development of a Logistics/ Distribution Park Retaining Certain Environmental Features Where Possible.	• The retention of open space elements associated with the proposed wetland conservation area (advantage). • The development is in line with sustainable principles allowing development taking into consideration environmental services (advantage). • Opportunity to protect and conserve the rare Racecourse Lily (advantage). • Partial loss of private open space associated with the race track (disadvantage). • Partial loss of wetland system currently on site and associated ecosystems (disadvantage). • Retention of the heronry in the south-west corner of the site (advantage). • Wetland conservation area to be established creating a functioning wetland system and associated fauna and flora (advantage) • If the wetland conservation area is rehabilitated and maintained as recommended there will be an overall improvement of the environmental services and habitats provided by the site (advantage).	• Increase in heavy traffic on the immediate road network however the intersection upgrade will significant relieve the potential traffic problems. • Employment opportunities during construction (4725 jobs created) and operational phase (4 667 employees; advantage). • Opportunity to develop and apply for the new "Logistics Zone: to be incorporated into the eThekwini Central Town Planning Scheme, providing an example to future developments in the zone. • Upgrading the road network in the vicinity which would have required upgrading with the naturally increase in traffic volumes. • Potential to incorporate elements of existing structures on the site that are historically/culturally significant (refer to section 4.6). • Wetland conservation area to act as an educational excursion venue incorporating culturally significant features that represent the Clairwood Turf Club (advantages). • R2 million will be re-inserted back into the immediate local community for social development purposes (advantage). • Reduction in undesirable activities currently occurring on the site (advantage).	• Provide logistics/distribution support for the Back of Port area and potentially the proposed Dug-Out Port (advantage). • Stimulate investment and trading opportunities in eThekwini and South Africa on a larger scale (advantage). • There is sufficient economic return to develop the Logistics/Distribution Park preserving environmental services where possible.
Alternative 3: Develop Site for Industrial Use	• Loss of open space and associated environmental services (disadvantage). • Increase emissions in an already problematic area	• Employment opportunities during construction and operational phase (advantage). • Increase in heavy traffic on the immediate road network	• Stimulate investment in eThekwini (advantage). • No logistics/distribution support for the Back of Port area and proposed Dug-Out Port

	(disadvantage). • Likely loss of the rare Racecourse Lily site (disadvantage). • Loss of the Heronry in the south-west corner of the site (disadvantage). • Exacerbate existing environmental problems in the South Durban Basin (disadvantage).	(disadvantage). • Difficult to retain any culturally significant structures that exist on the site (disadvantage).	(disadvantage).

7.1 Rating of the identified potential alternatives according to how the proposed activity may impact the environment and the community that may be affected by the activity [Regulation 31 (2) (g)]

Each identified alternative was reviewed by a matrix system using the following criteria:

a) Which alternative is more suitable from an environmental services / biological perspective at least in terms of the site itself?
b) Which alternative is more feasible from the perspective of the environmental services / biological perspective from a regional perspective?
c) Which alternative is more suitable from the perspective of the surrounding communities / businesses in terms of services or benefits they may receive?
d) Which alternative is more suitable from the perspective of the surrounding communities / businesses in terms of impacts i.e. traffic, that may affect them?
e) Which alternative is more economically feasible and also more viable for the developer?

In selecting the criteria for the matrix, the impacts and benefits from an environmental, social and economic perspective, as listed in table 12 above, have all been considered with a view to ensuring that no aspect is unfairly weighted.

Table 13: Rating of Alternatives

Key: 0 = not viable (or may cause impact); 1 = less viable (or impact can be mitigated); 2 = most viable (or no impact caused);

	No Go	Alternative 1	Alternative 2	Alternative 3
Environmental Services / Biological – on site	1	0	1	0
Environmental Services / Biological – regional	1	0	1	0
Surrounding Communities / Businesses – services / benefits / positive impacts	0	1	2	0
Economic Feasibility & Viability for the developer	0	2	1	1

In terms of retaining the various environmental services provided by the site, alternative 2 (preferred option) and the no go option are the most viable. The no go option was rated as level 1 because without irrigating the grass racetrack, certain depressions that currently contain water could potentially dry up. In particular the central vlei area, which was identified as the least disturbed, is unlikely to persist for a long time with the change in hydrology. The quantity of municipal water currently being used to supplement the water used for irrigation which is drawn from the boreholes on site is not known and therefore once irrigation ceases, environmental services provided by the wetlands could be lost/reduced. Vegetation and fauna species associated with the wetland areas will also be reduced/lost with the change in hydrology. Alternative 2 provides for a wetland conservation area creating a biodiversity hotspot in the Durban South Basin. This area is an opportunity to retain and improve the habitat of various species (vegetation and fauna) that would otherwise be lost if the entire site was developed. The Clairwood Racecourse does not provide significant regional biological services and therefore all alternatives are rated the same as the onsite environmental services. Alternatives 1 and 3 see the development of the entire site and therefore are rated as level 0 i.e. not viable.

Alternative 2 (preferred option) has the highest rating in terms of positive impacts on the surrounding community. R2 million has been allocated to social development within the Clairwood community specifically in the educational sector. The proposed wetland conservation area will also contribute positively from a social aspect providing an educational facility in terms of informing school and other interested groups on environmental responsibility as well as reflecting on the history of the

Clairwood Turf Club. The design concept of the actual infrastructure within the Logistics Park will be aesthetically pleasing incorporating green landscaping where possible and using "green items" such as motion sensitive lighting and energy efficient light fittings to lower the proposed developments carbon footprint. Alternative 1 will be more socially advantageous compared to alternative 3 which will contribute to the poor air quality in the area. Alternative 3, to develop the site for purely industrial purposes will not be as aesthetically pleasing compared to a Logistics/Distribution Park as proposed in alternative 1 and 2. If the site is not developed (i.e. the no go alternative), the vacant open space is likely to attract undesirables resulting in a potential influx of crime, drugs and prostitution. The D'MOSS area would however be retained enhancing the living environment for neighbouring residents in terms of providing clean air and attenuating water for flood control.

Based on the above ratings it is clear that alternative 1, to develop the entire site as a Logistics/Distribution Park, is the most economically viable alternative for the developer as the maximum amount of ground space can be used increasing the economic return. Not developing the site is the least viable from an economic perspective with Alternative 2 and 3 providing a reasonable economic return.

8.0 Assumptions, Uncertainties and Gaps in Knowledge [Regulation 31 (2) (m)]

The EAP is satisfied that sufficient information has been made available to allow for assessment of this proposal. The opinion of the EAP has been based on the number of specialist studies listed in section 4.7 of the EIR. It is unknown at this point who the tenants of the different warehouse sites will be and therefore the exact sizes and requirements of the warehouses (as indicated in Figures 3 and 4) are unknown. The development footprint will however remain the same with 60% of the total site area (437 493m^2) being developed, excluding covered parking bays. The size of the wetland conservation area will also remain constant.

It is also unknown at this stage how the hydrology of the wetlands will change once CPF have taken over the site. The racetrack will no longer be irrigated and the existing boreholes on site will no longer be utilized as a water supply. Without the constant input of water that previously drained into the north-east wetland, the wetland area could drastically decrease naturally with time. The wetland conservation area will therefore have to be carefully maintained throughout the operational phase of the Logistics Park to ensure sufficient water is entering the system.

9.0 Environmental Impact Statement with Summary of Key Findings and Comparative Assessment of the Positive and Negative Implications of the Proposed Activity and Identified Alternatives; [Regulation 31 (2) (o) i-ii]

Capital Property Fund purchased the Clairwood Racecourse in the South Durban Basin with the intention to construct a Logistics/Distribution Park to provide much needed support for the expanding Durban Harbour. The Logistics Park will allow efficient organisation and management of cargo contributing to the functioning of the Back of Port Area. The Logistics Park will also support the proposed Dug-Out Port, if this project is granted authorisation. The site is 76.4 hectares in total and has direct access to the M4 highway which is linked to the N2. The proposed development will function as a new logistics depot for not only the eThekwini Municipality but stimulating investment opportunities on a national scale as well. The wetland system on site and associated fauna and flora were identified early as the main environmental impact present on site. However, sufficient mitigation measures have been presented by the specialists throughout the process minimizing this impact. Chapter one of the National Environmental Management Act 107 of 1998 as amended (NEMA) outlines the main principles underlying the Act with Principle 3 allowing for development which is socially, environmentally and economically sustainable. This section summarises the key findings of the EIR, addressing all three of these factors with regards to the proposed Clairwood Logistics/Distribution Park. Positive and negative implications associated with the proposed development are discussed as part of the environmental impact statement.

When identifying possible feasible and reasonable alternatives for the re-development of the Clairwood Racecourse, the sites location with the South Durban Basin and the applicant's desired intention were taken into account. The majority of surrounding land-uses are industrial in nature and therefore to develop the land for residential purposes was not feasible from a planning and aesthetics perspective. For similar reasons, developing the site as an office park proved impracticable and not financially viable. To retain the site purely for conservation purposes would also not be feasible in terms of the activity proposed since the land was bought with the intention of generating commercial gain. Developing the site for heavy industrial purposes was initially considered by the applicant however was dismissed by the EAP during the early stages of the process as this alternative would only exacerbate the current environmental problems in the area. Falling within the Back of Port Area and its close proximity to the Durban Harbour, developing a Logistics/Distribution Park was considered the most feasible alternative. By incorporating the wetland conservation area into the development footprint a sustainable development alternative was created fulfilling the applicants development intention taking into consideration the environmental services provided by the site. The EAP

considered the no go alternative, which covered the option to retain more of the site for open space purposes as this does not generate the required turnover to suit the intention of the activity proposed.

The Clairwood Racecourse site can be described as an "island" since it is isolated from other natural systems by industrial land uses and densely populated residential units. Apart from avifaunal and some insect species, the species that are there are unlikely to be able to move to other open space areas for relocation or breeding purposes. The applicants have therefore agreed to conserve 7.46 hectares of currently degraded wetland in the north-east corner of the site, where these species can be relocated into during a pre-construction period. Detailed landscaping and specialist input will be necessary to replicate the hydrological conditions of the soil required by the variety of species for their survival. The EAP has recommended as one of the conditions for authorisation that a rehabilitation plan for the wetland conservation area be created and put in place timeously before construction begins. The Rehabilitation Plan is to be extended to the 2.6 hectares of continuous swales which will contribute to extending the wetland habitat on site. It is also to include clean up measures which are to be carried out in the south-west corner of the site where the existing heronry will be maintained.

The rehabilitation plan should include a detailed landscaping plan where a section of racetrack is to be dug out and soil relocated into the new area (e.g. soil from the central vlei). A vegetation specialist should provide advice on the plating of indigenous trees for the new heronry on the northern boundary, the establishment of a reed buffer zone on the southern side of the area and the relocation of endangered/rare faunal species into the wetland conservation area (all Racecourse Lily samples, *Disa woodii, Aristea compressa* and *Gladiolus papilio* amongst others). A faunal specialist will provide input on the translocation of amphibian species mimicking calls and recommending other techniques to retain the frogs in this area. Careful sampling, relocation and continuous monitoring will be required to ensure the persistence of all species relocated into this area. Once the horse racing activities cease and associated irrigation of the racetrack, there is a large possibility that the water in the north-eastern wetland will retract significantly, if not completely dry up. The rehabilitation plan will therefore also need to include a section for maintaining the wetland system during the operation of the Logistics Park. The actual functions of the wetland system are required to be preserved: flood attenuation and storage, biodiversity maintenance, aesthetic appeal and water quality enhancement.

By committing to conserve and monitor a substantial portion of the existing wetland system, there is an opportunity for endemic and rare species on site to be retained with the development of the logistics park. The wetland conservation area will also be used as an educational facility where boardwalks and signboards will be provided illustrating which species can be seen in the area as well as providing an area for the preservation of historically/culturally significant features of the Clairwood Turf Club. A portion of the R2 million that has been allocated to social offset for the development will be used to create the educational features of the wetland conservation area. The Resilient Education Trust will utilise the remainder of the funds to support other educational investments in the immediate area. The EAP is therefore of the opinion that socially, the proposed development has provided sufficient offset measures. The proposed Aurecon road upgrades in addition to the incorporation of the rail network into transportation options should sufficiently reduce the communities concern regarding the increase in heavy vehicles and traffic on the local road network.

Due to the prime strategic location of this large isolated open space in the South Durban Basin, development of the site seems inevitable. Since the land is privately owned, the financial viability of any development proposed for the site, is of high importance for the applicant. The independent economist has stated that "it makes no sense" for an office park to be developed on this piece of land. Alternative 3, development for industrial uses, is not feasible from an environmental perspective due to the long-standing air quality concerns in the South Durban Basin. A Logistics Park development satisfies the financial return required by the applicant as well as satisfying the high demand for this land-use specifically in the Back of Port Area.

10.0Reasoned Opinion on Authorization and Conditions for Authorization [Regulation 31 (2) (n)]

When deciding whether the activity should or should not be authorised, the EAP has evaluated and considered all identified impacts as listed in table 10 as well as the cumulative impacts listed in table 11. Where impacts cannot be avoided, the significance of these impacts was measured. The EAP has included specialist recommendations and prescribed mitigation measures into the EMPr. Provided that the applicants and contractors adhere to the specifically designed EMPr (Appendix 2), the EAP is of the opinion that environmental authorisation should be granted for the construction and operation of the Clairwood Logistics/Distribution Park as illustrated in Figure 3. The approved layout should be for the development of 60% of the total site area (437 493m^2), excluding covered parking bays and the rehabilitation of 7.46 hectares of wetland area in the north-east.

Taking into account the above mentioned factors, a number of conditions for environmental authorisation can be prescribed. These conditions include:

1. The applicant must ensure that mitigation measures and controls specified in the EMPr are adhered to during all phases of the development (pre-construction, construction and operational). All phases must be monitored by an independent ECO who should ensure compliance with the EMPr.
2. Environmental audits during the pre-construction (rehabilitation phase) and construction phase should be conducted on a weekly basis by an independent ECO in addition to a pre-construction and post-construction audit (PCA).
3. The retention and rehabilitation of the 7.46 hectare wetland conservation area.

Pre-construction

4. A Rehabilitation Plan for the wetland conservation area including the harvesting of other indigenous species of flora on the site is to be developed, submitted to the DAEA, DWA and eThekwini Municipality. It is to be carried out as soon as possible after environmental authorisation has been granted.
5. The quality of the water in the wetland conservation area should be tested to obtain a threshold level.
6. A pre-construction survey of the site is to be conducted where a handheld GPS is used to mark the location of the rare/endangered/protected flora species. Once the full list of species has been formulated and the wetland conservation area landscaped according to the Rehabilitation Plan, these species are to be relocated into the area.
7. Permission must be obtained from the relevant personnel regarding the removal/relocation of the protected species on site.
8. Alien vegetation is to be removed from the wetland conservation area.
9. Amphibian species are to be attracted to the wetland conservation area once the relevant vegetation has been relocated. A suitable impermeable barrier could be installed to ensure the amphibian species are retained in this area throughout construction.
10. Seedlings of large wetland trees are to be planted ~~along the northern boundary of~~ within the wetland conservation area to establish a new heronry for nesting birds.
11. A permanent ECO is to be on site for the initial vegetation clearing during the earthworks phase to make sure any of the relevant fauna and flora species that should have been relocated to the wetland conservation area have not been left on the site.
12. Existing infrastructure (i.e. electricity lines, water pipelines) must be identified prior to construction.
13. A permit must be obtained for the destruction of the structures on site that are older than 60 years. This permit will be applied to with AMAFA aKwaZulu/Natali, Built up Environmental Section.
14. A detailed Geohydrological Investigation including an augmented risk assessment is required before construction commences. The additional Geohydrological Investigation should include specific recommendations for when dewatering is being carried out in or adjacent to the chrome contaminated area.
15. A co-operative agreement between Capital Property Funds and Lanxess is to be formulated, ensuring the continuation of groundwater monitoring throughout the chrome contaminated area.
16. Road network upgrades are to be approved by eThekwini Municiaplity prior to construction of the roads commencing.
17. Pedestrian safety is to be addressed once detailed design of road upgrades have been approved.
18. Visible markings demarcating the wetland conservation area in the north-east and restricted chrome contamination area in the south-west (including buffers) must be provided prior to construction on site.

Construction

19. A board with contact details for complaints should be placed at the entrance to the site. The board should include emergency contact numbers.
20. The contractor and all staff must attend an environmental awareness training course, presented by the independent ECO prior to construction commencing. The environmental awareness training course should cover the following key aspects: (a) basic awareness and understanding of key environmental features of the work site (b) understanding the importance of, and reasons why, the environment must be protected, (c) ways to minimize environmental impacts, and (d) requirements of the Environmental Authorisation and EMPr.
21. Adequate chemical toilet facilities must be provided for all staff members as standard construction practice. The chemical toilets must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record.
22. The toilets are not to be situated in close proximity or adjacent to the north-eastern wetland conservation area ensuring no pollution to water resources.
23. Any alien vegetation found within the construction site must be cleared to ensure that invasion of disturbed areas does not occur, in particular vegetation within the wetland conservation area.

24. Cement mixing must take place on a hard surface or on cement mixing trays. Cement mixing will not be permitted to occur where run off can enter the wetland system. In addition cement and fuels must be stored within bunded and hard surfaced areas. If the creation of a permanent bunded area is not feasible, these materials must be stored on drip trays capable of holding at least 110% of the spilled volume.
25. When sourcing building materials such as sand and stone, company details and proof of registration must be available on site for auditing purposes. This should prove that the company is obtaining materials from a permitted site.
26. Littering must not be permitted on the site and general housekeeping must be enforced.
27. Waste must be stored in the bins within the waste collection area in the construction camp and must not be allowed to blow around the site or be placed in piles adjacent to the skips / bins and must be disposed of at an appropriate land fill site.
28. Water containing waste must not be discharged into the natural environment. Measures to contain water containing waste must be implemented and safely disposed of.
29. Any release of water into the municipal stormwater infrastructure must strictly comply with applicable Municipal by-laws.
30. If there is any hazardous waste, it must be stored on a hard surface within a bunded area and must not be allowed to enter watercourses and the surrounding environment.
31. All excess material and rubble, not being used on the site, must go to an approved, designated landfill and a safe disposal certificate must be obtained.
32. Recycling should be undertaken where possible to limit waste added to the landfill site
33. Due to the existing chrome contamination on the site, water originating on the site may not be used as a water source by staff unless water abstraction is approved and permitted by DWA and Lanxess has been consulted.
34. Groundwater monitoring as part of the existing chrome remediation activities in the south-west is to continue during construction.
35. Any soil removed from the chrome-6 contaminated areas, shall be handled, remediated and/or disposed of in line with the National Environmental Management: Waste Act as well as in accordance with the Waste Management Plan dated June 2013.
36. Further geotechnical investigations to be carried out if deep foundations are required for heavy loaded structures.
37. A spill response procedure must be designed by the Contractor to manage spills during construction. Suitable spill kits must be available and staff must be made aware of the spill response procedure.
38. In the event of Heritage resources or artefacts being uncovered during construction, activities around the site must cease immediately and AMAFA must be contacted to investigate the finding.
39. All Contractors must be cognisant of noise pollution and must notify neighbours when excessive noise is expected (i.e. before the demolishment of the grandstand).
40. Normal daylight construction hours must be adhered to, unless prior permission is obtained from the relevant authorities.
41. The wetting of dust sources should occur when necessary, (without excessive wetting), to reduce dust at source. Dust monitoring should be tightly monitored during demolition.
42. Soil erosion on the site must be prevented at all times.
43. The wetland conservation area is to be demarcated and maintained during construction. The independent ECO is to include the status of the wetland conservation area into the weekly audits.
44. Upon completion of the development, all disturbed areas must be re-vegetated with indigenous vegetation suitable to the area.
45. Cognisance must be taken and the necessary mitigation measures implemented to prevent any impact to the Transnet NMPP line.

<u>Operational</u>

46. Monthly assessments are carried out for the wetland conservation area for one year after construction to ensure that it functions effectively and efficiently as is proposed. These assessments should be submitted to eThekwini's Environmental Planning and Climate Protection Department (EPCPD) and the DWA for approval.
47. An Operational Environmental Management Programme (OEMPr) is to be developed for the wetland conservation area prior to construction (can be included in the Rehabilitation Plan). The wetland conservation area needs to be audited on an annual basis for a period of three years after construction to ensure wetland services are continuing to function effectively. The audit is to include a habitat assessment study to ensure that the rehabilitation is stable, failing which, remedial action must be taken to rectify any impacts.
48. Water quality tests should be undertaken for the wetland conservation area during construction and twice a year during the operational phase to ensure that water quality does not significantly deteriorate over time.
49. There should be no further expansion of the development footprint beyond the site boundaries.

References

Archaic Consulting 'Phase II Heritage Impact Assessment for the properties constituting Clairwood Turf Club on portions of the farms Dunn Grant 859 and Umlaas 873, southern Durban Region' (October 2012).

Aurecon 'Clairwood Logistics/Distribution Park: Civil Engineering Planning Report' (March 2013).

Aurecon 'Transportation Study for the Proposed Clairwood Logistics Park' (March 2013).

Alonso I, Weston K, Gregg R and Morecroft M 'Carbon storage habitat: Review of the evidence of the impacts of management decisions and condition of carbon stores and sources' (2012) NERR043 *Natural England Research Report.*

Bruce Page and Associates 'Clairwood Racecourse Development: Vegetation and Faunal Assessments Phase II' (March 2013).

Conant R.T 'Challenges and opportunities for carbon sequestration in grassland systems' (2010) Vol 9 *Integrated Crop Management.*

DEA&DP 'Guideline on Alternatives, NEMA EIA Regulations Guideline and Information Document Series. Western Cape Department of Environmental Affairs & Development Planning' (2011).

Drennan, Maud and Partners Final Report to Capital Property Fund for a Geotechnical Investigation for Development Purposes: Clairwood Racecourse (March 2013).

Hu S, Chapin F.S, Firestone M.K, Field C.B and Chiariella N.R 'Nitrogen limitation of microbial decomposition in a grassland under elevated CO_2'. (2001) 409, 188-911 *Nature*.

Ken Davies and Associates 'Justification for the Proposed Re-Development of the Clairwood Racecourse Site By Capital Property Fund' (May 2013).

Perry E.C., Bob U & Munien S 'Social Impact Assessment of the Change in Land Use of the Clairwood Racecourse to the Clairwood Logistics/ Distribution Park: Resident and Business Survey Report (March 2013).

RiverWise 'Wetland Functionality and Impact Assessments, Logistics/ Distribution Park, Clairwood, eThekwini Municipality Phase II'. (September 2012).

Rawlin Wales and Partners 'Proposed Clairwood Logistics Park Development: Electrical and Telecommunication Services Report' (March 2013).

CEROI Durban Metropolitan Freshwater Resources: State (October 1999; accessible on http://www.ceroi.net/reports/durban/issues/fshwater/state.htm.)

Sunday Times (29 May 2005) "Bayer/Lanxess: Suburb hit by cancer scare"

TC Chetty and Associates 'Application to eThekwini Municipality in terms of Schedule 1, Chapter 2 and 3 of the KZN Planning and Development Act 2008 (Act No. 6 of 2008)' (March 2013).

The Mercury (11 September 2012) "Draft Back of Port Local Area Plan: Public Stakeholder Engagement".

The Mercury (03 June 2005) "Pipelines to be replaced in polluted area" Available at http://www.cbgnetwork.org/742.html.