CEN INTEGRATED ENVIRONMENTAL MANAGEMENT UNIT

Environmental and Rural Development Specialist

Final Basic Assessment Report:

Re-development and landscaping of the southern portion of the Kings Beach Node on the Nelson Mandela Bay southern beachfront (Phase 2)

Project Title:

Final Basic Assessment Report: redevelopment and landscaping of the southern portion of the Kings Beach Node on the Nelson Mandela Bay southern beachfront (Phase 2)

Project Applicant: Mandela Bay Development Agency

Reference Number: ECM1/LN1&3/M/11-103

Environmental Assessment Practitioner:

CEN Integrated Environmental Management Unit

36 River Road, Walmer, Port Elizabeth, 6070

South Africa

Phone (041) 581-2983 • Fax 086 504 2549

E-mail: steenbok@aerosat.co.za

Date of submission: April 2012

Executive Summary

CEN Integrated Environmental Management Unit was appointed by the Mandela Bay Development Agency to undertake the necessary environmental assessments for the proposed redevelopment and landscaping of the southern portion of the Kings Beach Node on the Nelson Mandela Bay southern beachfront (Phase 2). Activities will take place on Erf 1031, Erf 576 and the Remainder of Erf 575, Humewood (approximate GPS co-ordinates: 33°58'23.17"S 25°38'45.70"E).

This Basic Assessment report is required in terms of Regulation (56) of the Environmental Impact Assessment EIA Regulations (Government Notice R.543 in Government Gazette 33306 of 18 June 2010) and in terms of Chapter 5 of the National Environmental Management Act as amended (Act 107 1998).

1.1 Activity Description

1.1.1 Listed Activities

The following activities have been identified:

No. R. 544	**10 December 2010 – Listing 1**
Activity number	**Activity description**
16	Construction or earth moving activities in the littoral active zone or a distance of 100 metres inland of the high-water mark of the sea, in respect of – (iii) embankments; (iv) rock revetments or stabilising structures including stabilising walls; (v) buildings of 50 square metres or more; or (vi) infrastructure covering 50 square metres or more Project activity: building a boardwalk and an artificial wetland within 100 m of the high water mark of the sea

No. R. 544	**10 December 2010 – Listing 1**
Activity number	**Activity description**
17	The planting of vegetation or placing of any material on dunes and exposed sand surfaces, within the littoral active zone for the purpose of preventing the free movement of sand, erosion or accretion, excluding where the planting of vegetation or placement of material relates to restoration and maintenance of indigenous coastal vegetation or where such planting of vegetation or placing of material will occur behind a development setback line. Project activity: dune rehabilitation
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: (iv) the littoral active zone or a distance of 100 metres inland of the high-water mark of the sea Project activity: the excavation of material to construct a boardwalk and an artificial wetland within 100 m of the high water mark of the sea
No. R. 546	10 December 2010 – Listing 3
Activity number	Activity description
12	The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation (c) Within the littoral active zone or 100 metres inland from high water mark of the sea Project activity: clearance of dune vegetation to construct a boardwalk

1.1.2 Activity Description

The Kings Beach node falls within the Mandela Bay Development Agency's (MBDA) mandate area which comprises ~1039 ha of land in the Inner Metropolitan Area of the Nelson Mandela Bay Municipality. The role of the MBDA is to re-engineer and revitalize land within its mandate area. A phased plan to redevelop the Kings Beach Node has been proposed – Phase 1 has already commenced. The following activities are proposed for Phase 2 (refer to Figure 1):

- Construction of 2 access boardwalks to the beach with a viewing deck (there are currently 4 access points at ground level – 2 will remain, and the other 2 will be converted to raised access boardwalks)
- Construction of an artificial wetland to filter and attenuate stormwater prior to it being discharged onto the beach
- Improved stormwater management
- Upgrading the a portion of the existing parking area
- Construction of a skatepark
- Landscaping
- Maintenance and repairs of existing structures and infrastructure

- **Figure 1: Site Plan (Source: EARTHWORKS Landscape Architects).**

1.2 Methodology

1.2.1 Compliance with legislated requirements

The Environmental Impact Assessment Regulations (2010) clearly state the requirements that need to be fulfilled by all role-players involved in the Environmental Assessment Process. In this regard, Regulations 21 to 25 list the requirements that an EAP must fulfil in order to compile a comprehensive Basic Assessment Report.
To assist with interpretation of these regulations, a set of guidelines was published by the Department of Environmental Affairs. In this regard, Guidelines 3 (General Guide to Environmental Impact Regulations (2006)), 4 (Public Participation) and 5 (Assessment of Alternatives and Impacts) were consulted.

1.3 Identification and Assessment of Alternatives

The methodology described in guidelines published to assist with the interpretation of EIA Regulations was followed to ensure the adequate consideration of alternatives, including the “no development” option. Two site layout and development concept alternatives were considered and assessed, primarily involving disturbance to dunes, layout and positioning of boardwalks, and stormwater management. The preferred option was developed in consultation with WESSA, the Beach Office and the professional project architect and engineer. The “no-development” option was considered as a baseline throughout the prediction and analysis of impacts.

1.4 Prediction and Analysis of Impacts

Impacts were predicted and analysed based on observations made during site visits and discussions with authorities, review of scientific literature, analysis of various Environmental Planning Guidelines (e.g. the East Cape Biodiversity Conservation Plan (2007), the Nelson Mandela Bay Metropolitan Open Space System (2009)), aerial photography interpretation, and comments from Interested and Affected Parties.

1.4.1 Comments from Interested and Affected Parties

All registered Interested and Affected Parties and other stakeholders have been sent a copy of this Executive Summary and notified of the availability of the full Draft Basic Assessment Report. All I&APs have been given a 40 day period to review the draft report and submit comments.

Below is a summary of comments raised by registered Interested and Affected Parties in response to the public participation process . These have been integral in the assessment of impacts.

- Is there a possibility of re-developing the Kings Beach Lifesaving Club footprint to include a low impact commercial development node? Will such plans require a separate process or can this be included for consideration within the scope of this environmental assessment?
- Our interest extends to the modification of the dunes and building of a boardwalk within 100 m of the high water mark of the sea and in particular how this will affect sand shift around the Kings Beach Surf Lifesaving clubhouse and access levels to the existing paved courtyard (as well as any drainage requirements). We also need to understand the wider scope implications of the re-development of the parking areas and access to the adjacent grassed areas as well as level changes and any further storm water mitigation activities that may be planned around the skate park.
- As per our telephone conversation, I respond with this e-mail regarding the development on Kings Beach, and how it will affect our business. Please keep us informed of the development process that would happen around the Supertube area.
- Concern raised over boardwalk and dune modification proposal
- What will be done to protect sand movement?
- Request to be registered as an I&AP
- Submitted several comments regarding mostly dune landscaping and modification:
- There are a few protected trees on the site, viz. white milkwood (Sideroxylon inerme) and red milkwood (Mimusops caffra), which should be retained if possible. They may not be disturbed, damaged, destroyed or felled without a licence from the Forestry office in Port Elizabeth. Any applications should be directed to that office.

- The landscaping of the strand plant foredune hummocks [according to the classification of Tinley (1985)] is regarded as highly undesirable, and should under no circumstances be allowed. Note is taken of the fact that the dune has apparently been constructed artificially to a certain height in the 1980's, and that the proposal is now to reduce their height to what it had been originally, to inter alia obtain sea-views. However, in this proposal consideration is apparently not given to the fact that foredunes are dynamic wind-shaped structures which are natural features on sandy shores above the high water mark, and that, regardless of how they were originally "constructed artificially", they have since, due to natural physical and biological forces and influences, developed into vegetated foredunes comparable to any such dunes formed by nature.
- Attached photographs of these dunes reveal that they are covered with typical indigenous strand vegetation found in the dynamic dune zone, vegetated with littoral species consisting of i.a. Ehrharta villosa ("pypgras"), Ipomoea brasiliensis ("seepatat"), Agropyron distichum (sea wheat), Gazania sp. ("gousblom"). This vegetation is rhizomatous or stoloniferous in nature with the characteristic of the former to continuously grow out above the accumulating sand, thereby forming crested dunes, and binding the sand that is wind-blown inland of the high water mark. Dune growth in this way is a natural process, which has undoubtedly occurred since the original sand dunes were formed artificially. (See photographs).
- It is foolish to interfere with this dynamic semi-stabilised foredune zone, as it is a natural(ised) eco-system that provides services free of charge by providing a natural and resilient buffer that absorbs and dissipates the energy of the sea and wind in a dynamic zone of semi-mobile sand. If this buffer was to be replaced by for example rigid structures like rock or concrete, or artificially stabilised vegetated soil, the energy of waves and wind would "collide" with these inflexible surfaces and create turbulence and eddies producing erosion and undermining of the structures created to protect the inland stable zone against these forces.
- In the light of increasing sea-levels through global climate change, it is very important to retain these dynamic buffer zones. They will absorb to some extent the forces exerted by storms. They are periodically eaten into by storm tides, removing sand, but during calm weather and seas they are again brought back to the shore by natural accretion processes. Any artificial interference with this process can only

destabilize and disrupt this dynamic equilibrium, to the detriment of the development behind it.

- In this regard, reference is also to be made to the CSIR publication “Coastal Dunes of South Africa”, Report No. 109, by Dr. K.L. Tinley, 1985.
- A process of colonization with more permanent indigenous dune vegetation consisting of woody shrubs and trees, e.g. Rhus crenata (“duine kraaibessie”), has started in the lee of the dunes as they are currently. These should be encouraged by establishing more of these species. The value of this natural shelter against winds from the sea, should outweigh the need to have a direct line of sight to the sea. The sea can easily be accessed by the accesses provided, and the system of proposed boardwalks along the dunes as they currently are, which is supported, should adequately provide in this need.
- The proposed landscaping of the dunes will not be permanent, for the natural sand accretion processes will prevail and will naturally revert back to building the dune higher, as has taken place in the past. It appears that the proposal has not considered this aspect. Once the dunes have been landscaped, they will not remain in such a state, and if they are stabilized with too permanent a surface, they will be damaged by the forces of the elements.
- In the light of imminent sea-level rises, it would be prudent, and should be enforced by the authorities responsible, to instead of expanding the artificial development in the direction of the sea, withdraw further inland and determine a setback line, as these developments close to the sea are certain to be inundated by the sea in the not too distant future.
- Kings Beach was a Blue Flag status beach until end of 2009, when it failed to regain its flag due to deficiencies with the four ablution blocks and significant problems with beach management – largely due to not managing stormwater runoff from the carpark.
- My/Blue Flag’s interest in this project is to promote the redevelopment up to the standards of Blue Flag, so that the NMBM can re-apply, as is apparently its intention. Getting appropriate dune management is also key. As discussed please find attached a Blue Flag Report on some of the issues.
- Agree with issues identified in BID
- Concern that Phase 1 commenced without an authorisation which may result in non-compliance issues

- Has the Parks Department been consulted? They are responsible for developing open space.
- Will viewing decks on the access boardwalks fall in the inundation zone?
- How many phases are planned for the greater beachfront development? Why is a piecemeal approach being taken?
- Can this assessment deal with the current maintenance problems of the existing boardwalk along the remainder of the beachfront?
- What has the original round of public participation covered and what has the response been so far?
- Are there opportunities for local economic development in the proposal?

Comments on Draft BAR:

- Provision should be made for a multiple use recreational path which connects with the existing recreational path network of the city. Currently cyclists are prohibited from using the tarmac sec on by no cycling signs. Conceptual drawings of the proposed development indicate cycling facilities and this is to be welcomed. Single use paths and the current system of no cycling signage give rise to the potential for recreational conflict and mitigation measures for such potential conflict needs to be considered.
- With respect to the process, I note that the beach office was involved in design discussions. Is it possible to get information related to what they were asked to comment on as we would have thought there may be some input from our side particularly as the club house and tower will be directly impacted (this is not directly related to the EIA hence the reason I haven't included it under our main comments). If this falls outside your mandate, please advise whom I should be contacting to discuss this.
- With respect to Dean Biddulphs' comments, this is something the Life saving club has already been investigating (and which are quite advanced with respect to proposals), so with respect to the 2nd part of his question, would such plans require a separate process or does the EIA include for this within its scope?
- With respect to the EAP response to Kings Beach comments, if the dunes are not to be modified, how will the club members continue to access the beach as the dune field extends itself across the access route to link with the existing dune adjacent? This appears to be natural phenomena that will not stabilize over time, only increase in magnitude (as has the height of the dune in front of the club tower).

- In addition, what mitigating process has been proposed to prevent the sand buildup that has gone on since the dunes were created in the current guise from swamping the club in future years? This is already happening on a regular basis due to natural sand movement phenomena and not just foot traffic across the dune which is a fairly recent event caused by sand covering the fences that were originally erected along the pathway to prevent access i.e. there was already sand overblow despite the dune vegetation being sufficiently stabilized which increased the hard core at the base of the dunes on the seaward side.
- We note the two boardwalks proposed and would like to be consulted by the relevant design teams with respect to exact route, levels and also details of the lookout point and its potential for use by life guard's during the course of their daily activities. In addition, we note no boardwalk or other access proposals for the MacArthur baths side of the beach which seems at odds with the municipalities stated aims to make the beach more accessible as currently this is a serious problem for anyone on crutches or in a wheelchair (the current concrete walkway ends with no steps and in addition the storm water runoff is eroding the beach further exacerbating the drop off). We note that mention is made of steps and gabion cages but the details on this do not appear to make allowance for disabled access. Although the report details that access 4 is the most heavily trafficked and main access to the beach, those aspects appear to have been ignored alongside what mitigation of storm water will occur there. The secondary issue of storm water from beneath the Mac Baths sea wall eroding the beach and thereby creating a sea gully does not appear to have been addressed in any way other than as a possible health hazard due high e-coli counts in an area children love to play in and which drains directly into the bathing area.
- The proposals for the tertiary wetland are of grave concern mainly due to two aspects: firstly, the level of this wetland would seem to be at odds with the current ground levels adjacent to the beach areas which would therefore possibly create a flooding potential for the club and ablution block adjacent should overflow not be captured by the wetland i.e. that water directed along the current access road. Do any sectional details exist for the proposed drainage detailing the collection and subsequent control of this additional water processing by the wetland area? The secondary aspect is the impact of this additional water run-off on the existing gully's that have been the cause of much trouble to the bathing public this summer. It is our understanding that Afri-Coast Engineers are in the process of carrying out a detailed shoreline study that

should provide clarity on the impact of rising sea levels on the beach erosion and increasing flooding patterns that have seen the high water mark extend to the base of the dune system along virtually the entire beach length. In addition, we believe this report should also inform the proposed design of any storm water system as it is our contention that increased water flow from the car park via the various roadways is leading to the increased erosion of sections of the beach and offshore sea bed.

- The proposals highlight that sand build up has caused problems with the storm water drainage system as originally designed at Point 5 but should also include Point 6 as any drainage at that point dams at the base of the existing concrete ramp due to sand build up creating a dam effect. We see no proposals that address this issue which will only increase should the adjacent dune not be reduced in size. It may be that the existing concrete ramp should be extended to the high water mark at the base of the dune system allowing easier maintenance access and assisting in managing the storm water drainage problem. We have in essence a man made system that now needs additional man made aspects to control it rather than returning the beach to what it had become by natural sand build-up following the extension of the harbour wall in the 1930's.
- The BAR mentions that the water quality in the artificial wetland must be monitored to determine the effectiveness of the system. Are there any other operational requirements such as maintenance of the artificial wetland?
- Who will be responsible for maintenance of infrastructure?
- The section in the BAR under Authority Participation should read:
  - NMBM Environmental Management Sub-Directorate
  - NMBM Infrastructure and Engineering Directorate
  - NMBM Electricity and Energy Directorate
- The NMBM Economic Development and Recreational Services Directorate should possibly be registered as an interested and affected party, particularly Beaches, Resorts and Support Services

1.5 Summary of Predicted Impacts

Section D of the Basic Assessment Report details the assessment of impacts.
The table below is a summary of predicted impacts in construction and operational phases:

Impact	**Construction phase**		**Operational Phase**	
	No-go	**Preferred alternative**	**No-go**	**Preferred alternative**
Coastal ecology/biodiversity	Long term, Low -	Short term, Low -	Long term, Moderate -	Long term, Moderate +
Noise	No impact	Short term, Low -		
Air quality (dust)	No impact	Short term, Low -		
Surface and groundwater impacts (erosion and contamination)	Long term, Moderate -	Long term, Low -		
Stormwater management			Long term, High -	Long term, High+
Sediment dynamics			Long term, High +	Long term, Moderate +
Waste management	No impact	Short term, Low -		
Archaeological impacts	No impact	No impact		
Visual Impacts			Long term, Moderate -	Long term, High +
Socio-Economic Impacts (tourism and recreational users)	No impact	Short term, Low -	Long term, High -	Long term, High +
Socio-Economic Impacts (employment opportunities)	Long term, Moderate -	Short term, High +		
Cumulative Impacts: The MBDA has commenced with upgrading a portion of the Kings Beach area which includes the				

Impact	Construction phase		Operational Phase	
	No-go	**Preferred alternative**	**No-go**	**Preferred alternative**
construction of a lake and various landscaping activities (Phase 1). This proposal will build on the efforts made so far in Phase 1 and together will collectively promote improved recreational usage and tourism opportunities of the area. Improved stormwater management will assist in improving water quality that flows to the beach, and should assist in Kings Beach attaining Blue Flag status. This will further aid in increasing tourism potential of the area. Studies to determine the carrying capacity of the southern beaches of Port Elizabeth have shown that only certain beaches are highly used, while others are underutilised (e.g. Kings Beach). Some of the reasons for underutilisation are safety, and lack of facilities. The proposed upgrade will assist in 'spreading out' recreational usage along the beaches, and which will reduce impacts at other beaches that are currently over-utilised.				
			Long term, High – (if the area is not upgraded, a valuable tourist area will be underutlised. If stormwater is not managed, coastal water quality will continue to deteriorate)	Long term, High + (the inclusion of an artificial wetland in the prefer alternative improves stormwater management)

1.5.1 Environmental Impact Statement and Recommendations

This assessment showed that potential negative impacts would be limited to construction phase only (short term), and provided that mitigation measures are implemented, they will be of low significance. Positive operational impacts are:

- improved stormwater managed through the construction of an artificial wetland that will attenuate and filter stormwater prior to it discharging into the surrounding coastal environment,
- improved recreational facilities and aesthetics of an important coastal tourist node that will improve safety and promote utilisation by the public, and

- possibly improved management of dunes by limiting beach access to boardwalks (i.e. reduced trampling of dune vegetation and resultant erosion).

Positive impacts listed above should assist in efforts aimed at Kings Beach attaining Blue Flag status which has obvious socio-economic benefits, mostly related to international tourism.

It is recommended that all mitigation measures contained in the Basic Assessment report be included in an environmental authorisation, should one be issued.