Proposed Compensation Industrial and Business Estate

Final Environmental Impact Assessment Report

Amendment in Support of Response to EDTEA (then DAEA) re. Rejection of Report

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Tongaat Hulett DEVELOPMENTS

Royal HaskoningDHV
Enhancing Society Together

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_____

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Executive Summary

Project Background

Tongaat Hulett Developments proposes to develop the **Compensation Industrial and Business Estate** (hereafter referred to as CIBE) with a total developable area of approximately 240 ha (of the total area equalling 320 ha, that is, 24% thereof remains un-developable).The proposed site is situated either side of the R102 provincial road immediately to the south and adjoining the proposed Braeside service industrial park inland from Ballito (See Figure 1).

Compensation is a large, relatively flat, landholding strategically situated adjacent to the R102 some 13 km from the new King Shaka International Airport and Dube Tradeport. The project has been identified as a key landholding due to its size and strategic location within the greater Ballito area, and thus has the ability to provide easy access for new industrial / logistics operations together with a business park, office and activity uses located in close proximity to the new airport and with good accessibility to major routes. The site is furthermore situated adjacent to the main northern railway line that runs between Durban and Richards Bay and ultimately to Gauteng.

The KwaDukuza Spatial Development Framework Plan as well as the Ilembe Spatial Framework Plan has earmarked the property as forming part of an "Activity Node" situated at the intersection of two "*Activity (Secondary) Corridors*". The general interpretation of the Framework Plan is based on "*… a linear spatial structure to the Dolphin Coast Entity, which is already well established by virtue of the coastal settlement, the N2 freeway, the R102 and the railway line*". It is further noted that in the current proposed Ilembe Industrial Development Strategy, the property has been identified as land suitable for Industrial Development.

The sub region surrounding the site is undergoing significant change as a result of both the new airport and the expansion of demand radiating out from Ballito.

The history of the submission of the document at hand is as follows. The Final EIAR was submitted to the Department of Agriculture and Environmental Affairs (DAEA) (then the Department of Agriculture, Environmental Affairs and Rural Development), on 12 March 2012. A letter of rejection dated 01 June 2012 was issued by the DAEA. An addendum addressing the specifics of this letter was submitted on 24 January 2013 (Addendum 1). Subsequent to this, Addendum 1 was rejected by the DAEA. This amended Final EIAR serves to incorporate the updates and changes requested (document at hand) and is submitted to Department of Economic Development, Tourism and Environmental Affairs (EDTEA) and will be referred to as such going forward in this updated version.

Key Objectives of the CIBE:

- To provide industrial / logistics, clean manufacturing, business park and office opportunities in close proximity to the new airport and with good accessibility to major routes;
- To maximize the potential value of the land through development and help to create job opportunities in the Ilembe and KwaDukuza Municipality Areas;
- To contribute towards positioning KwaDukuza as an industrial / logistics and business hub;
- To enable the potential of 'super sites' for large users. It is noted that the site has got the ability to develop large single platform sites due to its unique typical typology.

A broad conceptual plan has been produced for the development providing a basic indication of land use intention on the site. This has subsequently been updated as per specific requirements of the EDTEA and can be found as *Appendix A* of the second addendum (Addendum 2).

The Concept Plan should not be seen as the definitive layout or final approved plan for the development, but should only be used to create an understanding of the conceptual framework for the ultimate development of Compensation, and to ultimately enable assessment of the following issues and impacts at a macro level:-

- Primary road network and interchanges;
- Primary open space systems and impacts on wetlands and rivers;
- Broad uses and densities / intensities;
- Bulk infrastructural requirements.

Regulatory Environmental Requirements

The EDTEA, KwaZulu-Natal (KZN), is the competent environmental authority and this specific EIA process needs to be authorised by the EDTEA in accordance with the National Environmental Management Act (NEMA, as amended).

At the time of the commencement of the planning process for the CIBE, the EIA Regulations under the NEMA consisted of two (2) categories of activities namely: Schedule 1 Activities (GNR. 386 of 2006) which required a Basic Assessment Process, and, Schedule 2 Activities (GNR. 387 of 2006) which required a full EIA process (i.e. both a Scoping and an EIA Report) for authorisation. The activities associated with the proposed project fell within GNR. 386 and GNR 387 and as such have been assessed under the Scoping and EIA process.

Acceptance of the Scoping Report and Plan of Study for EIA by EDTEA was received on the 10th of January 2011.

EIA Report

In line with the requirements of the NEMA EIA Regulations, this EIA Report provides a detailed description of the predevelopment environment, specifically in terms of the biophysical and socio-economic environment of the study area.

Furthermore, the report provides a comprehensive description of the activities as well as numerous specialist studies undertaken for the EIA Phase and Public Participation Process (PPP), as well as the way forward in the form of conclusions, recommendations and a draft Environmental Management Programme (EMPr)

To ensure the completeness of the EIA and draft EMPr, specialists surveyed the area to identify the potential impacts of the project on the area. The following specialist studies were conducted for the Compensation Project and are included within the Appendices of this EIA report:

Specialist Study	Organisation
Engineering Services	Vela VKE
Planning Context	Helena Jacobs PSF & AF Planning
Vegetation Assessment	SSI Environmental
Wetland Assessment	SiVEST
Geotechnical study	TGC Engineers
Heritage assessment	eThembeni Cultural Heritage

Specialist Study	Organisation
Traffic Impact Assessment	GOBA
Electrical Assessment	Bosch Projects
Socio-economic study	Ghabisa
Agricultural Potential	J S Phipson

Further to this in fulfilment of the requirements of the EDTEA in the rejection to the Final EIAR, (a) a detailed Needs and Desirability study and report was completed, as well as (b) a Wetland Rehabilitation Plan. These can be found as Appendices B and G3 respectively of Addendum 1 submitted 24 January 2103.

Alternatives

No offsite or other site alternatives have been investigated due to the fact that this existing large parcel of land is strategically located adjacent to the R102 and thus can integrate naturally and positively into this existing industrial fabric, as well as open up opportunities along the northern corridor. The site is unusually flat and therefore ideally suited to industrial development.

The development, as noted above, has a wide variety of objectives to meet and such objectives would not be possible to achieve if the development was attempted elsewhere.

Further, this development has been created to help create job opportunities in the Ilembe and KwaDukuza Municipality Areas.

The proposed Development Concept Plan structure is considered sound and critically delivers upon the strategic objectives that have been identified by both the Ilembe District Municipality and the KwaDukuza Municipality. Furthermore, it is noted that Tongaat Hulett have spent considerable amount of time and effort in the planning and contextualisation of the development and there is broad acceptance that the development framework plan is appropriate and will add value to the region. This will thus enable the Compensation development to fulfil its objectives and mandate.

The proposal fits into the Integrated Development Plan, Land Use Management System and the Spatial Framework that has been drafted for the KwaDukuza Municipality.

The project has through its development seen to consider (a) site layout alternatives, (b) process / land-use alternatives, (c) alternatives based on sensitivity, and is contextualised in terms of the overarching planning for the region, and the area in specific. It is thus deemed that alternatives were considered intrinsically in the project as a whole.

Public Participation Process

Royal HaskoningDHV (previously SSI Environmental) conducted the Public Participation Process (PPP) for the CIBE Project.

In recent years Tongaat Hulett developments has taken a much more participatory approach to their property development projects, with the understanding that the socio-political and economic context of the times invites a more public focused approach. Communities that surround the development are invited to "*inform and be informed*" about projects through the establishment of fora in order to address concerns and maximise positive impacts where possible.

It is also noted that engaging stakeholders timeously does ensure for a contribution to early project design. It is for this reason that the PPP as part of the EIA becomes the basis of a long-term stakeholder engagement process.

Environmental Impact Assessment

The relevant project activities considered in the EIA in detail were determined by identifying the environmental aspects and then undertaking an environmental risk assessment to determine the significant environmental aspects. The environmental impact assessment has included all phases of the project namely the design, construction and operational phases. Decommissioning is unlikely to occur within a minimum period of 20 years and as such the potential alternative land-use is unknown, as such the decommissioning phase was limited to controlling conditions as addressed within the EMPr.

An impact assessment rating system is applied to the potential impact on the receiving environment and includes an objective evaluation of the mitigation of the impact. During the EIA, the impact of the Compensation Industrial and Business Estate Development on the biophysical and socio-economic environments was assessed. From this assessment, it was determined which parts of the two (2) environmental types will be more significantly affected as compared to others. It was this assessment that allowed the EAP to make an informed analysis and opinion of the proposed development.

It must be noted that the further requirements requested as per the rejection letters have not indicated that any additional potential impacts have been identified and thus no further impact types require assessment at this time. This is the case for the Wetland Delineation and Management Report, Impact Assessment and Rehabilitation as well as elaborated on the response from SiVEST dated 15 January 2013 and submitted as Appendix G1 of Addendum 1.

The changes and/or updates provided herein are therefore limited to updated terminology and an updated and more detailed layout plan and detailed land use paper, as well as a detailed need and desirability report.

1 INTRODUCTION

1.1 Background

Tongaat Hulett Developments (THD) proposes to develop the 240ha **Compensation Industrial and Business Estate** (hereafter referred to as CIBE) on a 320ha portion of land within the KwaDukuza Municipality, which falls within the iLembe District Municipality.

Currently the land is predominantly under sugar cane cultivation, with a small natural forest remnant on the portion of the site to the eastern side of the R102.

Significantly it should be noted that the site is relatively flat and, being directly adjacent to the provincial R102, is therefore well suited for industrial type development. The 75ha not used for the development will be retained as open space. Refer to Figure 1 for locality plan.

The property is bisected by the R102 and situated immediately south of and adjoining the proposed Braeside service industrial park, just inland of Ballito. The site is comprised of the following two (2) properties, (a) Remainder of the Farm Pencarrow No. 17860 and (b) Portion 5 of the Farm Pencarrow No. 17860.

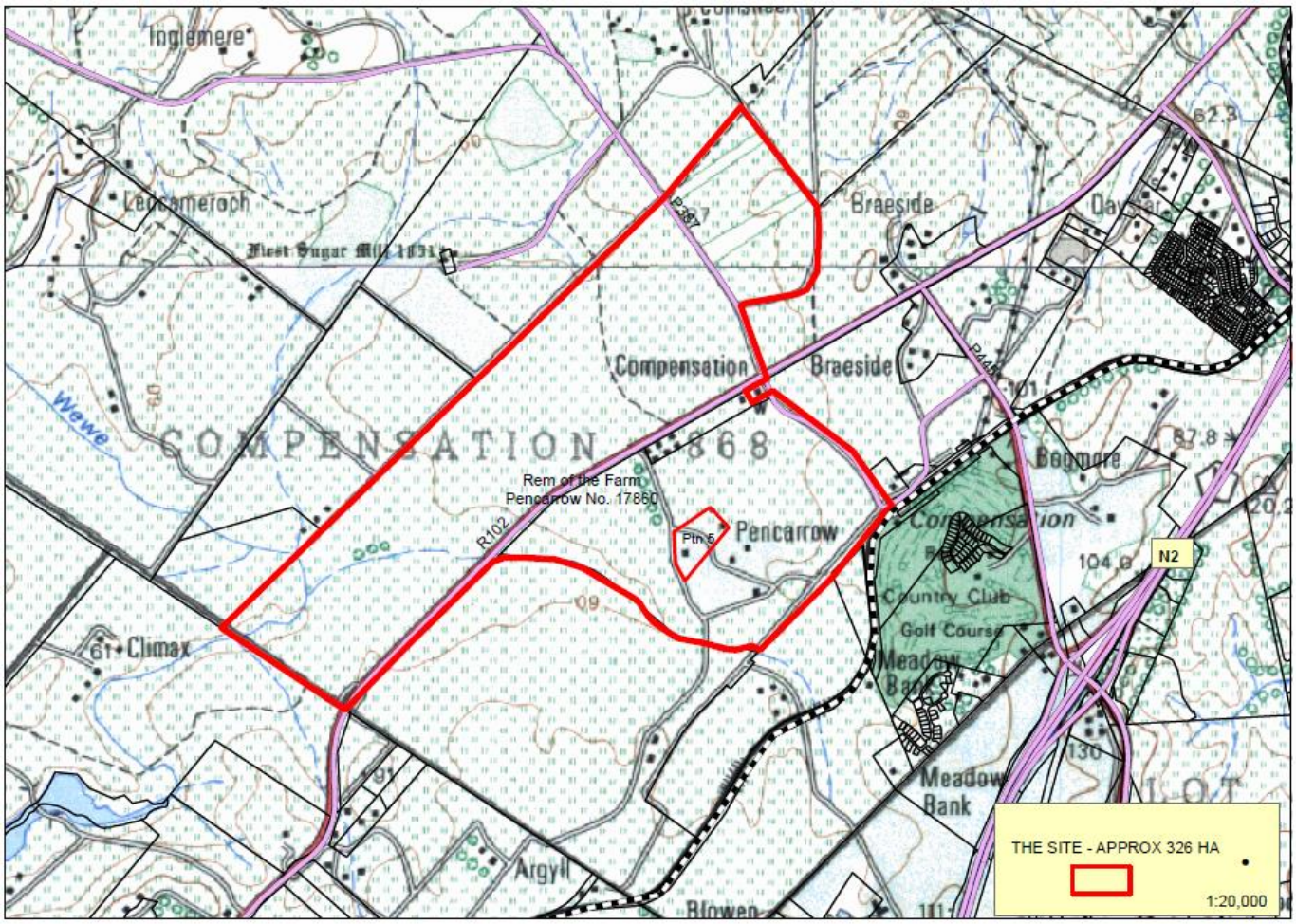


FIGURE 1: LOCALITY PLAN

It is further noted that in the Ilembe Industrial Development Strategy, the property has been identified as land suitable for Industrial Development.

Compensation has the ability to provide new industrial / logistics operations together with business park, office and activity uses within the northern region. The development will enable the potential development of 'super sites' for large single users who are looking at being located in close proximity to the new airport and with good accessibility to major routes.

The history with respect to the submissions of the Final EIAR as submitted to the EDTEA is as follows:

- The document was first submitted to the EDTEA (then the Department of Agriculture, Environmental Affairs and Rural Development), on 12 March 2012.
- A letter of rejection dated 01 June 2012 was issued by the EDTEA (then DAEA) (see Table 1).
- The first addendum (Addendum 1) addressing the specifics of this letter were submitted on 24 January 2013.
- The first Addendum was rejected by the EDTEA (then DAEA) (reasons for this rejection include: Incomplete Layout Plan, an error in clarity of Detailed Land Use Paper, lack of comment from the KZN DoT, lack of electricity service level agreement and amendments required for the EMPr).
- This amended Final EIAR (the document at hand) therefore serves to incorporate the updates and changes requested. This is supplemented by Addendum 2.

It should be noted that these changes however, did not add to the impacts identified and assessed in the original Final EIAR. That is, the changes and/or updates provided herein are limited to updated terminology, an updated and more detailed layout plan, detailed land use paper, as well as a detailed need and desirability report.

Addendum 1 included the following information:

TABLE 1: ADDENDUM 1 CONTENTS

Section :	Finding / Requirement
1	Addressed the Inadequate Layout Plan
2	Addressed the queries made in relation to the land use alternatives
3	Provision of requested Need and Desirability Study
4	Provision of the sanitation service level agreement
5	Provision of the electricity service level agreement *(remained outstanding in Addendum 1).*
6	Provision of the water service level agreement
7	Addressed the queries made in relation to the Baseline Ecology Report
8	Addressed the queries made in relation to the Wetland Impact Assessment Report
9	Amended Environmental Management Programme in response to detailed comments.

Addendum 2 provides the following information:

TABLE 2: ADDENDUM 2 CONTENTS

Section :	Finding / Requirement
1	Addressed the Incomplete Layout Plan
2	Amended Detailed Land Use Paper
3	Omitted Appendix D – Electricity Service Level Agreement
4	Comments from the Department of Transport
5	Amended Environmental Management Programme in response to detailed comments.

1.2 Project Applicant

TABLE 3: PROJECT APPLICANT DETAILS

Applicant	Tongaat Hulett Developments
Representative	Bheki Shongwe
Physical Address	305 Umhlanga Rocks Drive La Lucia 4015
Postal Address	P. O. Box 22319 Glenashley 4022
Telephone Number	+27 31 560 1937
Cell Number	+27 83 459 0262
Fax Number	+27 86 679 9243
Email Address	bheki.shongwe@thdev.co.za

1.3 Independent Environmental Assessment Practitioner

Tongaat Hulett Developments appointed Royal HaskoningDHV (previously SSI Engineers and hereafter referred to as RHDHV) as the independent Environmental Assessment Practitioner (EAP) to undertake the Scoping Report, Environmental Impact Assessment (EIA) and Draft Environmental Management Programme (EMPr) for the proposed Compensation Industrial and Business Estate project in accordance with the requirements of the National Environmental Management Act (No 108 of 1998, as amended).

TABLE 4: INDEPENDENT EAP DETAILS

Applicant	Royal Haskoning DHV
Representative	Novashni Sharleen Moodley
Educational qualifications	BSc. Honours, Environmental Science
Experience at environmental assessments (yrs)	> 3 Years
Physical address	6 Payne Street Pinetown 3600
Postal Address	P.O. Box 55 Pinetown 3600
Telephone Number	+27 31 719 5532
Cell Number	+27 82 365 4526
Fax Number	+27 31 719 5505
Email Address	Novashni.Moodley@rhdhv.com

1.4 Terms of Reference

The KZN EDTEA is the competent authority and this EIA process in KZN needs to be authorised by the Department in accordance with the National Environmental Management Act (NEMA), as amended.

The EIA Regulations under the NEMA consisted of two categories of activities namely:

- Schedule 1 Activities (GNR. 386 of 2006) which require a Basic Assessment Process, and
- Schedule 2 Activities (GNR. 387 of 2006) which require both a Scoping and an EIA Report for authorisation.

The GNR 387 of 2006 activities associated with this development, for which a full Scoping and EIA Report is required are as follows:

"1 – The Construction of facilities or infrastructure, including associated structures or infrastructure, for –

(a) The generation of electricity where –

(i) the electricity output is 20 megawatts or more; or

(ii) the elements of the facility cover a combined area in excess of 1 hectare;

(c) The construction of facilities or infrastructure included associated structures or infrastructure for the above ground storage of a dangerous good, including petrol, diesel liquid petroleum gas or paraffin,

containers with a combined capacity of 1000 cubic metres or more at any one location or site, including the storage of dangerous goods in a tank farm.

(d) The construction of facilities or infrastructure included associated structures or infrastructure for the refining of gas, oil and petroleum products.

(e) The construction of facilities or infrastructure, included associated structures or infrastructure for any process or activity which requires a permit or license in terms of legislation governing the generation or release of emissions, pollution, effluent or waste and which is not identified in Government Notice R386 of 2006.

(h) The construction of facilities or infrastructure included associated structures or infrastructure for the manufacturing, storage or testing of explosives, including ammunition, but excluding licensed retail outlets and the legal end use of such explosives.

(i) The construction of facilities or infrastructure included associated structures or infrastructure for the extraction of natural gas, including gas landfill sites.

(j) The construction of facilities or infrastructure included associated structures or infrastructure for the bulk transportation of dangerous goods using pipelines, funiculars or conveyors with a throughput capacity of 50 tons or 50 cubic metres per day.

(l) The transmission and distribution of above ground electricity with a capacity of 120 kilovolts or more;

2 – Any development activity, including associated structures and infrastructure, where the total area of the developed area is, or is intended to be, 20 hectares or more.

3 – The construction of filling stations, including associated structures and infrastructure, or any other facility for the underground storage of a dangerous good, including petrol, diesel, liquid petroleum gas or paraffin.5 – 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 the publication of this notice and which has not been authorised by a competent authority in terms of the Environmental Impact Assessment Regulations, 2006 made under section 24(5) of the Act and published in Government Notice No. R. 385 of 2006, where –

(a) 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);

(b) it is a road administered by a provincial authority;

(c) the road reserve is wider than 30 metres; or

(d) the road will cater for more than one lane of traffic in both directions."

In addition, as part of this development various activities listed under GNR. 386 of 2006 will be undertaken. These activities require a Basic Assessment, however, as a full Scoping Phase and EIA is being undertaken for the Compensation Industrial and Business Estate Development these activities will be addressed as part of this process.

These include the following activities:

1 – The Construction of facilities or infrastructure, including associated structures or infrastructure, for –

(b) The construction of facilities or infrastructure, included associated structures or infrastructure for the above ground storage of 1000 tons or more but less than 100 000 tons of ore.

(c) The construction of facilities or infrastructure, included associated structures or infrastructure for the storage of 250 tons or more of coal, but less than 100 000 tons of coal.

(k) The bulk transportation of sewage and water, including storm water, in pipelines with –

(i) An internal diameter of 0,36 metres or more; or

(ii) A peak throughput of 120 litres per second or more;

(l) The transmission and distribution of electricity above ground with a capacity of more than 33 kilovolts and less than 120 kilovolts.

(m) any purpose in the one in ten year flood line of a river or stream, or within 32 metres from the bank of a river or stream where the flood line is unknown, excluding purposes associated with existing residential use, but including –

(i) Canals;

(ii) Channels;

(iii) Bridges;

(iv) Dams; and

(v) Weirs;

(n) The off-stream storage of water, including dams and reservoirs, with a capacity of 50 000 cubic metres or more, unless such storage falls within the ambit of the activity listed in item 6 of Government Notice No. R. 387 of 2006;

4 – The dredging, excavation, infilling, removal or moving of soil, sand or rock exceeding 5 cubic metres from a river, tidal lagoon, tidal river, lake, in-stream dam, floodplain or wetland.

7 – The above ground storage of a dangerous good, including petrol, diesel, liquid paraffin, in containers with a combined capacity of more than 30 cubic metres but less than 1000 cubic metres at any one location or site.

15 – The construction of a road that is wider than 4 metres or that has a reserve wider than 6 metres, excluding roads that fall within the ambit of another listed activity or which are access roads of less than 30 metres long.

17 – Phased activities where any one phase of the activity may be below a threshold specified in this Schedule but where a combination of the phases, including expansions or extensions, will exceed a specified threshold.

25 – The expansion of or changes to existing facilities for any process or activity, which requires an amendment to an existing permit or license, or a new permit or license in terms of legislation governing the release of emissions, pollution, effluent."

The EIA Regulations (2010) published in Government Notice R543 to R546 (June 2010), and promulgated in terms of Chapter 5 of the National Environmental Management Act, Act 107 of 1998 have resulted in significant changes from the previous EIA Regulations (2006).

These changes are *inter alia*:

- Definition and threshold changes;
- The inclusion of three listing notices, i.e. Basic Assessment Listing Notice (GN. R544); Scoping and EIA Listing Notices (GN R.545) and "Restricted" Basic Assessment Notice: Sensitive Geographical Areas (GN R.546);
- Exclusion of the 15 December – 02 January calendar period for public participation and authority review of the application;

- Provision for the exclusion of public and school holidays from public participation. Should any aspect of public participation coincide with public and school holidays, then the legislated timeframes for public participation should be extended to exclude such holidays; and
- Authority review timeframes.

With the promulgation of the 2010 EIA listing notices, it is necessary to outline the applicability of the listed notices of 2006 detailed above. Table 5 provides further information of this issue this.

TABLE 5: COMPARISON OF 2006 AND 2010 REGULATIONS

2006 Regulations		Applicable 2010 Regulations	
GNR 387, 1	The Construction of facilities or infrastructure, including associated structures or infrastructure, for – (a) The generation of electricity where – (i) the electricity output is 20 megawatts or more; or (ii) the elements of the facility cover a combined area in excess of 1 hectare;	GNR 545, 1	The construction of facilities or infrastructure for the generation of electricity where the electricity output is 20 megawatts or more.
		GNR 544, 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.
		GNR 544 29	The expansion of facilities for the generation of electricity where: (i) the electricity output will be increased by 10 megawatts or more, excluding where such expansion takes place on the original development footprint; or (ii) regardless the increased output of the facility, the development footprint will be expanded by 1 hectare or more
	(c) The construction of facilities or infrastructure included associated structures or infrastructure for the above ground storage of a dangerous good, including petrol, diesel liquid petroleum gas or paraffin, containers with a combined capacity of 1000 cubic metres or more at any one location or site, including the storage of dangerous goods in a tank farm.	GNR 545, 3	The construction of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of more than 500 cubic metres.
		GNR 546, 10	The construction of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres.
		GNR 545, 23	The expansion of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage facilities will be expanded by 30 cubic metres or more but less than 80 cubic metres.
	(d) The construction of facilities or infrastructure included		The proponent must consider the applicability of inter alia the

2006 Regulations		Applicable 2010 Regulations	
	associated structures or infrastructure for the refining of gas, oil and petroleum products		listed activities as provided for in the NEMWA. NEMWA, if thresholds are met contains a similar listing. ***N.B. It must be noted that in this case, each individual developer would apply for their applicable environmental authorisation and waste management licence as such an application requires a significant level of detailed planning in order to provide threshold figures. This type of information is not available at this stage and hence each developer will apply for authorisations as and when applicable.***
	(e) The construction of facilities or infrastructure included associated structures or infrastructure for any process or activity which requires a permit or license in terms of legislation governing the generation or release of emissions, pollution, effluent or waste and which is not identified in Government Notice R386 of 2006	GNR 545, 5	The construction of facilities or infrastructure for any process or activity which requires a permit or license in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent and which is not identified in Notice No. 544 of 2010 or included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case that Act will apply.
	(h) The construction of facilities or infrastructure included associated structures or infrastructure for the manufacturing, storage or testing of explosives, including ammunition, but excluding licensed retail outlets and the legal end use of such explosives		No similar Listing in GNRs 544, 545 and 546 & Regulation 76(2) of GNR 543 accordingly applies: "If a situation arises where activities, listed under the previous NEMA Notices, are not listed similarly under the current lists of activities and competent authorities identified in terms of section 24(2) and 24D of the National Environmental Management Act, 1998 (Act No. 107 of 1998) or in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), and where a decision on an application submitted under the previous NEMA regulations is still pending, the competent authority will consider such application to be withdrawn."
	(i) The construction of facilities or infrastructure included associated structures or infrastructure for the extraction of natural gas, including gas landfill sites.	GNR 545, 4	The construction of facilities or infrastructure for the refining, extraction or processing of gas, oil or petroleum products with an installed capacity of 50 cubic metres or more per day, excluding facilities for the refining, extraction or processing of gas from landfill sites.

2006 Regulations		Applicable 2010 Regulations	
		GNR 544, 29	The expansion of facilities for the refining, extraction or processing of gas, oil or petroleum products where the installed capacity of the facility will be increased by 50 cubic metres or more, excluding facilities for the refining, extraction or processing of gas from landfill sites.
	(j) The construction of facilities or infrastructure included associated structures or infrastructure for the bulk transportation of dangerous goods using pipelines, funiculars or conveyors with a throughput capacity of 50 tons or 50 cubic metres per day.	GNR 545, 6	The construction of facilities or infrastructure for the bulk transportation of dangerous goods – (i) in gas form, outside an industrial complex, using pipelines, exceeding 1000 metres in length, with a throughput capacity of more than 700 tons per day; (ii) in liquid form, outside an industrial complex, using pipelines, exceeding 1000 metres in length, with a throughput capacity more than 50 cubic metres per day; or (iii) in solid form, outside an industrial complex, using funiculars or conveyors with a throughput capacity of more than 50 tons day
		GNR 546, 9	The construction of above ground cableways and funiculars
		GNR 546, 21	The expansion of above ground cableways and funiculars where the development footprint will be increased
		GNR 544, 49	The expansion of facilities or infrastructure for the bulk transportation of dangerous goods: (i) in gas form, outside an industrial complex, by an increased throughput capacity of 700 tons or more per day; (ii) in liquid form, outside an industrial complex or zone, by an increased throughput
	(l) The transmission and distribution of above ground electricity with a capacity of 120 kilovolts or more	GNR 545, 8	The construction of facilities or infrastructure for the transmission and distribution of electricity with a capacity of 275 kilovolts or more, outside an urban area or industrial complex.

2006 Regulations		Applicable 2010 Regulations	
		GNR.544 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.
		GNR.544 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
GNR.387 2	Any development activity, including associated structures and infrastructure, where the total area of the developed area is, or is intended to be, 20 hectares or more.	GNR.545 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.
		GNR.545 16	The physical alteration of virgin soil to agriculture, or afforestation for the purposes of commercial tree, timber or wood production of 100 hectares or more.

2006 Regulations		Applicable 2010 Regulations	
		GNR.544 24	The transformation of land bigger than 1000 square metres in size, to residential, retail, commercial, industrial or institutional use, where, at the time of the coming into effect of this Schedule such land was zoned open space, conservation or had an equivalent zoning.
GNR.387 3	The construction of filling stations, including associated structures and infrastructure, or any other facility for the underground storage of a dangerous good, including petrol, diesel, liquid petroleum gas or paraffin.	GNR.545 3	The construction of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of more than 500 cubic metres.
		GNR.546 10	The construction of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres.
		GNR.546 23	The expansion of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage facilities will be expanded by 30 cubic metres or more but less than 80 cubic metres.
		GNR.544 13	The construction of facilities or infrastructure for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 but not exceeding 500 cubic metres;
		GNR.544	The expansion of facilities for the storage, or storage and

2006 Regulations		Applicable 2010 Regulations	
		42	handling, of a dangerous good, where the capacity of such storage facility will be expanded by 80 cubic metres or more.
GNR.387 5	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 the publication of this notice and which has not been authorised by a competent authority in terms of the Environmental Impact Assessment Regulations, 2006 made under section 24(5) of the Act and published in Government Notice No. R. 385 of 2006, where – (a) 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); (b) it is a road administered by a provincial authority; (c) the road reserve is wider than 30 metres; or (d) the road will cater for more than one lane of traffic in both directions.	GNR.545 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 been authorised 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); (i) it is a road administered by a provincial authority; (ii) the road reserve is wider than 30 metres; or the road will cater for more than one lane of traffic in both directions.
GNR.386 1	The Construction of facilities or infrastructure, including associated structures or infrastructure, for – (a) The construction of facilities or infrastructure, included associated structures or infrastructure for the above ground storage of 1000 tons or more but less than 100 000 tons of ore. (b) The construction of facilities or infrastructure, included associated structures or infrastructure	GNR 544 2	The construction of facilities or infrastructure for the storage of ore or coal that requires an atmospheric emissions license in terms of the National Environmental Management: Air Quality Act (Act No. 39 of 2004).
		GNR 544 2	The construction of facilities or infrastructure for the storage of ore or coal that requires an atmospheric emissions license in terms of the National Environmental Management: Air Quality Act (Act No. 39 of 2004).

2006 Regulations		Applicable 2010 Regulations	
	for the storage of 250 tons or more of coal, but less than 100 000 tons of coal. (k) The bulk transportation of sewage and water, including storm water, in pipelines with – (i) An internal diameter of 0,36 metres or more; or (ii) A peak throughput of 120 litres per second or more; (l) The transmission and distribution of electricity above ground with a capacity of more than 33 kilovolts and less than 120 kilovolts (m) any purpose in the one in ten year flood line of a river or stream, or within 32 metres from the bank of a river or stream where the flood line is unknown, excluding purposes associated with existing residential use, but including – (i) Canals; (ii) Channels; (iii) Bridges; (iv) Dams; and (v) Weirs;		
		GNR 545 10	The construction of facilities or infrastructure for the transfer of 50 000 cubic metres or more water per day, from and to or between any combination of the following: (i) water catchments, (ii) water treatment works; or (iii) impoundments, excluding treatment works where water is to be treated for drinking purposes.
		GNR 544 9	The construction of facilities or infrastructure exceeding 1000 metres in length for the bulk transportation of water, sewage or storm water – (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 such facilities or infrastructure are for bulk transportation of water, sewage or storm water or storm water drainage inside a road reserve; or b. where such construction will occur within urban areas but further than 32 metres from a watercourse, measured from the edge of the watercourse.
		GNR 544 37	The expansion of facilities or infrastructure for the bulk transportation of water, sewage or storm water 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

2006 Regulations		Applicable 2010 Regulations	
	(n) The off-stream storage of water, including dams and reservoirs, with a capacity of 50 000 cubic metres or more, unless such storage falls within the ambit of the activity listed in item 6 of Government Notice No. R. 387 of 2006;		infrastructure will be increased by 10% or more– excluding where such expansion: (i) relates to transportation of water, sewage or storm water 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.
		GNR 544 10	The construction of facilities or infrastructure for the transmission and distribution of electricity – (iii) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or (iv) inside urban areas or industrial complexes with a capacity of 275 kilovolts or more.
		GNR 544 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.
		GNR 546 16	The construction of (i) jetties exceeding 10 square metres in size; (ii) slipways exceeding 10 square metres in size; (iii) buildings with a footprint exceeding 10 square metres in size; or

2006 Regulations		Applicable 2010 Regulations	
			(iv) infrastructure covering 10 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.
		GNR 546 24	The expansion of c. jetties where the jetty will be expanded by 10 square metres in size or more; d. slipways where the slipway will be expanded by 10 square metres or more; e. buildings where the buildings will be expanded by 10 square metres or more in size; or f. infrastructure where the infrastructure will be expanded by 10 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.
		GNR 544 11	The construction of: (i). canals; (ii). channels; (iii). bridges; (iv). dams; (v). weirs;

2006 Regulations		Applicable 2010 Regulations	
			(vi). bulk storm water outlet structures; (vii). marinas; (viii). jetties exceeding 50 square metres in size; (ix). slipways exceeding 50 square metres in size; (x). buildings exceeding 50 square metres in size; or (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.
		GNR 544 39	The expansion of (i). canals; channels; (iii). bridges; (iv). weirs; (v). bulk storm water outlet structures; (vi). marinas; within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, where such expansion will result in an increased development footprint but excluding where such expansion will occur behind the development setback line.
		GNR 544 40	The expansion of (i) jetties by more than 50 square metres; (ii) slipways by more than 50 square metres; or (iii) buildings by more than 50 square metres

2006 Regulations		Applicable 2010 Regulations	
			within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, but excluding where such expansion will occur behind the development setback line
		GNR 545 19	The construction of a dam, where the highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, is 5 metres or higher or where the high-water mark of the dam covers an area of 10 hectares or more.
		GNR 546 2	The construction of reservoirs for bulk water supply with a capacity of more than 250 cubic metres.
		GNR 546 17	The expansion of reservoirs for bulk water supply where the capacity will be increased by more than 250 cubic metres.
		GNR 544 12	The construction of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, with a combined capacity of 50000 cubic metres or more, unless such storage falls within the ambit of activity 19 of Notice 545 of 2010;
		GNR 544 41	The expansion of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, where the combined capacity will be increased by 50000 cubic metres or more.

2006 Regulations		Applicable 2010 Regulations	
		GNR 544 41	The expansion of a dam where: (i) the highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, was originally 5 metres or higher and where the height of the wall is increased by 2,5 metres or more; or where the high-water mark of the dam will be increased with 10 hectares or more.
GNR.386 4	The dredging, excavation, infilling, removal or moving of soil, sand or rock exceeding 5 cubic metres from a river, tidal lagoon, tidal river, lake, in-stream dam, floodplain or wetland.	GNR 544 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; (iv) the seashore; (v) the littoral active zone, an estuary or a distance of 100 metres 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 a. is for maintenance purposes undertaken in accordance with a management plan agreed to by the relevant environmental authority; or b. occurs behind the development setback line.
GNR.386 7	The above ground storage of a dangerous good, including petrol, diesel, liquid paraffin, in containers with a combined capacity of more than 30 cubic metres but less than 1000 cubic metres at any one location or site.	GNR 545 3	The construction of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of

2006 Regulations		Applicable 2010 Regulations	
			more than 500 cubic metres.
		GNR 546 10	The construction of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres.
		GNR 546 23	The expansion of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage facilities will be expanded by 30 cubic metres or more but less than 80 cubic metres.
		GNR 544 13	The construction of facilities or infrastructure for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 but not exceeding 500 cubic metres;
		GNR 544 42	The expansion of facilities for the storage, or storage and handling, of a dangerous good, where the capacity of such storage facility will be expanded by 80 cubic metres or more.
GNR.386 15	The construction of a road that is wider than 4 metres or that has a reserve wider than 6 metres, excluding roads that fall within the ambit of another listed activity or which are access roads of less than 30 metres long.	GNR 546 4	The construction of a road wider than 4 metres with a reserve less than 13,5 metres.
		GNR 546 19	The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre.
		GNR 544	The construction of a road, outside urban areas,

2006 Regulations		Applicable 2010 Regulations	
		22	(i). with a reserve wider than 13,5 meters or, (ii). where no reserve exists where the road is wider than 8 metres, or (iii). for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Notice 545 of 2010.
		GNR 544 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 meters; or where no reserve exists, where the existing road is wider than 8 metres – excluding widening or lengthening occurring inside urban areas.
GNR.386 17	Phased activities where any one phase of the activity may be below a threshold specified in this Schedule but where a combination of the phases, including expansions or extensions, will exceed a specified threshold.	GNR 544 56 And GNR 546 26	Lists phased activities (phasing of activities where the at least 1 phase of a listed activity commenced after enactment of GNRs 544 and 546). Although phased activities (GNR 544 and GNR 546) cannot for the purposes of this table be defined as a similar activity, the proponent EAP and Regulating authority must consider the applicability of all the expansion activities (GNR 544, 545 & 546). Should the expansion activity be triggered (refer to phased development activity applied for in terms of GNR 386), Activity 17 of GNR 386 will be deemed to be a similar listing to the expansion activity.
GNR.386	The expansion of or changes to existing facilities for any	GNR 544	The expansion of existing facilities for any process or activity

2006 Regulations		Applicable 2010 Regulations	
25	process or activity, which requires an amendment to an existing permit or license, or a new permit or license in terms of legislation governing the release of emissions, pollution, effluent."	28	where such expansion will result in the need for a permit or license in terms of national or provincial legislation governing the release of emissions or pollution, excluding where the facility, process or activity is included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case that Act will apply.

1.5 Methodology Applied for EIA

Approval by EDTEA (then DAEA&RD) of the Scoping Report and Plan of Study for EIA was received on the 10th of January 2011, and is attached as *Appendix B* of the initially submitted with the original version of the Final EIAR.

1.5.1 Objectives

In accordance with the requirement of the NEMA, an EIA must be submitted to EDTEA.

The objectives of the EIA Report are to provide:

- An assessment of the environments likely to be affected by the proposed project;
- An assessment of the environments likely to be affected by any identified alternative land use or developments;
- An assessment of the nature, extent, duration, probability and significance of the identified potential environmental, social and cultural impacts of the proposed project;
- A comparative assessment of the identified land use and development alternatives and their potential environmental, social and cultural impacts;
- The appropriate mitigation measures for each significant impact of the proposed project;
- Details of the engagement process of Interested and Affected Parties (I&AP's) followed during the course of the assessment and an indication of how the issues raised have been addressed;
- Identification of knowledge gaps and reporting on the adequacy of predictive methods, underlying assumptions and uncertainties encountered in compiling the required information;
- A description of the arrangements for monitoring and management of environmental impacts; and
- Inclusion of technical and supporting information as appendices, if available.

1.5.2 The EIA Phase (Phase II)

The methodology applied for conducting the EIA consisted of the following processes:

- All comments received from the EDTEA, relevant authority departments and I&APs were addressed in this EIA as part of the comprehensive public participation process discussed in section 4.7, and subsequent EMPr;
- The environmental facets likely to be affected by the project were assessed without management in place including cumulative impacts;
- All alternatives were assessed including a comparative assessment;
- The identified potential environmental, social, cultural and cumulative impacts were identified and assessed with management in place;
- A draft EMPr was compiled detailing the proposed management commitments as described in the EIA and is attached to this report for comment;
- This EIA Report and draft EMPr was submitted to stakeholders and I&APs for consideration from 19 October till 30 November 2011; and

- All I&APs will be informed of the EDTEA decision on the proposed project.

It is important to note that subsequent to the submission of the final EIAR to the then DAEA a rejection was issued by the then DAEA to the Final EIAR. The amendments requested were stated to be a rejection of the report and not the application itself. No further public participation was required but the amendments were rather requested to be directly submitted to the then DAEA for consideration. These amendments were submitted as addendum 1, which was also rejected resulting the second addendum submission.

1.6 Specialist Studies

To ensure the completeness of the EIA and Draft EMPr, specialists surveyed the area to identify the potential impacts of the project on the area.

The following specialist studies were conducted for this project.

TABLE 6: SPECIALIST STUDIES CONDUCTED

Specialist Study	Organisation
Infrastructural Assessment	Vela VKE
Planning Context	Helena Jacobs PSF & AF Planning
Vegetation Assessment	SSI Environmental
Wetland Assessment	SiVEST
Geotechnical study	TGC Engineers
Heritage assessment	eThembeni Cultural Heritage
Traffic Impact Assessment	GOBA
Electrical Assessment	Bosch Projects
Socio-economic study	Ghabisa
Agricultural Potential	J S Phipson

1.7 Environmental Impact Rating

The environmental impact rating process was undertaken according to the RHDHV Risk Assessment Methodology.

1.8 Environmental Impact Assessment Report

The report has been structured to comply with the format required by the NEMA. The contents are as follows:

- Chapter 1: Introduction
- Chapter 2: Project Description

- Chapter 3: Legal Framework
- Chapter 4: Methodology Applied for the EIA Report
- Chapter 5: Specialist Reports
- Chapter 6: Alternatives
- Chapter 7: Environmental Impact Assessment
- Chapter 8: Environmental Impact Statement
- Chapter 9: Climate Change and COP17, South Africa's Response
- Chapter 10: Conclusion.

1.9 Draft Environmental Management Programme

An EMPr (*Appendix E of the initial FEIAR submitted*) has been compiled for the pre-construction, construction and operational phases for the Compensation Industrial and Business Estate. This EMPr details the strategies to be used to address the roles and responsibilities of environmental management personnel on site, and a framework for environmental compliance and monitoring.

The EMPr will be compiled as a stand-alone document from the EIA Report and will be submitted to the EDTEA.

2 PROJECT DESCRIPTION

2.1 Need and Desirability of the Proposed Project

The location of the Compensation Industrial and Business Estate is ideally positioned for Tongaat Hulett Developments to ensure that the following key objectives can be achieved:

- Provide industrial / logistics, clean manufacturing, business park and office opportunities in close proximity to the new airport and with good accessibility to major routes.
- To create values by maximizing the potential of the land through development and help to create job opportunities in the Ilembe and KwaDukuza Municipality Area.
- Contribute towards positioning Ilembe / KwaDukuza as an industrial / logistics and business hub.
- To enable the potential of 'super sites' for large users.
- There will be a benefit with regards to the improvements of the roads which will be constructed to link up with the N2; therefore alternative routes will be created.
- Job opportunities will be created within the Northern Region of KwaZulu Natal.

The Needs and Desirability and Impact Assessment undertaken by Urban Econ was undertaken in response to the specific request in the letter of rejection from the EDTEA (then DAEA) dated 01 June 2012 and includes (a) a Spatial Analysis, (b) Socio-Economic Profile, (c) Market Assessment, (d) Commercial Demand Modelling, and (e) an Economic Impact Assessment, thereafter offering conclusions and recommendations. This report was included as *Appendix B* of addendum 1.

The assessment found that the CIBE development is integrally linked to the broader long term strategy of the Dube Aerotropolis and vision '*To Develop a Global Gateway to South Africa'* (Dube Aerotropolis Development Framework, 2011) setting it apart from any other ad hoc development currently taking place. The report states that it is clear that the CIBE development is both of a regional and international significance and will set a standard or trend for future industrial development within the Dube Aerotropolis.

The CIBE will also support the KwaZulu-Natal Industrial Development Strategy of 2011, Provincial Spatial Economic Development Strategy (PSEDS) and the Provincial Growth and Development Strategy (PGDS, 2011), according to the report.

The report states that the site is located in close proximity to the provincial priority corridor (N2) and therefore falls within the jurisdiction which supports economic growth and development. This will enhance the desirability of the proposed development on a provincial and national level. Secondly, the key element of development relevant to this proposed development (industrial) has been identified therefore enhancing the need and desirability of this proposed development.

The Market Assessment within the report concluded that the opportunity of larger, flat stands adjacent to a major arterial and close to the northern border of eThekwini make the CIBE a very attractive alternative for business.

The CIBE has been addressed as an integral component of the Dube Aerotropolis concept indicating important regional and global linkages and marketing. In keeping with the vision and requirements of the Aerotropolis, (aligned to the PGDS, KZN Industrial Strategy and IPAP2) aimed at economic growth and employment generation, the CIBE development allows for investment in upgraded and new bulk industrial infrastructure

development. The CIBE development can provide zoned serviced land in line with the district Spatial Economic Development Strategy 2012 and Industrial Development Strategy 2010 as a node earmarked for industrial development.

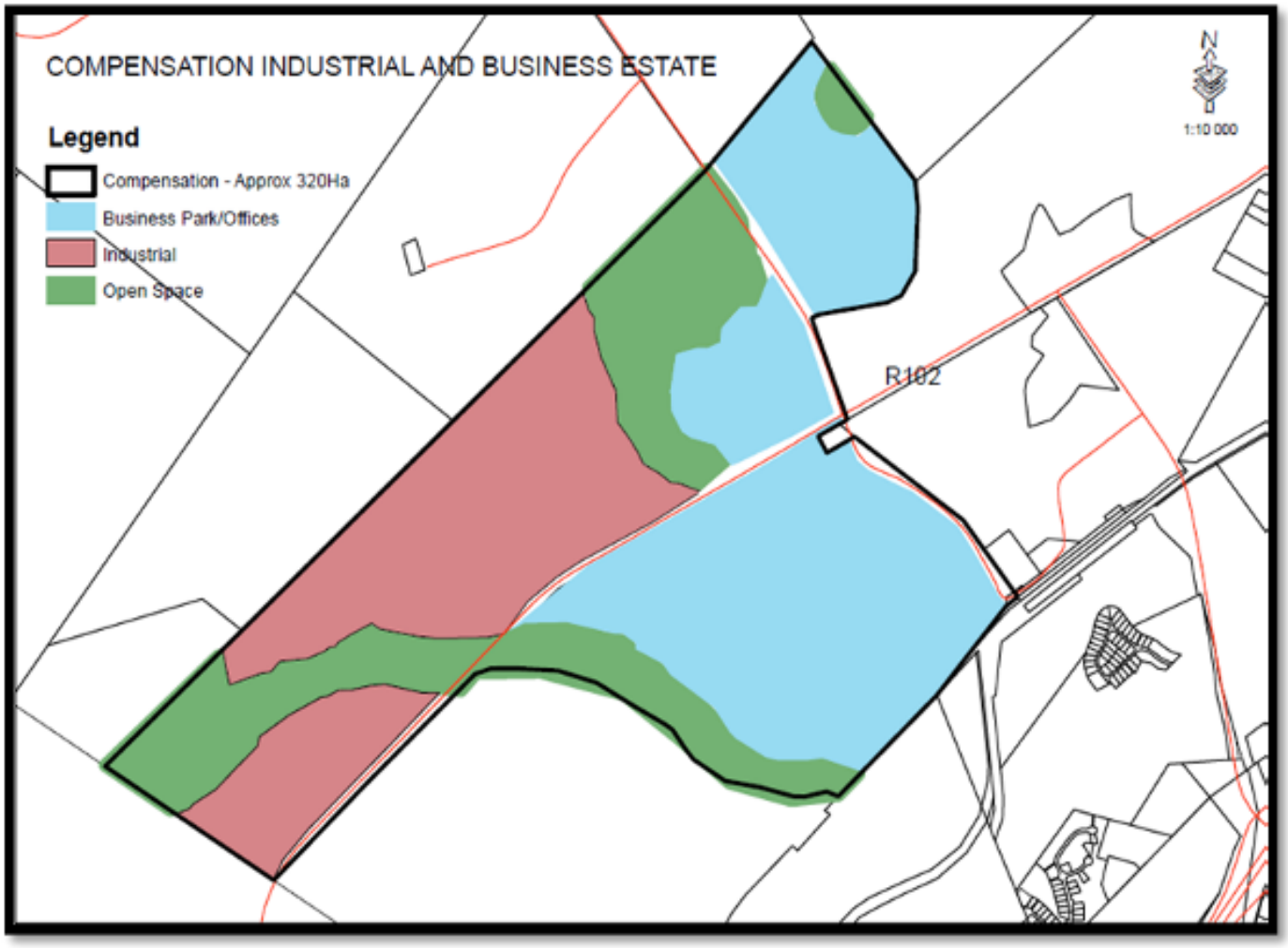


FIGURE 2: ORIGNIAL CONCEPT PLAN – COMPENSATION INDUSTRIAL AND BUSINESS ESTATE

Figure 3 below presents the most recently updated layout plan which depicts the placement of service infrastructure as requested in the second rejection letter dated 16 April 2013. This can also be found as *Appendix A* of Addendum 2.

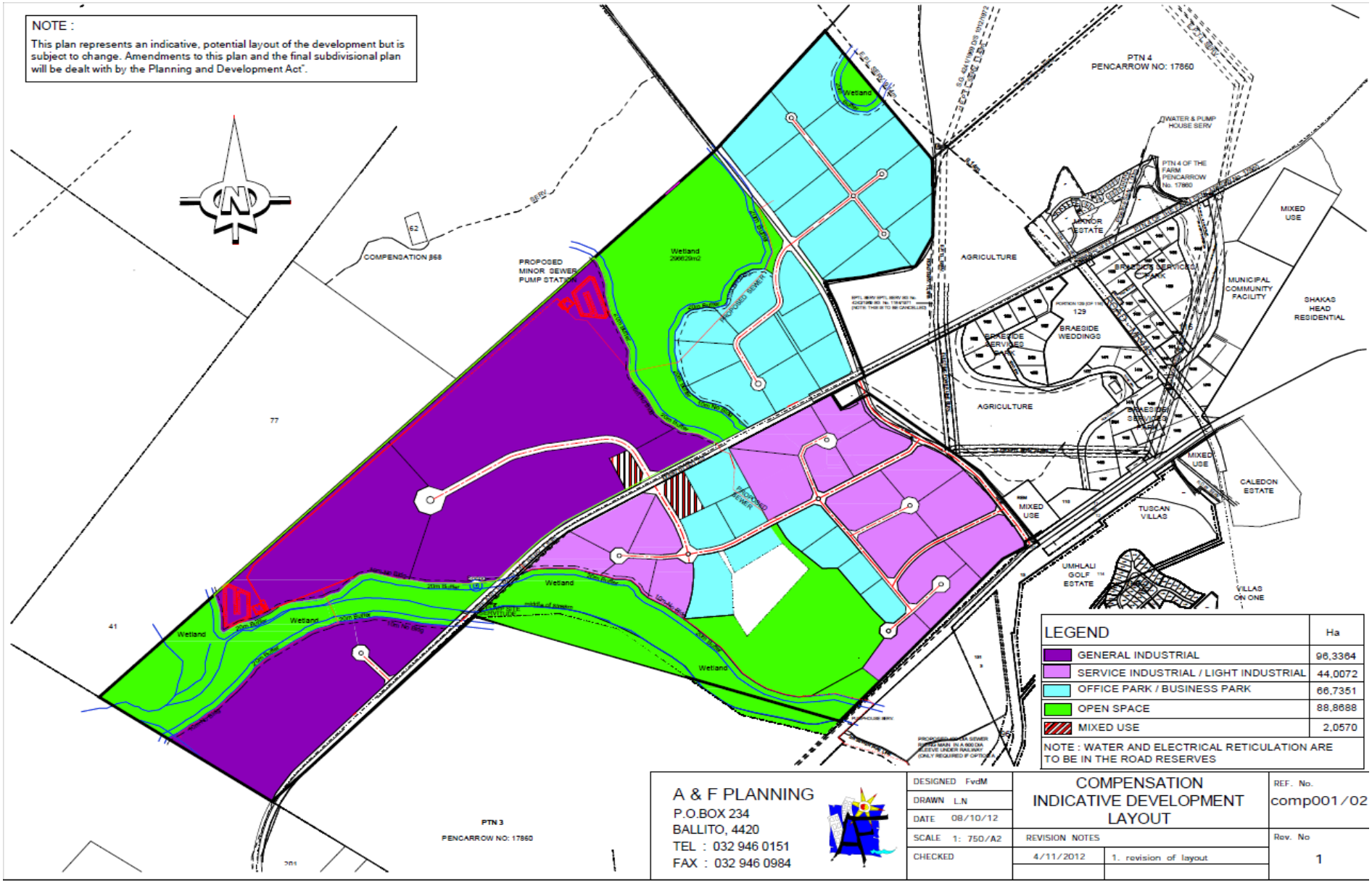


FIGURE 3: UPDATED LAYOUT PLAN

Figure 3 above is a plan indicating the final proposed development concept and broad Layout that is submitted for environmental approval.

The layout plan will change, in terms of actual subdivisions, in order to respond to specific market demands but the primary access points are fixed as are the open space provisions of the development. The remainder of the development will, in essence, be plat formed to provide suitable sites for new investment and construction of top structures.

In terms of the various precincts identified, as indicated in the draft Layout Plan, the primary land use focus will be as follows :-

1. General Industry – Manufacturing (non noxious), logistics and distribution, warehousing
2. Service Industrial/Light Industrial – Light and service industry, Business park activities, warehousing
3. Office Park/Business Park – Business park, Offices, commercial warehousing
4. Mixed Use – retail, offices
5. Open Space

The draft proposed development controls, as described in the detailed land use paper attached as *Appendix B* of Addendum 2, and are included in this updated EIAR as section 2.4 below, are in accordance with the draft Land Use Management Scheme for the KwaDukuza Municipality.

The final land use controls will be dealt with in the Planning and Development Act (PDA) application that will follow once EIA approval has been received. The PDA will also then deal with the subdivisional details and will deal with future changes to the subdivisions to accommodate consolidations and subdivisions of existing sites.

It will be a requirement to bring the land development area under Town Planning Scheme control. For this purpose it is proposed that the CIBE be brought under the Ballito Planning Scheme area, and that the following development controls serve as a guideline towards development of final planning scheme controls and development controls that will be submitted during the PDA process to be approved by the KwaDukuza Municipality.

2.2 Planning Informants

2.2.1 Integrated Development Plan (IDP)

The KwaDukuza Municipal Vision 2015

"*By 2015 KwaDukuza will, through unity and good governance be an economic powerhouse, delivering services in an affordable and sustainable manner within a safe and healthy environment*"

KwaDukuza Municipal Mission Statement in terms of its IDP

The mission of the KwaDukuza Municipality is to achieve highest economic status through:

- Driving local economic development;
- Delivering a high standard of essential services;
- Encouraging public participation;

- Overcoming debt and achieving cost recovery on services provided.

2.2.2 Strategic Development Framework (SDF)

In order to ensure integrated and sustainable development within the municipal area, KwaDukuza Municipality has formulated several strategic focus areas. In undertaking the strategy formulation process the Municipality has moved towards an outcomes based approach. These strategies cover the entire spectrum of development needs and opportunities in the Municipality.

The integration of the strategies and the budgets are also being pursued during this planning cycle, which seeks to guide the development of KwaDukuza over the next five years.

2.3 Property Location

The proposed Compensation Industrial & Business Estate is situated within Compensation on the KwaZulu-Natal North Coast which incorporates the area known as Pencarrow.

The proposed development covers an area of approximately 320 hectares, on land described as:

- The Remainder of the Farm Pencarrow No. 17860, Registration Division F.U., Province of KwaZulu-Natal, Ilembe District and KwaDukuza Municipality, and
- Portion 5 of the Farm Pencarrow No. 17860, Registration Division F.U., Province of KwaZulu-Natal, Ilembe District and KwaDukuza Municipality.

Compensation is a large landholding strategically situated adjacent to and straddling MR102 some 10km from the new King Shaka International Airport and Dube Tradeport (KSIA & DTP), and some 5km west of the Ballitoville economic growth node.

The property straddles the inland and seaward sides of R 102, which runs parallel to and inland of the N2 freeway and the North Coast railway line. It is thus close to and inland (west) of Ballito Township. Southern access is from the R 102, north of the Frazers turn off. Access from the north is also from the R 102, south of P 445, commonly referred to as the 'Ballito Road'. P 387 (Compensation / Isinembe Road) runs along most of the northern boundary of the property. Portion 5, which is totally encompassed by the rest of the property, is excluded from this exercise. It would appear from the 1:50 000 Surveyor General's cadastral map (ref 1931CA Verulam) that Pencarrow 17860 is a subdivision of the original farm Compensation 868 FU.

2.4 Zoning and Development Layout

The following "zones" would be considered as being appropriate within each Precinct as indicated on the Layout Plan. It must be noted that these are simply an indication of the likely zones that would be applied to the development, which are based on existing LUMS guidelines.

2.4.1 General Industrial and Service / Light Industrial

Colour Notation on Layout Plan:

Sub Zones within the general Industry and Service and Light Industrial Areas Precinct:

2.4.1.1 GENERAL INDUSTRY (IGEN)

STATEMENT OF INTENT

The General Industrial zone permits manufacturing uses. As a cumulative industrial zone, it would permit a combination of light manufacturing uses found in other zones and more intensive manufacturing uses that would normally be considered incompatible with sensitive land uses, such as those uses found in the residential and open space zones.

Warehousing of materials considered non-noxious or non-hazardous are permitted in buildings in this zone.

COLOUR AND SCHEME NOTATION

Fill: Lavender

R 204, G 153, & B 255

Border: Black

ZONES AND DEVELOPMENT CONTROLS

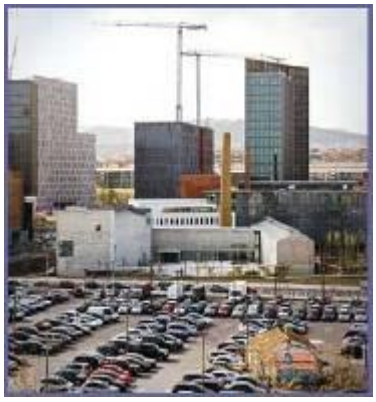
ZONE	MINIMUM LOT SIZE	FAR	COVERAGE (%)	HEIGHT (STOREY)	FRONT SETBACK (M)	SIDE SETBACK (M)	REAR SETBACK (M)	FRONTAGE (M)
IGEN	1800	1.00	75%	3	7.5	2.5	2.5	21

LAND USE CATEGORIES

BUILDING AND LAND USE CATEGORY	IGEN 1
FREELY PERMITTED	**INDUSTRY** • **Large Scale Manufacturing** • **Non Polluting Light Manufacturing** • Builders Supply Yard • Custom Workshop Carpenters Shop • Dry Cleaning • Industrial Sales and Service • Open storage • Recovery Facility • Salvage yard • Treatment Plant • Waste incinerator

BUILDING AND LAND USE CATEGORY	IGEN 1
	• Workshops • Warehouse • Food warehouse • Cold storage • Wholesaling • Recycling Plant
FREELY PERMITTED	**TRANSPORTATION** • Public transportation • Bus and Taxi Rank • Public works yard • Car Wash Facility • PFS • Vehicle repair shop

2.4.1.2 LIGHT INDUSTRY (INLI)



STATEMENT OF INTENT

The Light Industrial zone permits manufacturing uses, which are compatible with land uses permitted in adjacent sensitive land use zones, such as residential, mixed use and open space zones. As a light industrial zone, it would permit manufacturing activities that usually do not involve significant vibration, noise, odour, or high volume of automobile and truck traffic.

COLOUR AND SCHEME NOTATION

Fill: Pale Lilac

R 239, G 198, & B 255

Border: Black

ZONES AND DEVELOPMENT CONTROLS

ZONE	MINIMUM LOT SIZE	FAR	COVERAGE (%)	HEIGHT (STOREY)	FRONT SETBACK (M)	SIDE SETBACK (M)	REAR SETBACK (M)	FRONTAGE (M)
INLI 1	900	0.50	50%	3	7.5	2.5	2.5	21
INLI 2	450	0.1	75	3	7.5	2.5	2.5	16
INLI 3	900	1.0	70%	3	7.5	3.0	3.0	18

LAND USE CATEGORIES

BUILDING AND LAND USE CATEGORY	INLI 1 & 2	INLI 3
FREELY PERMITTED	**INDUSTRY** • Non Polluting Light Manufacturing • Wholesaling • Production Studio • Showroom • Service Industry • Light Industrial Building • Arts and craft workshop • Custom Workshop Carpenters Shop • Industrial sales and service • Dry Cleaning • Workshop • Funeral parlour • Laundrette • Warehouse • Food warehouse • Warehouse • Cold Storage • Research Laboratory	**INDUSTRY** • Non Polluting Light Manufacturing • Wholesaling • Production Studio • Showroom • Service Industry • Light Industrial Building • Arts and craft workshop • Custom Workshop Carpenters Shop • Industrial sales and service • Dry Cleaning • Workshop • Funeral parlour • Laundrette • Warehouse • Food warehouse • Warehouse • Cold Storage • Research Laboratory
FREELY PERMITTED	**COMMERCIAL** • Restaurant • Bank • Personal service shop • Office Building • Public Office	**COMMERCIAL** • Restaurant • Bank • Personal service shop • Office Building • Public Office

BUILDING AND LAND USE CATEGORY	INLI 1 & 2	INLI 3
FREELY PERMITTED	**TRANSPORTATION** • Public transportation • Bus and Taxi Rank • Parking Garage • Service Station	**TRANSPORTATION** • Public transportation • Bus and Taxi Rank • Parking Garage • Service Station

2.4.1.3 LOGISTICS (INLG)

STATEMENT OF INTENT

A zone that permits the warehousing of materials considered non-noxious or non-hazardous are permitted in buildings in this zone. Transportation, transhipment and related uses are permitted. Outdoor storage, as both an independent and an ancillary use, may be permitted in the zone, subject to certain restrictions involving the amount of area permitted on a lot, setbacks, screening, and possibly the type of materials permitted to be stored outdoors. Office uses, retail stores, and certain eating establishments will be permitted in the zone with certain conditions.

COLOUR AND SCHEME NOTATION

Fill: Dove Grey

R 102, G 102, & B 153

Border: Black

ZONES AND DEVELOPMENT CONTROLS

ZONE	MINIMUM LOT SIZE	FAR	COVERAGE (%)	HEIGHT (STOREY)	FRONT SETBACK (M)	SIDE SETBACK (M)	REAR SETBACK (M)	FRONTAGE (M)
INLG	1800	1.00	50%	N/A	7.5	2.5	2.5	21

LAND USE CATEGORIES

BUILDING AND LAND USE CATEGORY	INLG 1
FREELY PERMITTED	**INDUSTRY** • Cold Storage • Custom Workshop Carpenters Shop • Dry Cleaning

BUILDING AND LAND USE CATEGORY	INLG 1
	• Food warehouse • Industrial Sales and Service • Open Storage • Research Laboratory • Warehouse • Wholesaling • Workshop
	COMMERCIAL • Restaurant • Bank • Personal service shop • Offices
	TRANSPORTATION • Public transportation • Bus and Taxi Rank

2.4.1.4 BUSINESS PARK (INBP)

STATEMENT OF INTENT

The Business / Office Park zone is a mixed-use zone that permits a range of office uses, which are generally compatible with each other, as well as adjacent sensitive zones, such as residential, commercial, mixed use, and open space zones. These areas are typically described as 'office business parks' and involve large campus-like developments in prestigious landscaped settings. Financial institutions, hotels, and personal service shops would be permitted in the zone; retail stores and eating establishments would be the kind of uses permitted but with conditions or specific limitations.

COLOUR AND SCHEME NOTATION

Fill Light Blue

R 171, G 186, and B 222

Border Black

ZONES AND DEVELOPMENT CONTROLS

ZONE	MINIMUM LOT SIZE	FAR	COVERAGE (%)	HEIGHT (STOREY)	FRONT SETBACK (M)	SIDE SETBACK (M)	REAR SETBACK (M)	FRONTAGE (M)
INBP 1	1800	1.00	70%	3	7.5	2.5	2.5	21
INBP 2	1800	0.6	60%	2	5	5	5	21

LAND USE CATEGORIES

BUILDING AND LAND USE CATEGORY	INBP 1	INBP 2	INBP 3
FREELY PERMITTED	**COMMERCIAL** • Offices	**COMMERCIAL** • Funeral Parlour • Laundrette • Office building • Place of Public Amusement • Place of Public Assembly • Public Office • Factory Shop • Restaurant • Shop • Wholesale Shop • Offices • Motor Car Showroom • Motor Dealership • Warehouse	**COMMERCIAL** • Funeral Parlour • Laundrette • Office building • Place of Public Amusement • Place of Public Assembly • Public Office • Factory Shop • Restaurant • Shop • Wholesale Shop • Offices • Motor Car Showroom • Motor Dealership • Warehouse
FREELY PERMITTED	**MANUFACTURING** • Light Industrial • Research Laboratory • Parking Garage • Bus and Taxi Rank	**MANUFACTURING** • Light Industrial • Service Industrial Building • Research Laboratory • Parking Garage • Bus and Taxi Rank Commercial Workshop • Arts and Crafts Workshop	**MANUFACTURING** • Light Industrial • Service Industrial Building • Research Laboratory • Arts and Craft workshop • Parking Garage • Bus and Taxi Rank

BUILDING AND LAND USE CATEGORY	INBP 1	INBP 2	INBP 3
			Commercial Workshop • Arts and Crafts Workshop
	COMMUNITY • Crèche • Place of Amusement • Place of Worship • Social Hall • Institution	**COMMUNITY** • Crèche • Place of Amusement • Place of Worship • Social Hall • Educational Building • Institution	**COMMUNITY** • Crèche • Place of Amusement • Place of Worship • Social Hall • Educational Building • Institution • Place of Assembly
	TRANSPORTATION • Public Transportation	**TRANSPORTATION** • Public Transportation	

2.4.2 Office Park / Business Park

Colour Notation on Layout Plan

Sub Zones within the Office Park/ Business Park Precinct

2.4.2.1 OFFICES (MOFF)

STATEMENT OF INTENT

This is a zone for the development of distinct office areas adjacent to other forms of commercial development

COLOUR AND SCHEME NOTATION

Fill: Process Blue

R 020, G 129, & B 188

Border and Hatch:

R 255, G 204, & B 000

ZONES AND DEVELOPMENT CONTROLS

ZONE	MINIMUM LOT SIZE	FAR	COVERAGE (%)	HEIGHT (STOREY)	FRONT SETBACK (M)	SIDE SETBACK (M)	REAR SETBACK (M)	FRONTAGE (M)
MOFF 1	1500	0,50	50%	2	7.5	4.5	4.5	18
MOFF 2	Min 500	1.	40%	6	7.5	4.5	4.5	16
MOFF 3	900	0.8	50%	6	7.5	2.5	2.5	16
MOFF 4	900	0.45	50%	6	7.5	2.5	2.5	16

LAND USE CATEGORIES

BUILDING AND LAND USE CATEGORY	MOFF 1 & 2	MOFF 3	MOFF 4
FREELY PERMITTED	**OFFICE** • Office Building (Excluding Banks) • Professional Offices • Public Office	**OFFICE** • Office Building (Excluding Banks) • Professional Offices • Public Office	**OFFICE** • Professional Offices

2.4.2.2 BUSINESS PARK (INBP)

STATEMENT OF INTENT

The Business/Office Park zone is a mixed-use zone that permits a range of office uses, which are generally compatible with each other, as well as adjacent sensitive zones, such as residential, commercial, mixed use, and open space zones. These areas are typically described as 'office business parks' and involve large campus-like developments in prestigious landscaped settings. Financial institutions, hotels, and personal service shops would be permitted in the zone; retail stores and eating establishments would be the kind of uses permitted but with conditions or specific limitations

COLOUR AND SCHEME NOTATION

Fill Light Blue

R 171, G 186, and B 222

Border Black

ZONES AND DEVELOPMENT CONTROLS

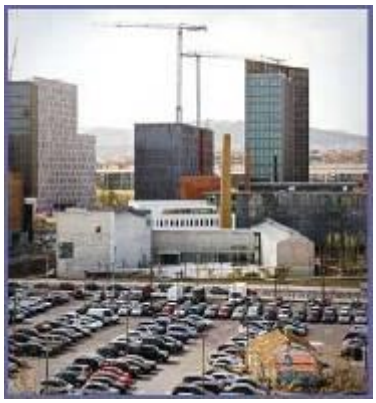
ZONE	MINIMUM LOT SIZE	FAR	COVERAGE (%)	HEIGHT (STOREY)	FRONT SETBACK (M)	SIDE SETBACK (M)	REAR SETBACK (M)	FRONTAGE (M)
INBP 1	1800	1.00	70%	3	7.5	2.5	2.5	21
INBP 2	1800	0.6	60%	2	5	5	5	21
INBP 3	1800	1.5	70%	6	9.0	4.5	4.5	21

LAND USE CATEGORIES

BUILDING AND LAND USE CATEGORY	INBP 1	INBP 2	INBP 3
FREELY PERMITTED	**COMMERCIAL** • Offices	**COMMERCIAL** • Funeral Parlour • Laundrette • Office building • Place of Public Amusement • Place of Public Assembly • Public Office • Factory Shop • Restaurant • Shop • Wholesale Shop • Offices • Motor Car Showroom • Motor Dealership • Warehouse	**COMMERCIAL** • Funeral Parlour • Laundrette • Office building • Place of Public Amusement • Place of Public Assembly • Public Office • Factory Shop • Restaurant • Shop • Wholesale Shop • Offices • Motor Car Showroom • Motor Dealership • Warehouse
FREELY PERMITTED	**MANUFACTURING** • Light Industrial • Research Laboratory • Parking Garage • Bus and Taxi Rank	**MANUFACTURING** • Light Industrial • Service Industrial Building • Research Laboratory • Parking Garage • Bus and Taxi Rank Commercial Workshop	**MANUFACTURING** • Light Industrial • Service Industrial Building • Research Laboratory • Arts and Craft workshop • Parking Garage

BUILDING AND LAND USE CATEGORY	INBP 1	INBP 2	INBP 3
		• Arts and Crafts Workshop	• Bus and Taxi Rank Commercial Workshop Arts and Crafts Workshop
FREELY PERMITTED	**COMMUNITY** • Crèche • Place of Amusement • Place of Worship • Social Hall • Institution	**COMMUNITY** • Crèche • Place of Amusement • Place of Worship • Social Hall • Educational Building • Institution	**COMMUNITY** • Crèche • Place of Amusement • Place of Worship • Social Hall • Educational Building • Institution • Place of Assembly

2.4.2.3 LIGHT INDUSTRY (INLI)



STATEMENT OF INTENT

The Light Industrial zone permits manufacturing uses which are compatible with land uses permitted in adjacent sensitive land use zones, such as residential, mixed use and open space zones. As a light industrial zone, it would permit manufacturing activities that usually do not involve significant vibration, noise, odour, or high volume of automobile and truck traffic.

COLOUR AND SCHEME NOTATION

Fill: Pale Lilac

R 239, G 198, & B 255

Border: Black

ZONES AND DEVELOPMENT CONTROLS

ZONE	MINIMUM LOT SIZE	FAR	COVERAGE (%)	HEIGHT (STOREY)	FRONT SETBACK (M)	SIDE SETBACK (M)	REAR SETBACK (M)	FRONTAGE (M)
INLI 1	900	0.50	50%	3	7.5	2.5	2.5	21
INLI 2	450	0.1	75	3	7.5	2.5	2.5	16
INLI 3	900	1.0	70%	3	7.5	3.0	3.0	18

LAND USE CATEGORIES

BUILDING AND LAND USE CATEGORY	INLI 1 & 2	INLI 3
FREELY PERMITTED	**INDUSTRY** • Non Polluting Light Manufacturing • Wholesaling • Production Studio • Showroom • Service Industry • Light Industrial Building • Arts and craft workshop • Custom Workshop Carpenters Shop • Industrial sales and service • Dry Cleaning • Workshop • Funeral parlour • Laundrette • Warehouse • Food warehouse • Warehouse • Cold Storage • Research Laboratory	**INDUSTRY** • Non Polluting Light Manufacturing • Wholesaling • Production Studio • Showroom • Service Industry • Light Industrial Building • Arts and craft workshop • Custom Workshop Carpenters Shop • Industrial sales and service • Dry Cleaning • Workshop • Funeral parlour • Laundrette • Warehouse • Food warehouse • Warehouse • Cold Storage • Research Laboratory
FREELY PERMITTED	**COMMERCIAL** • Restaurant • Bank • Personal service shop • Office Building • Public Office	**COMMERCIAL** • Restaurant • Bank • Personal service shop • Office Building • Public Office
FREELY PERMITTED	**TRANSPORTATION** • Public transportation • Bus and Taxi Rank • Parking Garage • Service Station	**TRANSPORTATION** • Public transportation • Bus and Taxi Rank • Parking Garage • Service Station

2.4.2.4 LOGISTICS (INLG)

STATEMENT OF INTENT

A zone that permits the warehousing of materials considered non-noxious or non-hazardous are permitted in buildings in this zone. Transportation, transhipment and related uses are permitted. Outdoor storage, as both an independent and an ancillary use, may be permitted in the zone, subject to certain restrictions involving the amount of area permitted on a lot, setbacks, screening, and possibly the type of materials permitted to be stored outdoors. Office uses, retail stores, and certain eating establishments will be permitted in the zone with certain conditions.

COLOUR AND SCHEME NOTATION

Fill: Dove Grey

R 102, G 102, & B 153

Border: Black

ZONES AND DEVELOPMENT CONTROLS

ZONE	MINIMUM LOT SIZE	FAR	COVERAGE (%)	HEIGHT (STOREY)	FRONT SETBACK (M)	SIDE SETBACK (M)	REAR SETBACK (M)	FRONTAGE (M)
INLG	1800	1.00	50%	N/A	7.5	2.5	2.5	21

LAND USE CATEGORIES

BUILDING AND LAND USE CATEGORY	INLG 1
FREELY PERMITTED	**INDUSTRY** • Cold Storage • Custom Workshop Carpenters Shop • Dry Cleaning • Food warehouse • Industrial Sales and Service • Open Storage • Research Laboratory • Warehouse • Wholesaling • Workshop
	COMMERCIAL • Restaurant • Bank

BUILDING AND LAND USE CATEGORY	INLG 1
	• Personal service shop • Offices
	TRANSPORTATION • Public transportation • Bus and Taxi Rank

2.4.3 Mixed Use

Colour Notation on Layout Plan 

Sub Zones within the Mixed Use Precinct

2.4.3.1 MULTI-PURPOSE RETAIL AND OFFICE (MPRO)

STATEMENT OF INTENT

This is a zone that permits the development of a hierarchy of suburbanized multi-use shopping facilities, usually at density levels less than that of a town centre

COLOUR AND SCHEME NOTATION

Fill: Process Blue

R 020, G 129, & B 188

Border: Golden Yellow

R 255, G 204, & B 000

ZONES AND DEVELOPMENT CONTROLS

ZONE	MINIMUM LOT SIZE	FAR	COVERAGE (%)	HEIGHT (STOREY)	FRONT SETBACK (M)	SIDE SETBACK (M)	REAR SETBACK (M)	FRONTAGE (M)
MPRO 1	450 (2000 for multi-use)	0,5	50%	2	7.5	2.5	2.5	18
MPRO 2	1800 (for multi use 900)	0.5	100%	3 2	7.5	2.5	2.5	18
MPRO 4		N/A	40%	3				
MPRO 5	1800 (for multi use 900)	0,8	40%	2	7.5	2.5	2.5	18

LAND USE CATEGORIES

BUILDING AND LAND USE CATEGORY	MPRO 1, 2 & 4	MPRO 6	MPRO 3
FREELY PERMITTED	**COMMERCIAL** • Arts and Crafts Workshop • Maintenance Building • Office • Public Office • Professional Office • Place of Amusement • Place of Assembly • Restaurant • Shop • Commercial workshop	**COMMERCIAL** • Launderette • Office • Professional Office Building • Public Office • Residential Building (except on Ground floor) • Restaurant • Shop • Workshop	**COMMERCIAL** • Arts and Craft Workshop • Launderette • Office Building limited to 2500 • Place of Amusement • Private recreation area • Private Open space • Recreational; building (except on ground floor road excluding hotel • Restaurant • Shop limited to 2500 sq m.

2.4.3.2 GARAGE AND PFS (MPFS)

STATEMENT OF INTENT

This zone provides for the development used or designed for the sale of petroleum, oil and other fuels and lubricants and accessories used in connection with motor vehicles and includes an office and storeroom, together with facilities for the servicing and maintenance of motor vehicles and may also include space devoted to restaurants, shops (not exceeding 150 m^2) and related services. It shall not include panel beating, spray painting or the carrying out of vehicle body repairs of a major nature to the engine or transition system of motor vehicles.

COLOUR AND SCHEME NOTATION

PFS

Fill: Royal Blue

R 065, G 105, & B 255

Border: Black

Notation Black

ZONES AND DEVELOPMENT CONTROLS

ZONE	MINIMUM LOT SIZE	FAR	COVERAGE (%)	HEIGHT (STOREY)	FRONT SETBACK (M)	SIDE SETBACK (M)	REAR SETBACK (M)	FRONTAGE (M)
MPFS	1 800	0.40	60%	2	9	4.5	4.5	36

LAND USE CATEGORIES

BUILDING AND LAND USE CATEGORY	MPFS
FREELY PERMITTED	COMMERCIAL • Petrol Service Station • Garage • Car wash • Convenience shop

The Mixed Use component is likely to have an FAR of around 1.0 with a 4 Storey potential.

According to the planning report, the land is unzoned, it is currently being used for agricultural purposes and it is designated as agricultural land on the strength of the fact that:-

- It falls outside a formal planning scheme,
- It is not a development area as defined in Section 1 of the Development and Services Board Ordinance, 1941 (Ordinance No. 20 of 1941), and
- It is not land excluded from agricultural land as contemplated under Sections 1(a), (b), (c) or (f) of the Subdivision of Agricultural Land Act, 1970 (Act No. 70 of 1970).

The provisions of The Subdivision of Agricultural Land Act, 1970 (Act No. 70 of1970) therefore prevail, and to this extent it will be necessary to obtain the necessary consent from the relevant Minister to exclude the land from the provisions of Act 70 of 1970 for purposes of obtaining planning and development approval.

2.4.4 Open Space

Colour Notation on Layout Plan

Sub Zones within the Open Space Precinct:

2.4.4.1 CONSERVATION / ENVIRONMENTAL SERVICES (ECES)

STATEMENT OF INTENT

This is a zone that provides part of the sustainable open space system, which includes independent or linked open space areas; and permits only limited and specific developments.

COLOUR AND SCHEME NOTATION

Fill: Verdigris

R 036, G 093, B 019

Border: Black

ZONES AND DEVELOPMENT CONTROLS

ZONE	MINIMUM LOT SIZE	FAR	COVERAGE (%)	HEIGHT (STOREY)	FRONT SETBACK (M)	SIDE SETBACK (M)	REAR SETBACK (M)	FRONTAGE (M)
ECES	N/A	N/A	10 limited to structures related to services and recreation	Single storey	N/A 7.5	N/A 2.5	N/A 2.5	N/A

LAND USE CATEGORIES

BUILDING AND LAND USE CATEGORY	ECES 1
FREELY PERMITTED	**EDUCATIONAL** • Educational Building (limited to environmental education, conservation awareness, research facilities) **RECREATION** • Conservation • Conservancy • Nature Reserve • Game Reserve • Recreational Building • (limited to the provision of Shelter. ablution facilities, services, braai and picnicking facilities and amenities related to tourist/recreational pursuits)
LIMITED	**COMMERCIAL** **Office** (limited to environmental education, conservation awareness, research facilities)

2.4.4.2 PASSIVE OPEN SPACE (EPOS)

STATEMENT OF INTENT

This is a zone for developed formal and informal parks with associated recreational facilities.

COLOUR AND SCHEME NOTATION

Fill: Forest Green

R 034, G 139, & B 034

Border: Black

ZONES AND DEVELOPMENT CONTROLS

ZONE	MINIMUM LOT SIZE	FAR	COVERAGE (%)	HEIGHT (STOREY)	FRONT SETBACK (M)	SIDE SETBACK (M)	REAR SETBACK (M)	FRONTAGE (M)
EPOS 1	NA	0.15	15%	2	9	4.5	4.5	23

LAND USE CATEGORIES

BUILDING AND LAND USE CATEGORY	EPOS 1, 2	EPOS 3
FREELY PERMITTED	**EDUCATIONAL** • Educational Building (Limited to environmental education, conservation awareness, research facilities)	
PARTIALLY LIMITED	**OPEN SPACE** • Private Recreation Area • Recreational Building • Public Open Space	**OPEN SPACE** • Private Recreation Area • Recreational Building • Public Open Space
LIMITED	**RECREATION** • Recreational Building (Limited to the provision of shelter, ablution facilities, services, braai and picnicking facilities and amenities related to tourist / recreational pursuits)	

The proposed scheme controls above are indicative only, and because KwaDukuza Municipality is in the process of preparing a new Land Use Management System, it is also important to align the zoning categories to the new LUMS System terminology. The zonings, as set out in the table below are proposed to provide the framework for zonings that will ultimately apply to the CIBE.

TABLE 7: KWADUKUZA MUNICIPALITY PLANNING SCHEMES

Land Use	Ballito Planning Scheme Designation	Proposed LUMS Designation	Comment
Manufacturing	N/A	General Industry [IGEN] & Logistics [INLG]	No provisions exist for General Industry in the current Ballito Planning Scheme. The IGEN zone in the new LUMS permits manufacturing uses, excluding noxious and hazardous industries. The new INLG zone in the new LUMS permits warehousing of materials that are non-hazardous and non-toxic. Transportation, transhipment and related uses are permitted. Outdoor storage, office use, retail and eating establishment may be permitted subject to certain conditions.
	Land Uses Freely Permitted	**Industry:** Large scale manufacturing Non-polluting light manufacturing Builders Supply Yard Workshop Dry Cleaning Industrial sales and service Open Storage Recovery facility Salvage yard Treatment plant Waste incinerator Warehouse Cold storage Wholesaling	**Institution:** Research Laboratory **Transportation:** Public Transportation Bus and Taxi Rank Public Works yard Car wash PFS Vehicle repair shop

Land Use	Ballito Planning Scheme Designation	Proposed LUMS Designation	Comment
		Recycling plant Service Industry	
	Development Controls		
	FAR 0.8	Coverage 75	Height 3
Services and Light Industrial Use	Light Industry & Service Industry	Light Industry [INLI]	This zone permits manufacturing uses, which are compatible with land uses permitted in adjacent sensitive land use zones, such as residential, mixed use and open space zones. As a light industrial zone, it would permit manufacturing activities that usually do not involve vibration, noise, odour, or high volume of automobile and truck traffic.
	Land Uses Freely Permitted	**Industry:** Non-polluting light manufacturing Wholesaling Production Studio Showroom Service Industry Light industrial building Arts and crafts workshop Workshop Dry Cleaning Industrial sales and service Funeral parlour Laundrette Warehouse	**Commercial:** Restaurant Bank Office building **Institution:** Research Laboratory **Transportation:** Public Transportation Bus and Taxi Rank Car wash Service Station Parking garage

Land Use	Ballito Planning Scheme Designation	Proposed LUMS Designation	Comment
		Cold storage	
	Development Controls		
	FAR 0.8	Coverage 75	Height 3
Office Park and Business Park	Activity Zone	Interface Zone (MITF] & Multi-purpose Retail and Office [MPRO] & Light Industry [INLI]	MITF is a zone that allows appropriate uses in certain locations to reduce the impact that incompatible industrial uses would have on adjacent areas. It provides for a range of businesses, residential, offices, civic and social, educational and environmental uses and under certain conditions may permit light industry, showrooms but excludes other industrial uses. MPRO is a zone that permits the development of a hierarchy of suburbanized multi-use business facilities at density levels less than that of a town centre INLI zone permits manufacturing uses, which are compatible with land uses permitted in adjacent sensitive land use zones, such as residential, mixed use and open space zones. As a light industrial zone, it would permit manufacturing activities that usually do not involve vibration, noise, odour, or high volume of automobile and truck traffic.
	Land Uses Freely Permitted	**Industry:** Non-polluting light manufacturing Wholesaling Production Studio Showroom Service Industry	**Commercial:** Restaurant Bank Office building Place of amusement Public office

Land Use	Ballito Planning Scheme Designation	Proposed LUMS Designation	Comment
		Light industrial building Arts and crafts workshop Workshop Dry Cleaning Industrial sales and service Funeral parlour Laundrette Warehouse Cold storage **Transportation:** Public Transportation Car wash Parking garage	Private recreation area **Institution:** Research Laboratory Education **Residential:** Hotel Caretakers unit
	Development Controls		
	FAR 1.0	Coverage 75	Height 3
Mixed Use Zone	Activity Zone	Multi-purpose Retail and Office [MPRO] & Business Park [INBP]	MPRO is a zone that permits the development of a hierarchy of suburbanized multi-use shopping facilities and office facilities at density levels less than that of a town centre. INBP is a mixed use zone that permits a range of office uses, which are generally compatible with each other, as well as adjacent sensitive zones such as residential, commercial, mixed use, and open space zones. These areas are typically described as 'office business parks' and involve large campus like developments in prestigious landscaped settings. Financial institutions, hotels

Land Use	Ballito Planning Scheme Designation	Proposed LUMS Designation	Comment
			and personal service shops would be permitted in the zone, retail stores and eating establishments would be the kind of uses permitted but with conditions attached.
	Land Uses Freely Permitted	**Industry:** Service industry Research laboratory Parking garage Bus and taxi rank Arts and crafts workshop **Community:** Crèche Place of public amusement Place of worship Social hall Institution Educational building Place of assembly	**Commercial:** Restaurant Bank Office building Place of amusement Public office Private recreation area Shop Showroom Motor dealership and showroom **Residential:** Hotel Residential building Conference facility
	Development Controls		
	FAR 1.2	Coverage 70	Height 4
Open Space	Private Open Space	Passive / Active Open Space & Private Open Space	Passive Open Space is a zone for sporting and recreational needs and permits a limited range of associated development and parking space. Active Open Space is a zone that provides for development of formal and informal parks with

Land Use	Ballito Planning Scheme Designation	Proposed LUMS Designation	Comment
			associated recreational facilities. Private Open Space is a zone to accommodate any open space owned and maintained by a private agency for recreational purposes that is used and enjoyed by members of a club and the general public and may include ancillary facilities or buildings.
Environmentally sensitive areas	Amenity Reserve	Conservation / Environmental Services	This is a zone that provides part of the sustainable open space system, which includes independent or linked open space areas; and permits only limited and specific developments in accordance with EIA approvals granted.

2.5 Ownership

The Remainder of the Farm Pencarrow No. 17860, Registration Division F.U., Province of KwaZulu-Natal, in extent 318.3782 hectares is held by Tongaat Hulett Ltd (Registration Number 189200061006) under Certificate of Consolidated Title No. T3686/2006.

Portion 5 of the Farm Pencarrow No. 17860, Registration Division F.U., Province of KwaZulu-Natal, in extent 4.1326 hectares is held by WJT Huinink under Deed of Transfer No. T3692/2006.

Mr. Huinink made the land available and granted a Special Power of Attorney to Tongaat Hulett Developments (Pty) Ltd, to obtain environmental authorisation and planning approval on the land known as the proposed Compensation Industrial and Business Estate.

2.6 The Ethic of Compensation Industrial and Business Estate

The Compensation Industrial and Business Estate is a development of Tongaat Hulett's highest standards.

It is a flagship project occupying a highly visible and prominent location along the R102 between Ballito and the Dube Trade Port and King Shaka International Airport. Rather than simply being another commercial strip in the emerging north coast corridor, CIBE is intended to form a distinctive node and landmark within this corridor and is intended to reinforce these distinctive qualities in terms of:

- Consolidating the area as an easily recognised node having a sense of place and memorability,
- Establishing a superior quality of environment through a high standard of landscaping of the public environment and a built form governed by a simple set of development parameters and guidelines,
- Carrying through a simple architectural ethic that creates an overall integrity, and
- Undertaking all development with attention to quality through a simple design review process.

While it is understood that the commercial buildings that characterise industrial and business parks on highways have to optimise visibility and stand out as distinctive developments to fast-moving traffic, it is also essential to achieve a distinctive identity for the area as a whole.

The group form of the architecture in terms of colour, material, texture, scale, signage and lighting, must therefore reinforce an overall identity and create a context of distinction that enhances the prestige of each individual development.

It is therefore the intention to promote an integrated architecture through the control of form and scale, parking and carports, screening of yards and storage, the use of materials, and, most importantly, colour, signage and lighting. The colour code for all buildings is predominantly in the dove-grey to charcoal with white, silver and black as integrated secondary colours. Accent colours of red and yellow are encouraged throughout. Where, owing to corporate identity or branding requirements, there is a desire to use additional colours in the architecture of a particular development, these are to be accommodated as further accent colours played against the predominantly grey backdrop of buildings and the verdant green of the extensive and lush landscape of the overall development.

A Development Guidelines document including sustainability measures is proposed and all development will be required to adhere to and follow a Design Review Process in line with Tongaat Hulett's developments in Umhlanga.

2.7 Description of the Receiving Environment

2.7.1 Biophysical Environment

2.7.1.1 Climate

The climate of the KwaZulu–Natal coastal belt within which the site is situated is classified as humid–subtropical with a warm summer which, due to its latitudinal position, comes under the influence of both temperate and tropical weather systems.

The mean annual temperature is approximately 21^{0}C Mean monthly temperatures range from 16.6^{0}C in July to 23.7^{0}C in February, while average daily maximum temperatures fluctuate between 22.3^{0}C (July) and 27.4^{0}C (February), and minimum temperatures between 11.0^{0}C (July) and 20.0^{0}C (February). The area is frost free. The site will on occasion, especially during the months of January and February, be uncomfortably hot. This factor needs to be taken into account in the use of screening vegetation, and the aspect and architecture of the buildings.

The average annual rainfall for the area is approximately 1000mm, 70% of which falls between October and March, with January having the highest rainfall. The highest recorded rainfall in 24 hours is 264mm. Such extreme rainfall events require careful planning to manage stormwater runoff and to prevent soil erosion. The area experiences high evaporation regimes, with 60% evaporation occurring between October and March (the high temperature months). The mean annual evaporation is 1830mm and in average dry years there is a moisture deficit.

The humidity is greatest in February and lowest in July. The average relative humidity level is 78% with 95% and 57% being typical of upper and lower extremes.

The prevailing wind directions are north- easterly and south–westerly, with the rain bearing storm winds typically coming from the south and south-west. The strongest winds blow in October.

2.7.1.2 Geology and Soils

The site is underlain by sandstone and siltstone of the Vryheid Formation, and the residual active soils derived there from. The residual soils are overlain by alluvial sands and colluvial sands and clayey sands. The alluvial sands have a high collapse potential and are therefore likely to undergo collapse settlement when saturated under load. These sands are also prone to erosion by both wind and water. Control of stormwater on site is therefore essential. The underlying residual clayey sands and sandy clays are likely to be moderately to highly active with changes in moisture content.

Since the geological conditions vary across the site, a detailed geotechnical investigation was carried out for the development of each of the individual sites, in terms of the structural development proposed thereon and the final earthworks layout of each of the platforms. The geotechnical report points out that the site has previously been subjected to flooding, and that this factor needs to be taken into account in the determination of the 100 year floodline for the site.

Soil sampling across the site revealed the presence of a permanent / semi-permanent wetland within the lower lying valley bottoms. The broad nature of these valley bottoms has resulted in these sections of wetland being fairly extensive. Areas of seasonal and temporary wetland were identified extending up the valley sides. Soils in these portions were rich clays, silts and alluvial sediments washed down from the surrounding slopes.

The water table across a large portion of these areas was very near to or at the soil surface. As a result the soils are heavily gleyed and very little mottling was noted in the samples. Samples further up the slopes indicated the

presence of seasonal and temporary wetland conditions characterised by low chroma values and heavy mottling – a result of regular water table fluctuation.

The channels and agricultural drains installed to facilitate the sugar farming activities on the site have significantly lowered the water table within the wetlands resulting in the majority of the wetlands across the site not having flooded significantly for many years.

This section of the KZN North Coast has a relatively stable and clearly defined geological history. The strip of land adjacent to the beach along the KZN North Coast is usually made up of 'Grey Recent Sands' which are frequently less than 10 000 years old. Behind this formation lies a belt of 'Red Recent Sands', which is typically 5 km wide and which is highly suited to both sugar cane production and to civil construction. Inland of the sands we encounter more difficult soils arising from interspersed areas of Ecca and Dwyka Groups of the Karoo Supergroup, formations that came into being some 300 million years ago. Pencarrow falls into the 'Grey Recent Sands' category only.

2.7.1.3 Agriculture

Application of the guidelines laid down by KZN EDTEA: Directorate of Natural Resources has led to *the project* site having been determined to be a Class IV site. This Class of land i*s subject to severe cultivation* restrictions*.*

Most of the fields automatically fall into Class IV on rooting depth. Permeability Classes 6 and 7 (Rapid Permeability) also immediately delegate these soils to Capability Class IV*.*

Although a large section of the farm is 'wet' it is neither feasible nor permissible to use this wetness for crop production. Cambered beds are now banned. No new extraction permits for irrigation water will under any circumstances be granted for this area. Crops are therefore reliant on rainfall only.

Annual commodity or cash crop production on these soils is equivalent to open field hydroponics.

Further, any attempt to produce annual crops under rain fed conditions on these soils would inevitably and rapidly lead to severe wind erosion.

2.7.1.4 Vegetation

The vegetation of Compensation is classified as KwaZulu-Natal Coastal Belt (CB 3) (*Mucina and Rutherford, 2006; 510*), although much if it has been transformed into an intricate mosaic of extensive sugarcane fields mixed with a few gum plantations. Scattered between are secondary Aristida grasslands, thickets and patches of coastal thornveld. Historically it would have been covered to a great extent by different types of subtropical coastal forest.

The only remaining natural habitats are those comprising of 'eco-region 1 & 2' within the Ecological Assessment and a narrow corridor of trees bordering the southern drainage line.

Alternative vegetation also exits along roadsides, but here a heavy infestation of alien woody shrubs, herbs and creepers / climbers can be found.

Of particular importance are the comments made under 'Conservation' where Mucina and Rutherford make mention of problematic Kwazulu-Natal alien plant species which include *Chromolaena odorata*, *Lantana camara*, *Melia azedarach* and *Solanum mauritianum*; three of which can be found within the study area.

A few commonly occurring indigenous trees can be found along the watercourses.

No decorative or medicinal indigenous plants were noted in the agricultural assessment conducted.

Figure 4: Sugarcane on the compensation site

2.7.1.5 Wetlands

The Compensation Industrial and Business Estate property is comprised primarily of broad, flat valley bottoms with gently rising slopes.

A drainage ditch flows along the southern boundary of the site, east of the R102. The drain flows under the road and continues west across the site, before exiting the property at the south-western corner. A second drainage ditch flows from the centre of the property in a North-westerly direction before leaving the site on the north-western boundary.

The majority of the site is currently planted to sugar cane.

A small area of indigenous forest is located in the southeast of the property. Indigenous wetland woody and herbaceous species are located in the drainage ditches across the site. Species include *Voacanga thouarsii, Syzygium cordatum, Typha capensis, Leersia hexandra, Cyperus dives* and *Phragmites australis*.

It is important to note that the vast majority of the site and the wetter areas in particular have a vast series of agricultural drains actively draining groundwater into the drainage ditches. These drains are regularly cleared of silt and sediment deposits. Their effectiveness was clearly evident by the large volumes of water flowing out of the discharge points and flowing in the inspection holes located across the site.

A spring is located north of the southern drainage line, just after it has exited from under the R102. The spring is dominated almost exclusively by *Typha capensis*. It is likely that this spring has formed as a result of hillslope seepage daylighting as a result of a localised geological feature (rock or clay layer).

Utilisation of the property as a sugar cane farm for a number of years has left the majority of the wetlands across the site in poor condition. Active draining of the wetlands with agricultural drains and excavated ditches, as well as the removal of hygrophilous vegetation have reduced the ability of these systems to perform many of the functions typically associated with wetlands in these geomorphic settings.

Due to the low lying and gently sloping land, there are extensive wetland areas on the site and its surroundings, which are associated with the Wewe River and the associated drainage lines described above. The wetland areas of the site and those immediately to its east have been delineated by SiVEST.

2.7.1.6 Topography and Drainage

Topography is the configuration of a surface and the relations between its man-made and natural features. The site is located within a wide, shallow valley that slopes and drains very gently to the south as part of the catchments of the Wewe River, which is a tributary of the Tongaat River lying to its south.

The site is relatively flat and comprises a relatively gently sloping east-west trending spur flanked on the northern side by a broad stream valley which eventually flows into the Wewe Dam.

The gradient of the slopes to the south and east of this valley line are between 1 in 5 and 1 in 6 and these areas (approx 140ha) have been provisionally zoned for Business Park / Offices. The valley line on the southern side of the spur is more sharply defined and with a steeper gradient than aforementioned “broad stream valley”. The water discharging from this valley line also flows into the Wewe Dam.

The site can be considered to be a very level one within the context of the overall KwaZulu-Natal coastal topography. The most elevated portion of the site consists of a relatively gently sloping east- west trending spur of land that extends onto the neighboring lands to its east. A broad stream flows around this spur, from the north-eastern portion of the area, around the nose of the spur beyond the north-western boundary of the site, and through the south-western and southern portion of the area, where it joins the main water course of the Wewe River. The Wewe River flows across the site in a west to east direction to the south of the elevated spur of land, collecting the flow from the areas off the site and the other minor drainage lines that lie to the North of this stream.

Slope conformation is generally planar to slightly concave indicating the possible presence of deep clayey soils and subsoil seepage. Site drainage is from the upper slopes of the spur towards the valleys on both sides of the spur.

The length of the Dudley Pringle dam is about 2km, and beyond the dam wall, at its southern end, the Wewe River flows through the developed areas of Sandfields and Maidstone before entering the narrow and elongated Siphon Dam, a short distance to the south beyond which it meets its confluence with the Tongaat River.

2.7.1.7 Aspect

In physical geography, aspect generally refers to the direction to which a mountain slope faces. The overall aspect of the site is southwest facing as the land slopes gently down towards the southern boundary. It is not a particularly steep slope however, and in context of the typical Kwazulu-Natal east coast topography, one could say the site is relatively flat. It begins at an approximate elevation of 88m above sea level at the highest point in the southeast corner and drops down to 48m asl (above sea level) in the northwest over a total distance of approximately 2.95Km - giving a slope of 73:1.

2.7.1.8 Fauna

Spoor noted on site indicate that bushbuck (*Tragelaphus scriptus*), grey duiker (*Sylvicapra grimmia*) and meerkat inhabit the forest. In KwaZulu-Natal bushbuck males are scheduled as "Ordinary game" and females as "Protected game", although they are not listed in the SA Red Data book or any CITES appendices.

Bird species are another consideration regarding the loss of habitat.

The Dolphin Coast Bird Club, an affiliate of BirdLifeSA, visits Pencarrow at least annually. They have found the forest to be home to a number of raptors, most of the barbet / tinkerbird species, a number of doves / pigeons, bulbul / greenbuls, aerial feeders like drongoes, batises, apalises and tits, ground feeders such as robin-chats and a noteworthy range of sunbirds. The fringes of the forest play host to a number of sparrows and wagtail species.

2.7.2 Social Environment

2.7.2.1 Socio-Economic Environment

- *Total Population*

KwaDukuza municipality has a population of 158 583 people (Stats SA: 2001). However, the Municipality has recorded its population at approximately 172 000 people. This population increases to over 200 000 during peak holiday seasons.

The population dynamics of KwaDukuza Municipality is highly diverse due its multi-racial composition and rich settlement history. KwaDukuza has a distinct eastern flavour and is linked to the earlier settlement of Indian families who were imported to work on the sugar cane farms of the big sugar barons such as Sir Liege Hullet. The African population comprises approximately 71% of the total population, the Indian or Asian group 23%, White group 5% and the Coloured group approximately 1%.

The average household size is approximately 3.6 persons per household.

The population gender split shows that 51% of the population is female and 49% of the population is male. There is an almost even split of the gender in this area.

The age breakdown clearly indicates that there is a young population in KwaDukuza Municipality. The majority of the population falls within the category of 0-29 years. There is approximately 60% of the population that are under the age group of 0-29 years. In Ilembe District Municipality, there is a much higher youthful population – 49% of those between the ages of 0-19 years. (KwaDukuza IDP 2007-2012)

- *Employment profile*

The economically active population accounts for 66% and 34% of the population are unemployed. However, this is for the formally unemployed population not taking into account in the informal sector. In the KwaDukuza municipality the bulk of the population are economically active.

From a socio-economic perspective it is anticipated that the Compensation Project has an overall positive impact on the affected ward areas by:

- Job and business opportunities – currently there are high levels of unemployment and with this project there is the opportunity to provide employment not only during the construction phase but beyond this phase as jobs will be created in retail facilities and the industrial area;
- Infrastructural improvements – provide important transport connectors and other improvements to adjacent areas;

- Industrial and business estates – the increase in economic activity in Durban has resulted in increased pressure on existing industrial business estates. As a result of the project locality and its accessibility to transportation routes this would encourage growth and development of industrial and business estates; and
- The potential development of 'super sites' for large single users who are looking at being located in close proximity to the new airport and with good accessibility to major routes.

2.7.2.2 Visual

The site is located within an agricultural landscape, with some commercial activities situated nearby along the R102. However, as illustrated in the KwaDukuza Spatial Development Framework Plan, except for the environmentally sensitive areas associated with drainage lines and their wetland areas, the site and its surroundings are designated to be developed, either for commercial, industrial or higher density residential purposes.

The visual changes that will occur with the development of the site for industrial purposes therefore need to be considered within the wider planning context within which the site is located.

2.7.2.3 Traffic

The provincial roads in the vicinity of the THD site are all surfaced 2-lane roads. The R102 has 40m long right turn refuge lanes at the intersections of P387 and P445. D148 and D177 giving access to Compensation railway station are currently gravel roads with very low traffic volumes.

The site gains access to the N2 freeway via P445 where the interchange is having to accommodate increasingly heavy traffic in peak periods.

P445 east of the interchange serves Ballito and the new town centre, and its two lanes carry over 1000 veh/hr each way. This section of road is slated for widening along with the N2 freeway interchange.

2.7.3 Existing Challenges and Conditions

2.7.3.1 Existing Road Access

Vehicle access to the site is from the R387 by means of a public servitude road that leads to the Morewood sugar mill cultural heritage site and from another farm road from this provincial road to its east.

As described above when discussing the wetland systems to the site, both of these roads cross over the extensive wetland system that occurs on the most northern parts of the site. However, due to the site being hemmed in on all other sides by other agricultural lands, this is presently the only vehicular access that can be achieved to the central more elevated spur of land where development is proposed.

However, potential vehicular access does exist from the R102 main road to its east across the intervening more elevated properties that are owned by the Tongaat Hulett Group.

2.7.4 Bulk Infrastructure

2.7.4.1 Water supply

Data obtained from Ilembe Municipality indicated that no suitably sized watermains or reservoirs are located within serviceable distance to supply the bulk water demands of the proposed development.

There is currently no water reticulation in place to service the development. New infrastructure will therefore be required. The bulk supply will either come from the east from the Umgeni line that services the Avondale Reservoir or will come from the new Honolulu line that runs north from the Avondale Reservoir.

The anticipated water demand from the development is (without any sustainability measures being implemented) estimated at 9.2Ml/day.

2.7.4.2 Electricity supply

KwaDukuza Municipality receives its feed of electrical supply from Eskom's Avon 275kV transmission substation with its main in feed point being the Gledhow 132/33kV 80MVA substation. Within the Ballito subregion, there is a limited amount of available supply with discussions being held with both Eskom and the KwaDukuza Municipality on plans to service the developments being proposed.

The anticipated electrical demand (without any sustainability measures being implemented), is 53MVA.

2.7.4.3 Sewerage

The closest existing wastewater treatment works (WWTW) are the Fraser's and Tongaat Central Works. The Tongaat Works is situated within the eThekwini Municipality and a fair distance from the site. Fraser's appears to be the most logical option to service the development at present. This would require at least 1 sewer pump station. Fraser's WWTW is operating at less than 6Ml/day and has recently been upgraded to a capacity of 12Ml/day. The works does furthermore have a license to further increase capacity to treat 18Ml/day.

The estimated average daily sewer flow from the development (based on 80% of the water demand is 7,4Ml/day once it is fully developed. Long term a new WWTW would be required to service developments that fall within the Wewe River catchment.

2.7.4.4 Roads

The closest existing roads to the development are as follows –

- Main Road 387 to the north;
- Main Road 102 which virtually bisects the site.

A local area road needs strategy is required and is likely to comprise inter-alia:

- Widening of R102 (P445 – Tongaat);
- Widening of R102 (P445 – Stanger);
- Widening of P445 (R102 – P398);
- Realignment of P387;
- Link P398 – R102;
- Link to D148;
- N2 and P398 – R102 Link ("Frasier's Interchange");
- Ballito Interchange Upgrade;
- Public transport facilities;
- Restructuring of public transport service routes to better suit demands.

2.7.4.5 Telecommunications

Apart from overhead lines located in the main road reserves there is no existing Telkom plant in the area of the proposed industrial development.

2.7.4.6 Storm water

The impacts of the proposed Compensation development on the environments in the affected catchments will range from negative to positive depending on the degree of planning and design and methods of implementation that contribute to the mitigation of the naturally negative impacts of development. Expected consequences of unmitigated development include an increase in hardened areas, reduced infiltration areas, loss of vegetation and reduced evapo-transpiration potential. There will be an overall increase in surface runoff, an increase in the speed of runoff and peak flow rates in the watercourses. Please refer to full report attached as *Appendix G of initial FEIAR.*

2.7.5 iLembe District Municipality Gross Domestic Product

- KwaZulu-Natal is nearly 3 times densely populated when compared with national population density suggesting that there are backlogs in terms of housing that require investments to minimize them.
- KwaZulu-Natal houses about 20.8 percent of the South Africa's population (to date, this trend should have increased over the years).
- KwaZulu-Natal's unemployment rates are higher than the national average (still higher in 2008 with 28.7% as compared to 19.8% and 16.3% of Gauteng and Western Cape respectively, above the South Africa's national average of 23.1% (KZNDED, 2008)). This suggests that there are backlogs in terms of jobs creations that require investments to reverse the trend of high unemployment rate.
- KwaZulu-Natal's percentage of people in poverty (50% of people) is also higher than the national average (46% of South Africa's population).

The average percentage contribution to KZN GDP and real GDP growth trends per district are summarized in the table below which highlights that ILembe District Municipality's statistics that are not on par with the other districts of KZN:

TABLE 8: KZN GDP GROWTH TRENDS

District	Average % Contribution to KZN GDP	Average Growth Trends
eThekwini	61.1	4.8
UMgungundlovu	10.8	3.7
UThungulu	7.2	4.8
UThukela	3.5	4.5
Amajuba	3.5	2.6
UGu	3.4	2.7
ILembe	**3.3**	**2.5**
Zululand	2.8	4.1
UMzinyathi	1.6	4.5
Sisonke	1.6	3.9
UMkhanyakude	1.2	4.1

ILembe District Municipality is ranked seventh in terms of contribution to provincial GDP and has the slowest economic growth rate amongst all the districts of KZN province.

The KwaDukuza Municipality has a population of approximately 170,000, which during peak holiday seasons, increases to over 200,000.

The KwaDukuza Municipality has extremes of affluence and poverty due to mainly small developed nodes existing on the coast and large areas of extreme underdevelopment in the hinterland suggesting an imperative to raise income amongst poor in the municipal area to alleviate poverty. In comparison with capital expenditures on infrastructure and building/top-structures that have been unlocked elsewhere in the ILembe District Municipality, Compensation Industrial and Business Estate development will be a substantial addition to the assets of the region.

The socio-economic impacts of this development will extend to business development, job creation, incremental returns in tax revenues, and empowerment of the communities in the local economy of KwaDukuza Municipality and will spill-over to ILembe District Municipality at large.

Compensation Industrial and Business Estate development offers the potential of creating a vibrant, integrated commercial, business park, logistical efficiencies as well as bringing infrastructure and services, new jobs, and tax base to KwaDukuza Municipal area.

2.7.6 Government and Municipal Priorities

South Africa as a developing country faces many social, economic and environmental challenges which call for an even stronger commitment by everyone, including business, to support and participate in the quest to make the country successful in meeting its developmental goals and objectives, as stated in the Government's Programme of Action for the period 2009 to 2014. The programme of action identifies ten (10) key priorities: (1) speed up economic growth and transformation of the economy to create decent work and sustainable livelihoods; (2) introduce a massive programme to built economic and social infrastructure; (3) develop and implement a comprehensive rural development strategy to land and agrarian reform and food security; (4) strengthen the skills and human resource base; (5) improve the health profile of all South Africans; (6) intensify the fight against crime and corruption; (7) pursue African advancement and enhanced international cooperation; (8) ensure sustainable resources management and use; (9) build a developmental state, improve public service, and, (10) strengthen democratic institutions.

Tongaat Hulett fully supports and commits to contributing to realization of these goals, as it already does through its involvement in rural development and agrarian reform programmes, enterprise development programme through its utilization of government accredited small emerging contractors, job creation, preferential procurement, and many community-based programmes that are of social, economic, and environmental significance to the lives of all its stakeholders.

All these programmes, which Tongaat Hulett is engaged in, contribute immensely to addressing many of the challenges espoused by the government's programme of action, with many descent job opportunities having been created, partnering with local communities to support community development initiatives and ensuring sustainable livelihoods. In support of the essence of its corporate citizenship, Tongaat Hulett is proud to be a partner with the government in creating a better life for all, and will continue to support these milestones as part of its business imperative.

3 LEGAL FRAMEWORK

In order to protect the environment and ensure that this development is undertaken in an environmentally responsible manner, there are two significant pieces of environmental legislation that is the focus of this assessment. They are the following:

3.1 Constitution of South Africa

Section 24 of the Constitution of South Africa (No. 108 of 1996) states that *"… everyone has the right - … (a) to an environment that is not harmful to their health or well-being; and … (b) to have the environment protected, for the benefit of present and future generations through reasonable legislative and other measures that …(c) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.*"

This protection encompasses preventing pollution and promoting conservation and environmentally sustainable development. These principles are embraced in the National Environmental Management Act (No 107 of 1998) (as amended) and given further expression.

3.2 National Environmental Management Act (NEMA)

The National Environmental Management Act, Act 107 of 1998 (NEMA) (as amended) is South Africa's overreaching environmental legislation and has, as its primary objective to provide for co-operative, environmental governance by establishing principles for decision – making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by organs of state, and to provide for matters connected therewith:

The principles of the Act are the following:

- Environmental Management must place people and their needs at the forefront of its concern;
- Development must be socially, environmentally and economically sustainable;
- Environmental Management must be integrated, acknowledging that all elements of the environment are linked and interrelated;
- Environmental justice must be pursued so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person;
- Equitable access to environmental resources, benefits and services to meet basic human needs and ensure human well-being must be pursued;
- Responsibility for the environmental health and safety consequences of a policy, programme, project or activity exists throughout its life cycle.
- The participation of all interested and affected parties in environmental governance must be promoted;
- Decisions must take into account the interests, needs and values of all interested and affected parties, and this includes recognizing all forms of knowledge including traditional and ordinary knowledge;
- Community well-being and empowerment must be promoted through environmental education, the raising of environmental awareness;

- The social, economic and environmental impacts of activities including disadvantages and benefits, must be considered, assessed and evaluated and decisions must be appropriate in the light of such consideration and assessment;
- The right of workers to refuse work that is harmful to human health or the environment;
- Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law;
- There must be intergovernmental co-ordination and harmonisation of policies, legislation and actions relating to the environment;

3.3 Legal Requirements in terms of other legislation

In addition to the NEMA and the Constitution, the following Acts may have some bearing on the proposed activities:

3.3.1 National Water Act (Act No. 36 of 1998)

The National Water Act (NWA) provides for fundamental reformation of legislation relating to water resources and use. The purpose of the Act is stated, in Section as, *inter alia*:

- Promoting the efficient, sustainable and beneficial use of water in the public interest;
- Facilitating social and economic development;
- Protecting aquatic and associated ecosystems and their biological diversity;
- Reducing and preventing pollution and degradation of water resources; and
- Meeting international obligations.

The Act presents strategies to facilitate sound management of water resources, and provides protection of water resources, and regulates the use of water catchments management agencies, water user associations, advisory committees and international water management.

Section 19 of the Act makes provision for the prevention of pollution. A landowner or occupier is responsible for the prevention, control and clean up of water pollution occurring because of activities on his land. If the responsible person fails to undertake remediation (prevention / containment / clean-up), the catchment management agency may take the measures it considers necessary, and recover the costs from the responsible person.

A Water Use Licence Application – Section 21 (C) and (I) is currently being conducted for the proposed development in terms of the National Water Act, 1998 (Act No. 36 of 1998).

3.3.2 Conservation of Agricultural Resources Act (Act No. 43 of 1983)

The Conservation of Agricultural Resources Act aims to provide for control over the utilisation of natural agricultural resources in order to promote the conservation of soil, water resources and vegetation and to combat weeds and invader plants. Section 6 of the Act makes provision for control measures to be applied in order to achieve the objectives of the Act, these measures relate to *inter alia:*

- Cultivation of virgin soil;
- Utilization / protection of wetlands, marshes, water sponges, water courses /sources;

- The regulating of the flow pattern of run-off water;
- The utilization and protection of the vegetation;
- The grazing capacity of veldt and the number and type of animals;
- The control of weeds and invader plants; and
- The restoration or reclamation of eroded land or land which is disturbed or denuded.

All these provisions have implications for any development and these aspects are implemented via Regulations to the Act.

3.3.3 The White Paper on Integrated Pollution and Waste Management for South Africa

Integrated pollution and waste management is a holistic and integrated system and process aimed at pollution prevention and minimisation at source, managing the impact of pollution and waste of the receiving environment and remediation of damaged environments.

The White Paper on Integrated Pollution and Waste management for South Africa represents a paradigm shift from dealing with waste only after it is generated (i.e. “end of pipe”) towards:

- Pollution prevention;
- Waste minimisation;
- Cross media integration;
- Institutions integrated both horizontal and vertical, of department and spheres of government; and
- Involvement of all sectors of society in pollution and waste management.

The government believes that pollution prevention is one of the most effective means of protecting South African people and the environment. Pollution prevention eliminates costly and unnecessary waste and promotes sustainable development. It aims to reduce risks to human health and environment by trying to eliminate the causes rather than treating the symptoms of pollution.

This Integrated Pollution and Waste Management for South Africa applies to all government institutions, society at large and to all activities that impact on pollution and waste management. One of the fundamental approaches of this policy is to prevent pollution, minimise waste and to control and remediate impacts.

The management of waste will be implemented in a holistic and integrated manner, and will extend over the entire waste cycle, from “cradle to grave” including the generation, storage, collection, transportation, treatment and final disposal of waste.

The government aims to:

- Encourage the prevention and minimisation of waste generation and thus pollution at source;
- Encourage the management and minimization of the impact of unavoidable waste from its generation to its final disposal;
- Ensure the integrity and sustained “fitness for use” of all environmental media , i.e. air, water and land;
- Ensure that any pollution of the environment is remediated by holding the responsible parties accountable;

- Ensure environmental justice by integrating environmental considerations with the social, political and development needs and rights of all sectors, communities and individuals; and
- Prosecute non-compliance through authorizations and legislation.

3.3.4 The National Environmental Management Biodiversity Act, Act 10 of 2004

The Biodiversity Act regulates South Africa's laws relating to biodiversity.

The overall purpose of the act is:

- The management and conservation of South Africa's biodiversity and it's components;
- The protection of species and ecosystems that warrant national protection;
- The sustainable use of indigenous biological resources;
- The fair and equitable sharing of benefits arising from bio-prospecting including indigenous biological resources; and
- The establishment of a South African National Biodiversity Institute.

3.3.5 The National Environmental Management: Protected Areas Act, Act 57 of 2003

This Act aims to provide for a national system of protected areas in South Africa as part of a strategy to manage and conserve its biodiversity. The Protected Areas Act tries to ensure protection of the entire range of biodiversity, referring to natural landscapes and seascapes. The Act makes express reference to the need to move towards Community Based Natural Resource Management (CBNRM) as its objectives include promoting the participation of local communities in the management of protected areas.

The purpose of the Act is:

- To protect ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes and their ecological integrity;
- To conserve biodiversity in those areas;
- To protect South Africa's rare species
- To protect vulnerable or ecologically sensitive areas;
- To assist in ensuring the sustained supply of environmental goods and services;
- To provide for the sustainable use of natural and biological resources;
- To create or augment destinations for nature-based tourism;
- To manage the interrelationship between natural environmental biodiversity, human settlement and economic development;
- To contribute to human, social, cultural, spiritual and economic development;
- To rehabilitate and restore degraded ecosystems and promote the recovery of endangered and vulnerable species.

This Act further stipulates various criteria which must be met before an area can be declared as a special nature reserve, national park, nature reserve or protected environment. It also prescribes a range of procedures,

including consultation and public participation, which must be followed before any kind of protected areas are declared.

3.3.6 The National Heritage Resources Act, Act No. 25 of 1999

The National Heritage Resources Act established the South African Heritage Resources Agency (SAHRA) in 1999. SAHRA is tasked with protecting heritage resources of national significance. Under Section 38 of this Act, all new developments with a site exceeding 5 000 m², are subject to assessment by SAHRA. A heritage impact assessment must be carried out by a heritage specialist approved by SAHRA to enable them to make an informed decision.

Section 27(1) of the Act requires such an assessment in case of:

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

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

c) any development, or other activity which will change the character of an area of land, or water –

i) exceeding 10 000 m^2 in extent;

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

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

d) the costs of which will exceed a sum set in terms of regulations; or

e) any other category of development provided for in regulations.

3.3.7 National Environmental Management: Air Quality Act, Act No. 39 of 2004

The NEMA Air Quality Management Act states the following as it primary objective:

"*To reform the law regulating air quality in order to protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social development; to provide for national norms and standards regulating air quality monitoring, management and control by all spheres of government, for specific air quality measures, and for matters incidental thereto.*

Whereas the quality of ambient air in many areas of the Republic is not conducive to a healthy environment for the people living in those areas let alone promoting their social and economic advancement and whereas the burden of health impacts associated with polluted ambient air falls most heavily on the poor, And whereas air pollution carries a high social, economic and environmental cost that is seldom borne by the polluter, And whereas atmospheric emissions of ozone-depleting substances, greenhouse gases and other substances have deleterious effects on the environment both locally and globally, and whereas everyone has the constitutional right to an environment that is not harmful to their health or well-being, and whereas everyone has the constitutional right to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:

- *Prevent pollution and ecological degradation;*
- *Promote conservation; and*

- *Secure ecologically sustainable development and use of natural resources."*

And whereas minimisation of pollution through vigorous control, cleaner technologies and cleaner production practices is key to ensuring that air quality is improved, and whereas additional legislation is necessary to strengthen the Government's strategies for the protection of the environment and, more specifically, the enhancement of the quality of ambient air, in order to secure an environment that is not harmful to the health or well-being of people."

3.3.8 Hazardous Substances Act, Act No. 15 of 1973

The object of the Act is *inter alia* to '*provide for the control of substances which may cause injury or ill health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitising or flammable nature or the generation of pressure thereby in certain circumstances; for the control of electronic products; for the division of such substances or products into groups in relation to the degree of danger; for the prohibition and control of such substances*.'

In terms of the Act, substances are divided into schedules, based on their relative degree of toxicity, and the Act provides for the control of importation, manufacture, sale, use, operation, application, modification, disposal and dumping of substances in each schedule.

Pollution control in South Africa is affected through numerous national statutes, provincial ordinances and local authority by-laws. Only the more significant legislation pertaining to the regulation of water, air, noise and waste pollution is dealt with in this section.

3.3.9 The National Veldt and Forest Fire Act, Act 101 of 1998

The National Veldt and Forest Fire Act's purpose is to prevent and combat veldt, forest mountain fires throughout the Republic. The act also places emphasis on the fire protection associations and preventing fires and veldt fires through firebreaks.

3.3.10 The National Building Regulations and Building Standards Act, Act 103 of 1997

"To promote for the promotion of uniformity in the law relating to the erection of buildings in the areas of jurisdiction of local authorities for the prescribing of building standards and for the matters connected therewith"

3.3.11 Sustainable Development

The principle of Sustainable Development has been established in the Constitution of the Republic of South Africa (Act No. 108 of 1996) and given effect by NEMA. Section 1(29) of NEMA states that sustainable development means the integration of social, economic and environmental factors into the planning, implementation and decision-making process so as to ensure that development serves present and future generations.

Thus Sustainable Development requires that:

- The disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied;
- That pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;
- The disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied;

- Waste is avoided, or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner;
- A risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; and
- Negative impacts on the environment and on people's environmental rights be anticipated; and, prevented and where they cannot altogether be prevented, are minimised and remedied.

4 PUBLIC PARTICIPATION PROCESS

4.1 Background

RHDHV conducted the Public Participation Process (PPP) for the Compensation Project.

In recent years Tongaat Hulett developments has taken a much more participatory approach to their property development projects, with the understanding that the current socio-political and economic context invites and requires this more public focused approach. Communities that surround the development are invited to "inform and be informed" about project through the establishment of fora in order to enhance positive impacts. It is also noted that engaging stakeholders even before developments are built helps to achieve the best desirable outcome. It is for this reason that the PPP which forms part of the EIA becomes the basis of a long-term stakeholder engagement process.

For the purposes of the EIA phase and as undertaken in the scoping phase, the PPP aims to ensure that the full range of stakeholders is informed about Compensation Industrial and Business Estate as well as its complex profile throughout the period in question.

In order to achieve this, a number of key activities have taken place and will continue to take place, including the following:

- The identification of stakeholders is a key deliverable at the outset, and it is noted that there are different categories of stakeholders that must be engaged, from the various levels and categories of government, to relevant structures in the NGO sector, to the communities of some nine areas that straddle Compensation Industrial and Business Estate at different places;
- The development of a living and dynamic database that captures details of stakeholders from all sectors;
- The convening of focused and general meetings with stakeholders at different times throughout the EIA process (and beyond);
- The engagement of public leaders to whom the public generally turn for information, keeping such individuals well informed about process and progress;
- The fielding of queries from I&APs and others, and providing appropriate information;
- The convening of specific stakeholder groupings/fora as the need arises;
- The preparation of reports (both baseline and impact assessment) based on information gathered throughout the EIA via the PPP and feeding that into the relevant decision-makers;
- The PPP could include distribution of various types of pamphlets and other information packs; and
- Where appropriate site visits may be organised, as well as targeted coverage by the media.

Specifically, the Compensation PPP entails the following:

- The fixing of site notices at various points around the perimeter of the site;
- Providing written notice to —
    - the owners and occupiers of land within 100 metres of the boundary of the site who are or may be directly affected by the development;

- The municipal councillor of the ward and any organisation of ratepayers that represents the community in the area;
- Different government departments that have jurisdiction in respect of any aspect of the development of Compensation;

- The placing of adverts about the development and about public meetings in relevant newspapers;
- Ensuring that information is made as accessible to the public as possible by lodging all relevant information at a range of locations such as councillors' offices, libraries and other relevant locations. In addition any person that requests information shall be assisted;
- Develop a database or register of all interested and affected people, as well as other relevant stakeholders;
- A record of all comments will be made and submitted as part of the EIA reporting process; and
- The ongoing management of the relationship between the public and the EIA team as well as the developers (Tongaat Hulett) in regard to the EIA process at Compensation.

4.2 Public Meetings

All individuals and groups interested in or affected by the project were invited to attend the first public meeting held during the Scoping phase at the following venue:

- Umhlali Country Club, on the 26th of November 2009, at 17:30.

The notification and invite to I&AP's was advertised in the:

- North Coast Courier, on the 20th of November 2009.

Minutes of the meeting are attached in *Appendix C3 of the initial FEIAR***.**

All individuals and groups interested in or affected by the project were invited to attend the second public meeting held during the EIA phase at the following venue:

- Umhlali Country Club, on the 19th of October 2011, at 17:30.

The notification and invite to I&AP's was advertised in the:

- North Coast Courier, on the 7th of October 2011.

4.3 Public Review of the Draft EIA Report

The draft Environmental Impact Assessment Report was made available for public review for 40 days from the 20th October 2011 to the 30th November 2011. The report was also made available at the following public locations within the study area, which are all readily accessible to I&APs:

- Local Canteen opposite the project site
- Tongaat Hulett Developments: Zimbali Resort Offices – Zimbali (Adjacent to Sales centre just before northern gatehouse)
- On the then SSI Website: www.ssi-dhv.com

4.4 Summary of Issues Raised by I&AP's and Authorities

The Public Participation Process conducted during the Scoping phase identified impacts that are anticipated for the project thereby identifying areas for further investigation. Some of the anticipated impacts addressed in the EIA phase and/or in the EMPr are:

- Alteration of the topography of the project area (EMPr);
- Erosion of soil due to construction activities(EMPr);
- Impacts on and disturbance and destruction of some of the wetland areas (EIA & EMPr);
- Impacts on wetlands that will be traversed by the planned roads and services infrastructure (EIA & EMPr);
- Loss of Agricultural land (EIA);
- Traffic impacts during the construction and operational phase (EIA);
- Socio-economic Impacts of the development i.e. typologies, social amenities, job opportunities etc. (EIA);
- Cumulative & Downstream impacts on the Wewe River System (EIA);
- Generation, handling and disposal of waste generated by project activities (EMPr);
- Vegetation and fauna (EIA); and
- Services and Infrastructure (EMPr).

Refer to *Appendix C of initial Final EIAR* – Public Participation Process (Issues Trail) for full comments from I&AP's & responses. The Issues Trail was subsequently updated and can be found as *Appendix H of addendum one.*

5 SPECIALIST REPORTS

The following sections present a synopsis of the specialist studies conducted. For in-depth analysis of these reports please find each attached as Appendices *D1 through to D10 of the initial FEIAR.*

Further to this in fulfilment of the requirements of the EDTEA (then DAEA) in the rejection to the Final EIAR, a detailed Needs and Desirability study and report was completed, as well as a Wetland Rehabilitation Plan. These can be found as Appendices B and G3 respectively of addendum 1 submitted 24 January 2103. The aspects of the Wetland Rehabilitation Plan have been added to the twice amended EMPr, with the most recent and final being attached as *Appendix E of addendum 2.*

5.1 Agricultural

5.1.1 Agribusiness considerations

Ever since its inception, economic and management considerations have led the RSA Sugar Industry towards economies of scale at commercial grower and miller levels. Urbanization has had an impact on planting and milling geography, but in terms of industry production the subsequent loss of cane is of minimal consequence. While capacity at the mills currently operating in KZN appears to have stabilized, cane production has declined. Industry emphasis and investment is moving away from dry land farming in KZN to irrigated production further north and, more particularly, outside of RSA. A trend that is of major concern to millers, to commercial growers and also to KZNDAE is the decline of small grower ha under cane and the even greater decline in yields per ha evidenced in small grower production. The three new major sugar milling projects that are currently on the drawing boards, and approved, are for the production of ethanol only.

Due to poor soil quality and lack of irrigation water the Pencarrow site could be marginal for a miller, but is not viable as a commercial stand alone sugar farm. If costs continue, as in the past, to escalate faster than price increases, the viability of this site will continue to decline proportionately. Due to lack of irrigation water the commercial scale production of other crops is not an option. The commercial or industrial development of this site will present numerous employment opportunities during both the development and operational phases.

5.1.2 Agronomic considerations

The methodology used in the preparation and compilation of this study is as follows:

- An interview and drive around accompanied by Mr. Dean Gillitt, farm manager.
- A desk top study of BRU data, Soil Parent Materials and Soil Systems common to the area and in addition, a geological history of this sub-region.
- In compliance with the KwaZulu-Natal Dept of Agriculture and Environmental Affairs (KZNDAE) requirement for the assessment of standing sugar cane of one observation pit per 50 ha, a route for the digging of 8 observation pits was mapped out.
- Pits were excavated to a typical depth of 1.5 m using a TLB. Slope was measured using an Abne Level.
- During the process of examining the observation pits the reasons for the large variations in cane quality became apparent, viz: Variations in topsoil depth and variations in sub surface wetness.
- A further drive through was undertaken accompanied by Ms. Nonhlanhla Myeni, a member of the KZNDAE Land Usage team.

This assessment reported that this farm is currently only marginally suitable for sugar cane production and will become progressively less viable. Further, due to poor soil quality and lack of irrigation water, it is not suitable for other crops.

This conclusion has been determined, in the main, by use of soils and crop production data published by various organs of the SA Sugar Industry and evaluated along the guidelines used by, and recommended by, KZNDAE for this type of land use assessment. Climate Capability Rating is measured on a scale of I to VIII, and in the case of the region in question, describes the area as permitting good yields for a wide range of adapted crops throughout the year However, climate is not the only factor in crop production. Soil and water are two other critical determinants of yield potential.

5.1.2.1 Slope

The whole farm is effectively Slope Class A (Less than 3 % slope), there is therefore no slope map for this exercise.

5.1.3 Pencarrow Assessment

The present Pencarrow farm was leased out to the John Albert (Hulett) Trust in 2004 by Tongaat Hulett SugarLtd. Cane harvested figures prior to this date were included in the original Pencarrow Estate figures and cannot be sourced. Taken against Maidstone milling throughput and milling capacity 5000 - 6 000 tons represents 0.04 % and 0.025 % respectively, a figure that is far lower than even the smallest seasonal variation. However these figures are part of a cumulative process.

In its present form Pencarrow cannot continue to operate as a stand alone economically viable sugar cane farm. It has limited infrastructure. It has no accommodation for an owner or manager or staff. It has no office accommodation and no workshops. The underground drainage system requires a major refurbish.

The portion that has not been abandoned, approximately 150 ha, is producing cane at an average of 40 tons per ha. (A farmer leasing land will not maintain non profitable fields, nor will he allow profitable fields to cross subsidize poor fields)

The current norm for a viable stand alone commercial sugar farm is 15 000 to 20 000 tons cane per season at 50 to 60 tons cane per ha. The farm is run as an adjunct to another near by farm, SaxeEstate, which farm supplies management, equipment, transport and labour. However, though leased out, the farm is still miller owned.

A further factor then comes into the equation, that factor being milling margins. In effect this means that in an industry where milling volume is critical to profitability, the miller can continue to grow cane at levels that would not be economic to a normal commercial farmer. Uneconomic cane is cross-subsidizing mill throughput. This agricultural assessment cannot comment on this aspect as it is not privy to the figures involved. It is therefore dependent on the land owner to decide whether to continue growing sugar cane or to seek permission for a change of land use.

5.2 Ecological

5.2.1 Terms of Reference

Tongaat Hulett appointed the then SSI to conduct the Environmental Impact Assessment associated with the proposed activities on Rem of Farm Pencarrow No. 17860, Compensation, Kwazulu-Natal.

This baseline assessment was completed as part of the EIA process in order to determine the state of the environment associated with the proposed project in Compensation and provide mitigation measures or

recommendations to prevent / minimise negative environmental impacts and where relevant optimise potential positive environmental impacts.

5.2.2 Overview

The current state of the environment is what one would expect to find throughout the KwaZulu-Natal South Coast where coastal forest belts have been converted to sugarcane farms. The primary vegetation type is sugarcane with a few large trees and much invasive alien vegetation along the road sides of both secondary and tertiary roads. However, two noteworthy ecological nodes exists; the first of which can be defined as natural forest as defined by the National Forests Act of 1998. According to 'Chapter 1: Introductory provisions,' which sets out the purposes of the act and defines words and terms in the act and guides its interpretation, a natural forest means;

"A group of indigenous trees -

(a) whose crowns are largely contiguous; or

(b) which have been declared by the Minister to be a natural forest under section 7(2); (xxviii)"

In line with this definition, the habitat in question will be a focal point of this study as it is one of only two areas within the site which holds any ecological significance. It is located on the southern side of the R102 and surrounds the only residential property in the locale; Ptn 5 of Farm Pencarrow. It has dense canopies whose crowns are largely continuous and consists of predominantly indigenous trees with dense alien coverage on the forest floor. This habitat covers an area of approximately 134 750 m²; it will be referred to as 'eco-region 2' for the purposes of this report.

The second area of significance is on the northern side of the R102, situated in the far northwest corner. It is here that the Wewe River and several drainage lines assimilate before flowing southwards to become a tributary to the Tongaat River. This habitat covers an area of approximately 121 500 m²; it will be referred to as 'eco-region 1' for the purposes of this report. This area falls into The National Water Act of (Act 36 of 1998) definition of a watercourse and riparian habitat;

" "watercourse" means -

(a) a river or spring:

(b) a natural channel in which water flows regularly or intermittently:

(c) a wetland. lake or dam into which, or from which, water flows; and

(d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse.

"riparian habitat" includes -

the physical structure and associated vegetation of the areas associated with a watercourse which are commonly characterized by alluvial soils, and which are inundated or flooded to an extent and with a frequency sufficient to support vegetation of species with a composition and physical structure distinct from those of adjacent land areas"

It is important when developing in and around these sensitive areas to bear in mind legislative requirements and ecological significance.

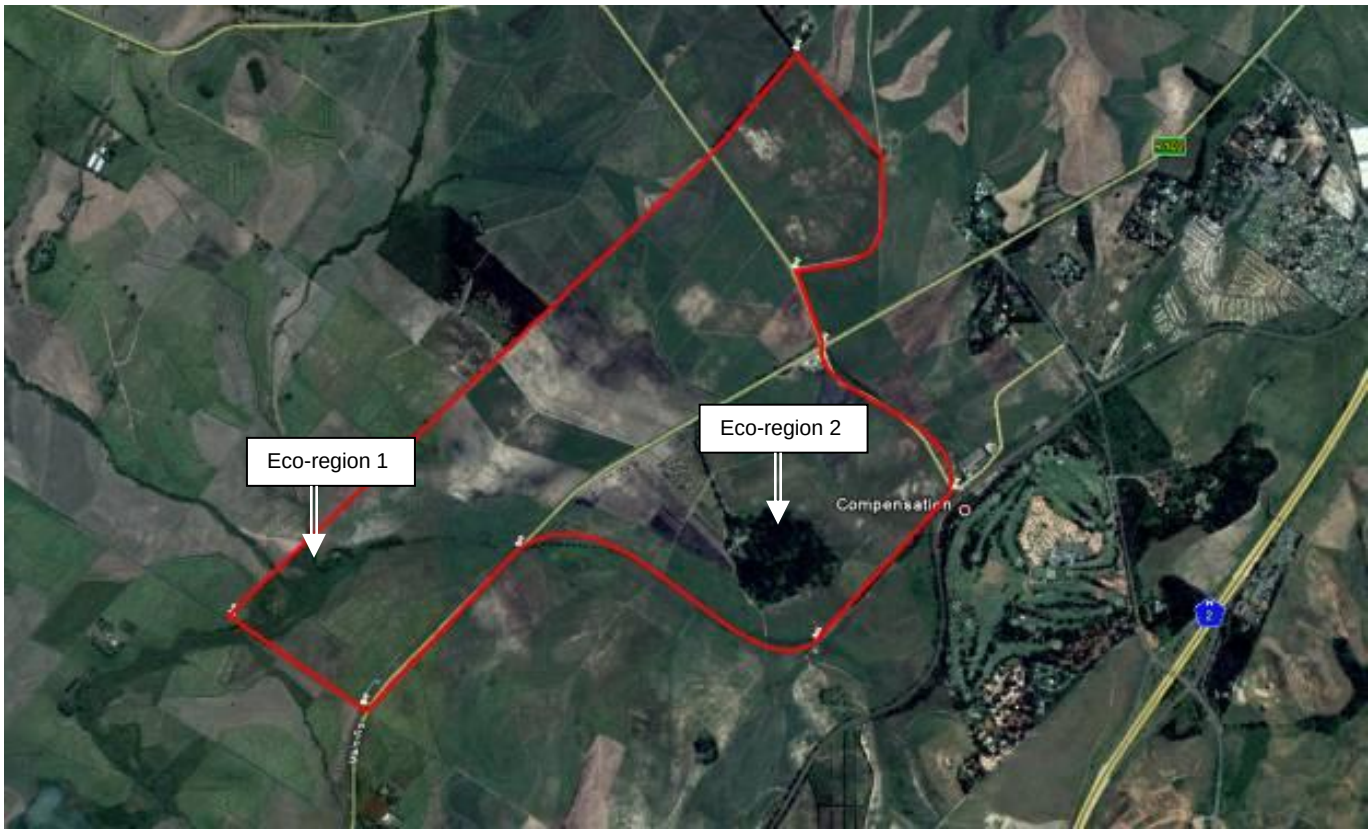


FIGURE 5: ECO-REGIONS AS IDENTIFIED IN THE ECOLOGICAL ASSESSMENT

5.2.3 Bird Species

Bird species are another consideration regarding the loss of habitat. The Dolphin Coast Bird Club, an affiliate of BirdLifeSA, visits Pencarrow, at least annually, and walk through 'eco-region 2' to bird there. They have found the forest to be home to a number of raptors, most of the barbet / tinkerbird species, a number of doves / pigeons, bulbul / greenbuls, aerial feeders like drongoes, batises, apalises and tits, ground feeders such as robin-chats and a noteworthy range of sunbirds. The fringes of the forest play host to a number of sparrows and wagtail species.

5.2.4 Conclusion and Recommendations

The development will have a minimum negative impact on the environment provided sensitive areas are respected and correct building procedures are followed; the primary sensitive area relating to this particular development are 'eco-region 1 & 2'.

Any work around the watercourse and indigenous forest must be considered to be potentially negative and cautionary practices should be employed. Both of these areas must be incorporated in the conservation servitude with an adequate buffer applied beyond their vegetative boundaries.

The footprint created by construction activities must be kept to a minimum wherever possible and stripped areas revegetated with indigenous vegetation as soon as construction activities cease in that particular area. A stormwater management plan must be drafted prior to the commencement of construction and approved by the ECO and Engineers; this to control the elevated amount of surface runoff which will be generated.

The EMPr must note the indigenous forest and Wewe river as sensitive areas and recommendations made to prevent degradation as well as plans laid out for the control / rehabilitation of potential contamination events should they occur.

5.3 Electrical Services

The supply authority for the proposed CIBE is the KwaDukuza Municipality, who receives electricity in bulk from Eskom, the said Municipality is responsible as the Supply Authority for the reticulation, distribution and maintenance of electricity within its electricity supply area of jurisdiction.

Eskom supplies the KwaDukuza area via the 275Kv Avon Transmission substation located near Stanger.

The KwaDukuza local network is currently running close to full capacity, and has already accepted a quotation from Eskom to upgrade the Gledhow 132/33kV substation to 80MVA firm. Eskom's Driefontein substation currently supplies both the KwaDukuza and eThekwini municipalities. The Shakaskraal substation is loaded at close to its rated capacity and can therefore not carry any significant additional load.

5.3.1 Proposed Electrical Infrastructure

A new 132/33kV 80MVA substation will be required to be built in order to support the magnitude of the proposed development and Eskom has already planned for such infrastructure and will be known as the Dukuza substation.

In terms of the electrical master planning of the area it is planned to upgrade the Shakaskraal substation in 2020 to an 80MVA firm substation.

The study further assesses proposed servitudes, distribution (11kV), 11kV link and internal service, street lighting, medium voltage infrastructure, low voltage infrastructure, demand side management, and renewable and alternative energy sources; including need for renewable and alternative energy sources, barriers to renewable energy implementation, solar energy, solar water heaters, mini grids, mini hydro, wind farms, biofuels, bio gas generators at Municipal Waste Dump Sites, gas generators with waste heat recovery, ocean current power generation and cogeneration.

5.3.2 Recommendations

It is highly recommended by Bosch Projects, that the use of energy efficient technologies be pursued further.

The use of LED and induction lighting needs to be incorporated into the street lighting design report along with recommendations for all other lighting requirements. The SASOL Home Gas Initiative also needs to be seriously considered as electricity savings can be quite considerable.

The process of cogeneration by Tongaat Hulett should also be seriously considered as a significant amount of power can be generated from the sugar waste products.

5.3.3 Actions

The following actions are required, going forward:

- Overall project programme to be developed, indication key dates and any sub-phases;
- Preliminary designs need to take place;
- KwaDukuza Municipality to confirm when the additional 15MVA from Driefontein Substation will be made available;
- KwaDukuza Municipality to confirm when the building of Dukuza substation will take place and when will supply from this substation be available;
- Tongaat Hulett to investigate the possibility of being admitted into the REFIT (Renewable Energy Feed In Traffic) Programme.

5.4 Engineering Services Report

5.4.1 Existing Bulk Services

5.4.1.1 Water

Data obtained from Ilembe Municipality indicated that no suitably sized watermains or reservoirs are located within serviceable distance to supply the bulk water demands of the proposed development.

5.4.1.2 Sewerage

The closest existing wastewater treatment works (WWTW) are the Fraser's and Tongaat Central Works.

Fraser's is the closest and most practical and logical option to service the development in the short term. Frasers WWTW was operating at 6M/day capacity, but has recently been upgraded to a capacity of 12M/day and has a license to further increase capacity to treat 18M /day.

Long term a new WWTW would be required to service developments that fall within the Wewe River catchment.

5.4.1.3 Roads

The closest existing roads to the development are as follows –

- Main Road 387 to the north
- Main Road 102 which virtually bisects the site.

5.4.1.4 Telecommunications

Apart from overhead lines located in the main road reserves there is no existing Telkom plant in the area of the proposed development.

5.4.2 Proposed Bulk Services

Proposed servicing options detailed in the report are considered practical for short term planning and can be incorporated in longer term regional planning by ILembe District Municipality.

Recommendations are made for water, sewers, telecommunications and road access. Please refer to report attached as Appendix D4.

5.5 Geotechnical

5.5.1 Introduction

The project involved determining the potential geotechnical aspects of the site relevant to residential and commercial development, i.e.

- Potentially problematic soil types, i.e. heaving/collapsing/compressible and anticipated foundation types required;
- Excavatability, erodability;
- Steep slopes and potentially unstable slopes;
- Seepage zones;
- Construction material suitability, etc.

5.5.2 Site Geology and Geotechnical Conditions

The site geology generally comprises thick Berea Red Formation sands overlying clayey sands on high lying areas (i.e. mid to upper slopes); becoming more clayey progressing down into valley bases where colluviums and clayey sand Berea Red Formation overlies clayey Residual Vryheid Formation. A localised area of Vryheid Formation sandstone / siltstone intruded by dolerite is found in the extreme western corner of the site.

5.5.3 Site Suitability Conclusions and Recommendations

The majority of the site is suitable for residential and commercial development. Deep sandy profiles are expected on mid to upper slopes, and more clayey/wet (perched water tables) profiles are anticipated progressing into valley depressions. The sandy soil profiles on mid to upper slopes are known to have a collapse potential and moderate to high soil compressibility. These soils are highly erosive, although the topography is gentle and hence infiltration rather than erosion presently predominates. G7-G9 quality material (after TRH14-1985) is expected to be obtainable from the thick upper sand cover.

The clayey soil profiles (clayey sands/sandy clays/clays) common to the valley depressions are generally not recommended for development due to the presence of perched water tables and clayey (heaving profiles). Due to the gentle topography and hence lack of cutting exposure, these will be more accurately delineated during the detailed investigation phase with the aid of testpitting. A localised area of Vryheid Formation sandstone / siltstone intruded by dolerite is found in the extreme western corner of the site.

Soils are generally expected to be cohesive with a moderate soil compressibility and moderate heave potential. The dolerite intrusion appears deeply weathered and is thus not anticipated to be a suitable borrow source.

Other than erosion control, no slope stability problems are anticipated provided conventional good practice is adopted during the earthworks phase.

5.6 Heritage

5.6.1 Terms of Reference

A Heritage Impact Assessment must address the following key aspects:

- the identification and mapping of all heritage resources in the area affected;
- an assessment of the significance of such resources in terms of heritage assessment criteria set out in regulations;
- an assessment of the impact development on heritage resources;
- an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;
- the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;
- if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and
- plans for mitigation of any adverse effects during and after completion of the proposed development.

5.6.2 Conclusion

No heritage resources within the proposed development area were observed, therefore there are neither mitigation measures nor monitoring measures recommended. eThembeni recommend that the development proceed with no further heritage mitigation and have submitted this report to Amafa aKwaZulu-Natali in fulfilment of the requirements of the National Heritage Resources Act.

According to Section 38(4) of the Act the report shall be considered timeously by the Council which shall, after consultation with the person proposing the development, decide –

- whether or not the development may proceed;
- any limitations or conditions are to be applied to the development;
- what general protections in terms of this Act apply, and what formal protections may be applied to such heritage resources;
- whether compensatory action shall be required in respect of any heritage resources damaged or destroyed as a result of the development; and
- whether the appointment of specialists is required as a condition of approval of the proposal.

5.7 Planning

This town planner's report sets out:-

- The Spatial Development Framework for the area outlining what development the Municipality would be considering in the next five years;
- Proposed layout plan with associated land use controls; and
- Report on the planning case for the proposed development.

Divided into precincts, Precinct "A" lies west of the R102 main road and south of P387 and is approximately 174ha in extent. The land is relatively flat, lies mostly approximately 70m above mean sea level (a.m.s.l) in its northern areas and the gradient of slopes on this land parcel vary between 1 in 30 and 1 in 45. The topography becomes more undulating towards the south, and in the southern portions of Precinct "A" the average height a.m.s.l. is between 50 – 60m with slopes varying from 1 in 15 and 1 in 18. The gradient of slopes along the valley lines vary between 1:5 and 1:6.

Precinct "B" lies east of main road R102 and south of P387 as it extends east of the R102 towards the railway line which forms the eastern-most boundary of the site. Precinct "B" is approximately 111ha in extent. The land is relatively flat, lies between 55-80m a.m.s.l. and the gradient of slopes on this land parcel vary between 1 in 40 on the plateau situated on the flat plateau in the northern area of the site, and 1 in 13 in the more undulating southern portions of the Precinct "B" area where it slopes down, in a southerly direction towards the valley line that forms the southern boundary of the site in this precinct.

Precinct "C" lies west of main road R102 and north of P387 and is approximately 35ha in extent. The land is gently sloping in this area, lies between 66-84m a.m.s.l. and the gradient of slopes on this land parcel is 1 in 23. This is the highest point on the application site, i.e. approximately 84m a.m.s.l. and the general slope of 1 in 23 is in a southerly direction towards road P387.

The planning response resulting in a layout plan identifying the following four precincts:

- General Industrial Precinct covering an area of approximately 90ha in extent;
- Service and Light Industrial Precinct covering an area of approximately 44 ha in extent;
- Business Park covering an area of approximately 67 ha in extent; and
- Corporate Park / Mixed Use Node covering an area of approximately 8 ha in extent.

5.7.1 Recommendations

The findings in this report clearly illustrated the need for the proposed development in a locality that is desirable for the intended use:

- The proposed development of the CIBE meets the principles of planning as set out in relevant legislation,
- The development is aligned with National Development objectives, Provincial Strategic Development Priorities, and Local Level Framework Plans,
- The land is suitable for the intended use from a Macro- or External Level point of view, from a Sub-regional level point of view, and from a Site Specific point of view,
- There is an enabling legislative environment that will facilitate the establishment of a development that will have significant impact on economic growth and employment creation in the region, with the result that poverty levels and dependency ratio's will be positively impacted upon, and
- Finally, it will be necessary to bring the land under appropriate environmental and planning control in terms of the provisions contemplated in NEMA and the KwaZulu-Natal Planning and Development Act, 2008 respectively.

5.8 Socio- Economic

5.8.1 Objective

The objectives of the Socio-Economic Study were:

- To consolidate all relevant information to quantify the direct and indirect/induced socio-economic impacts of the Compensation Industrial and Business Estate development on the different sectors of the immediate economy of KwaDukuza Municipality in which the development is located and iLembe District Municipality at large as spill-over;
- To develop an understanding of the Compensation Industrial and Business Estate development as an economic activity and to ensure all impacts are fully captured with the application of a macro-econometric simulation modelling technique in a local, regional, provincial, and national context;
- To interpret the results in terms of implications for socio-economic and economic intervention.

Overall the objective of this report was to undertake an empirical study of socio-economic impacts of the proposed Compensation Industrial and Business Estate development with the primary focus on considering the full extent of the development's socio-economic direct and relevant indirect / induced impacts on the local economy of KwaDukuza Municipality from the actual infrastructure and building / top-structure investments unlocked, to the stimulation of economic growth that the development's presence can cause in a local situation – as well as highlighting and determining the extent of these impacts.

5.8.2 Conclusions and Implications

The Compensation Flats development is likely to attract the interest of the public sector and private investors which will catalyze a stream of economic benefits to the public sector, citizen, and taxpayers living in KwaDukuza Municipal area.

Notwithstanding, the analysis suggests that the development will substantially contribute towards the economy of KwaDukuza in terms of GGP, employment and other income stream benefits. The development amongst other benefits is likely to unlock over R27 billion as purchase of goods and services during the construction period. It will generate between 71,000 and 90,000 as direct jobs, and between 48,000 and 61,000 indirect jobs. Out of these jobs between 47,000 and 60,000 will be permanent and between 52,000 and 66,000 will be temporary jobs. Nonetheless, between 19,000 and 25,000 will be secondary jobs. In addition, the development is anticipated to generate between R665 million and 840 million as public sector revenues from taxes.

Finally, the development is also anticipated to generate R5 billion as annual payrolls over the construction period which will add up to the KwaDukuza Municipality income stream that will recur yearly over the life span of the Compensation Industrial and Business Estate development.

5.9 Traffic

5.9.1 Procedures and Guidelines

The Manual for Traffic Impact Studies issued under the auspices of the National Department of Transport is the definitive guideline which sets out the procedures and level of detail to be undertaken in the Traffic Impact Assessment.

5.9.2 Existing Roads and Traffic

It has been proposed to provide two access points, one from the R102 and one from the P387, however, planning did not take into account two road proposals in the Strategic Development Framework and this may affect site access to a certain extent.

The provincial roads in the vicinity of the proposed site are surfaced two- lane roads. The R102 has 40m long right turn refuge lanes at the intersections of P387 and P445. D148 and D147 which provide access to Compensation railway station are currently gravel roads with very low traffic volumes. The P445 links the proposed project site to the N2 freeway where the interchange has to accommodate increasingly heavy traffic in peak periods. P445 east of the interchange serves Ballito and the new town centre, and its two lanes carry over 1000 veh/hr each way. This section of road is slated for widening along with the N2 freeway interchange.

Available peak hour traffic counts have been updated to 2011 using a 3% increase in growth rate per annum, balanced between intersections. Flows on the R102 are less than 500 veh/hr, which is well within capacity. With signals in place, the R102 capacity will be in the region of 900 veh/hr per approach. The P387 has little demand, less than 100 veh/hr, and the D148 even less. The P445 has moderate peak hour volumes west of the N2 but east of the N2 there is an urgent need for increased capacity. SIDRA peak hour analysis was undertaken at the two intersections on the R102, which are within one kilometre of the project site.

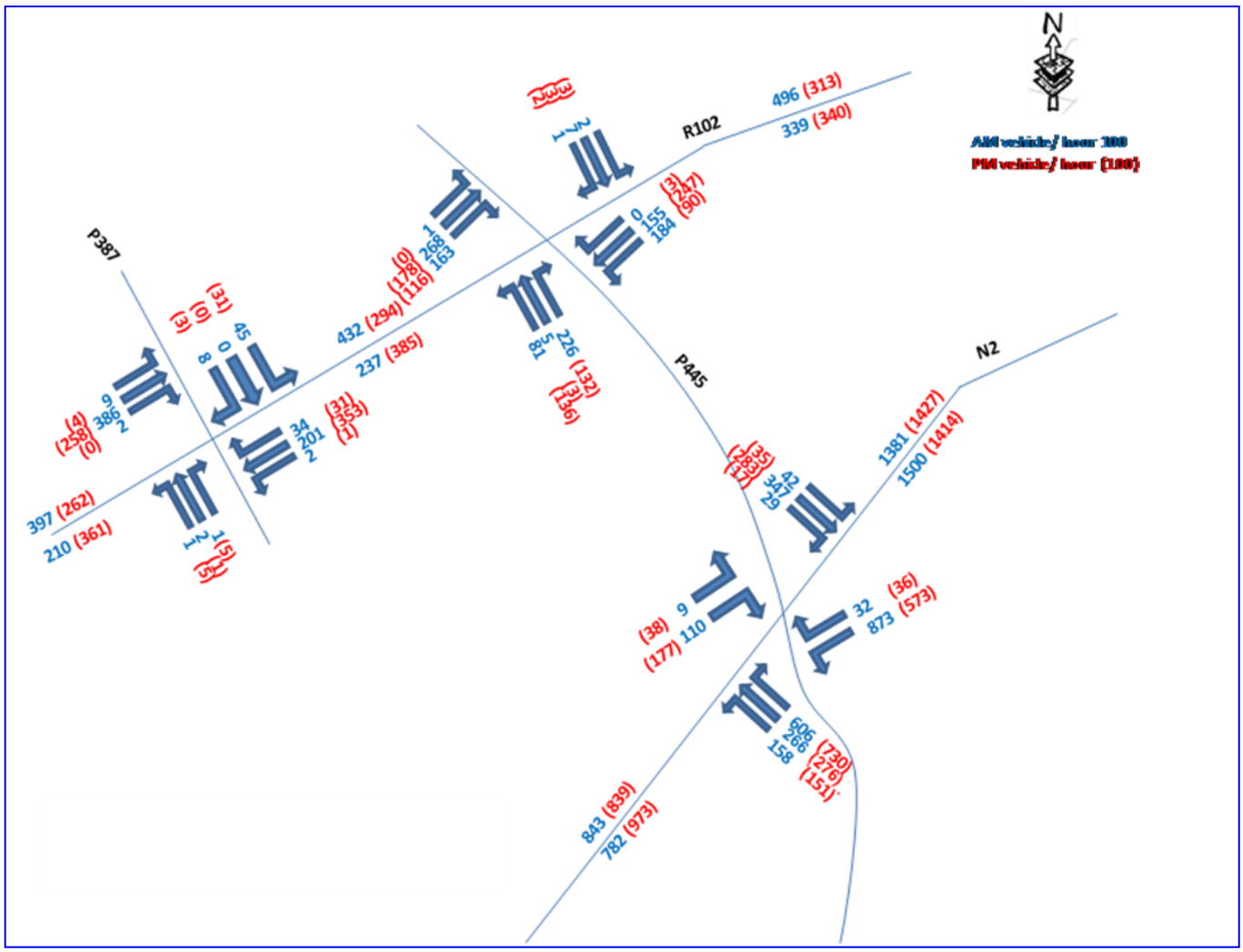


FIGURE 6: EXISTING TRAFFIC SITUATION

5.9.3 Traffic Impact Assessment Scenarios

Since the proposed project is likely to generate more than 2000 peak hour vehicle trips, it was necessary to adopt a ten year planning horizon instead of a five year horizon. Background traffic was assumed to grow at 3% per annum and the resulting ten year growth factor of 1.35 was applied to the 2011 volumes, thus representing 2021.

In addition to the existing conditions, the following scenarios were tested:

- 2021 Background Traffic including approved TIA's on the existing plus committed network;
- Full THD Development and 2021 traffic on the existing plus committed network;
- Full THD Development and 2021 traffic on improved network;
- Full THD development and 2021 traffic on improved network with widened D148 – D177;
- East side THD traffic; and
- West side THD traffic.

5.9.4 Conclusions

The THD proposal represents major traffic generation of some 5 350 vehicles per hour. It will take many years to develop fully but the road capacity requirements should be anticipated.

Taking into account the many TIA's prepared for the area, widening of the P445 to four lanes from the N2 to the R102 will be essential, despite the fact that each development will not warrant widening itself. The same applies to the section of the R102 between P445 and P387, therefore these widening were incorporated in the existing plus committed network for 2021. When the THD development is superimposed on this network, the widening of the roads mentioned above will then need further widening to six basic lanes.

The THD development will provide a major economic boost to the Ballito/Compensation area being the size of the Phoenix Industrial Park. Widening of the provincial roads will be essential, accompanied by upgrading and signalisation of intersections. The D148 will require surfacing but not widening, except for intersection approaches.

5.9.5 Recommendations

The Traffic Impact Assessment demonstrated major traffic impacts that will be generated by the proposed project. Mitigation measures on a large scale are therefore required. The TIA by GOBA recommends a package of road improvement proposals be adopted, comprising the following:

- For the existing plus committed network by KZN DOT and others:
  a) Dualling to 2 + 2 lanes of R102 from P387 to D445
  b) Dualling to 2 + 2 lanes of P445 from R102 to N2
  c) Widening and signalisation of intersections at P387/R102 and P445/R102.
- For phase 1: east side of R102 of the THD developments, by THD and KZN DOT,
  a) Dualling to 2 + 2 lanes of R102 and provision of footpaths from P378 to the proposed THD access 800m south west;
  b) Provision of signalised intersection at the R102 THD access;
  c) Provision of a bus/taxi rank of 5000m^2 in the vicinity of the R102 THD access, to accommodate six bus bays and eight taxi bays subject to detailed investigation and design;
  d) Surfacing of D148 from P387 to D177 to industrial road standard.
- For phase 2: west side of R102 of the THD developments, by THD and KZN DOT,
  a) Widening of R102 to 3 + 3 lanes dual from P387 to P445;
  b) Widening of the intersections at P387/R102 and P445/R102;
  c) Widening of P387 to four basic lanes to just beyond the accesses to office parks;
  d) Widening of D148 and D177 to four basic lanes with signalisation of the D177/P445 intersection.
- Subsequent roadworks by KZN DOT and others:
  a) Dualling of R102 to 2 + 2 lanes from the Tongaat bypass to Compensation and from Compensation to Stanger;
  b) Widening of P445 to 3 + 3 lanes from N2 to D177, or if D177 and D148 are not widened, to R102;

c) The provision of bus/taxi laybyes at appropriate locations when the above roads are widened or constructed;

d) Road reserves be established as follows: R102 – 34m (40m from P387 to P445), P387, D177 and D148 – 30m;

e) Consultation with KZN DOT to determine cost sharing and phasing of construction;

f) Consultation take place with KwaDukuza Municipality to determine the current status of the SDF and its proposals ant to elicit their input on the proposed development.

5.10 Wetland

Indigenous wetland woody and herbaceous species are located in the drainage ditches across the site.

Species include *Voacanga thouarsii, Syzygium cordatum, Typha capensis, Leersia hexandra, Cyperus dives* and *Phragmites australis*.

5.10.1 Impacts to Wetlands

The following impacts to the four wetlands identified within the project area were identified:

All the wetlands apart from a small, isolated portion, are to be protected and rehabilitated as part of the development proposal.

5.10.1.1 Erosion during Construction Phase;

Mitigation recommendations:

- Clearing activities must only be undertaken during agreed working times and permitted weather conditions. If heavy rains are expected, clearing activities should be put on hold. In this regard, the contractor must be aware of weather forecasts.
- A combination of sandbags and silt fences must be established along the edge of all bare and exposed platform surfaces above the wetlands and un-kerbed roads.
- The berms and silt fences must be monitored for the duration of the construction phase and repaired immediately should damage occur. The berms and silt fences must only be removed once vegetation cover has successfully re-colonised the embankments.
- Once shaped, all exposed surfaces and fill embankments must be vegetated immediately.
- The bare surfaces must be hydroseeded. In the winter months, the grassing must be watered daily until re-colonisation is successful. During the wet months, the grassed surfaces must be monitored for erosion until re-colonisation is successful.
- Effort must be made to ensure that the stormwater system, including pipes, drains, headwalls and Reno-mattresses are not silted up during the construction phase. Siltation will be minimised by ensuring that the roads and paths remain clear of sediment. In this regard, road surfaces adjacent to bare soil surfaces must be protected by a combination of silt fences and sandbags.
- After every rainfall event, the contractor and ECO must check the site for erosion damage and rehabilitate this damage immediately. Erosion rills and gullies must be filled in with appropriate material.

- It is important that these mitigation measures are costed for in the construction phase financial planning and budget so that the contractor and/or developer cannot give financial budget constraints as reasons for non-compliance.

5.10.1.2 Erosion during Operational Phase;

Mitigation recommendations:

- All storm water runoff must be actively attenuated on site prior to any discharge into natural systems.
- Attenuation structures must be located outside the wetland and 20m buffer, the opportunity exists to use the outer 10m of a 30m buffer for the placement of attenuation structures.
- A policy of many smaller discharge points must be preferred over fewer, larger discharge points. This will allow for a more diffuse return of flow to the wetland system.
- An adequately sized and keyed-in stilling basins and Reno-mattress must be established below all discharge points to prevent erosion.
- The outer edge of the headwall and Reno-mattress structure must be demarcated with snow fencing and approved by the Environmental Control Officer prior to construction commencing. All wetland areas beyond this demarcation must be considered no-go zones during the construction phase. The snow fencing must be kept taught at all times

5.10.1.3 Pollution of Wetlands and Watercourses;

Mitigation recommendations:

- All storage areas for fuel and other potentially harmful substances must be bunded and an oil-water separator installed.
- Drip trays must be used during all refuelling operations.
- Any spills or leaks must be cleaned up immediately and the contaminated material or soil disposed of in the correct manor.
- All storm runoff from areas with potentially hazardous materials are stored must run through a suitable scrubbing system before discharge into the environment.
- A water quality monitoring program should be considered to ensure quality of discharge into the environment

5.10.1.4 Reticulated Services in Wetlands and Buffers.

Mitigation recommendations:

- All sewer and water pipelines must be located outside of the wetland and buffer where possible.
- Any crossings must be planned at narrow points in the systems and must be perpendicular to the direction of flow.
- The possibility of pipe-bridges or pipe-jacking should be considered for crossings.
- Both services (water and sewer) should cross within a 'disturbance corridor' rather than having crossings at multiple points in the wetland. Existing areas of disturbance such as road crossings should be considered for reticulation.

- Wetland specific construction methods and monitoring protocols should be included in the EMPr for implementation by the ECO.

5.10.1.5 Loss of wetland area

Mitigation recommendations:

- The loss of this system can be offset via either and on-site or off-site rehabilitation programme. A policy of no net loss of wetland area should be adopted and a suitably sized system identified and enhanced to a level where the relative pristine area lost is replaced and functionality improved.
- Another alternative is the inclusion of the wetland within the planned erf as conservation servitude. This will allow the achievement of the desired bulk area, but will also maintain this system.

5.10.2 Conclusion

Assessment of the impacts likely to arise from development of the Compensation Industrial Development identified the risk of erosion during the construction and operational phases as the primary impact faced by the wetlands on site and downstream.

Mitigation was presented to address both the construction and operational aspects of the development and in all cases, should the mitigation be implemented, the impact was shown to reduce.

Provided the above recommendations are implemented, it is felt that the impacts of the Compensation Industrial Development are acceptable and that the expected impacts to the wetlands will be reduced to a largely minimal level.

A comparison was made between the application of a 20m and a 30m buffer to the wetlands and the level of impact mitigation the additional area would have. In almost all cases the impacts on the wetlands provided with a 30m buffer were shown to be lower than the same systems with 20m buffers. Best practice would suggest that a 30m buffer be provided to the wetlands to help better protect the systems. It is suggested that as a measure of compromise between the current 20m and the need to provide now for 30m buffers that the additional 10m of buffer be utilised for storm water attenuation infrastructure. This could include attenuation ponds, attenuation tanks, stilling basins, Reno mattresses, etc.

From a town planning perspective, this additional 10m area can be included within the various erven, allowing for the achievement of the current bulk areas, however, the buffer should be registered as a non-user servitude or conservation servitude.

The proposed encroachment was assessed and suitable mitigation was presented to offset the loss of the wetland system. It is proposed to create 5.5 ha of Coastal Forest on the property in mitigation for the loss of 0.98 ha of poor quality wetland.

It is felt that this option will suitably address the offset requirements for the site.

6 CLIMATE CHANGE AND COP17

6.1 Conference of the Parties

The United Nations Framework Convention on Climate Change (UNFCCC or FCCC) is an international environmental treaty produced at the United Nations Conference on Environment and Development (UNCED), informally known as the Earth Summit, held in Rio de Janeiro from June 3 to 14, 1992. The objective of the treaty is to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. One of its first tasks was to establish national greenhouse gas inventories of greenhouse gas (GHG) emissions and removals, which were used to create the 1990 benchmark levels for accession of countries to the Kyoto Protocol and for the commitment of those countries to GHG reductions. The parties to the convention have met annually from 1995 in Conferences of the Parties (COP) to assess progress in dealing with climate change. In 1997, the Kyoto Protocol was concluded and established legally binding obligations for developed countries to reduce their greenhouse gas emissions. The seventeenth COP will be held in Durban, South Africa.

Climate change is considered to be one of the most serious threats to sustainable development, with adverse impacts expected on the natural environment, human health, food security, economic activity and investment, natural resources and physical infrastructure. This will excessively affect the poor who the least equipped to adapt to the potential effects of climate change. The African continent is case on point in this context. South Africa like many other developing countries is under threat in terms of climate change impacts. To this effect municipalities in South Africa have followed the UNFCCC process and have always ensured participation and exchange of lessons learnt during the UNFCCC conference of parties. The South African Government regards climate change as one of the greatest threats to sustainable development. It is also believed that climate change, if left unmitigated, has the potential to undo or undermine many of the positive advances made in meeting South Africa's own development goals.

It is generally agreed that business and government should work together in order to effectively address climate change with its connection to energy access and security, as they have complimentary goals. Governments want to improve quality of life for people and this requires goods and services delivered by business. Global target setting has not delivered the necessary emissions reductions in the years following the Kyoto Protocol agreement, which advocated "top-down" approaches.

6.2 South Africa's Response

The National Climate Change Response White Paper (2011) presents the South African Government's vision for an effective climate change response and the long-term, transition to a climate-resilient and lower-carbon economy and society. The response has two objectives:

- Effectively manage inevitable climate change impacts through interventions that build and sustain South Africa's social, economic and environmental resilience and emergency response capacity; and
- Make a fair contribution to the global effort to stabilise greenhouse gas (GHG) concentrations in the atmosphere at a level that avoids dangerous anthropogenic interference with the climate system within a timeframe that enables economic, social and environmental development to proceed in a sustainable manner.

The overall strategic approach for South Africa's climate change response is one that is needs driven and customised; developmental; transformational, empowering and participatory; dynamic and evidence-based; balanced and cost effective; and integrated and aligned.

In terms of adaptation, the White Paper includes a risk-based process to identify and prioritise short- and medium-term adaptation interventions to be addressed in sector plans. The process will also identify the adaptation responses that require coordination between sectors and departments and it will be reviewed every five years. Water, agriculture and forestry, health, biodiversity and human settlements are sectors that need particular attention for the immediate future. South Africa's approach to mitigation, which is addressed by section 6 of the response policy, balances the country's contribution as a responsible global citizen to the international effort to curb global emissions with the economic and social opportunities presented by the transition to a lower-carbon economy as well as with the requirement that the country successfully tackles the development challenges facing it.

There exists a set of Near-term Priority Flagship Programmes to be implemented informed by several important factors including the urgency of acting on mitigation and adaptation responses as well as the fact that many sectors have already researched and have experience in implementing policies and measures to address the challenges of climate change. These Flagship Programmes are:

- The Climate Change Response Public Works Flagship Programme;
- The Water Conservation and Demand Management Flagship Programme;
- The Renewable Energy Flagship Programme;
- The Energy Efficiency and Energy Demand Management Flagship Programme;
- The Transport Flagship Programme;
- The Waste Management Flagship Programme;
- The Carbon Capture and Sequestration Flagship Programme;
- The Adaptation Research Flagship Programme.

In this regard it is imperative, going forth in developing the greater Ballito area, that there is integration and collaboration between planners, developers and local government to ensure that development takes place in a sustainable manner and adheres to and implements the principles of the National Climate Change Response White Paper. This will enable a holistic approach to achieving sustainable development and contributing to South Africa's effort in curbing GHG emissions. Consideration for the green economy could be highly beneficial in the planning of the CIBE. Continual engagement with specialist should be ensured, to develop strategies and methods for mitigating anticipated long term impacts and to incorporate such methods into the holistic design of the development. Section 11 of the electrical services study done for the CIBE recommends various renewable and alternative energy sources.

Unemployment is a key issue for South Africa and is a critical vulnerability that could be severely worsened by climate change. Severe income distortions further limit many people's ability to build resilience to climate change impacts. Climate change will affect employment, job creation and living standards and, in many instances, this affect may be negative. Vulnerable low-income households and the marginalised unemployed will face the most severe impacts unless urgent steps are taken to reduce South Africa's vulnerability to climate and economic shocks. At the same time climate change responses that improve resilience could positively impact employment in South Africa. For example, adaptation could create new jobs to which workers can migrate from sectors

affected by mitigation strategies. The climate change response will attempt to reduce the impact of job losses and promote job creation during the shift towards the new green economy. Job creation is a key element of the CIBE development and there exists the opportunity to alleviate pressures of unemployment in the region and create jobs within the "green economy" initiative.

Climate change is an issue for all South Africans and government realises that the objectives set out in the White Paper can only be fully realised with the active participation of all stakeholders. The government is committed to substantive engagement and partnerships with stakeholders from industry, business, labour and civil society in a manner that enhances coordination. As both a significant contributor to GHG emissions and effective climate change response actions, lower-carbon products and services and "green" jobs, business and industry have a fundamental role in South Africa's climate change response. Thus, government will continue to forge and maintain effective partnerships with business and industry to ensure that their capacity is harnessed in driving the transition to a climate-resilient, equitable and internationally competitive, lower-carbon economy and society. Government also recognises the importance of private sector funding in achieving national climate change response actions and will work with the financial sector to explore the most appropriate mechanisms to achieve efficient funding flows.

The Compensation development is proposing a number of sustainability measures that will have a micro level impact from a climate change perspective which is viewed as being positive.

6.3 The CIBE Sustainability Measures

6.3.1 Energy

"…. every decision is an energy decision …..". This comment is based on the fact that energy is a cross-cutting issue which affects all human activities. Furthermore, the use of energy has significant and long-term impacts on the environment. Consequently it is highly appropriate to consider ways to integrate more sustainable energy services into all activities, including buildings, to optimise the use of energy and minimise the negative impacts of the use of energy.

Developments will be permitted a maximum of 80% of the traditional energy demand as per NRS 069:2004 subject to operational specific requirements as approved by the Design Review Panel.

- Lighting
    - Maximise use of natural light in design and operation of all buildings;
    - Maximum use of roof monitors (and provision of mounting space for on-site solar PV generation in future) to provide natural day lighting in deep internal spaces of upper floors (or ground floor in single storey buildings);
    - Use only low energy / LED/CFL/induction lighting light bulbs;
    - Ban use of halogen downlighters, thinking of more creative alternatives eg. uplighters using CFLs, LED spots if necessary;
    - Motion sensor light are encouraged as much as possible;
    - The roof apertures should be between 4 – 8 % of the floor area;
    - Use diffuse glass to provide better distribution of light;
    - Avoid horizontal skylights which will exacerbate heat solar gains in summer;

  - Skylights should optimally face south or in the range south east to southwest;
  - Maximise the use of task lighting for artificial lighting to maximise the efficiency of the artificial lighting.

- Heating/Cooling
  - Use of gas for heating purposes for operations is encouraged;
  - Solar thermal/photovoltaic hot water heating or the use of heat pumps is required ;
  - Insulation/Geyser blankets on conventional geysers;
  - Set geyser thermostat to 50oC in summer and 60oC in winter;
  - Maximise use of double glazing and circulation in building design and operation;
  - Ensure most efficient orientation of building to maximise use of sun and wind;
  - Roof Space insulation.

6.3.2 Water

Water is a scarce and increasingly expensive resource and hence must be utilised cautiously.

- Potable water is to be used sparingly;
- Use of dual flush toilets mandatory;
- Rainwater harvesting (including utilising roof water) for irrigation/garden use is encouraged;
- Potable water is not permitted to be utilised for garden purposes;
- Low energy / low water use appliances;
- ReUse/Recycling of water used in operations is encouraged as much as possible;

6.3.3 Stormwater

- It is a specific requirement that the impact on the environment from increased stormwater flows be minimised;
- No increased nor concentrated flow of stormwater shall be permitted to discharge onto adjacent sites, roads or open spaces;
- A minimum of 20% of the site shall be landscaped as per 8.0 above;
- All surface and driving areas are to have porous paving principles implemented in order to ensure attenuation of stormwater onsite;
- Roofed stormwater should be diverted to either the landscaped areas, captured for reuse or diverted to onsite attenuation structures prior to being fed into the surrounding stormwater system;
- Pollution controls and first flush diversions are required on all industrial sites;
- No materials, fluids or substances which may have a detrimental effect on flora, fauna and aquatic life shall be permitted to enter the stormwater system, wetlands and watercourses;

6.3.4 Waste

- Implement policy of 3Rs – reduce/reuse/recycle;

- Reduce the demand for products, packaging Reuse containers, packaging, bags etc Recycle paper, plastics, glass, cans, food for fertilizer ;
- Provision must be made for appropriate recycling facilities/containers within all sites.

6.3.5 Transportation

- Use of public transportation encouraged;
- Car pools encouraged.

6.3.6 Biodiversity

- Only indigenous species are permitted to be utilised for landscaping and planting of green spaces around buildings as per the Landscaping Guidelines.

6.3.7 Materials

- The use of natural and local materials in design and construction is strongly encouraged.

7 ALTERNATIVES

No offsite or other site alternatives have been investigated due to the fact that this existing large parcel of land is strategically located adjacent to the R102 and which can integrate naturally and positively into this existing industrial fabric as well as open up opportunities along the northern corridor. The site is unusually flat and therefore ideally suited to industrial development. The development, as noted above, has a wide variety of objectives to meet and such objectives would not be possible to achieve if the development was attempted elsewhere. This development has been created to help create job opportunities in the Ilembe and KwaDukuza Municipality Areas.

The Development Concept Plan structure is considered sound and critically delivers upon the strategic objectives that have been identified by Tongaat Hulett Developments. Furthermore, it is noted that Tongaat Hulett have spent considerable amount of time and effort in the planning and contextualisation of the development and there is broad acceptance that the development framework plan is appropriate and will add value to the region and enable the Compensation development to fulfil its objectives and mandate. The proposal fits into the IDP, LUMS and the Spatial Framework that has been drafted for the KwaDukuza Municipality.

7.1 Land Use Alternatives

TABLE 9: LAND USE ALTERNATIVES

Alternative	Description
1 (Preferred)	In accordance with the current proposed Ilembe Industrial Development Strategy, the property has been identified as land suitable for Industrial Development and therefore to meet the Municipality's as well as Tongaat Hulett Developments objectives, the focus was on Industrial, business park and office development. This is the preferred land use
2	Alternative 2 would be focused upon solely residential development or a significantly reduced industrial/business component.

7.2 Infrastructural Alternatives

TABLE 10: INFRASTRUCTURAL ALTERNATIVES

Infrastructure	Description
Water	The location and the size of the reservoirs
Sewer	The short term and long term options ie. gravity vs. pumping; pump station localities
Electricity	The location and size of the substation

7.3 No Go Option

The no-go alternative will prevent all the positives that can be associated with providing industrial / logistics, business park and office opportunities as well as for economic growth. This option does not facilitate integration nor does it address the opportunity to redress the spatial planning imbalances of apartheid.

The project aims to leverage, assemble, and systematically align multiple institutional, financial, human and managerial resources in a creative and innovative manner, urban restructuring and renewal, densification, provide job opportunities, poverty eradication, and greater responsiveness to livelihood strategies. These are key components of Compensation and relate directly to the strategic activities of Government, its constitutional obligations and the priorities of creating a better life for all.

The no-go option for a development in terms of the spatial framework plan will limit the opportunities within the Ilembe District in providing job opportunities to local communities.

The location and situation of Compensation also dictates that it be appropriately and sustainable developed for uses and activities which offer the best value, returns and benefits to the municipality.

7.4 Comparative Assessment of Alternatives

An assessment of the environments likely to be affected by the identified alternatives is included in the table below. This is a comparative assessment and includes the “no-go” option.

TABLE 11: COMPARATIVE ASSESSMENT OF ALTERNATIVES

Site Alternatives	
No site alternatives	• No offsite or other site alternatives have been investigated due to the fact that this is the closest, existing large parcel of land to the existing built up areas of the city and which can integrate naturally and positively into this existing fabric. • The development, as noted above, has a number of and wide variety of objectives to meet and such objectives would not be possible to achieve if the development was attempted elsewhere.
Land Use Alternatives	
Alternative 1 (Preferred)	• Due to the site located in close proximity to the Kind Shaka International Airport and Dube Trade Port and also on the suitable relatively flat land, it affords the opportunity to create a sustainable business and light industrial hub with higher densities, employment, commercial, recreational and social facilities. • The KwaDukuza Spatial Development Framework Plan as well as the Ilembe Spatial Framework Plan has earmarked the property as forming part of an “Activity Node” situated at the intersection of two “Activity (Secondary) Corridors”. The general interpretation of the Framework Plan is based on “ … a linear spatial structure to the Dolphin Coast Entity, which is already well established by virtue of the coastal settlement, the N2 freeway, the R102 and the railway line”. It is further noted that in the current proposed Ilembe Industrial Development Strategy, the property has been identified as land suitable for Industrial Development.
Alternative 2	• This alternative is focused solely on residential or a significantly reduced commercial component, or a much lower residential density. • There is a major need for economic and employment opportunities as opposed to solely housing development. Sustainable cities have to provide for a variety and mix of uses which are easily accessible. • Government’s policy and drive is aimed at Integrated Human Settlements as the solution to simply rolling out RDP housing because of its sustainable basis together with the significant benefits to the use and efficiencies of infrastructure.

No-Go Option
This option involves retaining the existing land use – agriculture. The property would remain under cane, and would continue to operate as a working sugar cane farm. This is a mixed use development that entails a huge component for housing; as such the no-go alternative will prevent all the positives that can be associated with housing developments as well as for economic growth. This option does not facilitate integration nor does it address the housing backlog and opportunity to redress the spatial planning imbalances of apartheid.

8 ENVIRONMENTAL IMPACT ASSESSMENT

8.1 Introduction

The EIA of the project activities is determined by identifying the environmental aspects and then undertaking an environmental risk assessment to determine the significant environmental aspects. The environmental impact assessment has included all phases of the project namely:

- Construction Phase; and
- Operational Phase.

It must be noted that the further requirements requested as per the rejection letters have not put forward the identification of any further impacts for assessment. This is the case for the Wetland Delineation and Management Report, Impact Assessment and Rehabilitation as well as elaborated on the response from SiVEST dated 15 January 2013 and submitted as Appendix G1 of addendum one.

NB: due to the nature of the development it is anticipated that the infrastructure would be permanent, thus not requiring decommissioning or rehabilitation. Maintenance of infrastructure will be addressed under the operational phase.

8.2 Methodology

The rating system is applied to the potential impact on the receiving environment and includes an objective evaluation of the mitigation of the impact. In assessing the significance of each issue the following criteria (including an allocated point system) was used (see tables 6 and 7 for definitions):

- Extent: The area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment phase of a project in terms of further defining the determined significance or intensity of an impact. For example, high at a local scale, but low at a regional scale;
- Duration: Indicates what the lifetime of the impact will be;
- Intensity: Describes whether an impact is destructive or benign; and
- Probability: Describes the likelihood of an impact actually occurring.
- Cumulative.

TABLE 12: CRITERIA USED FOR THE RATING OF POTENTIAL IMPACTS

CRITERIA	DESCRIPTION AND RATING			
	4	3	2	1
EXTENT (E)	**National** The whole of South Africa	**Regional** Provincial and parts of neighbouring provinces	**Local** Within a radius of 2km of the construction site	**Site** Within the construction site
DURATION (D)	**Permanent** Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient	**Long-term** The impact will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter. The only class of impact which will be non-transitory	**Medium-term** The impact will last for the period of the construction phase, where after it will be entirely negated	**Short-term** The impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase
INTENSITY (I)	**Very High** Natural, cultural and social functions and processes are altered to extent that they permanently cease / continuously improve	**High** Natural, cultural and social functions and processes are altered to extent that they temporarily cease / improve	**Moderate** Affected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way	**Low** Impact affects the environment in such a way that natural, cultural and social functions and processes are not affected
PROBABILTY OF OCCURENCE (P)	**Definite** Impact will certainly occur	**Highly Probable** Most likely that the impact will occur	**Possible** The impact may occur	**Improbable** Likelihood of the impact materialising is very low

Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact.

TABLE 13: CRITERIA USED FOR THE RATING OF CLASSIFIED IMPACTS

Low impact (4-6 points)	A low impact has no permanent impact of significance. Mitigatory measures are feasible and are readily instituted as part of a standing design, construction or operating procedure.
Medium impact (7-10 points)	Mitigation is possible with additional design and construction inputs.
High impact (11-14 points)	The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/or operational phases. The effects of the impact may affect the broader environment.
Very high impact (15-16 points)	Permanent and important impacts. The design of the site may be affected. Intensive remediation is needed during construction and/or operational phases. Any activity which results in a "very high impact" is likely to be a fatal flaw.

Status	Denotes the perceived effect of the impact on the affected area.
Positive (+)	Beneficial impact.
Negative (-)	Deleterious or adverse impact.
Neutral (/)	Impact is neither beneficial nor adverse.
It is important to note that the status of an impact is assigned based on the status quo – i.e. should the project not proceed. Therefore not all negative impacts are equally significant.	

8.3 Environmental Impact Assessment

8.3.1 Alternative 1

8.3.1.1 Construction Phase

Where **E** = Extent, **D** = Duration, **I** = Intensity and **P** = Probability of occurrence.

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
Biophysical Environmental												
Geology												
A1-C-BE1	Disturbance of surface geology for development foundations	1	3	1	3	Negative Medium (-8)	• All site disturbances must be limited to the areas where structures will be constructed. • The cut slopes in soil and weathered rock should not be steeper than 1:1,5 (V:H) and 1:1 in rock. • The fill slopes must not be steeper than 1:1,5m and where more than about 10m in height they should not exceed 1:2 in overall steepness to ensure stability. • Large excavations for the contractor laydown area, storage areas or waste areas are not permitted. • Ensure that contractors and staff are well managed and adhere to the mitigation and management measures.	1	2	1	2	Negative Low (-6)
Topography												
A1-C-BE2	Alteration of topography due to stockpiling of soil, building material and debris and waste material on site.	1	3	2	3	Negative Medium (-9)	• All stockpiles must be restricted to designated areas and are not to exceed a height of 2 metres. • Stockpiles created during the construction phase are not to remain during the operational phase. • The contractor must be limited to clearly defined access routes to ensure that sensitive and undisturbed areas are not disturbed.	1	2	1	3	Negative Medium (-7)
Soils and Land Use and Capability												
A1-C-BE3	Removal and compaction of soil during construction activities.	1	2	2	4	Negative Medium (-9)	• Strip topsoil prior to any construction activities. • Reuse topsoil to rehabilitate disturbed areas. • Topsoil must be kept separate from overburden and must not be used for building purposes or maintenance or access roads.	1	1	2	3	Negative Medium (-7)
A1-C-BE4	Disturbance of soils and/or land use potential due to location of construction camp and associated infrastructure	1	2	2	3	Negative Medium (-8)	• The contractor laydown area must be placed in an area where erven will be developed and not in an area that will be utilised in future as an open space, recreational, educational or commercial. • The contractor laydown area may not be placed in or in close proximity to the wetland habitat or the indigenous forest located on site. • No material may be stored or equipment repaired beyond the boundaries of the contractor laydown area.	1	1	1	2	Negative Low (-5)
A1-C-BE5	Erosion, degradation and loss of topsoil due to construction activities as well as surface and stormwater runoff.	1	3	2	3	Negative Medium (-9)	• Minimise the clearance of vegetation to avoid exposure of soil. • Protect areas susceptible to erosion with mulch or a suitable alternative. • Implement the appropriate topsoil and stormwater runoff control management measures as per the Draft EMPr to prevent the loss of topsoil. • Topsoil should only be exposed for minimal periods of time and adequately stockpiled to prevent the topsoil loss and runoff.	1	2	2	2	Negative Medium (-7)

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
A1-C-BE6	Degradation of soil due to exposed areas and roads.	2	3	2	3	Negative Medium (-10)	• Minimise the clearance of vegetation to avoid exposure of soil when widening the P378/R102 and P445/R102 intersections and D177. • Any materials that may hamper re-growth of vegetation must be removed prior to rehabilitation and disposed of at and appropriate site. • Topsoil should only be exposed for minimal periods of time and adequately stockpiled to prevent the topsoil loss.	2	2	2	2	Negative Medium (-8)
A1-C-BE7	Impact on land use and land capability.	1	4	4	3	Positive High (+12)	• The agricultural land capability of the Compensation Industrial and Business Estate Project area has been classified as marginal land for agriculture due to poor irrigation. The site has been classed as Class IV, which according to the KZNDAE Directorate of Natural Resources is subjected to severe cultivation restrictions. Due to the need for the provision of employment activities and services in the northern parts of the KwaZulu Natal, particularly KwaDukuza, the Compensation Project area is ideally located to address this need, due to its close proximity to the King Shaka International Airport Dube Trade Port. • Due to poor soils and lack of irrigation water production of crops other than the existing sugarcane is not an option. Further, cash cropping will present a wind erosion hazard. • Given the above conclusions determined by the agricultural assessment, the impact on land use is negated.	1	4	3	3	Positive High (+11)
Vegetation												
A1-C-BE8	Disturbance of major vegetation areas.	1	4	3	4	Negative High (-12)	• Ensure no construction activities take place within areas designated as Open Space Areas (i.e. areas of indigenous vegetation); • Protected trees may not be removed or cut without a permit from the Department of Water Affairs and Forestry (DWAF). • Weeds and alien vegetation should be removed and prevented from spreading with control measures. Of the total 62 dominant plant species recorded, 41 are alien; and almost all invasive, one positive interaction the development can have with the environment is to remove dominant alien plant species in accordance with to The Conservation of Agricultural Resources Act • A specialist ecologist will be on site during the construction period to ensure that sensitive areas are not encroached on. • The vast majority of the site is made-up of commercial agriculture and therefore much of the site will not incur any significantly negative impacts brought upon by the proposed development. Areas currently being used for sugarcane cultivation hold no ecological value worth preserving. • There does exist within eco-region 2, natural forest, which is only partially included in the Open Space Areas, and therefore mitigation measures advised in the draft EMPr must be strictly adhered to in this region. • Any work around the watercourse and indigenous forest must be considered to be potentially negative and cautionary practices should be employed. Both of these areas must be incorporated in the conservation servitude with an adequate buffer applied beyond their vegetative boundaries. • The footprint created by construction activities must be kept to a minimum wherever possible and stripped areas re-vegetated with indigenous vegetation as soon as construction activities cease in that particular area.	1	3	1	3	Negative Medium (-8)
A1-C-BE9	Impact on riparian zones.	1	2	3	3	Negative Medium (-9)	• Any work around the watercourse must be considered to be potentially negative and cautionary practices should be employed. Both of these areas must be incorporated in the conservation servitude with an adequate buffer applied beyond their vegetative boundaries. • The Wetlands and associated riparian zones are completely included in the Open Space Areas.	1	1	1	2	Negative Low (-5)
A1-C-	Removal and use of	4	4	4	3	Negative High	• No cutting down of trees for firewood	1	1	1	1	Negative Low

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
BE 10	local flora for firewood.					(-15)	• Utilise commercially sold wood or other sources of energy. • Training of contractors on environmental awareness and the importance of flora.					(-4)
Wetlands												
A1-C-BE 11	Permanent loss of wetland as a result of infilling for the construction of a road and other platforms.	1	4	3	4	Negative High (-12)	• Replacing lost wetland with wetland of equal size and type is the only way to properly mitigate this impact, and in so doing, achieving a no net loss of wetlands. • In some cases a net gain in wetland area may be appropriate. This can be achieved by creating or reinstating wetland lost to the landscape at a ratio of 1:2 or in some case 1:3 or greater. • A small portion of wetland lies to the east of the R102 (whereas the rest of wetland 3 and wetlands 1,2 and 4 are included in their entirety in the conservation servitude). This isolated portion drains under the road into the main portion of Wetland 3. The layout indicates that this portion will be infilled as part of the Light Industrial development on this side of the road. The area of the portion to be lost is approximately 0.98Ha. • The loss of this system can be offset via either and on-site or off-site rehabilitation programme. A policy of no net loss of wetland area should be adopted and a suitably sized system identified and enhanced to a level where the relative pristine area lost is replaced and functionality improved. • Another alternative is the inclusion of the wetland within the planned erf as conservation servitude. This will allow the achievement of the desired bulk area, but will also maintain this system.	1	3	2	3	Negative Medium (-9)
A1-C-BE 12	Erosion of wetland soils as a result of uncontrolled stormwater runoff generated from the construction sites.	1	3	3	2	Negative Medium (-9)	• Clearing activities must only be undertaken during agreed working times and permitted weather conditions. If heavy rains are expected, clearing activities should be reviewed and possible put on hold. In this regard, the contractor must be aware of weather forecasts, particularly over weekends when the site may stand vacant for long periods. • A combination of earth berms, sandbags and/or silt fences should be established where suited along the edge of all bare and exposed platform surfaces above the wetlands and unkerbed roads. • The berms and silt fences must be monitored for the duration of the construction phase and repaired immediately should damage occur. The berms and silt fences must only be removed once vegetation cover has successfully re-colonised the embankments. • Once shaped, all exposed surfaces and fill embankments must be vegetated immediately. The bare surfaces must be hydroseeded. In the winter months, the grassing must be watered daily until re-colonisation is successful. During the wet months, the grassed surfaces must be monitored for erosion until re-colonisation is successful. • Effort must be made to ensure that the stormwater system, including pipes, drains, headwalls and Reno-mattresses are not silted up during the construction phase. Siltation will be minimised by ensuring that the roads and paths remain clear of sediment. In this regard, road surfaces adjacent to bare soil surfaces must be protected by a combination of silt fences and sandbags. • After every rainfall event, the contractor and ECO must check the site for erosion damage and rehabilitate this damage immediately. Erosion rills and gullies must be filled in with appropriate material. • It is important that these mitigation measures are costed for in the construction phase financial planning and budget so that the contractor and/or developer cannot give financial budget constraints as reasons for non-compliance.	1	2	2	2	Negative Medium (-7)
A1-C-BE 13	Deposition of excess sediment in wetland system as a result of erosion in the catchment caused by improper stormwater management during	1	2	3	3	Negative Medium (-9)	• Stormwater runoff should be appropriately managed so as not to alter the timing and intensity of flows entering the wetland under the natural condition. • This will include the use of temporary attenuation ponds and temporary berms or furrows to direct flows to less sensitive areas. • It is assumed that if stormwater is properly managed in the catchment during construction, erosion will not become a major problem.	1	1	2	2	Negative Low (-6)

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
	earthworks.						• In addition to properly managing stormwater, methods to prevent and contain erosion such as geo-textiles and silt fences should be used on exposed slopes. • A water quality monitoring program should be considered to ensure quality of pollutants into the environment. Responsibility for implementation should lie with either individual land owners or more practically, with the development management agency.					
A1-C-BE 14	Decrease in water quality as a result of contamination of runoff from construction site.	2	3	3	3	Negative High (-11)	• All storage areas for fuel and other potentially harmful substances must be bunded and an oil-water separator installed. • Drip trays must be used during all refuelling operations. • Any spills or leaks must be cleaned up immediately and the contaminated material or soil disposed of in the correct manner. A Spill Contingency Plan should be included as part of the EMPr. This plan should include steps correct disposal procedures at landfills and a document trail to support. It is recommended that a designated, sealed filling area be created next to the fuel storage area. This could be in the form of a bidum layer with stone chippings. The theory being spills do not penetrate the bidum and at the end of the contract the whole layer is lifted and disposed of. • All storm runoff from areas with potentially hazardous materials are stored must run through a suitable scrubbing system before discharge into the environment. • A water quality monitoring program should be considered to ensure quality of discharge into the environment. Responsibility for implementation should lie with either individual land owners or more practically, with the development management agency.	1	3	2	2	Negative Medium (-8)
A1-C-BE 15	Direct disturbances to the wetland as a result of the establishment of reticulation services in wetlands and buffers.	1	3	2	2	Negative Medium (-8)	• A single sewer crossing proposed at the narrowest point in the wetland on Wetland 1 approximately midway down the length of the system on this portion. The planned sewer line will carry waste from the General Industrial site to the south of the system to the proposed pumpstation on the northern side of the wetland. A further crossing is proposed as part of the water reticulation layout. The water supply is shown to cross the wetland just to the west of the R102. • All sewer and water pipelines must be located outside of the wetland and buffer where possible. • Any crossings must be planned at narrow points in the systems and must be perpendicular to the direction of flow. • The possibility of pipe-bridges or pipe-jacking should be considered for crossings. • Both services (water and sewer) should cross within a 'disturbance corridor' rather than having crossings at multiple points in the wetland. Existing areas of disturbance such as road crossings should be considered for reticulation. Wetland specific construction methods and monitoring protocols should be included in the EMPr for implementation by the ECO.	1	3	2	2	Negative Medium (-8)
Surface water												
A1-C-BE 16	Construction of the proposed development within the 1:100year flood line	1	3	3	2	Negative Medium (-9)	• The proposed development shall not be undertaken within the 1:100 year flood line. • No hazardous material or equipment will be stored in this area or construction camp.	1	1	1	2	Negative Low (-5)
A1-C-BE 17	Consumption and use of surface water by employees.	1	1	2	2	Negative Low (-6)	• Water for domestic consumption will be provided at or near the contractor laydown area and from a licensed water source. • Develop posters with water saving tips for display throughout the site.	1	1	1	2	Negative Low (-5)
A1-C-BE 18	Contamination of surface water runoff with contaminated standing surface	1	3	3	3	Negative Medium (-10)	• Land disturbance must be minimized in order to prevent erosion and run-off - this includes leaving exposed soils open for a prolonged period of time. As soon as vegetation is cleared (including alien) the area must be re-vegetated if it is not to be developed on in future. • All contaminated standing water should be immediately removed and treated or disposed of	1	1	2	2	Negative Low (-6)

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
	water.						appropriately. • All incidents must be reported to the responsible site officer as soon as it occurs. • Control dust through fine water sprays used to dampen down the exposed surfaces of the road. • Cover skips and trucks which are loaded with construction materials. • Segregate, tightly cover and monitor toxic substances to prevent spills and possible site contamination. • Wastewater must not be allowed to come into direct contact with exposed soils or run across the site. Vehicles and machinery may not be washed on site. All wastewater must be collected in a sealed container and disposed of by an approved waste contractor. Waybills must be retained for inspection. • No waste, liquid or solid, may be disposed of in the river.					
A1-C-BE 19	Increased urban run-off into the Wewe River	1	3	3	3	Negative Medium (-10)	• Land disturbance must be minimized in order to prevent erosion and run-off - this includes leaving exposed soils open for a prolonged period of time. As soon as vegetation is cleared (including alien) the area must be re-vegetated if it is not to be developed on in future. • Wastewater must not be allowed to come into direct contact with exposed soils or run across the site. Vehicles and machinery may not be washed on site. All wastewater must be collected in a sealed container and disposed of by an approved waste contractor. Waybills must be retained for inspection.	1	1	2	2	Negative Low (-6)
Groundwater												
A1-C-BE 20	The consumption of groundwater can lead to the depletion of a natural resource.	1	3	3	2	Negative Medium (-9)	• No unauthorised extraction from boreholes (if any) for the proposed residential development will be permitted. • No new boreholes may be installed for extraction and consumption purposes without an appropriate water use licence.	1	2	1	2	Negative Low (-6)
Air Quality												
A1-C-BE 21	Release of dust from building activities, equipment and construction vehicles into the atmosphere.	1	2	2	3	Negative Medium (-8)	• To reduce the liberation of dust it is recommended that water be sprayed on dirt roads, transported material and at loading / offloading areas. • There should be strict speed limits on dust roads to prevent the liberation of dust into the atmosphere. • The height of all stockpiles on site should be a maximum of 2m. • Adequate communication and education of personnel of the need to mitigate against dust. • Use of dust retardant road surfacing if made necessary due to the exceedance of DEAT Air Quality Guidelines.	1	1	1	2	Negative Low (-5)
A1-C-BE 22	Generation of fumes from vehicle emissions may pollute the air.	1	2	2	3	Negative Medium (-8)	• All earth moving vehicles and equipment must be regularly maintained to ensure their integrity and reliability.	1	1	1	2	Negative Low (-5)
Noise												
A1-C-BE 23	Noise disturbance from contractors on site and construction activities.	1	2	3	4	Negative Medium (-10)	• All construction activities should be undertaken according to daylight working hours between the hours of 07:00 – 17:00 on weekdays and 7:30 – 13:00 on Saturdays. • No construction activities may be undertaken on Sunday. • All earth moving vehicles and equipment must be regularly maintained to ensure their integrity and	1	2	2	3	Negative Medium (-8)

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
							reliability. • employees must have the appropriate Personal Protective Equipment (PPE) as indicated in the Draft EMPr. • A complaints register must be made available and should any complaints be received, these should be logged in the complaints register and reported to the responsible person on site. • All operations should meet the noise standard requirements of the Occupational Health and Safety Act (Act No 85 of 1993).					
Sites of Archaeological Historical and Cultural Significance												
A1-C-BE 24	Disturbance of sites of archaeological, historical and cultural significance.	1	1	1	1	Negative Low (-4)	• There were no sites or objects of archaeological, historical and cultural significance identified, however, if during construction any possible finds are made, the operations must be stopped and a qualified archaeologist be contacted for an assessment of the find. • It is advisable that an information section on cultural resources be included in the SHEQ training given to contractors involved in surface earthmoving activities. These sections must include basic information on: • Heritage • Graves; • Archaeological finds; and • Historical Structures. • The archaeologist needs to evaluate the finds on site and make recommendations towards possible mitigation measures.	1	1	1	1	Negative Low (-4)
Visual Aspects												
A1-C-BE 25	Visual impact of light industrial on residents of Compensation/ Ballito	1	4	3	3	Negative High (-11)	• This impact would be minimal as this industrial area will comprise of warehousing, with no gas emitting industries.	1	3	2	2	Negative Medium (-8)
Waste												
A1-C-BE 26	Generation and disposal of domestic waste.	1	2	2	3	Negative Medium (-8)	• General waste disposal bins will be made available for employees to use throughout the Compensation development site. • Where possible waste should be recycled or sold to the community. • Waste will be temporarily stored on site (less than 90 days) before being disposed off appropriately. • General waste will be disposed of an approved waste disposal facility. • Records of all waste being taken off site must be recorded and kept as evidence. • Evidence of correct disposal must be kept. • Building rubble will be used, where possible, in construction or buried with the necessary town planning approvals. Where this is not possible, the rubble will be disposed of at an appropriate site.	1	2	1	2	Negative Low (-6)
A1-C-BE 27	Generation of hazardous and building waste.	1	2	3	3	Negative Medium (-9)	• Hazardous materials will be generated if there are spillages during construction and maintenance periods. This waste should be cleaned up using absorbent material provided in spill kits on site. • Absorbent materials used to clean up spillages should be disposed of in a separate hazardous waste bin. • The storage area for hazardous material must be concreted, bunded, covered, labelled and well	1	1	2	2	Negative Low (-6)

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
							ventilated. • Provide employees with appropriate PPE for handling hazardous materials. • All hazardous waste will be disposed of in a registered hazardous waste disposal facility. • Records of all waste being taken off site must be recorded and kept as evidence.					
A1-C-BE 28	Generation and disposal of sewage waste of temporary construction toilets.	1	2	3	2	Negative Medium (-8)	• On-site chemical toilets will be provided for domestic purposes during construction phase. • The contractors will be responsible for the maintenance of the chemical toilets. • Should any spills or incidents occur; the material will be cleaned up immediately and disposed off appropriately. • All incidents must be reported to the responsible site officer as soon as it occurs.	1	2	2	2	Negative Medium (-7)
Odour												
A1-C-BE 29	Release of odours as a result of the chemical toilets on site.	1	2	3	2	Negative Medium (-8)	• During the construction phase chemical toilets will be provided for use on site. The chemical toilets will be cleaned and maintained on a weekly basis, minimising the potential for the generation of odours on site.	1	1	1	2	Negative Low (-5)
Spillage and Incidents												
A1-C-BE 30	Contamination of soils, surface and groundwater due to spillage, leakage, incorrect storage and handling of: • Chemicals and oils; • Lubricants and fuels; and • Other Hazardous Materials.	1	2	3	2	Negative Medium (-8)	• All hazardous substances must be stored on an impervious surface in a designated bunded area, able to contain 110% of the total volume of materials stored at any given time. • Material safety data sheets (MSDS's) are to be clearly displayed for all hazardous materials. • The integrity of the impervious surface and bunded area must be inspected regularly and any maintenance work conducted must be recorded in a maintenance report. • Provide proper warning signage to make people aware of the activities within designated areas. • Employees should be provided with absorbent spill kits and disposal containers to handle spillages. Train employees and contractors on the correct handling of spillages and precautionary measures that need to be implemented to minimise potential spillages. • All earth moving vehicles and equipment must be regularly maintained to ensure their integrity and reliability. No repairs may be undertaken beyond the contractor laydown area. • employees should record and report any spillages to the responsible person. • An Emergency Preparedness and Response Plan will be developed and implemented should and incident occur. • Access to storage areas on site must be restricted to authorised employees only. • Contractors will be held liable for any environmental damages caused by spillages.	1	2	2	2	Negative Medium (-7)
A1-C-BE 31	Fires or explosions may occur which would result in a significant risk to the biophysical and socio-economic environment.	1	1	2	2	Negative Low (-6)	• No open and unattended fires will be permitted. • All hazardous materials are to be properly stored so as to avoid mixing of materials which could result in fires and/or explosions. Provide employees with fire fighting training and ensure that fire fighting equipment is provided throughout the construction site.	1	1	2	2	Negative Low (-6)
Flora and Fauna												
A1-C-BE 32	Loss of indigenous species natural habitat	1	4	3	3	Negative High	• Removal of alien vegetation is always a good idea when it comes to smaller vegetation types, but when considering large trees it is not always the best option. Some large trees have become	1	3	2	2	Negative Medium

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
						(-11)	naturalized in South Africa and now play an important role in their inhabited ecosystem. Other alien trees may be hosting endangered or threatened animal species which must be protected. For these reasons large trees and indigenous vegetation must be preserved and only removed if no alternatives are possible, or if the large trees are particularly invasive.					(-8)
Socio-economic Environment												
Employment												
A1-C-SE 33	The development will result in job creation and provision of employment.	1	3	3	3	Positive High (+10)	• All labour (skilled and unskilled) and contractors should be sourced locally where possible. • Recruitment at the construction site will not be allowed. • The Compensation development will create 120, 000 to 155, 000 new sustainable jobs of which 47, 000 to 60, 000 will be permanent • Where possible, labour intensive practices (as opposed to mechanised) should be practiced. • The principles of equality, BEE, gender equality and non-discrimination will be implemented. • A labour and recruitment policy will be developed, displayed and implemented by the contractor. • The Compensation Industrial and Business Estate development will provide a new urban core to the KwaDukuza Municipality area and also bridge the communities of Esenembi, Shakaskraal, Shayamoya, Groutville and Umhlali to more developed economic nodes of the towns of KwaDukuza. • The expectation is that the development will supply affordable Industrial and Business Estate as well as employment opportunities to areas where they are needed most.	1	4	4	4	Positive Very high (+13)
Population Changes												
A1-C-SE 34	Job creation during the construction phase could result in the influx of people to the area. However, this should be temporary.	3	3	3	3	Negative High (-12)	• If possible all labour should be sourced locally. • Contractors and their families may not stay on site • No informal settlements will be allowed. • Compensation Industrial and Business Estate development offers the potential of creating a vibrant, integrated commercial, business park, logistical efficiencies as well as bringing infrastructure and services, new jobs, and tax base to KwaDukuza Municipal area.	1	3	2	2	Negative Medium (-8)
Security and Social Ills												
A1-C-SE 35	Contractors, the influx of people and potential job creation will result in the proliferation of social ills and issues such as crime, prostitution, the spread of HIV/AIDS, informal settlements etc.	3	4	3	3	Negative High (-13)	• The developers need to be actively involved in the prevention of social ills associated with contractors. • If possible all labour should be sourced locally. • Contractors and their families may not stay on site. Only Contract and Project Managers will reside on site. • No informal settlements will be allowed. • Contractors must be educated about the risk of prostitution and spread of HIV and AIDS. Refer to the Draft EMPr for additional management measures. • Strict penalties will be built into tenders to deal with issues such as petty crime, stock theft, fence cutting, trespassing etc. • No poaching of wildlife or selling of firewood will be allowed.	2	3	2	2	Negative Medium (-9)
Traffic												

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
A1-C-SE 36	Traffic disruptions during construction period.	1	1	2	3	Negative Medium (-7)	• Implement proper road signs to warn motorists of construction activities ahead. • Ensure that there are flag men and signs in place at access points to the construction site. • Refer to the Draft EMPr for additional mitigation measures.	1	1	2	2	Negative Low (-6)
Safety												
A1-C-SE 37	Public safety during construction.	1	2	2	2	Negative Medium (-7)	• Members of the public adjacent to the construction site should be notified of construction activities in order to limit unnecessary disturbance or interference. • Construction activities will be undertaken during daylight hours and not on Sundays.	1	2	1	2	Negative Low (-6)
A1-C-SE 38	Construction staff safety during construction.	1	2	3	3	Negative Medium (-9)	• Ensure the appointment of a Safety Officer to continuously monitor the safety conditions during construction. • All construction staff must have the appropriate PPE. • The construction staff handling chemicals or hazardous materials must be trained in the use of the substances and the environmental, health and safety consequences of incidents. • Report and record any environmental, health and safety incidents to the responsible person.	1	2	2	2	Negative Medium (-7)
						Total = -307 Average = -8						Total = 210 Average = -5.5

8.3.1.2 Operation Phase

Where **E** = Extent, **D** = Duration, **I** = Intensity and **P** = Probability of occurrence.

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
Biophysical Environmental												
Vegetation												
A1-O-BE 1	Planting of road verges.	1	3	2	2	Positive Medium (+8)	• The planting of the road verges with the correct suite of plant species will see these verges utilised as movement corridors for faunal and avifaunal species. A landscaping plan is required.	1	3	3	2	Positive Medium (+9)
A1-O-BE 2	Utilising power servitudes as grasslands.	1	3	2	2	Positive Medium (+8)	• Utilising grasslands will be beneficial in as much as the maintenance of the servitude will be simplified and have limited impacts during the life span of the power line as their will be no need for the cutting of trees, and thus the continual disturbance to the vegetation community. • These open servitudes will be important as they will function as carbon sequestration zones, attenuation areas (fall outside of the wetlands on-site), as well as provide habitat and linkages for the movement of species, in particular, certain avifaunal species.	1	3	2	2	Positive Medium (+8)

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
A1-O-BE 3	Burning of grasslands.	-1	-3	-3	-3	Neutral (10)	• To maintain the integrity of the grassland ecosystem, the areas would require burning every three (3) years to ensure that they function correctly. • Burning should not take place during the windy season as this will affect the ambient air quality. • Mowing of grasslands is not a suitable alternative to burning as it does not trigger species flowering.	+1	+3	+3	+3	Neutral (0)
Wetlands												
A1-O-BE 4	Decrease in quality of water entering the wetland as a result of the contamination of urban runoff entering the wetland (hydrocarbons and litter from the road surface).	1	3	3	3	Negative Medium (-10)	• Allowing contaminated water to filter through soils under permeable paved parking lots, and other such permeable areas away from water courses, will aid in removing these chemical from storm water runoff during lighter rainfall events.	1	2	2	2	Negative Medium (-7)
A1-O-BE 5	Erosion of wetland due to increased runoff entering the wetland during peak flows as a result of increased hardened surfaces in the catchment.	1	3	3	3	Negative Medium (-10)	• Runoffs rates for the natural condition should be calculated for each site and stormwater managed to be similar to this. • Adequate buffer zones (20m) of natural indigenous vegetation should be accommodated to reduce the significance of this impact. • Wetlands that are expected to receive high inputs during large rainfall events, such as those within the proposed light industrial area, should be planted with larger, more robust reed or tree species such as Phragmites australis and Syzygium cordatum.	1	3	2	2	Negative Medium (-8)
A1-O-BE 6	Erosion in wetland due to concentration of storm water at outfalls.	1	3	3	3	Negative Medium (-10)	• The on site stormwater systems should discharge stormwater into the environment at rates and volumes that are equal to that of the natural condition. This will likely involve the establishment of attenuation ponds to capture runoff. Where possible, these should be located outside of the wetlands and their buffers. • All stormwater outfalls should have some form of energy dissipation such as gabion mattresses or geo-textiles to prevent such erosion from occurring. • In addition, where possible, outfalls should not be placed on steep slopes and should empty into densely vegetated areas before entering into the wetlands. • Stormwater outfalls should not be located within the wetland buffers and outfalls should not be placed above wetlands with reduced buffer widths.	1	3	2	2	Negative Medium (-8)

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
A1-O-BE 7	Encroachment of alien invasive plants into the buffer zone and wetland, as a result of poor management.	1	3	3	3	Negative Medium (-10)	• Regular maintenance of these areas should be undertaken in order to remove alien species and maintain indigenous plant communities after rehabilitation. • Specific measures and the responsibilities for their implementation should be included in a wetland management plan.	1	3	2	2	Negative Medium (-8)
A1-O-BE 8	Erosion of the wetland as a result of the increased hardened surfaces and subsequent intensity and volume of stormwater runoff	2	4	4	2	Negative High (-12)	• All stormwater runoff must be actively attenuated to pre-development levels on site prior to any discharge into natural systems. • Attenuation structures must be located outside the wetland and 20m buffer, the opportunity exists to use the outer 10m of a 30m buffer for the placement of attenuation structures. • A policy of many smaller discharge points must be preferred over fewer, larger discharge points. This will allow for a more diffuse return of flow to the wetland system. • An adequately sized and keyed-in stilling basins and Reno-mattress must be established below all discharge points to prevent erosion. • The outer edge of the headwall and Reno-mattress structure must be demarcated with snow fencing and approved by the Environmental Control Officer prior to construction commencing. All wetland areas beyond this demarcation must be considered no-go zones during the construction phase. The snow fencing must be kept taught at all times.	1	2	2	2	Negative Medium (-7)
A1-O-BE 9	Improvement in the health of the wetland as a result of rehabilitation of the wetland and buffer zones.	1	3	2	2	Positive Medium (+9)	• Wetland rehabilitation should involve the removal of all sugarcane from the wetlands and ecological buffers, the plugging of all drains within the wetlands and the re-vegetation of the wetland and buffer zones. • A wetland rehabilitation and management plan should be prepared by a wetland specialist.	2	3	3	3	Positive Medium (+11)
Surface Water												
A1-O-BE 10	Consumption of surface water.	1	3	3	3	Negative Medium (-10)	• Where possible install water saving taps and duel flushing toilet systems. • Collect rainwater for gardening purposes	1	2	2	2	Negative Medium (-7)

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
A1-O-BE 11	Pollution of surface water.	1	3	3	3	Negative Medium (-10)	• Establishment of a stormwater management and sewage system for the development. • Ensure clean up and reporting as per Spillages and Incidents as well as the measures outlined in the Draft EMPr. • Regular inspections and maintenance (if require) of the stormwater management and sewage systems.	1	2	2	2	Negative Low (-7)
Groundwater												
A1-O-BE 12	The consumption of groundwater can lead to the depletion of a natural resource.	1	2	2	2	Negative Medium (-7)	• No unauthorised extraction from boreholes (if any) for the proposed residential development will be permitted. • No new boreholes may be installed for extraction and consumption purposes without an appropriate water use licence.	1	1	2	2	Negative Low (-6)
Waste												
A1-O-BE 13	Generation and disposal of domestic waste by the proposed development.	1	3	2	3	Negative Medium (-9)	• Waste will be collected by the KwaDukuza municipality and disposed off at an appropriate and licensed waste disposal facility.	1	3	1	1	Negative Low (-6)
A1-O-BE 14	Generation and disposal of sewage waste by the proposed development.	1	3	2	3	Negative Medium (-9)	• All sewage will be sent through to the Frasers Waste Water Treatment works	1	3	1	2	Negative Medium (-7)
Socio-Economic Environment												
Employment												

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
A1-O-SE 15	The completion of the development will lead to job creation through the industrial and commercial components.	2	3	3	4	Positive High (+12)	• The principles of gender equality, maximising local employment should be implemented in the provision and establishment of jobs. • Jobs for the maintenance of infrastructure and services will be created following the completion of the development. These jobs might be made available to existing labour there creating long term employment. • Service contractors could have access to other developments or projects in the area thereby creating long term employment.	2	3	4	4	Positive High (+13)
Housing												
A1-O-SE 16	The development will address the low to middle income housing demand affecting the surrounding areas.	2	4	3	3	Positive High (+12)	• Ensure that the development captures the housing demand in the area.	2	4	3	4	Positive High (+13)
Traffic												
A1-O-SE 17	Impact of increase in traffic.	2	3	2	3	Negative Medium (-10)	• Implement the actions outlined in the Traffic Impact Assessment to meet the need for public and private transportation. • By implementing the actions of the study there will be an overall improvement in the transportation infrastructure within and surrounding the development together with the broader region.	2	3	2	2	Negative Medium (-9)
Energy												

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
A1-O-SE 18	Energy consumption	2	3	3	3	Negative High (-11)	• The KwaDukuza local network is currently running close to full capacity, and has already accepted a quotation from Eskom to upgrade the Gledhow 132/33kV substation to 80MVA firm. Eskom's Driefontein substation currently supplies both the KwaDukuza and eThekwini municipalities. The Shakaskraal substation is loaded at close to its rated capacity and can therefore not carry any significant additional load. • A new 132/33kV 80MVA substation will be required to be built in order to support the magnitude of the proposed development and Eskom has already planned for such infrastructure and will be known as the Dukuza substation. • It is highly recommended by Bosch Projects, that the use of energy efficient technologies be pursued further. • The use of LED and induction lighting needs to be incorporated into the street lighting design report along with recommendations for all other lighting requirements. The SASOL Home Gas Initiative also needs to be seriously considered as electricity savings can be quite considerable. • The process of cogeneration by Tongaat Hulett should also be seriously considered as a significant amount of power can be generated from the sugar waste products.	2	2	2	2	Negative Medium (-8)
						Total = -69 Average = - 3.8						Total = -34 Average = - 1.9

8.3.2 Alternative 2

8.3.2.1 Construction Phase

Where **E** = Extent, **D** = Duration, **I** = Intensity and **P** = Probability of occurrence.

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
Biophysical Environmental												
Geology												
A2-C-BE1	Disturbance of surface geology for development foundations	1	2	1	2	Negative Low (-6)	• All site disturbances must be limited to the areas where structures will be constructed. • The cut slopes in soil and weathered rock should not be steeper than 1:1,5 (V:H) and 1:1 in rock. • The fill slopes must not be steeper than 1:1,5m and where more than about 10m in height they should not exceed 1:2 in overall steepness to ensure stability. • Large excavations for the contractor laydown area, storage areas or waste areas are not permitted. • Ensure that contractors and staff are well managed and adhere to the mitigation and management measures.	1	2	1	2	Negative Low (-6)
Topography												
A2-C-BE2	Alteration of topography due to stockpiling of soil, building material and debris and waste material on site.	1	3	2	3	Negative Medium (-9)	• All stockpiles must be restricted to designated areas and are not to exceed a height of 2 metres. • Stockpiles created during the construction phase are not to remain during the operational phase. • The contractor must be limited to clearly defined access routes to ensure that sensitive and undisturbed areas are not disturbed.	1	2	1	3	Negative Medium (-7)
Soils and Land Use and Capability												
A2-C-BE3	Removal and compaction of soil during construction activities.	1	2	2	4	Negative Medium (-9)	• Strip topsoil prior to any construction activities. • Reuse topsoil to rehabilitate disturbed areas. • Topsoil must be kept separate from overburden and must not be used for building purposes or maintenance or access roads.	1	1	2	3	Negative Medium (-7)
A2-C-BE4	Disturbance of soils and/or land use potential due to location of construction camp and associated infrastructure	1	2	2	3	Negative Medium (-8)	• The contractor laydown area must be placed in an area where erven will be developed and not in an area that will be utilised in future as an open space, recreational, educational or commercial. • The contractor laydown area may not be placed in or in close proximity to the wetland habitat or the indigenous forest located on site. • No material may be stored or equipment repaired beyond the boundaries of the contractor laydown area.	1	1	1	2	Negative Low (-5)

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
A2-C-BE5	Erosion, degradation and loss of topsoil due to construction activities as well as surface and stormwater runoff.	1	3	2	3	Negative Medium (-9)	• Minimise the clearance of vegetation to avoid exposure of soil. • Protect areas susceptible to erosion with mulch or a suitable alternative. • Implement the appropriate topsoil and stormwater runoff control management measures as per the Draft EMPr to prevent the loss of topsoil. • Topsoil should only be exposed for minimal periods of time and adequately stockpiled to prevent the topsoil loss and runoff.	1	2	2	2	Negative Medium (-7)
A2-C-BE6	Degradation of soil due to exposed areas and roads.	2	3	2	3	Negative Medium (-10)	• Minimise the clearance of vegetation to avoid exposure of soil when widening the P378/R102 and P445/R102 intersections and D177. • Any materials that may hamper re-growth of vegetation must be removed prior to rehabilitation and disposed of at and appropriate site. • Topsoil should only be exposed for minimal periods of time and adequately stockpiled to prevent the topsoil loss.	2	2	2	2	Negative Medium (-8)
A2-C-BE7	Impact on land use and land capability.	1	4	4	3	Positive High (+12)	• The agricultural land capability of the Compensation Industrial and Business Estate Project area has been classified as marginal land for agriculture due to poor irrigation. The site has been classed as Class IV, which according to the KZNDAE Directorate of Natural Resources is subjected to severe cultivation restrictions. Due to the need for the provision housing in the northern parts of the KwaZulu Natal, particularly KwaDukuza, the Compensation Project area is ideal as it is relatively flat and located in an area earmarked for development, making it a prime location for job hunters. • Due to poor soils and lack of irrigation water production of crops other than the existing sugarcane is not an option. Further, cash cropping will present a wind erosion hazard. • Given the above conclusions determined by the agricultural assessment, the impact on land use is negated.	1	4	4	3	Positive High (+12)
Vegetation												

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
A2-C-BE8	Disturbance of major vegetation areas.	1	4	3	4	Negative High (-12)	• Ensure no construction activities take place within areas designated as Open Space Areas (i.e. areas of indigenous vegetation); • Protected trees may not be removed or cut without a permit from the Department of Water Affairs and Forestry (DWAF). • Weeds and alien vegetation should be removed and prevented from spreading with control measures. Of the total 62 dominant plant species recorded, 41 are alien; and almost all invasive, one positive interaction the development can have with the environment is to remove dominant alien plant species in accordance with to The Conservation of Agricultural Resources Act • A specialist ecologist will be on site during the construction period to ensure that sensitive areas are not encroached on. • The vast majority of the site is made-up of commercial agriculture and therefore much of the site will not incur any significantly negative impacts brought upon by the proposed development. Areas currently being used for sugarcane cultivation hold no ecological value worth preserving. • There does exist within eco-region 2, natural forest, which is only partially included in the Open Space Areas, and therefore mitigation measures advised in the draft EMPr must be strictly adhered to in this region. • Any work around the watercourse and indigenous forest must be considered to be potentially negative and cautionary practices should be employed. Both of these areas must be incorporated in the conservation servitude with an adequate buffer applied beyond their vegetative boundaries. • The footprint created by construction activities must be kept to a minimum wherever possible and stripped areas re-vegetated with indigenous vegetation as soon as construction activities cease in that particular area.	1	3	1	3	Negative Medium (-8)
A2-C-BE9	Impact on riparian zones.	1	2	3	3	Negative Medium (-9)	• Any work around the watercourse must be considered to be potentially negative and cautionary practices should be employed. Both of these areas must be incorporated in the conservation servitude with an adequate buffer applied beyond their vegetative boundaries. • The Wetlands and associated riparian zones are completely included in the Open Space Areas.	1	1	1	2	Negative Low (-5)

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
A2-C-BE 10	Removal and use of local flora for firewood.	4	4	4	3	Negative High (-15)	• No cutting down of trees for firewood • Utilise commercially sold wood or other sources of energy. • Training of contractors on environmental awareness and the importance of flora.	1	1	1	1	Negative Low (-4)
Wetlands												
A2-C-BE 11	Permanent loss of wetland as a result of infilling for the construction of a road and other platforms.	1	4	3	4	Negative High (-12)	• Replacing lost wetland with wetland of equal size and type is the only way to properly mitigate this impact, and in so doing, achieving a no net loss of wetlands. • In some cases a net gain in wetland area may be appropriate. This can be achieved by creating or reinstating wetland lost to the landscape at a ratio of 1:2 or in some case 1:3 or greater. • A small portion of wetland lies to the east of the R102 (whereas the rest of wetland 3 and wetlands 1,2 and 4 are included in their entirety in the conservation servitude). This isolated portion drains under the road into the main portion of Wetland 3. The layout indicates that this portion will be infilled as part of the Light Industrial development on this side of the road. The area of the portion to be lost is approximately 0.98Ha. • The loss of this system can be offset via either and on-site or off-site rehabilitation programme. A policy of no net loss of wetland area should be adopted and a suitably sized system identified and enhanced to a level where the relative pristine area lost is replaced and functionality improved. • Another alternative is the inclusion of the wetland within the planned erf as conservation servitude. This will allow the achievement of the desired bulk area, but will also maintain this system.	1	3	2	3	Negative Medium (-9)

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
A2-C-BE 12	Erosion of wetland soils as a result of uncontrolled stormwater runoff generated from the construction sites.	1	3	3	2	Negative Medium (-9)	• Clearing activities must only be undertaken during agreed working times and permitted weather conditions. If heavy rains are expected, clearing activities should be reviewed and possible put on hold. In this regard, the contractor must be aware of weather forecasts, particularly over weekends when the site may stand vacant for long periods. • A combination of earth berms, sandbags and/or silt fences should be established where suited along the edge of all bare and exposed platform surfaces above the wetlands and unkerbed roads. • The berms and silt fences must be monitored for the duration of the construction phase and repaired immediately should damage occur. The berms and silt fences must only be removed once vegetation cover has successfully re-colonised the embankments. • Once shaped, all exposed surfaces and fill embankments must be vegetated immediately. The bare surfaces must be hydroseeded. In the winter months, the grassing must be watered daily until re-colonisation is successful. During the wet months, the grassed surfaces must be monitored for erosion until re-colonisation is successful. • Effort must be made to ensure that the stormwater system, including pipes, drains, headwalls and Reno-mattresses are not silted up during the construction phase. Siltation will be minimised by ensuring that the roads and paths remain clear of sediment. In this regard, road surfaces adjacent to bare soil surfaces must be protected by a combination of silt fences and sandbags. • After every rainfall event, the contractor and ECO must check the site for erosion damage and rehabilitate this damage immediately. Erosion rills and gullies must be filled in with appropriate material. • It is important that these mitigation measures are costed for in the construction phase financial planning and budget so that the contractor and/or developer cannot give financial budget constraints as reasons for non-compliance.	1	2	2	2	Negative Medium (-7)
A2-C-BE 13	Deposition of excess sediment in wetland system as a result of erosion in the catchment caused by improper stormwater management during earthworks.	1	2	3	3	Negative Medium (-9)	• Stormwater runoff should be appropriately managed so as not to alter the timing and intensity of flows entering the wetland under the natural condition. • This will include the use of temporary attenuation ponds and temporary berms or furrows to direct flows to less sensitive areas. • It is assumed that if stormwater is properly managed in the catchment during construction, erosion will not become a major problem. • In addition to properly managing stormwater, methods to prevent and contain erosion such as geo-textiles and silt fences should be used on exposed slopes. • A water quality monitoring program should be considered to ensure quality of pollutants into the environment. Responsibility for implementation should lie with either individual land owners or more practically, with the development management agency.	1	1	2	2	Negative Low (-6)

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
A2-C-BE 14	Decrease in water quality as a result of contamination of runoff from construction site.	2	3	3	3	Negative High (-11)	• All storage areas for fuel and other potentially harmful substances must be bunded and an oil-water separator installed. • Drip trays must be used during all refuelling operations. • Any spills or leaks must be cleaned up immediately and the contaminated material or soil disposed of in the correct manner. A Spill Contingency Plan should be included as part of the EMPr. This plan should include steps correct disposal procedures at landfills and a document trail to support. It is recommended that a designated, sealed filling area be created next to the fuel storage area. This could be in the form of a bidum layer with stone chippings. The theory being spills do not penetrate the bidum and at the end of the contract the whole layer is lifted and disposed of. • All storm runoff from areas with potentially hazardous materials are stored must run through a suitable scrubbing system before discharge into the environment. • A water quality monitoring program should be considered to ensure quality of discharge into the environment. Responsibility for implementation should lie with either individual land owners or more practically, with the development management agency.	1	3	2	2	Negative Medium (-8)
A2-C-BE 15	Direct disturbances to the wetland as a result of the establishment of reticulation services in wetlands and buffers.	1	3	2	2	Negative Medium (-8)	• A single sewer crossing proposed at the narrowest point in the wetland on Wetland 1 approximately midway down the length of the system on this portion. The planned sewer line will carry waste from the General Industrial site to the south of the system to the proposed pumpstation on the northern side of the wetland. A further crossing is proposed as part of the water reticulation layout. The water supply is shown to cross the wetland just to the west of the R102. • All sewer and water pipelines must be located outside of the wetland and buffer where possible. • Any crossings must be planned at narrow points in the systems and must be perpendicular to the direction of flow. • The possibility of pipe-bridges or pipe-jacking should be considered for crossings. • Both services (water and sewer) should cross within a 'disturbance corridor' rather than having crossings at multiple points in the wetland. Existing areas of disturbance such as road crossings should be considered for reticulation. • Wetland specific construction methods and monitoring protocols should be included in the EMPr for implementation by the ECO.	1	3	2	2	Negative Medium (-8)
Surface water												
A2-C-BE 16	Construction of the proposed development within the 1:100year flood line	1	3	3	2	Negative Medium (-9)	• The proposed development shall not be undertaken within the 1:100 year flood line. • No hazardous material or equipment will be stored in this area or construction camp.	1	1	1	2	Negative Low (-5)

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
A2-C-BE 17	Consumption and use of surface water by employees.	1	1	2	2	Negative Low (-6)	• Water for domestic consumption will be provided at or near the contractor laydown area and from a licensed water source. • Develop posters with water saving tips for display throughout the site.	1	1	1	2	Negative Low (-5)
A2-C-BE 18	Contamination of surface water runoff with contaminated standing surface water.	1	3	3	3	Negative Medium (-10)	• Land disturbance must be minimized in order to prevent erosion and run-off - this includes leaving exposed soils open for a prolonged period of time. As soon as vegetation is cleared (including alien) the area must be re-vegetated if it is not to be developed on in future. • All contaminated standing water should be immediately removed and treated or disposed of appropriately. • All incidents must be reported to the responsible site officer as soon as it occurs. • Control dust through fine water sprays used to dampen down the exposed surfaces of the road. • Cover skips and trucks which are loaded with construction materials. • Segregate, tightly cover and monitor toxic substances to prevent spills and possible site contamination. • Wastewater must not be allowed to come into direct contact with exposed soils or run across the site. Vehicles and machinery may not be washed on site. All wastewater must be collected in a sealed container and disposed of by an approved waste contractor. Waybills must be retained for inspection. • No waste, liquid or solid, may be disposed of in the river.	1	1	2	2	Negative Low (-6)
A2-C-BE 19	Increased urban run-off into the Wewe River	1	3	3	3	Negative Medium (-10)	• Land disturbance must be minimized in order to prevent erosion and run-off - this includes leaving exposed soils open for a prolonged period of time. As soon as vegetation is cleared (including alien) the area must be re-vegetated if it is not to be developed on in future. • Wastewater must not be allowed to come into direct contact with exposed soils or run across the site. Vehicles and machinery may not be washed on site. All wastewater must be collected in a sealed container and disposed of by an approved waste contractor. Waybills must be retained for inspection.	1	1	2	2	Negative Low (-6)
Groundwater												
A2-C-BE 20	The consumption of groundwater can lead to the depletion of a natural resource.	1	3	3	2	Negative Medium (-9)	• No unauthorised extraction from boreholes (if any) for the proposed residential development will be permitted. • No new boreholes may be installed for extraction and consumption purposes without an appropriate water use licence.	1	2	1	2	Negative Low (-6)

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
Air Quality												
A2-C-BE 21	Release of dust from building activities, equipment and construction vehicles into the atmosphere.	1	2	2	3	Negative Medium (-8)	• To reduce the liberation of dust it is recommended that water be sprayed on dirt roads, transported material and at loading / offloading areas. • There should be strict speed limits on dust roads to prevent the liberation of dust into the atmosphere. • The height of all stockpiles on site should be a maximum of 2m. • Adequate communication and education of personnel of the need to mitigate against dust. • Use of dust retardant road surfacing if made necessary due to the exceedance of DEAT Air Quality Guidelines.	1	1	1	2	Negative Low (-5)
A2-C-BE 22	Generation of fumes from vehicle emissions may pollute the air.	1	2	2	3	Negative Medium (-8)	• All earth moving vehicles and equipment must be regularly maintained to ensure their integrity and reliability.	1	1	1	2	Negative Low (-5)
Noise												
A2-C-BE 23	Noise disturbance from contractors on site and construction activities.	1	2	3	4	Negative Medium (-10)	• All construction activities should be undertaken according to daylight working hours between the hours of 07:00 – 17:00 on weekdays and 7:30 – 13:00 on Saturdays. • No construction activities may be undertaken on Sunday. • All earth moving vehicles and equipment must be regularly maintained to ensure their integrity and reliability. • employees must have the appropriate Personal Protective Equipment (PPE) as indicated in the Draft EMPr. • A complaints register must be made available and should any complaints be received, these should be logged in the complaints register and reported to the responsible person on site. • All operations should meet the noise standard requirements of the Occupational Health and Safety Act (Act No 85 of 1993).	1	2	2	3	Negative Medium (-8)
Sites of Archaeological Historical and Cultural Significance												

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
A2-C-BE 24	Disturbance of sites of archaeological, historical and cultural significance.	1	1	1	1	Negative Low (-4)	• There were no sites or objects of archaeological, historical and cultural significance identified, however, if during construction any possible finds are made, the operations must be stopped and a qualified archaeologist be contacted for an assessment of the find. • It is advisable that an information section on cultural resources be included in the SHEQ training given to contractors involved in surface earthmoving activities. These sections must include basic information on: • Heritage • Graves; • Archaeological finds; and • Historical Structures. • The archaeologist needs to evaluate the finds on site and make recommendations towards possible mitigation measures.	1	1	1	1	Negative Low (-4)
Visual Aspects												
A2-C-BE 25	Visual impact of light industrial on residents of Compensation/ Ballito	1	2	2	1	Negative Low (-6)	• This impact would be minimal as this alternative consists of much reduced light industrial area which will comprise of warehousing, with no gas emitting industries, and mostly residential developments.	1	2	2	1	Negative Low (-6)
Waste												
A2-C-BE 26	Generation and disposal of domestic waste.	1	2	2	3	Negative Medium (-8)	• General waste disposal bins will be made available for employees to use throughout the Compensation development site. • Where possible waste should be recycled or sold to the community. • Waste will be temporarily stored on site (less than 90 days) before being disposed off appropriately. • General waste will be disposed of an approved waste disposal facility. • Records of all waste being taken off site must be recorded and kept as evidence. • Evidence of correct disposal must be kept. • Building rubble will be used, where possible, in construction or buried with the necessary town planning approvals. Where this is not possible, the rubble will be disposed of at an appropriate site.	1	2	1	2	Negative Low (-6)

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
A2-C-BE 27	Generation of hazardous and building waste.	1	2	3	3	Negative Medium (-9)	• Hazardous materials will be generated if there are spillages during construction and maintenance periods. This waste should be cleaned up using absorbent material provided in spill kits on site. • Absorbent materials used to clean up spillages should be disposed of in a separate hazardous waste bin. • The storage area for hazardous material must be concreted, bunded, covered, labelled and well ventilated. • Provide employees with appropriate PPE for handling hazardous materials. • All hazardous waste will be disposed of in a registered hazardous waste disposal facility. • Records of all waste being taken off site must be recorded and kept as evidence.	1	1	2	2	Negative Low (-6)
A2-C-BE 28	Generation and disposal of sewage waste of temporary construction toilets.	1	2	3	2	Negative Medium (-8)	• On-site chemical toilets will be provided for domestic purposes during construction phase. • The contractors will be responsible for the maintenance of the chemical toilets. • Should any spills or incidents occur; the material will be cleaned up immediately and disposed off appropriately. • All incidents must be reported to the responsible site officer as soon as it occurs.	1	2	2	2	Negative Medium (-7)
Odour												
A2-C-BE 29	Release of odours as a result of the chemical toilets on site.	1	2	3	2	Negative Medium (-8)	• During the construction phase chemical toilets will be provided for use on site. The chemical toilets will be cleaned and maintained on a weekly basis, minimising the potential for the generation of odours on site.	1	1	1	2	Negative Low (-5)
Spillage and Incidents												

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
A2-C-BE 30	Contamination of soils, surface and groundwater due to spillage, leakage, incorrect storage and handling of: • Chemicals and oils; • Lubricants and fuels; and • Other Hazardous Materials.	1	2	3	2	Negative Medium (-8)	• All hazardous substances must be stored on an impervious surface in a designated bunded area, able to contain 110% of the total volume of materials stored at any given time. • Material safety data sheets (MSDS's) are to be clearly displayed for all hazardous materials. • The integrity of the impervious surface and bunded area must be inspected regularly and any maintenance work conducted must be recorded in a maintenance report. • Provide proper warning signage to make people aware of the activities within designated areas. • employees should be provided with absorbent spill kits and disposal containers to handle spillages.Train employees and contractors on the correct handling of spillages and precautionary measures that need to be implemented to minimise potential spillages. • All earth moving vehicles and equipment must be regularly maintained to ensure their integrity and reliability. No repairs may be undertaken beyond the contractor laydown area. • employees should record and report any spillages to the responsible person. • An Emergency Preparedness and Response Plan will be developed and implemented should and incident occur. • Access to storage areas on site must be restricted to authorised employees only. • Contractors will be held liable for any environmental damages caused by spillages.	1	2	2	2	Negative Medium (-7)
A2-C-BE 31	Fires or explosions may occur which would result in a significant risk to the biophysical and socio-economic environment.	1	1	2	2	Negative Low (-6)	• No open and unattended fires will be permitted. • All hazardous materials are to be properly stored so as to avoid mixing of materials which could result in fires and/or explosions. • Provide employees with fire fighting training and ensure that fire fighting equipment is provided throughout the construction site.	1	1	2	2	Negative Low (-6)
Flora and Fauna												

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
A2-C-BE 32	Loss of indigenous species natural habitat	1	3	3	3	Negative High (-10)	• Removal of alien vegetation is always a good idea when it comes to smaller vegetation types, but when considering large trees it is not always the best option. Some large trees have become naturalized in South Africa and now play an important role in their inhabited ecosystem. Other alien trees may be hosting endangered or threatened animal species which must be protected. For these reasons large trees and indigenous vegetation must be preserved and only removed if no alternatives are possible, or if the large trees are particularly invasive.	1	3	2	2	Negative Medium (-8)
Socio-economic Environment												
Employment												
A2-C-SE 33	The development will result in job creation and provision of employment.	1	2	2	2	Positive Medium (+7)	• All labour (skilled and unskilled) and contractors should be sourced locally where possible. • Recruitment at the construction site will not be allowed. • Where possible, labour intensive practices (as opposed to mechanised) should be practiced. • The principles of equality, BEE, gender equality and non-discrimination will be implemented. • A labour and recruitment policy will be developed, displayed and implemented by the contractor. • This alternative focuses on residential developments, with few light industry and office parks. There will still be job creation, but at a lower extent than alternative 1. The employment created may be more of temporary nature than permanent.	1	3	2	2	Positive Medium (+8)
Population Changes												
A2-C-SE 34	Job creation during the construction phase could result in the influx of people to the area. However, this should be temporary.	3	3	3	3	Negative High (-12)	• If possible all labour should be sourced locally. • Contractors and their families may not stay on site • No informal settlements will be allowed. • Compensation Industrial and Business Estate development offers the potential of creating a vibrant, integrated commercial, business park, logistical efficiencies as well as bringing infrastructure and services, new jobs, and tax base to KwaDukuza Municipal area.	1	3	2	2	Negative Medium (-8)
Security and Social Ills												

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
A2-C-SE 35	Contractors, the influx of people and potential job creation will result in the proliferation of social ills and issues such as crime, prostitution, the spread of HIV/AIDS, informal settlements etc.	3	4	3	3	Negative High (-13)	• The developers need to be actively involved in the prevention of social ills associated with contractors. • If possible all labour should be sourced locally. • Contractors and their families may not stay on site. Only Contract and Project Managers will reside on site. • No informal settlements will be allowed. • Contractors must be educated about the risk of prostitution and spread of HIV and AIDS. Refer to the Draft EMPr for additional management measures. • Strict penalties will be built into tenders to deal with issues such as petty crime, stock theft, fence cutting, trespassing etc. • No poaching of wildlife or selling of firewood will be allowed.	2	3	2	2	Negative Medium (-9)
Traffic												
A2-C-SE 36	Traffic disruptions during construction period.	1	1	2	3	Negative Medium (-7)	• Implement proper road signs to warn motorists of construction activities ahead. • Ensure that there are flag men and signs in place at access points to the construction site. • Refer to the Draft EMPr for additional mitigation measures.	1	1	2	2	Negative Low (-6)
Safety												
A2-C-SE 37	Public safety during construction.	1	2	2	2	Negative Medium (-7)	• Members of the public adjacent to the construction site should be notified of construction activities in order to limit unnecessary disturbance or interference. • Construction activities will be undertaken during daylight hours and not on Sundays.	1	2	1	2	Negative Low (-6)
A2-C-SE 38	Construction staff safety during construction.	1	2	3	3	Negative Medium (-9)	• Ensure the appointment of a Safety Officer to continuously monitor the safety conditions during construction. • All construction staff must have the appropriate PPE. • The construction staff handling chemicals or hazardous materials must be trained in the use of the substances and the environmental, health and safety consequences of incidents. • Report and record any environmental, health and safety incidents to the responsible person.	1	2	2	2	Negative Medium (-7)
						Total = - 302 Average = - 8						Total = - 212 Average = - 5.6

8.3.2.2 Operational Phase

Where **E** = Extent, **D** = Duration, **I** = Intensity and **P** = Probability of occurrence.

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
Biophysical Environmental												
Vegetation												
O-BE 1	Planting of road verges.	1	3	2	2	Positive Medium (+8)	• The planting of the road verges with the correct suite of plant species will see these verges utilised as movement corridors for faunal and avifaunal species. A landscaping plan is required.	1	3	3	2	Positive Medium (+9)
O-BE 2	Utilising power servitudes as grasslands.	1	3	2	2	Positive Medium (+8)	• Utilising grasslands will be beneficial in as much as the maintenance of the servitude will be simplified and have limited impacts during the life span of the power line as their will be no need for the cutting of trees, and thus the continual disturbance to the vegetation community. • These open servitudes will be important as they will function as carbon sequestration zones, attenuation areas (fall outside of the wetlands on-site), as well as provide habitat and linkages for the movement of species, in particular, certain avifaunal species.	1	3	2	2	Positive Medium (+8)
O-BE 3	Burning of grasslands.	-1	-3	-3	-3	Neutral (10)	• To maintain the integrity of the grassland ecosystem, the areas would require burning every three (3) years to ensure that they function correctly. • Burning should not take place during the windy season as this will affect the ambient air quality. • Mowing of grasslands is not a suitable alternative to burning as it does not trigger species flowering.	+1	+3	+3	+3	Neutral (10)
Wetlands												
O-BE 4	Decrease in quality of water entering the wetland as a result of the contamination of urban runoff entering the wetland (hydrocarbons and litter from the road surface).	1	3	3	3	Negative Medium (-10)	• Allowing contaminated water to filter through soils under permeable paved parking lots, and other such permeable areas away from water courses, will aid in removing these chemical from storm water runoff during lighter rainfall events.	1	2	2	2	Negative Medium (-7)

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
O-BE 5	Erosion of wetland due to increased runoff entering the wetland during peak flows as a result of increased hardened surfaces in the catchment.	1	3	3	2	Negative Medium (-9)	• Runoffs rates for the natural condition should be calculated for each site and stormwater managed to be similar to this. • Adequate buffer zones (20m) of natural indigenous vegetation should be accommodated to reduce the significance of this impact. • Wetlands that are expected to receive high inputs during large rainfall events, such as those within the proposed light industrial area, should be planted with larger, more robust reed or tree species such as Phragmites australis and Syzygium cordatum.	1	3	2	2	Negative Medium (-8)
O-BE 6	Erosion in wetland due to concentration of storm water at outfalls.	1	3	3	2	Negative Medium (-9)	• The on site stormwater systems should discharge stormwater into the environment at rates and volumes that are equal to that of the natural condition. This will likely involve the establishment of attenuation ponds to capture runoff. Where possible, these should be located outside of the wetlands and their buffers. • All stormwater outfalls should have some form of energy dissipation such as gabion mattresses or geo-textiles to prevent such erosion from occurring. • In addition, where possible, outfalls should not be placed on steep slopes and should empty into densely vegetated areas before entering into the wetlands. • Stormwater outfalls should not be located within the wetland buffers and outfalls should not be placed above wetlands with reduced buffer widths.	1	3	2	2	Negative Medium (-8)
O-BE 7	Encroachment of alien invasive plants into the buffer zone and wetland, as a result of poor management.	1	3	3	3	Negative Medium (-10)	• Regular maintenance of these areas should be undertaken in order to remove alien species and maintain indigenous plant communities after rehabilitation. • Specific measures and the responsibilities for their implementation should be included in a wetland management plan.	1	3	2	2	Negative Medium (-8)

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
O-BE 8	Erosion of the wetland as a result of the increased hardened surfaces and subsequent intensity and volume of stormwater runoff	2	4	3	2	Negative High (-11)	• All stormwater runoff must be actively attenuated to pre-development levels on site prior to any discharge into natural systems. • Attenuation structures must be located outside the wetland and 20m buffer, the opportunity exists to use the outer 10m of a 30m buffer for the placement of attenuation structures. • A policy of many smaller discharge points must be preferred over fewer, larger discharge points. This will allow for a more diffuse return of flow to the wetland system. • An adequately sized and keyed-in stilling basins and Reno-mattress must be established below all discharge points to prevent erosion. • The outer edge of the headwall and Reno-mattress structure must be demarcated with snow fencing and approved by the Environmental Control Officer prior to construction commencing. All wetland areas beyond this demarcation must be considered no-go zones during the construction phase. The snow fencing must be kept taught at all times.	1	2	2	2	Negative Medium (-7)
O-BE 9	Improvement in the health of the wetland as a result of rehabilitation of the wetland and buffer zones.	1	3	2	2	Positive Medium (+8)	• Wetland rehabilitation should involve the removal of all sugarcane from the wetlands and ecological buffers, the plugging of all drains within the wetlands and the re-vegetation of the wetland and buffer zones. • A wetland rehabilitation and management plan should be prepared by a wetland specialist.	2	3	3	3	Positive Medium (+11)
Surface Water												
O-BE 10	Consumption of surface water.	1	3	3	3	Negative Medium (-10)	• Where possible install water saving taps and duel flushing toilet systems. • Collect rainwater for gardening purposes	1	2	2	2	Negative Medium (-7)
O-BE 11	Pollution of surface water.	1	3	3	3	Negative Medium (-10)	• Establishment of a stormwater management and sewage system for the development. • Ensure clean up and reporting as per Spillages and Incidents as well as the measures outlined in the Draft EMPr. • Regular inspections and maintenance (if require) of the stormwater management and sewage systems.	1	2	2	2	Negative Low (-7)
Groundwater												

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
O-BE 12	The consumption of groundwater can lead to the depletion of a natural resource.	1	2	2	2	Negative Medium (-7)	• No unauthorised extraction from boreholes (if any) for the proposed residential development will be permitted. • No new boreholes may be installed for extraction and consumption purposes without an appropriate water use licence.	1	1	2	2	Negative Low (-6)
Waste												
O-BE 13	Generation and disposal of domestic waste by the proposed development.	2	3	3	3	Negative High (-11)	• Waste will be collected by the KwaDukuza municipality and disposed off at an appropriate and licensed waste disposal facility.	1	3	2	2	Negative Medium (-8)
O-BE 14	Generation and disposal of sewage waste by the proposed development.	1	3	3	3	Negative High (-10)	• All sewage will be sent through to the Frasers Waste Water Treatment works	1	3	2	2	Negative Medium (-8)
Socio-Economic Environment												
Employment												
O-SE 15	The completion of the development will lead to job creation through the industrial and commercial components.	2	2	2	2	Positive Medium (+8)	• The principles of gender equality, maximising local employment should be implemented in the provision and establishment of jobs. • Jobs for the maintenance of infrastructure and services will be created following the completion of the development. These jobs might be made available to existing labour there creating long term employment. • Service contractors could have access to other developments or projects in the area thereby creating long term employment.	2	3	3	3	Positive High (+11)
Housing												

Ref No.	Impact Description	Before Mitigation				Significance (Before Mitigation)	Mitigation and Management Measures	After Mitigation				Significance (After Mitigation)
		E	D	I	P			E	D	I	P	
O-SE 16	The development will address the low to middle income housing demand affecting the surrounding areas.	2	4	3	3	Positive High (+12)	• Ensure that the development captures the housing demand in the area.	2	4	3	4	Positive High (+13)
Traffic												
O-SE 17	Impact of increase in traffic.	2	3	3	3	Negative High (-11)	• Implement the actions outlined in the Traffic Impact Assessment to meet the need for public and private transportation. • By implementing the actions of the study there will be an overall improvement in the transportation infrastructure within and surrounding the development together with the broader region.	2	3	2	2	Negative Medium (-9)
Energy												
O-SE 18	Energy consumption	2	3	3	3	Negative High (-11)	• The KwaDukuza local network is currently running close to full capacity, and has already accepted a quotation from Eskom to upgrade the Gledhow 132/33kV substation to 80MVA firm. Eskom's Driefontein substation currently supplies both the KwaDukuza and eThekwini municipalities. The Shakaskraal substation is loaded at close to its rated capacity and can therefore not carry any significant additional load. • A new 132/33kV 80MVA substation will be required to be built in order to support the magnitude of the proposed development and Eskom has already planned for such infrastructure and will be known as the Dukuza substation. • It is highly recommended by Bosch Projects, that the use of energy efficient technologies be pursued further. • The use of LED and induction lighting needs to be incorporated into the street lighting design report along with recommendations for all other lighting requirements. The SASOL Home Gas Initiative also needs to be seriously considered as electricity savings can be quite considerable. • The process of cogeneration by Tongaat Hulett should also be seriously considered as a significant amount of power can be generated from the sugar waste products.	2	2	2	2	Negative Medium (-8)
						Total = - 75 Average = - 4.2						Total = - 39 Average = - 2.2

8.4 Knowledge gaps and adequacy of predictive methods

The receiving environment of the Compensation Industrial and Business Estate Development activities has been rigorously assessed and the EIA has incorporated all prevailing conditions of the environmental aspects identified as part of the pre-construction, construction and operational phase activities. Following the intensive specialist studies conducted, it is believed that the pre-development environment is well understood. Hence no knowledge gaps exist in terms of the current state of the environment, EIA and EMPr.

Due to the nature of the existing environment, the local conditions of the area, and professional expertise, it is believed that the predictive measures are suitable and with no limitations.

9 ENVIRONMENTAL IMPACT STATEMENT

9.1 Summary of Findings

In this environmental impact assessment, the impact of the Compensation Industrial and Business Estate Business and Industrial Park Development on the biophysical and social environments was assessed. From the assessment, it was determined which parts of the two environments will be more significantly affected as compared to others. Below is a summary of the main findings of the EIA.

TABLE 14: SUMMARY OF FINDINGS

Impact Description	Summary of findings
Biophysical Environment	
Geology	Although permanent disturbance to the geology on site will occur, the proposed development would be the preferred option as the disturbance level is appropriate to the nature of the proposed development. All disturbances on site will be limited to the construction areas.
Topography	Although permanent disturbance to the topography will occur, appropriate mitigation measures will be implemented to minimise the impact. The site can be considered to be a very level one within the context of the overall KwaZulu-Natal coastal topography, ideal for such a development. The topography has been considered through the specialist investigations and constraints related thereto have been integrated into the developable areas.
Soil, Land Use and Capability	The agricultural assessment of the pre-development environment indicated that the agricultural land capability of the site be classified as Class IV (marginal to poor), due to poor soils and irrigation. Given this, the project is ideally located as the opportunity for agriculture is thus limited.
Vegetation	The sensitive natural forest identified on site will be accordingly integrated into the planning of the development in the form of “no go” or limited access areas. As such, minimal construction activities will be allowed to take place in these areas and appropriate mitigation measures will be implemented to minimise any impacts that do take place in the vicinity of these areas.
Wetlands	Four (4) wetlands have been identified and the Wetland Impact Assessment Report has detailed the potential impacts and appropriate mitigation measures and approaches to minimise the impacts. 20m buffers are recommended around all buffers, with an additional 10m incorporated into the properties (i.e. 30m in total). Measures are listed to manage and maintain the health and functionality of the wetlands as a whole for the site.

Impact Description	Summary of findings
	A small portion of wetland is proposed to be lost – the reasoning for why this loss is required has been considered in this report. It should however be noted that suitable mitigation measures have been proposed given the nature, state and location of this small portion of disturbed wetlands. .
River	The implementation of a comprehensive and effective stormwater management plan, with particular focus on erosion and silt management, is a necessity in order to protect the Wewe river. This is however deemed to be a post-authorisation requirement and will be linked into the final townplanning process as a result of the final detailed design phase of the project.
Surface Water and Groundwater	No development will be allowed within the 1:100 year floodline (i.e. designated "no go" area). No unauthorised abstraction of water from boreholes or the drilling of new boreholes will be allowed on site. The establishment of a stormwater management system (as indicated above) will ensure that all surface water runoff from the site is managed appropriately and directed to the natural wetland on site. Such diversion will be done in such a manner that the wetland will be buffered and that inflow will not cause damage to the wetland through erosion. In terms of water consumption, water consumption on the greater site will be limited by installing water saving taps and dual flushing toilet systems. Water consumption can be reduced by collecting and utilising rain water for gardening purposes. "Water-wise" landscaping will be required in all formal landscaped areas, preferentially using endemic plant species. Other design features that lead to limitation of water required will be considered and integrated into the final detailed design and landscaping plans.
Air Quality and Noise	The release of dust into the atmosphere during construction activities was identified as a finding for air quality. It is however indicated that this has been adequately addressed in terms of the mitigation measures that would have to be implemented. During construction activities, noise will be generated by vehicles, equipment and building activities, but again this has been considered in the mitigation measures and it is believed will be suitably mitigated.
Sites of Archaeological, Historical and Cultural Significance	No specific areas of archaeological, historical and cultural significance were identified in the Heritage Impact Assessment; however it has been included in the EMPr that should any such sites or artefacts be identified during construction, work is to immediately cease and the Heritage specialist informed for a way forward.

Impact Description	Summary of findings
Visual Aspects	The surrounding areas of Compensation and Ballito could experience potential visual impacts. It was however indicated in the public meetings that the residents in these areas support the development and are aware / understand the potential visual impacts. The final detailed design of the development will be line with the aesthetics of the surrounding environment. Urban design and building guidelines will be provided for new commercial, mixed use and industrial development.
Waste	The potential waste streams for the project were identified as domestic, hazardous (a service provider will be appointed should KwaDukuza LM not be able to handle hazardous waste), building and sewerage waste. The impact of the waste streams will be minimised by the rigorous mitigation measures that have been developed. Formal solid waste collection will be undertaken by KwaDukuza Municipality and will be sent through to a licensed waste disposal facility. All sewerage waste will be sent through to a licensed treatment facility.
Odour	Odours from chemical toilets on site for construction staff will be minimised by ensuring that the toilets are cleaned and maintained on a weekly basis. The toilets will also be provided at appropriate ratios to the number of users.
Spillage and incidents	There is the potential for spillages, incidents, fires and explosions due to the construction activities. Procedures and specific mitigation measures would need to be drawn up to minimise and/or eliminate the possibility of contaminating the soil, surface and groundwater environments and ensure the protection of the employees working on site. These will form part of ongoing method statements and will be cross-linked into the requirement emergency response plans required in terms of safety and health requirements.
Socio-Economic Environment	
Employment	The project has the potential to provide employment for local contractors**.** The Compensation Industrial and Business Estate development will generate 71–90,000 as direct jobs, and 48–61,000 indirect jobs. Out of these jobs 47–60,000 will be permanent and 52–66,000 will be temporary jobs. As a cascade impact, a minimum of 19–25,000 will be secondary jobs.
Population Changes	There should be minimum changes to the population dynamics of the area as it is recommended that all labour for the project is to be sourced locally as far as possible. It should be noted that certain specialist tasks may have to be sourced from outside of the local communities.

Impact Description	Summary of findings
Security and Social Ills	During the construction phase there is the possibility of social ills such as crime, the spread of HIV/AIDS, etc. To prevent the manifestation of these problems suitable mitigation has been recommended and will have to be put in place. By using minimal "outside" workers, the impact should be further reduced.
Traffic	Due to construction activities there is the possibility of disruptions to traffic flow in the area. With the establishment of the development there will be increased pressure on the existing road network. To alleviate the pressure, the road network improvements outlined in the Traffic Assessment Report would need to be implemented, not only by the developer, but by the parties involved with the Traffic Assessment Report as detailed therein.
Safety	The safety of the public and construction staff could be compromised unless adequate safety measures are implemented. The requirements in the EMPr should be linked to all health and safety requirements.
Housing	It needs to be ensured that the development captures the housing demand in the area (i.e. serves to reduce the housing backlog).
Energy Consumption	With the consumption of energy it has been recommended that renewable and or alternative energy sources (where possible and practical and sustainable) be outlined in the conditions of establishment and encouraged to be utilised by the contractors. Other design features that lead to energy savings will be considered and integrated into the final detailed design.
Planning and Sustainable Development	With the mixed use nature of the development, together with the proposed intensities, densities, and, linkages to the surrounding adjacent communities, there is little doubt that a framework for sustainability will have been provided which will enable the creation of a sustainable development.

9.2 Comparative assessment of positive and negative findings

The following is a comparative assessment of the positive and negative findings of the EIA process:

TABLE 15: COMPARATIVE ASSESSMENT OF POSITIVE AND NEGATIVE FINDINGS

Positive Findings	Negative Findings
Biophysical Environment	
The assessment of the pre-development environment indicated that the agricultural land capability of the site be classified "marginal to poor". Due to poor soil quality and lack of irrigation water the Pencarrow site could be marginal for a miller, but is not viable as a commercial stand alone sugar farm. If costs continue, as in the past, to escalate faster than price increases, the viability of this site will continue to decline proportionately**.** Due to lack of irrigation water the commercial scale production of other crops is not an option. The commercial or industrial development of this site will present numerous employment opportunities during both the development and operational phases.	A minimal negative finding as this area has a poor agricultural potential.
The design and layout of the proposed development has taken into consideration and integrated the ecological, topography, and hydrological constraints that have been identified.	There will be permanent alteration of the biophysical environment should the specified mitigation measures not be implemented. Particularly with respect to eco-region 2, the natural forest is not fully incorporated in the Open Space Area and therefore it is here that relevant mitigation measures must be implemented.
Although sensitive environments have been identified within the project area (i.e. wetlands, riparian areas and vegetation pockets), mitigation measures and management plans have been recommended to not only manage but improve the overall health and functionality of these areas.	
The development will enable a substantial quantum of wetland to be rehabilitated and managed which will result in a nett ecological gain	Some wetlands or portions of wetlands will be impacted upon.
Rigorous mitigation measures have been stipulated in the EIA management measures and draft EMPr to handle spillage, leakages or any abnormal occurrences.	
Socio-economic Environment	
The creation of substantial employment opportunities during the construction of the project and the creation of	This could lead to the influx of people into the area seeking employment which could place a strain on the

Positive Findings	Negative Findings
substantial economic and employment opportunities on completion of the project. It is expected that the majority of labour and contractors will be sourced locally. The Compensation Industrial and Business Estate development will generate 71–90,000 as direct jobs, and 48–61,000 indirect jobs. Out of these jobs 47–60,000 will be permanent and 52–66,000 will be temporary jobs. As a cascade impact, a minimum of 19–25,000 will be secondary jobs.	existing infrastructure, available housing and the potential development of uncontrolled settlements. In general there are social ills such as crime, the spread of HIV/AIDS, etc that could take place. The use of dominantly local workers will limit the inflow of new people into the area thus limiting potential impacts of this nature.
The mixed development will provide affordable housing as well as associated infrastructure and commercial services. The location of the study area is in prime position to promote and foster economic opportunity, social and physical integration, being in close proximity to the Kind Shaka International Airport and Dube Trade Port.	
The development of the Compensation Industrial and Business Estate, because of its regional situation, role and responsibility will facilitate the development of a public transport system as well as plan for the construction of new major arterial routes, both north-south and east-west which will assist the performance of the region.	There will be increased traffic and congestion in the region without adequate mitigation.

TABLE 16: COMPARATIVE ASSESSMENT OF RISK ASSESSMENT PER ALTERNATIVE

	Construction Phase		Operational Phase	
	Average Before Mitigation	Average After Mitigation	Average Before Mitigation	Average After Mitigation
Alternative 1	-8	-5.5	-3.8	-1.9
Alternative 2	-8	-5.6	-4.2	-2-2

9.3 EAP opinion

The assessment of the impacts provided in this EIA Report, combined with the specialist studies and detailed methodology provides (a) a detailed and comprehensive description of the Compensation Industrial and Business

Estate property, (b) motivation for the project, (c) information pertaining to the pre-development environment and lastly (d) the environmental impact of the anticipated activities of the proposed project.

It is clear from the Impact Assessment undertaken that **Alternative One (1)** is supported and would be the best environmental option. As seen in Table 15 above, the overall significance values in the risk assessment vary slightly between Alternative 1 and 2. This could be attributed to the fact that while Alternative 2 may have less of a negative impact, so does it have less of a positive impact. Alternative 2 will still result in the clearance of the area and change in land use; however, it will have less of an impact on air quality and sense of place, as it will focus on residential development. Alternative 2 will thus result in the loss of the opportunity to create employment opportunities, which in the greater scheme offsets much of the negative impacts associated with the development altogether.

It is the view of the EAP that this project will have a positive contribution from a socio-economic perspective. Furthermore, no fatal flaws were identified during the impact assessment.

It has been acknowledged that there will be an impact on the biophysical environment, however, this is deemed to be minimal. With the implementation of the mitigation measures outlined in this report and the Draft EMPr those impacts can be adequately minimised and / or mitigated. It is also important to note that the natural drainage and man made drainage systems have been incorporated into the portion demarcated as Open Space Area, thereby minimising the impact on the natural environment of significance.

10 CONCLUSION

The Compensation Industrial and Business Estate development is a significant development within the context of the KwaDukuza Local Municipality, iLembe District Municipality, province of KwaZulu-Natal and potentially South Africa. The fact that the site is located in close proximity to the King Shaka International Airport and the Dube Trade Port, dictates that it has to fulfil a number of strategic objectives which have a regional impact.

In line with the requirements of the NEMA EIA Regulations (2010), this Environmental Impact Assessment (EIA) Report has provided a description of the development and its associated activities including descriptions of the pre-development environmental, specifically in terms of the biophysical and socio-economic environment of the study area.

In addition, there is a full explanation of the methodology undertaken during the EIA Phase and Public Participation Process. Most importantly the report addresses the impacts identified during the scoping phase that were anticipated for the development, as well as providing mitigation measures to ensure environmentally sustainable development of CIBE.

The CIBE will contribute to sustainable job creation, with an anticipated 120–155,000 expected jobs, of which 47–60,000 will be permanent. While such job creation will lead to concentration within this light industrial and business / commercial hub will result in the influx of people to the area and the associated social ills, these can be curbed by ensuring local employment and proper security. The negative impacts will be minimal when compared to the positive.

There will be better use of land which currently has marginal crop potential due to poor soils and lack of irrigation. Being a Class IV, the area according to the KZNDAE Directorate of Natural Resources classifies the area as being subjected to severe cultivation restrictions. However, it is important to take cognisance of the fact that in its present state, the site has little negative impact on the natural environment when compared with the proposed development. These impacts however, can be carefully mitigated to validate and support the fact that such a development will contribute significantly to the socio-economic progress of the area.

With mitigation and management measures adhered to, there are no negative impacts rated as a negative high in the impact assessment, therefore the impacts associated with the CIBE are at an acceptable level. The CIBE on the plus side offers the potential of creating a vibrant, integrated commercial, business park, logistic efficiencies as well as bring the needed infrastructure and services, jobs and tax base to KwaDukuza Municipality.

The transformation of the land to enable the development of CIBE is therefore not only inevitable but a necessity and will ultimately provide a significant overall societal gain including environmental, social and economic benefits which will provide the basis for a value adding, sustainable development. There is a huge need for new industrial space in the city and the need for new subsidy housing is unquestionable.

The 'negative' impacts on environmental resources are, in the broader context, insignificant and immaterial to the ultimate success of the development. The development will actually enable the rehabilitation and management of a substantial amount of open space provided such space is an integral component of the development and enabled to be appropriately utilised by the resident community.

Careful planning has created value by incorporating the open space within the design conceived in a manner that serves as a lattice that allows for continuity for habitat and for recreational purposes.

A focus on public transportation is a key priority for the CIBE development. The development allows for a range of public transportation modes.

The updated Final EIA in response to two (2) letters of rejection to the report maintains the impact assessment to have the same outcome or result. The reason for this is that the queries to the reports and appendices were predominantly with respect to the:

- layout plan,
- alternatives,
- the needs and desirability ; and
- the EMPr, which has been further amended and attached as Appendix E of Addendum 2.

All of which are addressed to the satisfaction of the EDTEA as assumed based on the fact that it was not mentioned in the second letter of rejection.

The other queries were minor and addressed and have therefore not impacted on the results of this EIA.

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