



REFERENCE: 16/3/3/1/F4/7/3024/21
NEAS REFERENCE: WCP/EIA/0000920/2021
DATE: 14 December 2021

The Proponent
Calypso Beach Homeowners Association
22 Tenos Way
Calypso Beach
LANGEBAAN
7357

Attention: Mr. J. Greyling

Cell: 083 412 5092

E-mail: hevilex@mweb.co.za

Dear Sir

APPLICATION FOR ENVIRONMENTAL AUTHORISATION IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) AND THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2014 (AS AMENDED): THE PROPOSED DUNE STABILISATION AT NORTH AND SOUTH CALYPSO BEACH, LANGEBAAN.

1. With reference to the above application, the Department hereby notifies you of its decision to grant the amended Environmental Authorisation, attached herewith, together with the reasons for the decision.
2. In terms of Regulation 4 of the EIA Regulations, 2014 (as amended), you are instructed to ensure, within 14 days of the date of the Environmental Authorisation, that all registered Interested and Affected Parties ("I&APs") are provided with access to and reasons for the decision, and that all registered I&APs are notified of their right to appeal.
3. Your attention is drawn to Chapter 2 of the Appeal Regulations, 2014 (as amended), which prescribes the appeal procedure to be followed. This procedure is summarized in the attached Environmental Authorisation.

Yours faithfully

MR. ZAAHIR TOEFY
DIRECTOR: DEVELOPMENT MANAGEMENT (REGION 1)

Copies to:

(1) J.T. Marx (Exalon 111)

E-mail: jantmarx@gmail.com

(2) N. Duarte (Saldanha Municipality)

E-mail: nazeema.duarte@sbm.gov.za

(3) I. Bekko (DEA&DP: Coastal Management)

E-mail: ieptieshaam.bekko@westerncape.gov.za

(4) B. Geldenhuys (DPW)

E-mail: basson.geldenhuys@dpw.gov.za

(5) S. Barnardt/ W. Dhansay (HWC) E-mail: stephanie.barnardt@westerncape.gov.za/waseefa.dhansay@westerncape.gov.za



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ENVIRONMENTAL AUTHORISATION

APPLICATION FOR ENVIRONMENTAL AUTHORISATION IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) AND THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2014 (AS AMENDED): THE PROPOSED DUNE STABILISATION AT NORTH AND SOUTH CALYPSO BEACH, LANGEBAAN.

With reference to your application for the abovementioned, find below the outcome with respect to this application.

DECISION

By virtue of the powers conferred on it by the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA") and the Environmental Impact Assessment ("EIA") Regulations, 2014 (as amended), the Competent Authority herewith **grants Environmental Authorisation** to the applicant to undertake the listed activities specified in section B below with respect to the Preferred Layout Alternative, described in the Basic Assessment Report ("BAR"), dated 27 August 2021.

The granting of this Environmental Authorisation (hereinafter referred to as the "Environmental Authorisation") is subject to compliance with the conditions set out in Section E below.

A. DETAILS OF THE HOLDER OF this Environmental Authorisation

Calypso Beach Homeowners Association
% Mr. J. Greyling
22 Tenos Way
Calypso Beach
LANGEBAAAN
7357

Cell: 083 412 5092
E-mail: hevilex@mweb.co.za

The abovementioned applicant is the holder of this Environmental Authorisation and is hereinafter referred to as "**the holder**".

B. AUTHORISED ACTIVITIES

Listed Activity	Activity/Project Description
<p>Listing Notice 1 of the EIA Regulations, 2014 (as amended)–</p> <p>Activity Number: 18</p> <p>Activity Description: <i>“The planting of vegetation or placing of any material on dunes or exposed sand surfaces of more than 10 square metres, within the littoral active zone, for the purpose of preventing the free movement of sand, erosion or accretion, excluding where —</i></p> <ul style="list-style-type: none"> <i>i. the planting of vegetation or placement of material relates to restoration and maintenance of indigenous coastal vegetation undertaken in accordance with a maintenance management plan; or</i> <i>ii. such planting of vegetation or placing of material will occur behind a development</i> <i>iii. setback.”</i> 	<p>The proposed development includes the rehabilitation and revegetation of the dune.</p>
<p>Listing Notice 1 of the EIA Regulations, 2014 (as amended)–</p> <p>Activity Number: 19A</p> <p>Activity Description: <i>“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 of more than 5 cubic metres from—</i></p> <ul style="list-style-type: none"> <i>(i) the seashore;</i> <i>(ii) the littoral active zone, an estuary or a distance of 100 metres inland of the highwater mark of the sea or an estuary, whichever distance is the greater; or</i> <i>(iii) the sea; —</i> <p><i>but excluding where such infilling, depositing, dredging, excavation, removal or moving—</i></p> <ul style="list-style-type: none"> <i>(f) will occur behind a development setback;</i> <i>(g) is for maintenance purposes undertaken in accordance with a maintenance management plan;</i> <i>(h) falls within the ambit of activity 21 in this Notice, in which case that activity</i> <i>(i) applies;</i> <i>(j) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or</i> 	<p>The proposed development entails the construction of dune protection measures in the form of gabion structures and Reno Mattresses which requires the removal and infilling of more than 5 cubic metres of beach sand.</p>

where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies."	
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The abovementioned list is hereinafter referred to as "**the listed activities**".

The holder is herein authorised to undertake the following alternative that includes the listed activities relating to the development:

The proposal entails the construction of dune protection methods with a combination of Gabion Basket Revetment Protection with Heavy Duty Reno Mattress® at the foot of an eroded dune located along North and South Calypso Beach towards Erf 5809 to stabilise the dune in front (West) of Erven 5767, 5768, 5769 and 5770 at North Beach, North of Leentjiesklip 3, Langebaan.

At North Beach, an area of approximately 114 m² will be excavated to a depth of approximately 2 m deep from approximately 0.5 m Mean Sea Level (MSL) to the foot of the dune above the high-water mark. Heavy Duty Reno Mattress® foundations will be assembled in the excavated areas and gabion baskets will be constructed on the mattress. The gabions, overlapping with 250mm-300mm, will be stepping back at a 1:1 slope up the face of the dune to a level of approximately 2.8 m MSL. The soil removed during excavation for the Reno Mattress® foundation will be used to tamper the areas between the mattresses and deposited behind the gabions to fill sections of the eroded dune.

The proposal includes the rehabilitation and revegetation of the dune at Calypso Beach.

During the construction phase of the development, access will be taken from the parking area at Hobie Beach. An application for an Off-Road Vehicle permit will be completed before construction vehicles access the beachfront.

C. SITE DESCRIPTION AND LOCATION

The locality of the proposed development is at the foot of an eroding dune, which is located along the beachfront on Erf No. 5809, Calypso Beach in Langebaan. The proposed development will be in front (West) of the Erven at North Beach: 5767, 5768, 5769 and 5770. At South Beach the Erven in front of which counter-dune deterioration measures might become necessary in future are: 5805, 5806, 5807 & 5808

Site co-ordinates for proposed mixed use development (centre point of each property):

North Erf No. 5809, Langebaan			
Latitude (S)	33°	03'	11.3"
Longitude (E)	18°	02'	34.2"
South Erf No. 5809, Langebaan			
Latitude (S)	33°	03'	13.8"
Longitude (E)	18°	02'	33.7"

The SG digit codes:

Erf No. 5809, Langebaan	C04600070000580900000
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The above is hereinafter referred to as "**the site**".

D. DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

Exalon 111
% Mr. Jan Marx
135 Sunbird Drive 135
LANGEBAAN
7357

Cell: 082 415 0778
E-mail: jantmarx@gmail.com

E. CONDITIONS OF AUTHORISATION

Scope of authorisation

1. The holder is authorised to undertake the listed activities specified in Section B above in accordance with and restricted to the preferred alternative, described in the BAR dated 27 August 2021 on the site as described in Section C above.
2. Authorisation for the activities are subject to compliance with the conditions set out in this Environmental Authorisation. The holder must ensure compliance with the conditions by any person acting on his/her behalf, including an agent, sub-contractor, employee or any person rendering a service to the holder.
3. The holder must commence with, and conclude, the listed activities within the stipulated validity period which this Environmental Authorisation is granted for, or this Environmental Authorisation shall lapse and a new application for Environmental Authorisation must be submitted to the competent authority.

This Environmental Authorisation is granted for–

- a) A period of five (**5**) years, from the date of issue, during which period the holder must commence with the authorised listed activities; and
 - b) A period of ten (**10**) years, from the date the holder commenced with an authorised listed activities during which period the authorised listed activities for the construction phase, must be concluded.
4. The authorised activities must only be carried out at the site described in Section C above in terms of the approved "Environmental Management Programme" ("EMPr").
 5. Any changes to, or deviations from the scope of the description set out in Section B and Condition 2 above must be approved, in writing, by the competent authority before such changes or deviations may be implemented. In assessing whether to grant such acceptance/approval or not, the competent authority may request such information to evaluate the significance and impacts of such changes or deviations, and it may be necessary for the holder to apply for further authorisation in terms of the applicable legislation.

Notification of authorisation and right to appeal

6. The holder of the authorisation must in writing, within 14 (fourteen) calendar days of the date of this decision –
 - 6.1. notify all registered Interested and Affected Parties of –
 - 6.1.1. the outcome of the application;
 - 6.1.2. the reasons for the decision;
 - 6.1.3. the date of the decision; and
 - 6.1.4. the date of issue of the decision;

- 6.2. draw the attention of all registered Interested and Affected Parties to the fact that an appeal may be lodged against the decision in terms of the National Appeal Regulations, 2014 (as amended);
- 6.3. draw the attention of all registered Interested and Affected Parties to the manner in which they may access the decision; and
- 6.4. provide the registered Interested and Affected Parties with:
 - 6.4.1. the name of the holder (entity) of this Environmental Authorisation,
 - 6.4.2. name of the responsible person for this Environmental Authorisation,
 - 6.4.3. postal address of the holder,
 - 6.4.4. telephonic and fax details of the holder,
 - 6.4.5. e-mail address, if any;
 - 6.4.6. the contact details (postal and/or physical address, contact number, facsimile and e-mail address) of the decision-maker and all registered Interested and Affected Parties in the event that an appeal is lodged in terms of the National Appeal Regulations, 2014 (as amended).

Commencement

7. The listed activities, including site preparation, must not commence within 20 (twenty) calendar days from the date the applicant notified the registered Interested and Affected Parties of this decision.
8. In the event that an appeal is lodged with the Appeal Administrator, the effect of this Environmental Authorisation is suspended until such time as the appeal is decided. In the instance where an appeal is lodged the holder may not commence with the activity, including site preparation, until such time as the appeal has been finalised and the holder is authorised to do so.

Written notice to the competent authority

9. A minimum of 7 (seven) calendar days' notice, in writing, must be given to the competent authority before commencement of construction activities. Commencement for the purpose of this condition includes site preparation.
 - 9.1. The notice must make clear reference to the site details and EIA Reference number given above.
 - 9.2. The notice must also include proof of compliance with the following conditions described herein:

Conditions: 6, 7, 13 and 22

Management of activities

10. The draft EMPr (dated November 2020) submitted as part of the application for Environmental Authorisation is herewith approved and must be implemented.
11. An application for amendment to the EMPr must be submitted to the competent authority in terms of Chapter 5 of the EIA Regulations, 2014 (as amended) if any amendments are to be made to the outcomes of the EMPr, and these may only be implemented once the amended EMPr has been authorised by the competent authority.
12. A copy of the Environmental Authorisation and the EMPr must be kept at the site where the listed activities will be undertaken. Access to the site referred to in Section C above must be granted and, the Environmental Authorisation and EMPr must be produced to any authorised official representing the competent authority who requests to see it for the purposes of assessing and/or monitoring compliance with the conditions contained herein. The Environmental Authorisation and

EMPr must be made available for inspection by any employee or agent of the applicant who works or undertakes work at the site.

Monitoring

13. The holder must appoint a suitably experienced Environment Control Officer ("ECO"), for the duration of the construction and rehabilitation phase of implementation.
14. The ECO must–
 - 14.1 be appointed prior to commencement of any land clearing or construction activities commencing;
 - 14.2 ensure compliance with the EMPr and the conditions contained herein; and
 - 14.3 keep record of all activities on site; problems identified; transgressions noted, and a task schedule of tasks undertaken by the ECO.

Environmental audit reports

15. The holder must, for the period during which the Environmental Authorisation and EMPr remain valid–
 - 15.1 ensure that the compliance with the conditions of the Environmental Authorisation and the EMPr is audited;
 - 15.2 submit at least two environmental audit reports to the competent authority during the construction phase. The holder must submit the first audit report within three (3) months after commencement of the construction phase and another audit report within six (6) months after completion of the construction period; and
 - 15.3 submit an environmental audit report every five (5) years while the Environmental Authorisation remains valid.
16. The environmental audit report must be prepared by an independent person and must address the objectives and contain all the information set out in Appendix 7 of the EIA Regulations, 2014 (as amended).

In addition to the above, the environmental audit report, must –

- 16.1. provide verifiable findings, in a structured and systematic manner, on–
 - (a) the level of compliance with the conditions of the Environmental Authorisation and the EMPr and whether this is sufficient or not; and
 - (b) the extent to which the avoidance, management and mitigation measures provided for in the EMPr achieve the objectives and outcomes of the EMPr and highlight whether this is sufficient or not;
 - 16.2 identify and assess any new impacts and risks as a result of undertaking the activity;
 - 16.3 evaluate the effectiveness of the EMPr;
 - 16.4 identify shortcomings in the EMPr;
 - 16.5 identify the need for any changes to the avoidance, management and mitigation measures provided for in the EMPr;
 - 16.6 indicate the date on which the construction work was commenced with and completed or in the case where the development is incomplete, the progress of the development and rehabilitation;
 - 16.7 include a photographic record of the site applicable to the audit; and
 - 16.8 be informed by the ECO reports.
17. The holder must, within 7 (seven) calendar days of the submission of the environmental audit report to the competent authority, notify all potential and registered Interested and Affected Parties of the submission and make the report available to anyone on request and, where the holder has such a facility, be placed on a publicly accessible website.

Specific conditions

18. Surface and ground water must not be polluted due to any actions on the site. The applicable requirements with respect to relevant legislation pertaining to water must be met.
19. An integrated waste management approach, which is based on waste minimisation and incorporates reduction, recycling, re-use and disposal, where appropriate, must be employed. Any solid waste must be disposed of at a waste disposal facility licensed in terms of the applicable legislation.
20. Should any heritage remains be exposed during excavations or any actions on the site, these must immediately be reported to the Provincial Heritage Resources Authority of the Western Cape, Heritage Western Cape (in accordance with the applicable legislation). Heritage remains uncovered or disturbed during earthworks must not be further disturbed until the necessary approval has been obtained from Heritage Western Cape ("HWC"). Heritage remains include: archaeological remains (including fossil bones and fossil shells); coins; indigenous and/or colonial ceramics; any articles of value or antiquity; marine shell heaps; stone artifacts and bone remains; structures and other built features; rock art and rock engravings and graves or unmarked human burials.

A suitably qualified archaeologist must be contracted to monitor all subsurface work (at the expense of the applicant and in consultation with the relevant authority) to remove any human remains in accordance with the requirements of the relevant authority.

21. The following mitigation/rehabilitation measures and recommendations as detailed in the Botanical Assessment Report dated 2 March 2017 compiled by Mr. N. Helme of Nick Helme Botanical Surveys, must be adopted and implemented:
 - 21.1 Conduct search and rescue of all usable plant material from the intended construction footprint, preferably during the period April - June. This material should either be planted directly into the higher parts of the study area that will not be directly impacted or should be maintained in a nursery until construction has been completed and can then be planted out in the following appropriate early winter season (May – June). No replanting should be undertaken from August – April, as the plants are unlikely to establish successfully in this mostly dry period.
 - 21.2 The upper 100mm of topsoil (sand) from the development area should be harvested and stored for use on site once construction is completed. This seed-bearing sand should be covered with shade cloth or geotextile cloth to prevent erosion. The topsoil should be used to fill the cavities between rocks in the exposed Reno mattress once construction is completed.
 - 21.3 Install 1st layer (bottom layer) of Reno's and backfill cavities with beach sand.
 - 21.4 Install 2nd layer (top layer) and repeat
 - 21.5 Once at least 100mm of topsoil is in place broadcast sowing of seed of the various indigenous species noted below should be undertaken (May – July). Once this is done the disturbed area should be covered with geotextile (or jute) cloth, staked down every metre or so. The ideal cloth has a 10 to 20mm mesh size, allowing for easy germination of underlying seeds. Cloth without mesh gaps will retard germination and is not recommended.
 - 21.6 Rooted cuttings of suitable locally indigenous plant species can then be planted into covered area, at a density of about 6 plants per m², depending on the size of the cuttings. This planting, as noted, must be undertaken in the period early May – July to maximise rooting success before the dry season. Suggested species include *Tetragonia decumbens*, *Psoralea repens*, *Pelargonium capitatum*, *Carpobrotus quadrifidus*, *Morella cordifolia*, *Thinopyrum distichum*, *Cladoraphis cyperoides*, *Phyllobolus canaliculatus* and *Dasispermum suffruticosum*. These are all excellent sand binders with strong root systems and can deal with semi-mobile dune sands.
 - 21.7 Irrigation should not be required if the planting schedules are adhered to. If conditions are very dry limited irrigation twice a week for the first two months would be helpful, but generally irrigation is not necessary or desirable, as irrigated plants never harden off properly, and become water dependent and prone to sudden die off.

- 21.8 Weeding of the area may be required once or twice in the following year, to remove any invasive alien species.
- 21.9 Additional planting may also be required the following winter if there has been poor establishment.
- 21.10 Marram grass (*Ammophila arenaria*) is not recommended as it is not locally indigenous and mass planting of this species will lead to reduced indigenous plant diversity in the area, and vulnerability to a species-specific pathogen suddenly removing significant plant cover.
22. The appointed ECO must confirm all signage and demarcation is in place before commencement of construction activities.
23. The proposed development must be buried to a level of at least 2 m MSL (i.e., above the normal intertidal range).
24. The holder must submit a maintenance management plan ("MMP") before completion of construction activities, for approval to the competent authority. The MMP must, amongst others, address the maintenance aspects with respect to the 38m stretch of anti-erosion structures and the active dune management required.

F. GENERAL MATTERS

1. Notwithstanding this Environmental Authorisation, the holder must comply with any other statutory requirements that may be applicable when undertaking the listed activity.
2. If the holder does not commence with the listed activity within the period referred to in Condition 3 this Environmental Authorisation shall lapse for the activity, and a new application for Environmental Authorisation must be submitted to the competent authority. If the holder wishes to extend the validity period of the Environmental Authorisation, an application for amendment in this regard must be made to the competent authority prior to the expiry date of the Environmental Authorisation.
3. The holder must submit an application for amendment of the Environmental Authorisation to the competent authority where any detail with respect to the Environmental Authorisation must be amended, added, substituted, corrected, removed or updated. If a new holder is proposed, an application for amendment in terms of Part 1 of the EIA Regulations, 2014 (as amended) must be submitted.
 - 3.1. Please note that an amendment is not required if there is a change in the contact details of the holder. In this case, the competent authority must only be notified of such changes.
4. The manner and frequency for updating the EMPr is as follows:
 - 4.1. Amendments to the EMPr, must be made in accordance with Regulations 35 to 37 of the EIA Regulations, 2014 (as amended) or any relevant legislation that may be applicable at the time.
5. Non-compliance with any condition of this Environmental Authorisation or EMPr may render the holder liable to criminal prosecution.

G. APPEALS

Appeals must comply with the provisions contained in the National Appeal Regulations, 2014 (as amended).

1. An appellant (if the holder of the decision) must, within 20 (twenty) calendar days from the date notification of the decision was sent to the holder by the competent authority -
 - 1.1 Submit an appeal in accordance with Regulation 4 of the National Appeal Regulations, 2014 (as amended) to the Appeal Administrator; and
 - 1.2 Submit a copy of the appeal to any registered Interested and Affected Parties, any Organ of State with interest in the matter and the decision-maker *i.e.*, the competent authority that issued the decision.
2. An appellant (if NOT the holder of the decision) must, within 20 (twenty) calendar days from the date the holder of the decision sent notification of the decision to the registered Interested and Affected Parties -
 - 2.1 Submit an appeal in accordance with Regulation 4 of the National Appeal Regulations, 2014 (as amended) to the Appeal Administrator; and
 - 2.2 Submit a copy of the appeal to the holder of the decision, any registered Interested and Affected Party, any Organ of State with interest in the matter and the decision-maker *i.e.*, the competent authority that issued the decision.
3. The holder of the decision (if not the appellant), the decision-maker that issued the decision, the registered Interested and Affected Party and the Organ of State must submit their responding statements, if any, to the appeal authority and the appellant within 20 (twenty) calendar days from the date of receipt of the appeal submission.
4. The appeal and the responding statement must be submitted to the address listed below:

By post: Attention: Marius Venter
Western Cape Ministry of Local Government, Environmental Affairs and
Development Planning
Private Bag X9186
CAPE TOWN
8000

By facsimile: (021) 483 4174; or

By hand: Attention: Mr Marius Venter (Tel.: 021 483 3721)
Room 809
8th Floor Utilitas Building, 1 Dorp Street, Cape Town, 8001

Note: For purposes of electronic database management, you are requested to submit electronic copies (Microsoft Word format) of the appeal, responding statement and any supporting documents to the Appeal Authority to the address listed above and/ or via e-mail to DEADP.Appeals@westerncape.gov.za.

5. A prescribed appeal form as well as assistance regarding the appeal processes is obtainable from the Appeal Authority at: Tel. (021) 483 3721, E-mail DEADP.Appeals@westerncape.gov.za or URL <http://www.westerncape.gov.za/eadp>.

H. DISCLAIMER

The Western Cape Government, the Local Authority, committees or any other public authority or organisation appointed in terms of the conditions of this environmental authorisation shall not be responsible for any damages or losses suffered by the holder, developer or his/her successor in any instance where construction or operation subsequent to construction is temporarily or permanently stopped for reasons of non-compliance with the conditions as set out herein or any other subsequent document or legal action emanating from this decision.

Your interest in the future of our environment is appreciated.

Yours faithfully

MR. ZAAHIR TOEFY
DIRECTOR: DEVELOPMENT MANAGEMENT (REGION 1)
DATE OF DECISION: 14 DECEMBER 2021

Copied to:

(1) J.T. Marx (Exalon 111)

(2) N. Duarte (Saldanha Municipality)

(3) I. Bekko (DEA&DP: Coastal Management)

(4) B. Geldenhuys (DPW)

(5) S. Barnardt/ W. Dhansay (HWC) E-mail: stephanie.barnardt@westerncape.gov.za/waseefa.dhansay@westerncape.gov.za

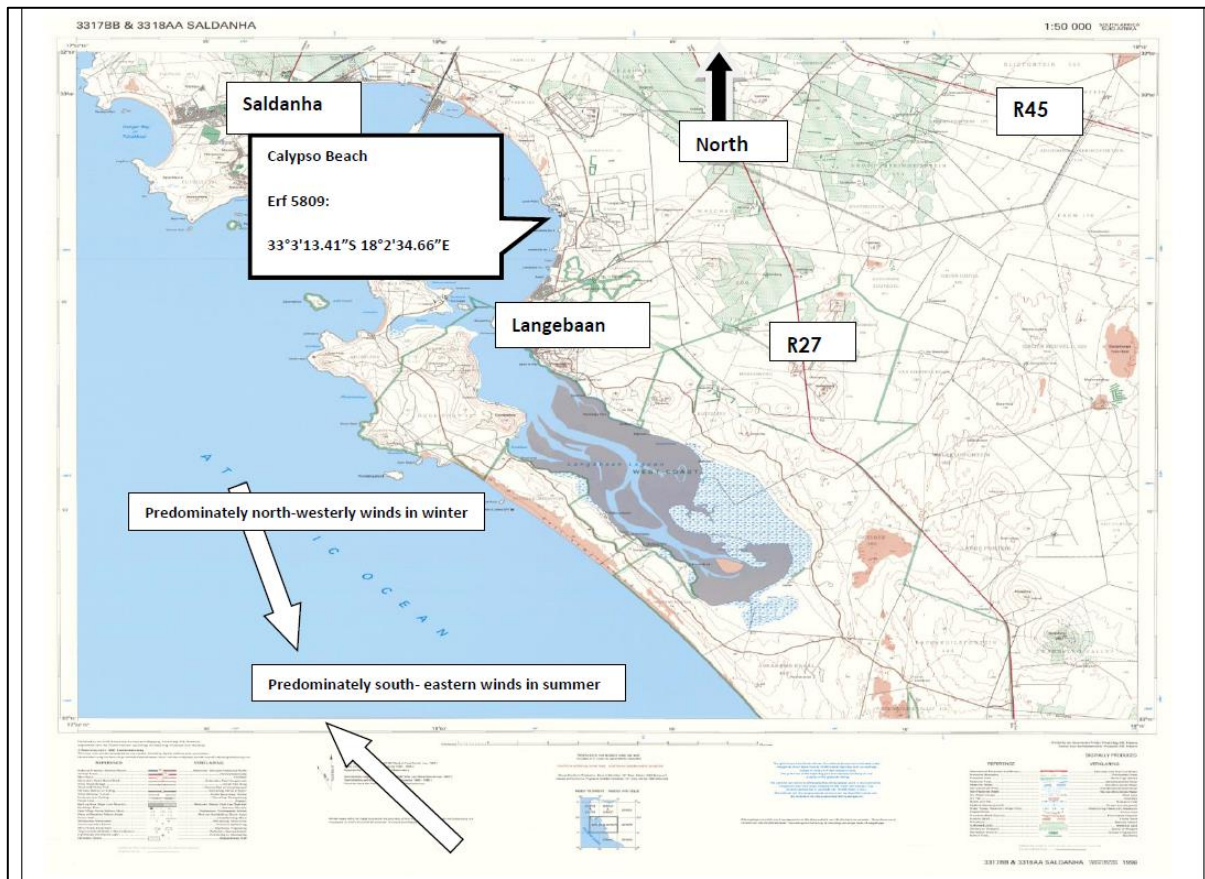
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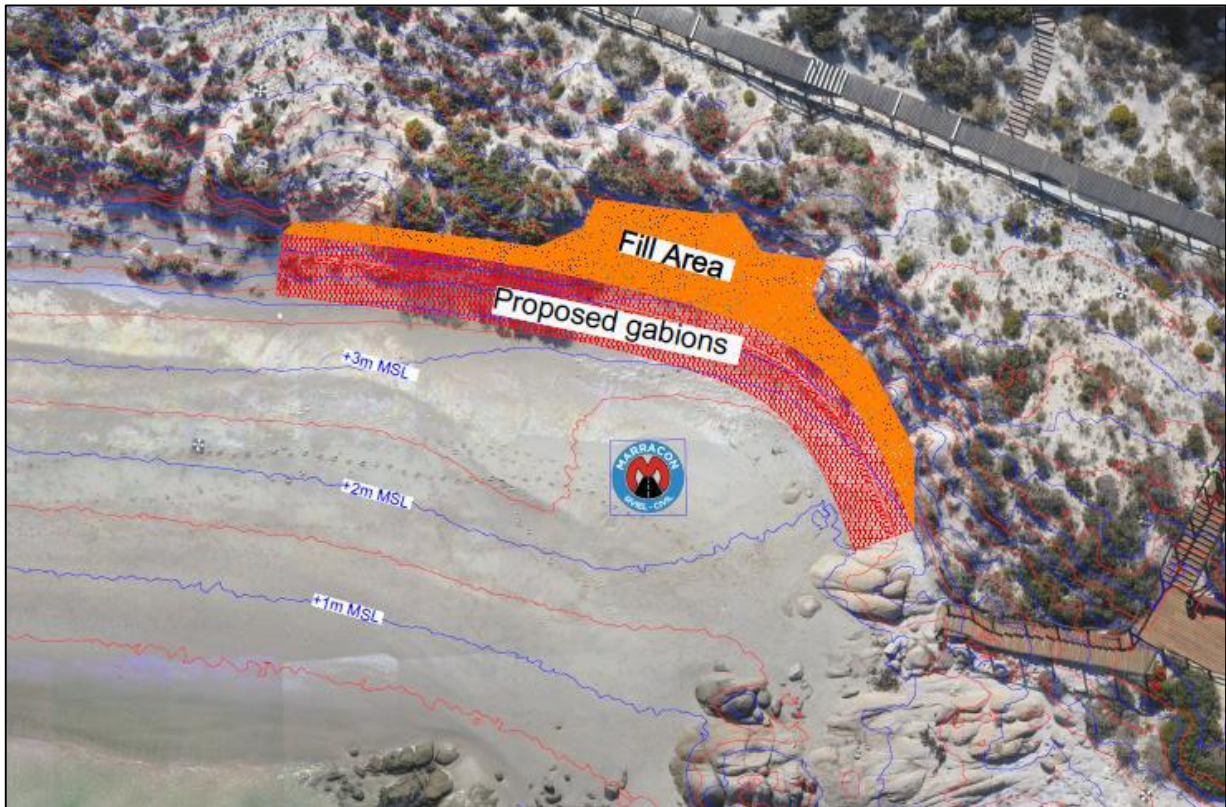
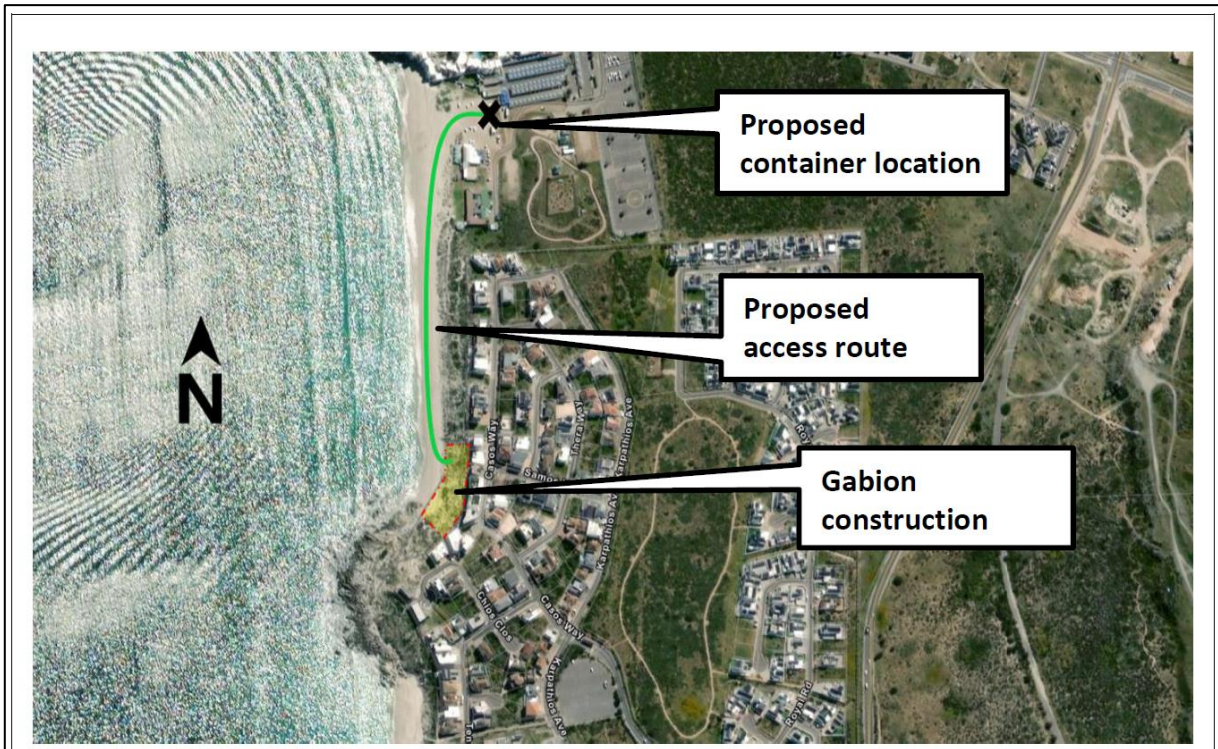
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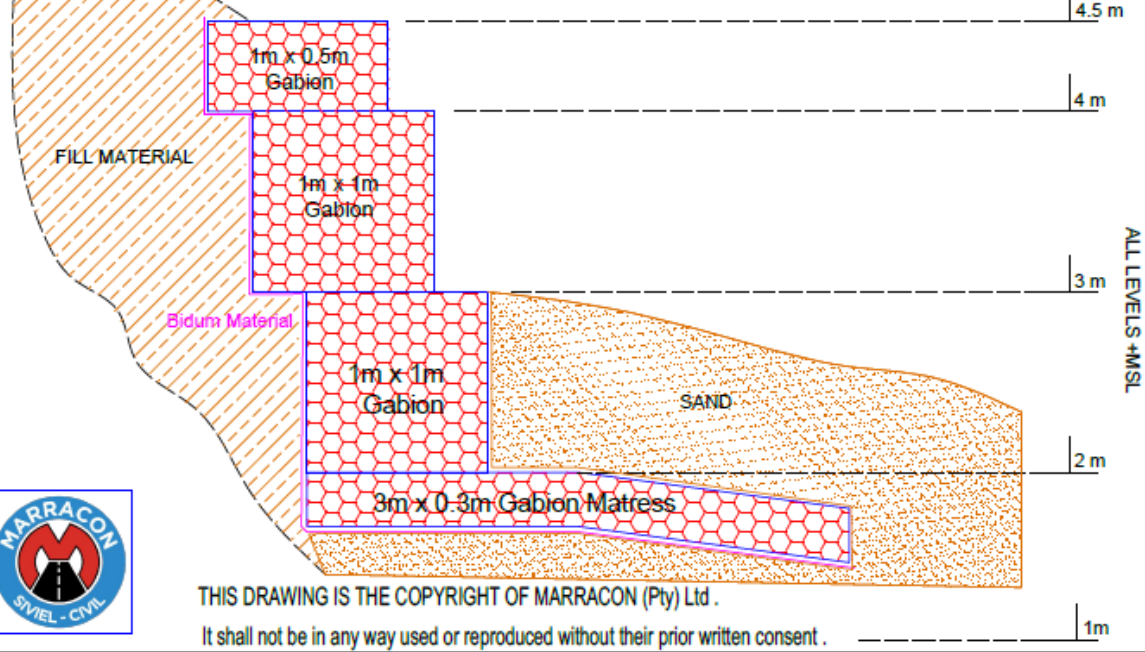
ANNEXURE 1: LOCALITY MAP



ANNEXURE 2: SITE DEVELOPMENT PLAN



SECTION : GABION LAYOUT CALYPSO BEACH



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ANNEXURE 3: REASONS FOR THE DECISION

In reaching its decision, the Competent Authority considered, *inter alia*, the following:

- a) The information contained in the Application Form and draft BAR received by this Department on 3 June 2021 and 7 June 2021, respectively, and the EMPr submitted together with the final BAR on 27 August 2021;
- b) Relevant information contained in the Departmental information base, including the Guidelines on Public Participation, Alternatives (dated March 2013);
- c) The objectives and requirements of relevant legislation, policies and guidelines, including Section 2 of the NEMA; and
- d) The comments received from Interested and Affected Parties and responses to these, included in the BAR dated 27 August 2021.

All information presented to the Competent Authority was taken into account in the consideration of the application for Environmental Authorisation. A summary of the issues that were considered to be the most significant for the decision is set out below.

1. Public Participation

The public participation process included:

- identification of and engagement with Interested and Affected Parties ("I&APs");
- site visits undertaken by the applicant, the Environmental Assessment Practitioner, Saldanha Bay Municipality and this Department's Directorate: Biodiversity and Coastal Management on 23 October 2020;
- An annual general meeting held with the representees of the Calypso Beach Homeowners Association ("the applicant") and the Environmental Assessment Practitioner on 17 October 2020;
- fixing notices at the site where the listed activities will be undertaken on 3 December 2020;
- the placing of a newspaper advertisement in the "Die Weslander" newspaper on 3 December 2020;
- E-mail notifications were utilised to notify all potential and registered I&APs including the municipality and ward councillor, and the various organs of state having jurisdiction in respect of any aspect of the listed activities, about the availability of the report with reminders sent to submit comments;
- making the pre-application draft BAR and application phase draft BAR and all relevant information available to I&APs for public review and comment from 3 December 2020 to 24 January 2021 and 7 June 2021 to 6 July 2021, respectively.

2. Alternatives

No other site alternatives were investigated and considered for the proposed dune stabilisation along Erf No. 5809, Langebaan at North and South Calypso Beach.

Two activity alternatives in terms of the dune stabilisation methods have been assessed, viz., "soft" (Activity Alternative 1) and "hard" (Activity Alternative 2) engineering approaches.

Activity Alternative 1

Revegetation of the dune

This activity comprises intensive revegetation of the dune. It is ecologically friendly, aligned with the visual aesthetic of the dune landscape and the geological features of the dune is not changed significantly. This activity is not preferred as the subject dune area is at an advanced stage of deterioration and requires a more robust form of engineering to minimise the effects of wind erosion on the dune.

Sandbags ("pillows")

This activity entails the placement of sandbags as groiners at the foot of the dune. This alternative was not preferred as the sandbags are not conducive to regrowth of vegetation atop and deteriorate due to over exposure in the sun which leads to pollution in the form of discarded bags.

Activity Alternative 2

Five conceptual dune stabilisation/protection measures were investigated as "hard" engineering options.

1. Option A: Rock Revetment and Reno Mattress®

This option comprises a 1:1.5 sloped rock revetment at the foot of the dune with a crest level of approximately 4.5 m MSL. The wave overtopping of this option is expected to be within the same order compared with a geotextile container revetment. This option is not preferred as it has the largest footprint compared to all the other options. In addition to this, this alternative is not a practical solution due to the steepness of the dune slope.

2. Option B: Artificial Rock Revetment and Reno Mattress®

This option comprises an identical slope cross-section as Option A with a 1:1.5 sloped artificial main armour rock revetment at the foot of the dune with a secondary underlayer and geotextile fabric between the filter material and dune slope. The estimated crest level is approximately 4.5 m MSL. The wave overtopping of this option is expected to be similar to Option A and a geotextile container revetment. This option also has a large footprint and requires the armour rock to be relatively large to withstand the wave forces and the advanced state of erosion.

3. Option C: Geotextile Containers (EnviroRock®) Revetment

This option is comprised of two rows of geotextile containers at a slope of 1:1. Two rows are proposed at this stage to ensure greater hydraulic stability and integrity of the protection should the front row of containers become damaged and assist construction operations. The type of geotextile containers proposed are manufactured from very durable material (EnviroRock®), specially designed to be robust enough to withstand the physical hazards in the surf-zone such as wave action, abrasion and damage due to UV light. The development footprint of this option is less than options A and B, however, this option is not preferred as there is a possibility that the geotextile will be vandalised resulting in the bags losing sand. Scour at the toe can also result in the bags losing sand. In Langebaan where this method was used in the construction of groiners, damaged bags could not be repaired and became an eyesore. Should the beach erode such in future that the toe becomes potentially undermined, another row of geotextile containers will have to be placed at the toe in order to ensure the stability of the revetment structure. The maintenance required for this option is intensive.

4. Option D: Gabion Basket Revetment Protection with Reno Mattress®

This option is comprised of a gabion basket revetment which aims to provide dune protection from erosion by absorbing wave energy and limiting run-up along the face of the dune. The gabion box alternative will rest on a Reno Mattress® thereafter stepping back at a 1:1 slope up the face of the dune to a level of 4.5 m MSL. A geotextile will be used to prevent fines (fine material) from leaching out through the gabion boxes. The toe of the Reno Mattress® is expected to be at 0.5 m MSL. The gabion basket option hidden under a boardwalk was used at Paradise beach, Langebaan, as a means to limit wave scour and erosion to the dune as a result of wave run-up. The boardwalk and gabion basket option was used along the entire length of dune and was only effective because of limited access on the beach. Calypso Beach is accessible on the northern side and via the wooden stairway down the rock outcrop at Leentjiesklip 3. This option is preferred as construction can be done in situ and maintenance may be required or after every major flood event.

5. Option E: Heavy Duty Reno Mattress® Revetment Protection

This option is comprised of protection will have a buried toe section followed by the mattresses resting on the natural dune slope. The structures' profile provides a gentle revetment slope to absorb more wave energy, and therefore suffer less toe scour. The Reno Mattress® is expected to be placed directly on the natural dune slope after voids are filled in to shape the profile beneath the geotextile filter layer. The mattress will be placed in two layers, with the top layer starting two meters back from

the start of the bottom layer. If maintenance of the wire mesh is carried out (check and repair wire where necessary) it is expected to last longer until maintenance is stopped. The placement of the reno mattresses on top of the dune face is unavoidable since excavation and underground installation will fail due to in-situ soil structure. This alternative is preferred as it is designed to absorb wave energy and limits wave run-up. The reinforcement effect of the reno mattresses will limit future localised soil losses due to erosion resulting in improved stability which contributes to better rehabilitation potential. Vegetation can be re-instated on top of the reno mattresses.

Preferred Alternative (herewith authorised)

Due to the nature of the deterioration of the dune, the preferred alternative is a combination of options D and E, i.e. a Gabion Basket Revetment Protection with Heavy Duty Reno Mattress® acting as the base layer. This is based on the following reasons:

- The two options is most suited for the dissipation of wave energy and limits wave run up which are the two key environmental factors required to be mitigated.
- Construction can take place in situ and does not require large armour rock to be sourced.
- Gabions have been utilised as a mitigation measure which has proven to be effective along this stretch of coast. Gabions are presently proving to be successful in addressing dune deterioration South of Calypso Beach at The Waterfront and North of Calypso Beach at Paradise Beach.

The proposed development includes the revegetation of the dune, which will take place once the gabion structures have been constructed. The upper dune at Calypso Beach will be re-vegetated utilising local indigenous vegetation.

The "No-Go" Alternative

The "no-go" alternative implies that the "status quo" would remain. This alternative is not considered, as the dune will collapse with severe damage to infrastructure and possible loss of human life.

3. Impact Assessment and Mitigation measures

3.1 Need and Desirability

The dune degradation and slope failure is due to a combination of various site-specific physical and coastal processes e.g. wave run-up and wind blowout. The priority area is the beach at the foot of the dune North of Leentjiesklip 3. Although the dune South of Leentjiesklip 3 is also deteriorating, the situation is not as critical as North Beach. The construction of counter-dune erosion structures will occur within the urban edge of Calypso Beach. Gabions are already functioning as stabilising systems at "The Waterfront" to the South and Paradise Beach to the North of Calypso Beach and were therefore determined to be suitable for this project. A number of alternatives were investigated in order to determine the best practicable environmental option.

3.2 Botanical Impacts

The site is located along a frontal dune system located North and South of Calypso Beach along Erf No. 5809, Langebaan. According to the Botanical Assessment dated 2 March 2017 compiled by Nick Helme Botanical Surveys, the primary vegetation type in the study area is mapped as Cape Seashore Vegetation with elements of Langebaan Dune Strandveld and both of these ecosystems are categorised as Least Threatened in terms of National Environmental Management: Biodiversity Act ("NEM:BA"), 2004 (Act No. 10 of 2004) National List of Ecosystems That Are Threatened and In Need of Protection, 2011. The botanical specialist confirmed that the proposed development would result in temporary to long term damage to the Medium conservation value habitat and loss of very small site populations of Species of Conservation Concern within the development footprint area, during construction phase. The botanical specialist does not foresee any negative impacts resulting from the operational phase of the proposed development.

The Calypso Beach Dune Stabilisation Plan dated 23 February 2021 as compiled by Gene Strauss from Bokmakierie Nursey, details the revegetation programme to be implemented on the site. The aforementioned revegetation programme formulated their strategy and planting plan based on the research conducted by the botanical specialist. The revegetation programme has been

incorporated in the EMPr (herewith approved as per Condition 10 of this EA). The findings of the botanical impact assessment confirms that effective rehabilitation will largely mitigate the negative impact of the construction phase of the proposed development. An e-mail correspondence from Marius Wheeler of CapeNature dated 26 February 2021 confirms that the construction disturbance will be temporary, and the ecological concerns can be mitigated effectively if rehabilitation is done with indigenous vegetation (local vegetation). The mitigation measures and recommendations made by the botanical specialist specifically states, which plant species should be used and when planting should be undertaken. These mitigation measures have been included as a Condition of this EA. This Department's Directorate: Biodiversity and Coastal Management in their comment on the draft BAR dated 11 March 2021, acknowledged that the proposed hard installations are intended to stabilise the toe of the dune and that the dune will be revegetated to 'soften' the installation. However, based on the challenges associated with revegetation of the dune, as listed in the BAR, this will require active management. It is therefore proposed that the revegetation of the dunes will be conducted after construction has been concluded. On completion of the gabion construction, the CBHOA in conjunction with the ECO will be responsible for overseeing the rehabilitation and re-vegetation of the area. The CBHOA will appoint an independent ECO to be on site at all times for the duration of the project. On completion of the project, the ECO will oversee the rehabilitation process. These measures have been included in the EMPr.

3.3 Coastal Impacts

The proposed development and associated activities will fall seaward of the Coastal Management Line and within the Coastal Protection Zone, as delineated by this Department in accordance with the criteria set in Section 16 of the National Environmental Management: Integrated Coastal Management Act, 2008 (NEM: ICMA). Due to the nature of the deterioration of the dune, the Calypso Beach Homeowners Association (the applicant) appointed coastal engineers, WML Marine (Pty) Ltd to propose hard engineering dune protection measures in response to the coastal processes experienced north and south of Calypso Beach. The preferred alternative was based on existing counter dune erosion structures proven to be effective at facilities bordering Calypso Beach which accredited the implementation of the proposed development. Although the Gabion Basket Revetment Protection with Heavy Duty Reno Mattress® dune protection measure will change the geological landscape of the dune, it will be designed to minimise the visual impact and lesson the disfiguration of the dune feature where established vegetation can grow over the gabions onto the beach over time. This is observed at "The Waterfront", South of Calypso Beach. With the effective implementation of the revegetation programme, the visual impacts can be reduced to an acceptable level. Active management principles will be applied during the revegetation process and an Environmental Control Officer will be appointed to monitor the process as per the EMPr.

During the investigation and consideration of alternatives for the proposed activities, section 63 of the NEM: ICMA was taken into consideration. The proposed development will adhere to the relevant objectives of the NEM: ICMA, as the development proposal is situated within the coastal zone and is consistent with the objective of conserving and enhancing this area for the benefit of current and future generations and the objectives of NEM: ICMA, where applicable, will be met.

3.4 Heritage impacts

Due to the nature of the proposed development which requires subsurface construction work at the toe of a dune and the revegetation thereof, it may result in impacts on heritage related resources within the subject area. A Notice of Intent to Develop was submitted to Heritage Western Cape to ascertain whether the proposed development would result in impacts on heritage related resources. HWC confirmed in a letter dated 6 December 2021, there is no reason to believe that the proposed dune stabilisation at Calypso Beach, Erf 5809, Langebaan, Saldanha Bay, will impact on heritage resources and no further action under Section 38 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) is required. However, as noted in the response, the HWC committee suggests that the fossil find procedure be included in the EA and that a qualified archaeologist be appointed to monitor the subsurface work. This has been included as Condition 20 of this EA.

3.5 Construction phase impacts (off-road vehicles on the beach, dust and noise impacts)
Impacts related with the construction phase include impacts associated with the use of off-Off-Road vehicles on the beach, dust and noise. An application for an Off-Road Vehicle permit will be submitted to the relevant directorate within the Department of Forestry, Fisheries and the Environment to allow driving on the beach with construction vehicles, during the construction phase of development. Construction activities (mainly site clearing and use of mechanical equipment) will generate noise and associated volumes of dust during weekly construction hours. The EMPr includes dust and noise control measures that will be implemented on site and at areas of high dust generation. With the effective implementation of these measures, the impacts are regarded as low negative.

The development will result in negative and positive impacts

Negative impacts:

- Loss of indigenous vegetation;
- Loss of dune landscape; and
- Heritage impacts

Positive impacts:

- Increase in public safety;
- Rehabilitation and active dune management, and
- Temporary employment opportunities during construction phase of the development.

4. National Environmental Management Act Principles

The National Environmental Management Principles (set out in section 2 of the NEMA, which apply to the actions of all organs of state, serve as guidelines by reference to which any organ of state must exercise any function when taking any decision, and which must guide the interpretation, administration and implementation of any other law concerned with the protection or management of the environment), *inter alia*, provides for:

- the effects of decisions on all aspects of the environment to be taken into account;
- the consideration, assessment and evaluation of the social, economic and environmental impacts of activities (disadvantages and benefits), and for decisions to be appropriate in the light of such consideration and assessment;
- the co-ordination and harmonisation of policies, legislation and actions relating to the environment;
- the resolving of actual or potential conflicts of interest between organs of state through conflict resolution procedures; and
- the selection of the best practicable environmental option.

5. Conclusion

In view of the above, the NEMA principles, compliance with the conditions stipulated in this Environmental Authorisation, and compliance with the EMPr, the Competent Authority is satisfied that the proposed listed activities will not conflict with the general objectives of integrated environmental management stipulated in Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and that any potentially detrimental environmental impacts resulting from the listed activities can be mitigated to acceptable levels. You are reminded of your general duty of care towards the environment in terms of Section 28(1) of the NEMA which states: "Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment."

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