SALT ROCK BEACH ESTATES CC

REINFORCEMENT OF SALT ROCK SEA WALL

DRAFT BASIC ASSESSMENT REPORT [DC29/0023/2017]

FEBRUARY 15, 2018

PUBLIC

REINFORCEMENT OF SALT ROCK SEA WALL

DRAFT BASIC ASSESSMENT REPORT [DC29/0023/2017]

SALT ROCK BEACH ESTATES CC

TYPE OF DOCUMENT (VERSION)
PUBLIC

PROJECT NO.: 48410
DATE: FEBRUARY 2018

WSP
BLOCK A, 1 ON LANGFORD
LANGFORD ROAD, WESTVILLE
DURBAN, 3629
SOUTH AFRICA

T: +27 31 240 8803
F: +27 31 240 8801
WSP.COM

QUALITY MANAGEMENT

ISSUE/REVISION	FIRST ISSUE	REVISION 1	REVISION 2	REVISION 3
Remarks	Draft			
Date	15 February 2018			
Prepared by	D Sanderson 			
Signature				
Checked by	C Elliott			
Signature	 Elliott, Carla 2018.02.15 12:27:00 +02'00'			
Authorised by	N Seed			
Signature	 Digitally signed by Seed, Nigel DN: cn=Seed, Nigel, ou=Durban (Langford Road), email=Nigel.Seed@wsp.com Reason: I am the author of this document Date: 2018.02.15 12:30:11 +02'00'			
Project number	48410			
Report number	1			
File reference	G:\000 NEW Projects\48410 - Salt Rock Hotel BA & EMPr\42 ES\2-REPORTS\01-Draft			

SIGNATURES

PREPARED BY

Elliott, Carla
2018.02.15
12:27:22 +02'00'

Carla Elliott, Principal Consultant - Environmental Services

REVIEWED BY

Digitally signed by Seed, Nigel
DN: cn=Seed, Nigel, ou=Durban (Langford Road), email=Nigel.Seed@wsp.com
Reason: I am the author of this document
Date: 2018.02.15 12:30:20 +02'00'

Nigel Seed, Director - Environmental Services

This report was prepared by WSP Environmental (Pty) Ltd. for the account of SALT ROCK BEACH ESTATES CC, in accordance with the professional services agreement. The disclosure of any information contained in this report is the sole responsibility of the intended recipient. The material in it reflects WSP Environmental (Pty) Ltd's best judgement in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. WSP Environmental (Pty) Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This limitations statement is considered part of this report.

The original of the technology-based document sent herewith has been authenticated and will be retained by WSP for a minimum of ten years. Since the file transmitted is now out of WSP's control and its integrity can no longer be ensured, no guarantee may be given to by any modifications to be made to this document.

PRODUCTION TEAM

CLIENT

General Manager	Evan Mitchell
Managing Member	Craig Hulett
Administration / Legal	Brian Carr

WSP

Environmental Assessment Practitioner	Carla Elliott
Project Assistant	Danielle Sanderson

SUBCONSULTANTS

Coastal Engineering	Geoff Smith [WSP – Coastal and Port Engineering]
Stormwater Management	Andy Knox [Bosch Projects]
Revegetation	Paul Button [Dutton Ecological Landscaping]

EXECUTIVE SUMMARY

Introduction

The sea wall located in front of the Salt Rock Hotel, on the Kwa-ZuluNatal (KZN) north coast was significantly damaged following the high sea and storm event experience along the KZN coast in March 2007.

Salt Rock Beach Estates cc (the Applicant) received Environmental Authorisation (EA) for the reconstruction of the sea wall in November 2013 (Ref: DC29/0040/08). While the EA authorises the relevant listed activities to reconstruct damaged sections of the sea wall and reinforce the existing wall, the description of the listed activities only dealt with the reconstruction of the new portions the wall.

It is the Applicant's submission that the EA should have been amended in terms of regulation 31 of the Environmental Impact Assessment Regulations, 2014 as the proposed amendments relate to activities that have already been authorised and the changes are intrinsically linked to the development authorised in the EA. This is supported by the coastal engineer who confirmed that reinforcing existing portions of the sea wall will not change the impact significance ratings for impacts as assessed in the Environmental Impact Assessment. The significance of the impacts assessed in the Environmental Impact Assessment would therefore remain unchanged.

Despite these submissions the KZN Department of Economic Development, Tourism and Environmental Affairs (EDTEA), required the Applicant to undertake a new environmental assessment process for the reinforcement of the portions of the existing wall in a letter dated 25 October 2017. Although the Applicant did not agree with EDTEA's finding, the Applicant is applying for environmental authorisation for the reinforcement of the existing portions of the sea wall as requested by the EDTEA despite the fact that the relevant activity relating to the reinforcement has already been authorised in the EA.

This application is therefore for the reinforcement of the remaining portions of the existing sea wall.

Project Overview

Reinforcement will ensure the overall structural integrity of the entire wall (i.e. new and existing portions that form a single structure). Structural engineers have recommended that the method of reinforcement should be carried out by excavating on the landward side of the sea wall in order to expose the structure, pouring a concrete "skin" of approximately 250mm thick to the landward side of the sea wall, and fixing that reinforced concrete "skin" to the sea wall. The excavated areas will then be backfilled. No reinforcement work (including excavation associated with the reinforcement work) will be undertaken seaward of the existing sea wall. Following the completion of the reinforcement, the site will be stabilised and rehabilitated using indigenous plants where necessary.

EIA Process

WSP Environmental Pty Ltd (WSP) was appointed by the Applicant to undertake the application to the EDTEA for EA for the reinforcement of certain portions of the existing sea wall. The application process involved a Basic Assessment which was undertaken in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA) Environmental Impact Assessment (EIA) regulations (GN. R 326 of 2017).

Summary of Impacts

An impact assessment was undertaken using a semi-quantitative methodology. The environmental aspects assessed for the construction (and decommissioning) and operational phases were as follows:

- Air Quality (Construction)
- Noise (Construction and Operational)
- Coastal Geomorphology (Operational)
- Soils and Stability (Construction)
- Stormwater (Construction)
- Soil, Stormwater and Groundwater Contamination (Construction)
- Solid Waste Generation
- Aesthetics

— Road Traffic
— Public Safety
— Cultural Heritage
— Socio Economics

The potential negative residual impacts associated with the proposed project are of **LOW SIGNIFICANCE (-)**.

The no-project option in which the remaining portions of the wall will not be reinforced is shown to be unreasonable as it may lead to erosion and collapse of the wall in the long-term. It is also unreasonable as these portions are situated at various areas along the portion of the wall which has already been authorised to be reconstructed. . A no –go option would therefore be unreasonable and impractical. In addition, this could result in an increased safety to beach users and landward users. The "no-go option" also presents ongoing risk to landward infrastructure with potential for a loss of property to the hotel and indirect loss of revenue. Negative impacts related to the no-go option are of **HIGH SIGNIFICANCE (-).**

Conclusion

It is highlighted that the proposed reinforcement of the remaining portions will not result in additional negative impacts previously assessed and authorised in 2012 relating to the reconstruction of the sea wall. As per previous studies on the reconstruction of the wall (**Appendix C-3, C-6, C-8**), and more recent confirmation on the reinforcement (**Appendix C-4**), the project in totality (i.e. a contiguous structure) will not result in any impacts which were not previously identified as low and which can be mitigated.

It is the opinion of the Environmental Assessment Practitioner (EAP) conducting the Basic Assessment, that the proposed activities will not have significant negative impacts on the environmental and social aspects related to the project and should therefore be authorised by EDTEA. Mitigation measures have been developed where applicable to reduce likelihood of negatives impacts occurring and promote positive impacts. These are presented within the Environmental Management Programme (EMPr).

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

particular reference to whether the wall will detrimentally affect the neighbouring properties (Subtech, 2008)

C-8 The Evaluation of Physical Impacts of the Proposed Seawall Reconstruction at the Salt Rock Hotel (WSP Africa Coastal Engineers, 2009)

D STAKEHOLDER ENGAGEMENT REPORT (SER)

E LAYOUTS AND DRAWINGS

E-1 Layout Plan - Drawing Number 1522/01/05

E-2 Reinforced Wall Elevation and Profile - Drawing Number 1522/01/010

F ENVIRONMENTAL MANGEMENT PROGRAMME (EMPR)

1 INTRODUCTION

1.1 BACKGROUND AND TERMS OF REFERENCE

Salt Rock Beach Estates cc (the Applicant) received Environmental Authorisation (EA) (DC29/0040/08) on 11 November 2013 for the reconstruction of portions of the sea wall in front of the Salt Rock Hotel. The sea wall was damaged by high tides and strong waves during a storm on 19 March 2007. The Department of Agriculture and Environmental Affairs (DAEA), now referred to as the Department of Economic Development, Tourism and Environmental Affairs (EDTEA), approved Alternative 2 (Construction of a Hybrid Solution) as presented in the Final Environmental Impact Report (EIR) 2012.

While the EA authorises the relevant listed activities to reconstruct damaged sections of the sea wall and reinforce the existing wall, the description of the listed activities only dealt with the reconstruction of the new portions the wall.

It is the Applicant's submission that the EA should have been amended in terms of regulation 31 of the Environmental Impact Assessment Regulations, 2014 as the proposed amendments relate to activities that have already been authorised and the changes are intrinsically linked to the development authorised in the EA. This is supported by the coastal engineer who confirmed that reinforcing existing portions of the sea wall will not change the impact significance ratings for impacts as assessed in the Environmental Impact Assessment. The significance of the impacts assessed in the Environmental Impact Assessment would therefore remain unchanged.

Despite these submissions the KZN Department of Economic Development, Tourism and Environmental Affairs (EDTEA), required the Applicant to undertake a new environmental assessment process for the reinforcement of the portions of the existing wall in a letter dated 25 October 2017. Although the Applicant did not agree with EDTEA's finding, the Applicant is applying for environmental authorisation for the reinforcement of the existing portions of the sea wall e seas wall as requested by the EDTEA despite the fact that the relevant activity relating to the reinforcement has already been authorised in the EA.

This application is therefore for the reinforcement of the remaining portions of the existing sea wall.

A pre-application meeting was held on 4 April 2017 and was attended by EDTEA, WSP Environmental (Pty.) Ltd (WSP), Salt Rock Beach Estates and Norton Rose Fulbright South Africa Inc (NRF) representatives. The purpose of the meeting was to get clarity and agreement from EDTEA on the draft application, and to fill required gaps to ensure a streamlined process. In addition, a request was made that EDTEA would accept one consolidated Environmental Management Programme (EMPr) to address mitigation and management measures for both reconstruction of the damaged portion of the wall (DC29/0040/08); and reinforcement of remaining portions of the wall (current application; DC29/0023/2017). This request was approved by EDTEA on 1 June 2017 via email.

This Basic Assessment (BA) Report has been prepared by WSP on behalf of the Applicant to provide the EDTEA with the necessary documentation in support of the application for EA outlined above.

1.2 THE PURPOSE OF THE BA PROCESS

The BA process applies to activities contained in Listing Notice 1 of the 2014 EIA Regulations, as amended which are considered to have relatively less significant environmental impact than those contained in Listing Notice 2 (requiring a scoping and environmental impact assessment).

The BA process is an interdisciplinary procedure to ensure that environmental and social considerations are included in decisions regarding projects that may impact the environment. Simply defined, the process helps identify the possible environmental effects of a proposed activity and how negative impacts can be mitigated, and positive impacts enhanced.

1.3 PROJECT PROPONENT

Table 1 Details of the Project Proponent

Name	**SALT ROCK BEACH ESTATES**
Contact Person:	Evan Mitchell
Postal Address:	C/O Salt Rock Hotel, 59 Basil Hulett Drive, Salt Rock, KwaZulu-Natal
Telephone:	032 5255025
Fax:	032 5255071
Email:	gm@saltrockbeach.co.za

1.4 COMPETENT AUTHORITY

Table 2 Details of the Competent Authority

Department	**Provincial Department of Economic Development, Tourism and Environmental Affairs.**
Contact Person:	Malcolm Moses
Office:	ILembe District
Telephone:	(032) 551 0907
Email:	Malcolm.Moses@kznedtea.gov.za

1.5 ENVIRONMENTAL ASSESSMENT PRACTITIONER

Table 3 outlines the details of the EAP and her expertise.

Table 3: Details of the Environmental Assessment Practitioner

Name of Environmental Consultancy	**WSP Environmental (Pty.) Ltd.**
Environmental Assessment Practitioner:	Carla Elliott
Postal Address:	Block A, 1 on Langford Langford Road Westville Durban 3629 South Africa
Telephone:	031 240 8860
Fax:	031 240 8861
E-mail:	Carla.elliott@wsp.com
Expertise to conduct the BA Process	Carla has 13 years postgraduate experience in the field of economic development, project management and environmental services. Coming from a development planning background, Carla is an extremely competent project manager of strategic and integrated development projects. Her areas of expertise include environmental strategic and framework planning and environmental management authorisation processes both within infrastructural and industrial sectors. She has become an experienced manager of multi-disciplinary environmental projects within WSP over the last 9.5 years. These projects range from

	environmental authorisation processes for power generation projects, to project management of coastal projects including: the first Shoreline Management Plan in South Africa, Durban Port Water Reticulation Project, Dormac Floating Dry Dock and the Proposed Pemba Oil and Gas Service Centre (POGSC) in Mozambique. She also played a role in the development of the Proposed Durban Dig Out Port Sustainable Planning and Development Framework, and more recently – the Sustainability Strategy for the Proposed Port of Richards Bay Expansion.

The EAP Curriculum Vitae is attached in **Appendix A**.

1.6 STRUCTURE OF THIS REPORT

For the purposes of demonstrating legal compliance, **Table 4** cross-references the sections within the BA Report with the requirements as per Appendix 1 of 2014 EIA Regulations, as amended, GNR 326.

Table 4: Legislation Requirements as detailed in Appendix 4 of GNR 326

Appendix 1, Section 3	Legislated requirements as per the NEMA GNR 326	BA Report Section
(a)	Details of- (i) the EAP who prepared the EMPr; and (ii) the expertise of that EAP to prepare an EMPr, including a curriculum vitae;	Section 1.5
(b)	The location of the activity, including: (i) the 21 digit Surveyor General code of each cadastral land parcel; (ii) where available, the physical address and farm name; (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	Section 4.2
(c)	A plan which locates the proposed activity or activities applied for as well as associated structures and infrastructure at an appropriate scale; or, if it is— (i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or (ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken.	Section 4.2 Figure 4
(d)	A description of the scope of the proposed activity, including— (i) all listed and specified activities triggered and being applied for; and (ii) a description of the activities to be undertaken including associated structures and infrastructure;	Section 4.4 Table 6
	(i) planning and design;	
	(ii) pre-construction activities;	
	(iii) construction activities;	Section 4.4.1
	(iv) rehabilitation of the environment after construction and where applicable post closure; and	Section 4.4.2
	(v) where relevant, operation activities.	Section 4.4.3
(e)	A description of the policy and legislative context within which the development is proposed including— (i) an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and (ii) how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments;	Section 2
(f)	A motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location;	Section 4.1
(g)	A motivation for the preferred site, activity and technology alternative;	Section 5

(h)	A full description of the process followed to reach the proposed preferred alternative within the site, including — (i) details of all the alternatives considered;	Section 5
	(ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;	Section 3.2 Appendix D
	(iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;	Appendix D
	(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Section 6
	(v) the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts— (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated;	Section 7 & 8
	(vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;	Section 3.3
	(viii) the possible mitigation measures that could be applied and level of residual risk;	Section 7 Table 15 & 16
	(ix) the outcome of the site selection matrix;	N/A
	(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and	Section 5
	(xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity;	Section 5
	(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Section 7 & 8
(i)	A full description of the process undertaken to identify, assess and rank the impacts of the activity will impose on the preferred location through the life of the activity, including— (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process; and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;	Section 7 & 8

2 LEGAL AND POLICY FRAMEWORK

2.1 NATIONAL ENVIRONMENTAL MANAGEMENT ACT

The National Environmental Management Act (Act 107 of 1998) (NEMA) is a framework act which provides for environmental management in South Africa including resource conservation and exploitation; pollution control and land use planning and development. Section 24 of NEMA gives effect to the general objectives of integrated environmental management set out in NEMA and requires that the potential consequences for or impacts on the environment of listed activities or specified activities must be considered, investigated, assessed and reported on to the competent authority. In terms of section 24 (2) of NEMA activities have been identified which may not commence without environmental authorisation from the competent authority. . On 4 December 2014, new EIA Regulations (GNR. 982) were promulgated in terms of Chapter 5 of the NEMA. These regulations were amended in April 2017 (GNR. 326). They contain three listing notices (GNR. 324, 325 and 327) which identify activities that are subject to either a Basic Assessment (BA) or Scoping and EIA in order to obtain an EA. A Basic Assessment must be completed if the proposed project triggers activities listed in GNR. 327 (Listing Notice 1) or GNR. 324 (Listing Notice 3). Activities triggered in GNR. 325 (Listing Notice 2), require a Scoping and EIA process to be undertaken.

The original EA (DC29/0040/08) received on 11 November 2013 authorises the proposed project in terms of the Listed Activities (GNR 386 and 387) contained within the 2006 EIA Regulations (Error! Reference source not found.**5**).

Table 5: Listed activities approved by existing EA

LISTED ACTIVITY	DESCRIPTION	APPLICABILITY
GN R 386 (2)	Construction of earth moving activities in the sea or within 100 metres inland of the high-water mark of the sea, in respect of – (e) stabilising walls.	The reconstruction will entail the establishment of a concrete and geo-fabricated wall at the vulnerable regions of the wall where failure has occurred.
GN R 386 (3)	The prevention of the free movement of sand, including erosion and accretion, by means of planting vegetation, placing synthetic material on dunes and exposed sand surfaces within a distance off 100 metres inland of the high water mark of the sea.	The reconstruction of the sea wall and the use of geo-fabricated bags will include re-vegetation of dunes created with sandbags.
GN R 386 (6)	The excavation, moving, removal, depositing and compacting of soils, sand, rock or rubble covering an area exceeding 10 square metres in the sea or within a distance of 100 meters inland of the high water mark.	The activity will require the removal and depositing of soil, sand, rock or rubble to construct the new wall. It will also include the removal of the wedding venue and the cross walls associated with the existing seawall[1].
GN R 545 (24)	Construction or earth moving activities in the sea, an estuary, or within the littoral zone or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is greater; in respect of: (iv) Breakwater structures.	The existing seawall is located within 100 metres from the high water mark and will be decommissioned[2] and reconstructed.

This BA process, which is applying for the authorisation of activities related to the reinforcement of the remaining portions of the sea wall, is triggered by the listed activities in terms of 2014 EIA Regulations, as amended (GNR 387) (Error! Reference source not found.**6**).

[1] It is noted that the removal of the wedding venue and sea wall has been removed from authorisation as per Appeal Decision (12 September 2014).

[2] As noted in letter to EDTEA dated 1 February 2016 (paragraph 4.7 (5)), no existing portions of the wall will be demolished and the existing portions of the sea wall which are existing will remain. The purpose of this basic assessment is to obtain authorisation to reinforce the existing portions of the sea wall.

Table 6: Listed activities seeking authorisation in current application

LISTED ACTIVITY	DESCRIPTION	APPLICABILITY
GN R 387 (19A)	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) the seashore; (ii) 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; or (iii) the sea; — but excluding where such infilling, depositing , dredging, excavation, removal or moving— (f) will occur behind a development setback; (g) is for maintenance purposes undertaken in accordance with a maintenance management plan; (h) falls within the ambit of activity 21 in this Notice, in which case that activity applies; (i) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or (j) 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.	Earth moving activities exceeding $5m^3$ will be required for the reinforcement of the remaining portions of the sea wall where no failure has occurred, located within 100m of the high water mark of the sea.
GN R 387 (52)	The expansion of structures in the coastal public property where the development footprint will be increased by more than 50 square metres, excluding such expansions within existing ports or harbours where there will be no increase in the development footprint of the port or harbour and excluding activities listed in activity 23 in Listing Notice 3 of 2014, in which case that activity applies.	The sea wall is being reinforced resulting in a small increase in footprint due to the proposed "skin" of ~ 0.25m thick along a length of 155m. Although it is unlikely that the total increase in footprint will exceed $50m^2$, the Applicant is adopting a conservative approach to ensure all possible listed activities are included in the current application. The reinforcement ("expansion") will take place on the landward side of the wall on private property. As coastal public property is defined in the Environmental Management: Integrated Coastal Management Act, 2008 to include certain areas, which may be applicable to this application, the Applicant is adopting a conservative approach to ensure all possible listed activities are included in the current application.
GN R 387 (54)	The expansion of facilities— (i) in the sea; (ii) in an estuary; (iii) within the littoral active zone; (iv) in front of a development setback; or (v) if no development setback exists, within a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever is the greater; in respect of— (a) fixed or floating jetties and slipways; (b) tidal pools;	The sea wall, located within 100m of the high water mark of the sea is being reinforced resulting in an increase of footprint ~40-$50m^2$ in extent. The reinforcement ("expansion") will take place on the landward side of the wall. This activity is not triggered if the "expansion" occurs within an urban area. This is defined in the NEMA EIA Regulations as "areas situated within an urban edge (as defined or adopted by the competent authority), or in instances where no urban edge or boundary has been defined or adopted, the

	(c) embankments; (d) rock revetments or stabilising structures including stabilising walls; or (e) infrastructure or structures where the development footprint is expanded by 50 square metres or more, but excluding— (aa) the expansion of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour; or (bb) where such expansion occurs within an urban area.	area situated within the edge of built up areas". EDTEA has not defined the urban edge or confirmed this area falls within the edge of the urban area. The applicant is therefore adopting a conservative approach to ensure all possible listed activities are included in the current application.

2.2 NATIONAL ENVIRONMENTAL MANAGEMENT: INTEGRATED COASTAL MANAGEMENT ACT

The National Environmental Management: Integrated Coastal Management Act (Act 24 of 2008) (ICMA) highlights the importance of recognising the value of the coast. It also emphasizes the importance of facilitating coastal development which is sustainable and focuses on regulating human activities within, or that affect the "coastal zone". This requires development to be ecologically, socially and economically sustainable. The location of the proposed activities is within the active littoral zone, and therefore requires careful and considered management.

2.3 NATIONAL WATER ACT

The National Water Act (Act 36 of 1998) (NWA) aims to ensure that water resources are protected, used, developed, conserved, managed and controlled in a sustainable manner, for the benefit of everyone in South Africa. Section 19 includes various requirements to prevent and control water pollution.

The NWA aims to control the use of water, which may affect water resources through the licencing of specific water uses in terms of Section 21 of the act. Water use is defined broadly and includes taking and storing water, activities which reduce stream flow, waste discharges and disposals, controlled activities, altering a water course and removing water from underground. These water uses require a Water Use Licence (WUL).

Potential risk to water quality during construction (small-scale spills of construction materials) associated with the proposed activities have been identified and management measures contained in the EMPr (**Appendix E**). Project activities do not trigger the need for a WUL or authorisation in terms of the NWA.

2.4 NATIONAL HERITAGE RESOURCES ACT

The National Heritage Resources Act (Act 25 of 1999) (NHRA) provides protection of and management of conservation worthy places, areas and objects by heritage authorities, by means of registration and the implementation of certain protections. Amafa KwaZulu-Natal Heritage (Amafa) is the provincial agency of the South African Heritage Resource Agency (SAHRA) in terms of the NHRA. A Heritage Impact Assessment (HIA) was conducted in 2010 as part of the original EIA process and has been included in **Appendix C-1**. AMAFA provided comment to the original application stating that in view of NHRA Section38(1), Amafa does not have any objection to the proposed development, however "no structures older than sixty years or parts thereof are allowed to be demolished, altered or extended without a permit from Amafa".

As per the NHRA, potential heritage resource found during excavation and reinforcement of the seawall may be subject to permit requirements.

NRF acting on behalf of the Applicant has prepared a letter addressed to the Amafa Built Environment Office (6 July 2017) (**Appendix C-2**). This letter highlight that this BA is assessing the same seawall in the initial HIA prepared by Albert van Jaarsveld, an AMAFA credited Cultural Heritage Resources practitioner. The Heritage specialist found the

sea wall to have no heritage value. In addition, it clarifies that the remaining portions of the sea wall will not be demolished. It requests that Amafa confirm that no permit is required or if one is required to relax the requirements to get architectural designs and interested and affected sign- off on the basis that layout information and stakeholder engagement is included in the BA process and this BA Report.

2.5 REGULATIONS, BYLAWS, CONVENTIONS, POLICIES, AND GUIDELINES

The proposed project is in line with the principles contained in the following programmes, plans and guidelines.

2.5.1 DRAFT KWAZULU-NATAL COASTAL MANAGEMENT PROGRAMME

The EDTEA has published the Draft KwaZulu-Natal Coastal Management Programme (2017), which is the provincial policy directive for the management of the coastal zone within the province for the five-year period 2017 – 2022.

The document highlights goals, objectives and actions that need to be implemented. One of the priority areas identified is the need for coastal management and planning, which aims to develop a best practice guideline for development in the coastal zone. Although this document is still in draft the principles and objectives have been considered and applied to the assessment of this project.

2.5.2 ILEMBE INTEGRATED DEVELOPMENT PLAN

The iLembe District Municipality includes coastal management as a focus area within the 2017 – 2022 Integrated Development Plan (IDP). The focus is public access, community development and sustainability and management of coastal resources.

2.5.3 LIVING WITH COASTAL EROSION IN KWAZULU-NATAL: A SHORT-TERM, BEST PRACTICE GUIDE

This guideline was published by the Coastal and Biodiversity Management Unit of the KwaZulu-Natal Department of Agriculture and Environmental Affairs in 2008. It provides responses to coastal erosion and best practice guidelines to manage the human response to coastal erosion. The guideline also includes roles and responsibilities of key government agencies.

3 SCOPE OF WORK AND METHODOLOGY

3.1 OBJECTIVES OF THE BASIC ASSESSMENT PROCESS

The BA process has been undertaken in accordance with Appendix 1 of GNR 326 of the NEMA 2014 EIA Regulations, as amended in 2017, culminating in the compilation of the Draft BA Report (this document). The objectives of the BA process are as follows:

- To determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;
- To identify the alternatives considered, including the activity, location and technology alternatives;
- To describe the need and desirability of the proposed alternatives;
- Through the undertaking of an impact and risk assessment process, inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on the aspects to determine:
  - The nature, significance, consequence, extent duration, and probability of the impacts occurring to; and
  - The degree to which these impacts-
    - Can be reversed;
    - May cause irreplaceable loss of resources; and
    - Can be avoided, managed or mitigated.
- Through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to:
  - Identify and motivate a preferred site, activity and technology alternative
  - Identify suitable measures to avoid, manage or mitigate identified impacts; and
  - Identify residual risks that need to be managed and monitored.
- To determine the nature, significance, consequence, extent, duration and probability of the impacts occurring;
- To determine the degree to which these impacts can be reversed, may cause irreplaceable loss of resources and can be avoided, managed or mitigated;
- To identify and motivate a preferred site, activity and technology alternative;
- To identify suitable measures to avoid, manage or mitigate identified impacts; and,
- To identify residual risks which need to be managed and monitored.

3.2 STAKEHOLDER ENGAGEMENT PROCESS

3.2.1 SUMMARY OF ENGAGEMENT

Stakeholder engagement is a fundamental part of the BA process and aims to include interested and affected parties (IAPs) in the process by notifying them of the proposed project. The objectives of the stakeholder engagement process are to:

— Ensure an open and transparent BA and consultation process;

— Enable stakeholders to register their interest and provide input into the BA process and share information; and,

— Ensure that all relevant issues are addressed as part of the BA process.

The stakeholder engagement process was initiated in November 2017. The process employed a number of techniques to establish contact and raise awareness amongst stakeholders with reference to the application. A Stakeholder Engagement Report (SER) is included in **Appendix D** of this report, detailing the project's compliance with Chapter 6 of the NEMA 2014 EIA Regulations (amended 2017).

3.3 IMPACT ASSESSMENT METHODOLOGY

The key objectives of the risk assessment methodology are to validate impacts identified through a matrix, identify any additional potential environmental issues and associated impacts likely to arise from the proposed project, and to propose a significance ranking. Issues / aspects will be reviewed and ranked against a series of significance criteria to identify and record interactions between activities and aspects, and resources and receptors to provide a detailed discussion of impacts.

The Hackings Risk Assessment Methodology was used for the ranking of the identified environmental impacts (Hacking, 2001b). The significance of environmental aspects was determined and ranked by considering the criteria presented in **9.**

Table 7:Criteria used to determine the Significance of Environmental Aspects

SIGNIFICANCE RANKING	NEGATIVE ASPECTS	POSITIVE ASPECTS
H (High)	Will always/often exceed legislation or standards. Has characteristics that could cause significant negative impacts.	Compliance with all legislation and standards. Has characteristics that could cause significant positive impacts.
M (Moderate)	Has characteristics that could cause negative impacts.	Has characteristics that could cause positive impacts.
L (Low)	Will never exceed legislation or standards. Unlikely to cause significant negative impacts.	Will always comply with all legislation and standards. Unlikely to cause significant positive impacts.

Where significant environmental aspects are present ("high" or "moderate"), significant environmental impacts may result. The significance of the impacts associated with the significant aspects was determined by considering the risk:

Significance of Environmental Impact (Risk) = Probability x Consequence

The consequence of impacts were described by considering the severity, spatial extent and duration of the impact.

3.3.1 SEVERITY OF IMPACTS

Error! Reference source not found.**10** presents the ranking criteria used to determine the severity of impacts on the b iophysical and socio-economic environment. Error! Reference source not found.**11** provides additional ranking criteria for determining the severity of negative impacts on the biophysical environment.

Table 8: Criteria for Ranking the Severity of Environmental Impacts

	NEGATIVE			POSITIVE		
Criteria	**High-**	**Medium-**	**Low-**	**Low+**	**Medium+**	**High+**
Qualitative	Substantial deterioration. Death, illness or injury.	Moderate deterioration. Discomfort.	Minor deterioration. Nuisance or minor irritation.	Minor improvement.	Moderate improvement.	Substantial improvement.
Quantitative	Measurable deterioration.		Change not measurable i.e. will remain within current range.		Measurable improvement.	

	Recommended level will often be violated.	Recommended level will occasionally be violated.	Recommended level will never be violated.	Will be within or better than recommended level.	
Community Response	Vigorous community action.	Widespread complaints.	Sporadic complaints.	No observed reaction.	Favourable publicity

Table 9: Criteria for Ranking the Severity of Negative Impacts on the Biophysical Environment

RANKING CRITERIA			
Criteria	**Low (L-)**	**Medium (M-)**	**High (H-)**
Soils and land capability	Minor deterioration in land capability. Soil alteration resulting in a low negative impact on one of the other environments (e.g. ecology).	Partial loss of land capability. Soil alteration resulting in a moderate negative impact on one of the other environments (e.g. ecology).	Complete loss of land capability. Soil alteration resulting in a high negative impact on one of the other environments (e.g. ecology).
Ecology (Plant and animal life)	Disturbance of areas that are degraded, have little conservation value or are unimportant to humans as a resource. Minor change in species variety or prevalence.	Disturbance of areas that have some conservation value or are of some potential use to humans. Complete change in species variety or prevalence.	Disturbance of areas that are pristine, have conservation value or are an important resource to humans. Destruction of rare or endangered species.
Surface and Groundwater	Quality deterioration resulting in a low negative impact on one of the other environments (ecology, community health etc.)	Quality deterioration resulting in a moderate negative impact on one of the other environments (ecology, community health etc.).	Quality deterioration resulting in a high negative impact on one of the other environments (ecology, community health etc.).

3.3.2 SPATIAL EXTENT AND DURATION OF IMPACTS

The duration and spatial scale of impacts are ranked using the criteria in **Table 12.**

Table 10: Ranking the Duration and Spatial Scale of Impacts

RANKING CRITERIA			
Criteria	**Low (L-)**	**Medium (M-)**	**High (H-)**
Duration	Quickly reversible. Less than the project life Short-term.	Reversible over time. Life of the project Medium-term.	Permanent Beyond closure. Long-term.
Spatial Scale	Localised. Within site boundary. Site	Fairly Widespread. Beyond site boundary. Local	Widespread. Far beyond site boundary. Regional/national

3.3.3 CONSEQUENCE OF IMPACTS

Having ranked the severity, duration and spatial extent, the overall consequence of impacts was determined using the following qualitative guidelines (**Table 13**):

Table 11: Ranking the Consequence of an Impact

Severity – Low (L)

SPATIAL SCALE			Low **LOCALISED - within site boundary**	Medium **Beyond site boundary**	High **Far beyond site boundary**
DURATION	Long Term	High	Medium	Medium	Medium

	Medium Term	Medium	Low	Low	Medium
	Short Term	Low	Low	Low	Medium

Severity = Medium (M)

SPATIAL SCALE			Low LOCALISED - within site boundary	Medium Beyond site boundary	High Far beyond site boundary
DURATION	Long Term	High	Medium	High	High
	Medium Term	Medium	Medium	Medium	High
	Short Term	Low	Low	Medium	Medium

Severity = High (H)

SPATIAL SCALE			Low LOCALISED - within site boundary	Medium Beyond site boundary	High Far beyond site boundary
DURATION	Long Term	High	High	High	High
	Medium Term	Medium	Medium	Medium	High
	Short Term	Low	Medium	Medium	High

3.3.4 OVERALL SIGNIFICANCE OF IMPACTS

To determine overall significance (**Table 14**) one of the three "layers" based on the severity ranking was used. Thereafter the consequence ranking was determined by locating the intersection of the appropriate duration and spatial scale rankings.

Table 12: Ranking the Overall Significance of Impacts

CONSEQUENCE (FROM TABLE 6-5)			LOW	MEDIUM	HIGH
PROBABILITY	Definite Continuous	High	Medium	Medium	High
	Possible Frequent	Medium	Medium	Medium	High
	Unlikely Seldom	Low	Low	Low	Medium

The overall significance ranking of the negative environmental impacts provides the following guidelines for decision-making (**Table 15**):

Table 13: Guidelines for Decision Making

Significance of Impact	Nature of Impact	Decision Guideline

High	Unacceptable impacts.	Likely to be a fatal flaw.
Moderate	Noticeable impact.	These are unavoidable consequence, which will need to be accepted if the project is allowed to proceed.
Low	Minor impacts.	These impacts are not likely to affect the project decision.

The environmental aspects identified in **Section** Error! Reference source not found. were assessed according to the a bove methodology. The results are provided for the preferred project options; and No Go Option in **Table 16** and **Table 17** respectively.

4 PROJECT DESCRIPTION

4.1 NEED AND DESIRABILITY

Ensuring structural integrity of the sea wall is an imperative, especially in light of the threat posed by further storm events and other effects of climate change on coastal properties. It is necessary that the existing (remaining) regions of the sea wall at which no failure has previously occurred be reinforced to create one contiguous structure that will provide long term structural integrity to the overall sea wall. Failure to reinforce existing portions of the sea wall will make it susceptible to future failures. This would constitute a threat to the private property of the Applicant and cause further safety and security, and aesthetic issues to broader beach users.

4.2 PROJECT LOCATION

The Salt Rock Hotel is located in the suburb of Salt Rock, within the KwaDukuza Municipality, approximately 4km north of the regional centre of Ballito (**Figure 1**). The property is 46690.8m² in size and is zoned General Residential 1.

The damaged seawall is located along the seaward boundary of the Salt Rock Hotel at 59 Basil Hulett Drive, Lot 900 Salt Rock (**Figure 2**). Photos showing the existing condition of wall are included in **Appendix B**.

Table 7 provides cadastral information for the site as required in terms of EIA Regulation Annexure 1(3) of GNR 326.

Table 14: Cadastral Information

SITE LOCATION DETAILS SS PER GN.R326 ANNEX 1 (3)	
(i) 21 digit Surveyor General code of each cadastral land parcel:	ERF 900, Salt Rock: NOFU02900000090000000 ERF 324, Salt Rock: NOFU00000000152100115
(ii) Physical address and farm name:	59 Basil Hulett Drive, Salt Rock – ERF 900 Farm Lot 61 Salt Rock (owned by Salt Rock Beach Estates) – ERF 324 Farm Lot 61 Salt Rock (owned by KwaDukuza Municipality)
iii) Where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties	Start co-ordinates: 29°30'11.64"S; 31°14'20.19"E End co-ordinates: 29°30'17.81"S; 31°14'05.04"E.

Figure 1: Regional map indicating the location of the Salt Rock Hotel (WSP, 2017)

Figure 2: Locality map indicating the location of the Sea Wall and proposed repair (WSP, 2017))

4.3 LAYOUT

During the initial EIA process for the reconstruction of the sea wall (KSEM, May 2012) four alternatives were presented, and the preferred alternative – Alternative 2, a "Hybrid Solution"– was authorised. This option comprises a combination of reconstructing damaged portions of the sea wall with "soft" structures (sand-filled geo-containers or sandbags) combined with a solid reinforced concrete seawall.

The design philosophy developed by WSP Coastal and Port Engineering (2012) involved the replacement of the more vulnerable regions of the seawall (where failure occurred) with a sloped sandbag structure. This sandbag structure would be situated, for the most part, at the bottom of the structure (where it intersects with the natural beach) at the same location as the original seawall. As a failsafe measure, the design included a hidden reinforced concrete seawall immediately landward of this sandbag structure. This hybrid design represented a compromise (compared to other "hard" alternatives such as rebuilding vertical sea wall) as the hotel lawns would be reduced by over 500m^2 to accommodate the sloping "soft" structures (sandbag revetment). The design catered for a large storm (1:100 year event) by including adequate reinforcement, a stable design and a foundation, which extends to bedrock. The sandbag section would not have the same resistance to high waves as the seawall, but included a "failsafe/backup" buried seawall to then take effect to protect the hinterland. The design had several advantages over other sea wall design options assessed in the 2010 EIR including:

- The northern and southern ends of the coastal protection are composed of sloped sand-bag sections which are tied back into the hinterland. This design will mitigate against flanking erosion effects on neighbouring properties;
- The sloped sandbag protection sections will:
  - Allow for planting of vegetation;
  - Promote the accumulation of windblown sand, this accumulated sand will serve as a buffer (as additional
  - protection) during storms; and will
  - Have a more natural appearance when vegetated.
- The design allows for easy retreat (e.g. should this be required in the event of severe sea-level rise) in parts.

As a result of the hybrid design by WSP Coastal and Port Engineering, a layout plan was prepared Bosch Stemele Layout (Drawing Number 1522/01/05) dated May 2011 (**Appendix E-1**). In the layout plan, the sea wall would retain the current alignment and height of the existing wall. The layout plan was assessed by WSP Coastal and Port Engineering in a report entitled '*Specialist Study of Hybrid Hard / Soft Coastal Protection: Addendum to WSP Report of 14 July 2010*' (2012) (**Appendix C-3**) and included in the Environmental Assessment Report.

Bosch Stemele recommended that the existing portions of the sea wall at which no failure occurred should be reinforced by excavating on the landward side of the sea wall in order to expose the structure, pouring a concrete "skin" of approximately 250mm thick to the landward side of the sea wall, and fixing that reinforced concrete "skin" to the sea wall. The excavated areas will then be backfilled. A drawing showing the refurbishment / reinforcement of the remaining sea wall typical elevations and sections was prepared by Bosch Stemele (Drawing Number 1522/01/010) dated 13 June 2017 (**Appendix E-2**). This cross section shows the proposed concrete "skin" and indicates that no reinforcement structures will be added seaward of the existing sea wall. This drawing was assessed by WSP Coastal and Port Engineering in a letter dated 22 January 2016 *Salt Rock Hotel – Refurbishment of Existing Wall – Evaluation by Coastal Engineer* (**Appendix C-4**).

4.4 SCOPE OF PROPOSED ACTIVITY REQUIRING AUTHORISATION

The proposed reinforcement work is summarised as follows, and described in more detail in the following sub-sections:

- The existing stone wall will be retained and used as a front barrier.
- Galvanised steel bars will be installed into back of the existing stone wall prior to casting of new wall.
- Drain holes will be drilled through the existing walls prior to casting of the new wall.

— The foundation toe of the wall will be excavated (the excavation will extend landward of the existing wall).
— Galvanised dowel bars will be inserted into the rock bed.
— The new reinforced concrete wall will be poured behind the existing wall.
— Free draining sand will be placed behind the new wall, and covered by a geofabric (membrane) layer.

A simplified diagram of the process is provided in **Figure 3.**

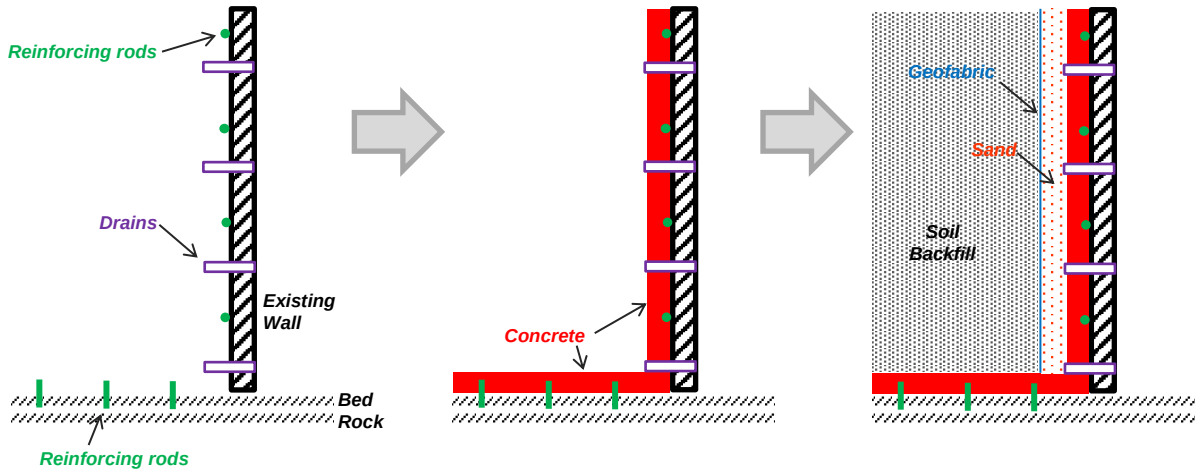

Figure 3: Illustration of Proposed reinforcement of portions of Salt Rock sea wall (adapted form Bosch Stemele, 2017)

Although no structures are to be erected on the seaward side of the wall (urban boundary), the following activities will take place seaward:

— Stockpiling of excavated material on the beach adjacent to the excavated section being worked on. This would in effect create a berm / bund of a temporary nature to facilitate the construction during working hours. This is not intended to act as a barrier to wave action. The intention is to limit work on any section to time periods that do not conflict with high seas, tides or when the resort / beach is busy in season. The combined volume of stockpiled excavated material will not exceed 50m^2 at any time of the project. Once a certain planned section is completed, the stockpiled sand will be replaced along the wall and the next section will be excavated – to continue for full length of the wall.
— Trench shoring is the process of bracing the walls of a trench to prevent collapse. Shoring of the excavation will be constructed of removable timber sections on the landward side with the existing wall providing support on the seaward side. Shoring will allow for a smaller area of excavation. The maximum collapse height of the entire excavation will be from natural ground level to foundation level, which is approximately 4m. It is noted that shoring involves erection of temporary structures to aid in the construction of a project. Temporary structures will be dismantled and removed when the permanent works become self-supporting or complete.

4.4.1 CONSTRUCTION ACTIVITIES

The construction phase for the reinforcement work is anticipated to be six months. The intention is to do the works piece-meal during the low tourist periods. The construction methodology was prepared by Bosch Stemele in a letter dated 22 September 2016 *Salt Rock Sea Wall Amendment – Excavation Quantities*, and a letter dated 6 July 2017 *Salt Rock Hotel – Construction Methodology for Refurbishment and Reinforcing of Existing Sea Wall* (**Appendix** Error! Reference source not found.).

SITE CAMP

The large flat-grassed area on the northern portion of the site (on the Hotel grounds) will be used as the site camp for the contractor.

REINFORCEMENT

The process will be undertaken along 5 - 10 metre sections of the wall at a time, so as to limit disruptions to hotel and beach users, prevent the build-up of large stockpiles of materials on site, and limit exposure to extreme sea events. The proposed construction methodology is as follows:

- Excavation of an estimated 5890m^3 of soil and sand materials from behind the existing stone wall to expose the rock foundation over the required foundation width, including working space.
- Bulk excavation will be done using a Traxivator and/or Tractor-Loader-Backhoe (TLB) to access the excavation from both landward and seaward side of the wall however these will be for limited periods.
    - The activity of excavation down to the bedrock on the existing wall line will require a portion of the sand to be removed on both sides of the line. This will create the berm that is described seaward of the wall. This is a tempoary placement of the seaward portion of the excavated sand. Once the portion of the wall has been put into position the berm will be out back alongside the seaside of the wall.
- Batter the excavation to achieve a safe working angle – in order to prevent collapse.
- Clear and clean the rock foundation using bass brooms and water.
- Drill and grout steel dowels into the rock foundation.
- Drill and grout steel connecting dowels into the back face of the existing stone wall.
- Core 50mm diameter drain holes through the existing stone wall, at spacing shown on the design drawings. Grout in a uPVC drain pipe, allowing for extra length to extend through the concrete reinforcing wall.
- Fix reinforcing steel to the wall foundation behind the existing stone wall. Fix reinforcing to foundation dowels and leave starter bars for wall section above foundation.
- Cast the foundation concrete.
- Fix reinforcing steel to the wall section to full height of the back of the existing stone wall. Fix reinforcing to the connecting dowels in the back of the existing stone wall.
- Erect the back shutter to the wall section (the existing stone wall will form a permanent shutter to the front of the wall).
- Provide temporary support props to the front of the existing stone wall over the working length while casting concrete. Props can be removed a minimum of two days after casting the concrete.
- Cast concrete for the retaining wall.
- Install sand drainage layer and geofabric separation layer to the back of the retaining wall in accordance with the design drawings. Drainage layer and backfill to be brought up in 500mm compacted lifts behind the wall until full height is reached.

CONSTRUCTION MATERIALS AND MACHINERY

The reinforced wall will be tied back to the proposed new concrete wall of the damaged section with a concrete wall of the same dimensions as the new wall. Concrete will be imported onto the site in the form of ready-mix at the time of requirement. The only material on site will be the reinforcing steel, shoring materials, geo-fabric bags.

The use of geo-fabric / sandbags has been approached as per existing EA (DC29/0040/08). The sand bags will be filled *in-situ*; the fill will be the same sand as on the site but will be sourced within the private property and not from the beach. As the bags are four-ton units this will require the use of heavy construction machinery. The sandbags will be used in front of the existing wall on the south end to provide an effective tie-in to the sand dune to the south of the property. The tie-in on the north side is the same, but will have the new wall behind it.

The water for any construction will be sourced from the resort as required. Currently, no need for dewatering pumps have been identified for the project.

The KwaDukuza Local Municipality may require a permit for construction activities on the beach. It is the responsibility of the contractor and/or proponent to contact the Local Municipality and apply for relevant permits and pay the required amount.

ACCESS

Public access will be controlled by fencing the area of operation. The public will have access to the beach at all times (a gate restricts access to the hotel grounds and has been placed at the beach entrance for security purposes).

Site access will be via Shrimp Lane, north end of site (no public access will be affected). The inland side of the wall has vehicular access from the Shrimp Lane entrance, the southern end of the wall section will need to be accessed from north of the tidal pool, on the seaward side.

4.4.2 REHABILITATION OF CONSTRUCTION ACTIVITIES

Upon completion of the bulk construction activities, the site will be rehabilitated to ensure it is stabilised and all construction machinery and infrastructure will be removed.

4.4.3 OPERATIONAL ACTIVITIES

Key aspects associated with on-going maintenance of sea wall include dune vegetation, stormwater management; and sand infilling of the soft structures. Maintenance of the sea wall is dealt with here as it is applicable to both the already authorised reconstructed portions; and current application for reinforcement of remaining portions, as this will form one contiguous structure. Maintenance and management measures associated with these activities are included in the EMPr (**Appendix F**). It is re-iterated that EDTEA has indicated that one EMPr covering both the rebuilt and reinforced portions be prepared and submitted with this new application.

5 ALTERNATIVES

5.1 SITE ALTERNATIVES

The proposed reinforcement is required for remaining portions of an existing wall located between the Salt Rock Hotel and the adjacent beach. The proposed project is inextricably linked to the existing wall, therefore no site alternatives have been considered.

5.2 LAYOUT ALTERNATIVES

The layout of the project is illustrated by Bosch Stemele Layout (Drawing Number 1522/01/05) as included in the initial EIA (2012). Revision 4 of the same layout dated May 2011 is included in **Appendix E-1.**

This layout illustrates the authorised hybrid design where the sea wall would retain the current alignment and height of the existing wall. As such, no layout alternatives have been considered.

5.3 TECHNOLOGY ALTERNATIVES

The preferred method of reinforcing the remaining seawall as shown in **Appendix E-2** was assessed by WSP Coastal and Port Engineering in a letter dated 22 January 2016 ***Salt Rock Hotel – Refurbishment of Existing Wall – Evaluation by Coastal Engineer*** **(Appendix C-4)**. This design is necessary to meet the engineering criteria for tying into the adjacent new portions, and provide stability to the existing structure without significant excavation and cost.

No other alternatives were considered as it was the view of the design team that the option illustrated in **Appendix C-2** and **Appendix D-2** was the most economical way of strengthening the wall without additional impacts as concluded by WSP Coastal and Port Engineering (2016) (**Appendix C-4**).

5.4 NO PROJECT ALTERNATIVE

The no-go option would be a continuation of the status quo however, authorisation has been granted for reconstruction of the collapsed portions. Without the reinstatement of the remaining portions, the wall will not be one contiguous structure providing required protection to landward properties, and will continue to pose a potential public safety risk.

6 ENVIRONMENTAL ATTRIBUTES

This section includes a description of the environmental attributes of the project area. The descriptions encompass the geographical, physical, biological, social, economic, heritage and cultural aspects in accordance with 2014 EIA Regulations, as amended GN R. 326 (Annex 1). This section draws on the relevant specialist studies prepared for the previous EIA process (KSEM, 2012), including:

- Geomorphological studies:
  - The Evaluation Physical Impact on the Coastal Environment and the Property (WSP Africa Coastal Engineers, 2010) (**Appendix C-6**)
  - The Effect of the Proposed Reinstatement of the Vertical Concrete Sea Wall on the Coastal Geomorphic Processes, with particular reference to whether the wall will detrimentally affect the neighbouring properties (Subtech, 2008) (**Appendix C-7**).
  - The Evaluation of Physical Impacts of the Proposed Seawall Reconstruction at the Salt Rock Hotel (WSP Africa Coastal Engineers, 2009) (**Appendix C-8**).
- Heritage Impact Assessment (Albert van Jaarsveld, 2010) (**Appendix C-1**).

6.1 CLIMATE

Salt Rock normally receives about 848mm of rain per year, with most rainfall occurring mainly during summer. It receives the lowest rainfall in July and the highest in February. The monthly distribution of average daily maximum temperatures shows that the average midday temperatures for Salt Rock range from 22.4°C in July to 27.7°C in February. The region is the coldest during July when the mercury drops to 10°C on average during the night.

6.2 AMBIENT NOISE

The project site is located alongside a public beach, commercial and recreational facilities. There are no other significant noise generating activities in the vicinity.

6.3 COASTAL GEOMORPHOLOGY

The underlying bedrock is shallow and outcrops along the coastline intermittently. The headland seaward of the southern portion of the property forms a natural control point, which determines the shape of the beaches on either side under normal equilibrium conditions. The seaward side of the Salt Rock Hotel is terraced. There are two cross walls leading from the caravan park to the rock tidal pool east of the southern section of the seawall. The presence of shallow bedrock prevents scouring of the beach profile, thus the beach is generally maintained.

6.4 SURFACE WATER

All existing stormwater runoff from the hotel roof is collected via gutters and downpipes and is discharged to surface around the perimeter of the buildings and allowed to runoff into the gardens and grassed areas. Due to the fact that the Hotel is located on sand dunes most of this runoff infiltrates into the ground almost immediately.

During more intense storms where the infiltration rates are exceeded, the surface runoff is channelled via grassed open channels, roads, footpaths and concrete lined open channels down to the beach.

Existing stormwater management system of the Hotel includes:

- Run-off from Hotel road flows down the southern boundary of the property via an open concrete channel seaward of the Geobag wall.

- Run-off from the Caravan Park emanating from the existing internal pathways and park lawns is collected via kerbing and channels, which discharge as surface run-off into the cohesion-less sands inland of the proposed seawall.
- Run-off from internal paths and grassed areas immediately north of the Tidal pool, dissipate along the landward side of the proposed sea wall, into non-erosive, absorbent sand.
- Run-off from a portion of buildings situated centrally on the property, flow seaward via a concrete storm water pipe, which discharges onto the seaward side of the boundary wall and is readily absorbed and dissipated before any scouring action takes place.
- Run-off from the northern end of Lot 900 towards the propose Geobag seawall, flows over cohesion-less sands which is readily absorbed.

6.5 ECOLOGICAL

6.5.1 TERRESTRIAL

The South African National Biodiversity Institute (SANBI) defines Critical Biodiversity Areas (CBAs) as regions required to meet biodiversity targets for ecosystems, species and ecological processes, as identified in a systematic biodiversity plan. An ecosystem refers to all living things in an area and the way they affect each other and their environment. CBAs can be divided into two subcategories, namely Irreplaceable and Optimal (Ezemvelo KZN Wildlife, 2014). Irreplaceable CBAs are areas considered critical for meeting biodiversity targets and thresholds and are required to ensure the persistence of viable populations of species and the functionality of ecosystems. CBA Optimal areas are more suitable for development negotiations as they have a lower irreplaceability value. **Figure 4** shows that the proposed project location does not fall within either of the two CBA categories.

The vegetation surrounding the site is restricted to the landward side of the wall, and is comprised of maintained lawn and landscaped garden of the Salt Rock Hotel. The Salt Rock area is highly transformed (residential and commercial development), with a mixture of landscaped exotic vegetation and scattered remnants of indigenous coastal bush. The faunal species found in the area are typical of suburban coastal areas, and therefore limited to common mammals (e.g. duiker), birds (e.g. sparrows, wagtails, etc.) and reptiles (snakes, skinks, etc.). The previous EIA (KSEM, 2012) did not identify any endangered species within the vicinity of the proposed project.

Figure 4 Critical Biodiversity Mapping (SANBI, 2014).

6.5.2 MARINE

The seaward side of the proposed site is comprised of coarse sandy beach sediment. The tidal pool (located immediately in front of the Salt Rock Hotel), contains characteristic intertidal zone species, including algae, small fish, crustaceans and molluscs.

6.6 SURROUNDING LAND USE

The proposed project site is located on the seaward side of the Salt Rock Hotel. The site is in between the sandy beach and sea (east) and the grass and maintained lawn and paving of the hotel (west). The beach is public, with no restrictions, and there is a public tidal pool located in front of the hotel. Immediately south of the hotel is the caravan and camping park, and medium-density residential / holiday houses to the north. Other land uses near the Salt Rock Hotel include a small shopping centre (north) and the Salt Rock Country Club (west).

The Salt Rock area is predominately residential and holiday homes and apartments, with scattered small retail and commercial enterprises.

6.7 SOCIO-ECONOMIC

The site is located within Ward 22 (2016 delamination, Municipal Demarcation Board) of the KwaDukuza Local Municipality. The Salt Rock area is comprised entirely of formal housing and commercial activities centred around residential and tourism activities. The majority (75%) of the population is reported to comprise white, medium to high-income earning households (Statistics SA, 2012). This historical tourist area, has developed along the coastline

northwards from the larger tourist town of Ballito, and provides a source of income for a number of local households, both within Salt Rock and lower income-areas of Umhlali and Shaka's Kraal.

The Salt Rock Hotel is a key economic and social centre for the local area. The hotel hosts in excess of fifty thousand guests annually and employs a permanent staff of more than two hundred drawn from the local community (*pers. comm.* Mr. Evan Mitchell in KSEMS, 2012,). The seawall contributes to the sense of place and identity of the area and the Hotel.

6.8 HERITAGE AND CULTURAL

The Salt Rock Hotel Sea wall is approximately 70 years old, and therefore qualifies as a heritage resource in terms of the NHRA.

The HIA (**Appendix** Error! Reference source not found.) conducted in line with Amafa requirements for the previous E IA process in 2010 key findings include:

- A single potsherd[3] on the beach indicates that the coastal dunes must have formerly been inhabited by Early Iron Age man, as such communities did exist at Salt Rock. The presence of brown mussel (Perna perna) colonies is a further indication. The remains of such villages would have been destroyed during construction of the Hotel and terracing of surfaces. No other material relating to the Iron Age was observed.
- The existing damaged seawall was built from stone and mortar in the early 20th century. The tidal pools presumably date from the same time. As such, these structures are protected by Heritage legislation and may not be destroyed or altered without obtaining the necessary permit from the appropriate authorities.
- The sea wall has little cultural, historical, or architectural value.

[3] A broken piece of ceramic material, especially one found on an archaeological site.

7 IMPACT ASSESSMENT

This section describes the environmental aspects as well as impacts associated with the project, as well as mitigation measures. The impacts are assessed pre- and post-mitigation using the methodology described in **Section 3.3** of this report.

Table 15 provides a description and significance assessment of the potential impact significance pre and post mitigation for the preferred option. This relates to the reinforcement of the remaining portions of the seawall as described in **Section 4.4**.

Tables 16 provides a description and significance assessment of the potential impact significance pre- and post-mitigation for the no-go option as described in **Section 5.4**. This option relates to an EA for the reinforcement of remaining portions not being issued. Reconstruction of the collapsed portions and creation of one contiguous wall is not feasible without the reinforcement of the existing portions.

Table 15: Environmental Impact Risk Assessment (Proposed Project Option)

Aspect Category	Aspect Summary	Impact Description	Receptor	Phase	Consequence of Impact	Probability	Confidence	Nature	Significance of Impact	Mitigation Measures	Consequence of Impact	Probability	Confidence	Nature	Significance of Impact
Air Quality	Deterioration of ambient air quality within the construction area and immediate surrounds	The construction phase may generate dust emissions from excavation activities and stockpiling of materials (particularly during windy conditions). This may result in a nuisance factor to the Hotel and caravan park users. A 6-month construction phase is estimated. The impact is therefore likely to be short-term in nature.	Air Quality & Social	Construction	Low	Medium	High	Negative	**Medium**	Implement measures specified in the EMPr, including: – Avoid dust-generating activities (i.e. grading, excavation and moving of soil) during windy periods. – Re-vegetate or hard surface disturbed areas as soon as possible. – Apply dust suppression methods to active areas and stockpiles.	Low	Low	High	Negative	**Low**
Noise	Public disturbance due to site activities	The construction phase is likely to generate noise emissions as a result of general activities on site. Sources of noise may include: excavation machinery (e.g. TLB), welding, grinding, movement of vehicles to and from the site, pouring of concrete (concrete trucks and motors), and presence of construction workers on site. Construction activities are likely to take place during normal working hours (e.g. weekdays between 7:00 and 16:00). Noise emissions have the potential to result in nuisance factor to Hotel, caravan park and beach users however this will be temporary in nature.	Social	Construction	Low	Medium	High	Negative	**Medium**	Implement measures specified in the EMPr, including: – Maintain normal working hours (i.e. no after-hours or weekend works). – Maintain liaison with hotel and other stakeholders to communicate schedules and receive feedback. – Switch off construction equipment and machinery when not in use. – Utilise machinery with lower noise emissions. – Avoid undertaking construction activities between 18h00 and 07h00.	Low	Low	High	Negative	**Low**
		No impacts are likely to occur during operation of the sea wall except during maintenance activities. Noise sources may include plant machinery (e.g. TLB) and workers on site. Maintenance is likely to be intermittent and short-term in nature, but may still result in a nuisance factor to hotel, caravan park and beach users.	Social	Operational	Low	Medium	High	Negative	**Medium**		Low	Low	High	Negative	**Low**

Coastal Geomorphology	Beach profile and shoreline alteration	The holistic seawall structure could lead to localised scour of the beach profile and denial of natural dune sand supply during large storms. However, as the wall has been in place for approximately 70 years, the reinforcement is unlikely to change the current state of geomorphological processes.	Coastal processes	Operational	Medium	Medium	Medium	Negative	**Medium**	The selection of the hybrid solution as the preferred option is already authorised in terms of NEMA. WSP Coastal (2010) (**Appendix C-3**) confirm that the Hybrid options results in the mitigation of potential impacts related to localised scour through the presence of sand accumulated on sandbag slope and considering sand will be returned by via natural processes. In addition as per WSP Coastal (2016) **(Appendix C-4**) "Based on the proposed design… all refurbishment construction work will be conducted landward of the existing seawall, on the existing Salt Rock property footprint. As such, it can be categorically stated that no impact of any significance of the wall refurbishment on coastal processes and thus on the erosion or accretion of the beach will occur".	Medium	Low	Medium	Negative	**Low**
Soils and Stability	Localised Soil Erosion	Construction activities, including excavation and stockpiling of materials, have the potential to increase localised soil erosion. This may lead to the displacement of soils and inability for the soil to support ecosystems and fulfil its ecological functions.	Soil & Ecological (Terrestrial)	Construction	Low	Medium	Medium	Negative	**Medium**	Implement erosion prevention measures specified in EMPr, including: – Erection of shade cloth barriers to prevent wind erosion. Placing stockpiles on flat ground away from watercourses or stormwater drains. – Placement of berms at the toe of denuded banks and stockpiles. – Any soil or topsoil stockpiles created during the construction phase are to be maintained as flat as possible, and shall not exceed 6m in height. – A maximum slope of 1:3 must be maintained for any stockpiles on site. – Materials from stockpiles are to be used as soon as is practically possible or spread and spoiled in designated areas.	Low	Low	High	Negative	**Low**
Stormwater	Increased surface water runoff form exposed surfaces.	Prolonged use of the large flat-grassed area on the northern portion of the Hotel grounds to be used as site camp may result in compaction and loss of permeability. The increased runoff could result in localised erosion and sedimentation of stormwater drains and surface water contamination resulting in a deterioration of water quality off site	Soil, Surface & Groundwater	Construction	Medium	Medium	High	Negative	**Medium**	The contractor will be required to manage runoff from bare areas (e.g. site camp) and will be required to reinstate grass in any bare patches once the site camp has been de-established.	Medium	Low	High	Negative	**Low**

		(nearshore environment) where stormwater flows into the sea.													
Soil, Stormwater and Groundwater Contamination	Contamination and threats to ecological functioning.	The storage and handling of small quantities of hazardous construction materials such as oil and grease can result in accidental or negligent small-scale spills This has the potential to lead to surface water contamination resulting in a deterioration of water quality off site (nearshore environment) where stormwater flows into the sea. Reduced water quality has the potential to affect sensitive habitats, flora and fauna.	Soil, Surface & Groundwater, Ecological (Marine)	Construction	Medium	Medium	High	Negative	**Medium**	Implement spill prevention and management procedures as outlined in the EMPr: – Ensure that hazardous materials are stored in a bunded area or on a drip tray that can contain 110% volume of the containers contents stored on it. – Ensure that proper signage is installed at the hazardous material storage area.	Medium	Low	High	Negative	**Low**
Solid Waste Generation	Improper management of solid waste	The construction period is anticipated to generate general and hazardous waste streams. Typically, this includes plastic and paper packaging, used oil and grease etc. If not managed correctly: a) litter may cause public health issues and threat to the terrestrial and marine fauna; and b) result in a lost opportunity for recycling of waste.	Social & Public Safety, Ecological	Construction	Medium	Medium	High	Negative	**Medium**	Ensure good waste management according to the waste management hierarchy, and handling of waste as per the EMPr including: – Minimise waste generation. – Safe storage of waste. – Separation of waste. – Safe disposal of all wastes.	Low	Low	High	Negative	**Low**
Aesthetics	Visual Disturbance	Temporary visual disturbance for beach users and hotel guests related to presence of construction activities and machinery	Social	Construction	Low	Medium	High	Negative	**Medium**	– Maintain complaints register. – Site to be maintained in a neat and orderly manner. – If screening is being used, this must be moved and re-erected as the work front progresses.	Low	Low	High	Negative	**Low**
	Visual Improvement	Stabilisation of the wall will provide a long-term improvement for the local aesthetics for beach users and hotel guests	Social	Operational	Medium	High	High	**Positive**	**Medium**	No mitigation required					
Road Traffic	Increased Local Traffic	Increase in traffic related to movement of contractors and delivery of materials may lead to sporadic local temporary congestion. Public safety risks may also arise	Social & Public Safety	Construction	Medium	Medium	High	Negative	**Medium**	Utilise flagmen on the road adjacent to the site where necessary.	Medium	Low	High	Negative	**Low**
Public Safety	Increased safety risks	The presence of machinery and temporary structures has the potential to increase safety risks to beach and hotel users if access and active working area is not managed correctly.	Social & Public Safety	Construction	Medium	Medium	High	Negative	**Medium**	– Site to be maintained in a neat and orderly manner. – Placement of signboards informing the public of construction activities. – Clear demarcation of active working areas.	Medium	Low	High	Negative	**Low**

	Increased safety	The reinforcement of the remaining portions of the wall will provide safety to the hotel and its guests, as well as to beach users by mitigating further collapse. The stabilisation of the wall as a contiguous structure will provide long term improved safety in the event of future extreme weather events.	Social & Public Safety	Operational	Medium	Medium	High	**Positive**	**Medium**	No mitigation required					
Cultural Heritage	Disturbance to Heritage Resources	Excavation for the reinforcement work has the potential for unearthing and damaging items of cultural or historical significance.	Social	Construction	Medium	Low	High	Negative	**Low**	Implementation of measures in the EMPr including: – Should a heritage artefact be identified, all excavation works must cease. – A heritage specialist or Amafa must be contacted to provide a professional opinion on site and object management.	Medium	Low	High	Negative	**Low**

Table 16: Environmental Impact Risk Assessment (No Project Option)

Aspect Category	Aspect Summary	Impact Description	Receptor	Phase	Consequence of Impact	Probability	Confidence	Nature	Significance of Impact	Mitigation Measures	Consequence of Impact	Probability	Confidence	Nature	Significance of Impact
Socio-Economics	Loss of local revenue and employment	The loss of protection provided by the sea wall could result in the loss of area available to the hotel for functions and guests, and potentially a loss of revenue to the hotel and local area. Reduced revenue by the hotel may lead to possible reduction in staff employment.	Salt Rock Hotel & Employees	Operational	High	Medium	Medium	Negative	**High**	Stabilisation of the sea wall which requires reinforcement of existing portions to ensure structural integrity.	Medium	Low	Medium	Negative	**Low**
Public Safety	Increased safety risks	Potential future collapse of the remaining portion of the sea wall as it has been weakened by the previous storm events. This poses a risk to the safety of beach users and Hotel guests. The wall also provides a barrier to the public beach, which, if lost, could result in increased criminal activity within the hotel grounds. Aesthetic ???	Social & Public Safety	Operational	High	Medium	Medium	Negative	**High**	Stabilisation of the sea wall which requires reinforcement of existing portions to ensure structural integrity.	Medium	Low	High	Negative	**Low**

8 CONCLUSION AND RECOMMENDATIONS

8.1 SUMMARY OF IMPACT ASSESSMENT

The EIA process has found that both construction and operational phases of the proposed project will involve activities which will lead to direct and indirect impacts (negative and positive) on the biophysical and socio-economic environment. Both the initial and residual (post-mitigation) significance of impacts have been presented in **Section 7** so as to obtain an indication of the effectiveness of the mitigation measures.

A summary of the identified impacts and corresponding (initial and residual) risk significance ratings for the project option are provided in **Section 8.1.1**.

A summary of the identified impacts and corresponding (initial and residual) risk significance ratings for the no project option are provided in **Section 8.1.2.**

It is highlighted that the proposed reinforcement of the remaining portions will not result in additional negative impacts previously assessed and authorised in 2012 relating to the reconstruction of the sea wall. As per previous studies on the reconstruction of the wall (**Appendix C-3, C-6, C-8**), and more recent confirmation on the reinforcement **(Appendix C-4**), the project in totality (i.e. one contiguous structure) will not result in any impacts which were not previously identified as low and which can be mitigated.

8.1.1 PROPOSED PROJECT OPTION

AIR QUALITY

Generation of dust emissions from excavation activities and stockpiling may result in a nuisance factor to the Hotel and caravan park users. These emissions will likely only extend beyond the immediate work area during very windy conditions. Considering the proposed mitigation measures the residual impact is of **LOW SIGNIFICANCE (-).**

NOISE

Noise emissions as a result of general activities on site have the potential to result in a nuisance factor to Hotel, caravan park and beach users during both the construction (and decommissioning) and operational (maintenance) phases. Considering the proposed mitigation measures the residual impact is of **LOW SIGNIFICANCE (-)**.

COASTAL GEOMORPHOLOGY

The selection of the hybrid solution as the preferred option is already authorised in terms of NEMA. WSP Coastal (2010) (**Appendix C-3**) confirm that the Hybrid options results in the mitigation of potential impacts related to localised scour through the presence of sand accumulated on sandbag slope and considering sand will be returned by via natural processes. In addition as per WSP Coastal (2016) (**Appendix C-4**) "Based on the proposed design... all refurbishment construction work will be conducted landward of the existing seawall, on the existing Salt Rock property footprint. As such, it can be categorically stated that no impact of any significance of the wall refurbishment on coastal processes and thus on the erosion or accretion of the beach will occur".

The reinforcement will not affect the current state of geomorphological processes. Impacts are therefore deemed to be of **LOW SIGNIFICANCE (-)**.

SOILS AND STABILITY

Excavation and stockpiling of materials have the potential to increase localised soil erosion leading to the displacement of soils and inability for the soil to support its ecological functions. Considering the proposed mitigation measures the residual impact is of **LOW SIGNIFICANCE (-)**.

STORMWATER

Prolonged use of the grassed area on the northern portion of the Hotel grounds as site camp may result in compaction and loss of permeability. Increased runoff could result in localised erosion and sedimentation of stormwater drains and surface water contamination. The extent of this impact is deemed "medium" as it has the potential to result in a deterioration of water quality off site (nearshore environment) where stormwater flows into the sea. Considering the proposed mitigation measures the residual impact is of **LOW SIGNIFICANCE (-)**.

SOIL, STORMWATER AND GROUNDWATER CONTAMINATION

Accidental spillage of hazardous construction materials has the potential to lead to surface water contamination. The extent of this impact is deemed "medium" as it has the potential to result in a deterioration of water quality off site (nearshore environment) where stormwater flows into the sea. Reduced water quality has the potential to affect sensitive habitats, flora and fauna. Considering the proposed mitigation measures, which will reduce the probability of contamination, the residual impact is of **LOW SIGNIFICANCE (-)**.

SOLID WASTE GENERATION

General and hazardous waste streams generated during construction has the potential to cause public health issues and threat to the terrestrial and marine fauna if not properly managed. Considering the proposed mitigation measures, which will reduce both the consequence and probability of the impact, the residual impact is of **LOW SIGNIFICANCE (-).**

AESTHETICS

Visual disturbance for beach users and hotel guests related to construction activities is of "low" consequence and is temporary in nature. Probability is reduced by the proposed mitigation measures to an impact of **LOW SIGNIFICANCE (-).**

Stabilisation of the seawall will provide a long-term visual improvement for the beach users and Hotel guests, resulting in a positive impact of **MEDIUM SIGNIFICANCE (+)**.

ROAD TRAFFIC

Increase in construction traffic has the potential to lead to public safety risks of "medium" consequence. Considering the proposed mitigation measures, which will reduce the probability, the residual impact is of **LOW SIGNIFICANCE (-)**.

PUBLIC SAFETY

The presence of machinery and temporary structures during construction has the potential to increase safety risks to beach and hotel users. Implementation of mitigation measures contained in the EMPr, will ensure that access and active working areas are managed correctly thereby reducing the residual impact to **LOW SIGNIFICANCE (-)**.

The stabilisation of the wall as a contiguous structure will provide long term improved safety for hotel guests and beach users and in the event of future extreme weather events. This is deemed a positive impact of **MEDIUM SIGNIFICANCE (+)**.

CULTURAL HERITAGE

The HIA (Appendix C-1) concluded "the existing seawall was constructed of stone and mortar and is of no historical or architectural significance". Excavation for the reinforcement work has the potential for unearthing and damaging unknown items of cultural or historical importance. Potential impacts (pre- and post- mitigation) are of low probability and overall **LOW SIGNIFICANCE (-)**.

8.1.2 NO-PROJECT OPTION

SOCIO-ECONOMICS

The seawall protects landward property during major storm events. The potential loss of the seawall could result in the loss of area and potentially a loss of revenue for the Hotel. Reduced revenue by the Hotel may lead to possible reduction in staff employment. This impact of **HIGH SIGNIFICANCE (-)** can be reduced with the stabilisation of the sea wall which requires reinforcement of existing portions to ensure structural integrity.

PUBLIC SAFETY

Potential future collapse of the remaining portion of the sea wall poses a risk to the safety of beach users and Hotel guests. These impacts are deemed to be of **HIGH SIGNIFICANCE (-)**. Impact consequence and probability can be reduced with the stabilisation of the sea wall, which requires reinforcement of existing portions to ensure structural integrity.

8.2 IMPACT STATEMENT AND RECOMMENDATIONS

The overall objective of the EIA is to provide sufficient information to enable informed decision-making by the authorities. This was undertaken through consideration of the proposed project components, identification of the aspects and sources of potential impacts and subsequent provision of mitigation measures.

Based on the review of specialist studies and the impact assessment undertaken, all impacts have been identified are minor / low. The reinforcement of remaining portions of the sea wall will not result in any impact which has not been previously identified for reconstruction work (2012 EIR) or cannot be mitigated.

It is the opinion of WSP that the information contained in this document is sufficient for the competent authority to make an informed decision for the environmental authorisation being applied for in respect of this project.

Mitigation measures have been developed where applicable for the above aspects and are presented within the Environmental Management Programme (EMPr) (**Appendix F**) which will form part of the conditions of the EA once approved.

BIBLIOGRAPHY

— KSEMS (Kerry Seppings Environmental Management Services), 2012. Final Environmental Impact Report: Proposed Reconstruction of the Seawall in front of the Salt Rock Hotel, Kwadukuza Local Municipality, EIA Number: DC29/0040/08

APPENDIX

A EAP CV

APPENDIX

B SITE PHOTOS

APPENDIX

Figure 5 Southern view of sea wall location where wall is to be re-built

Figure 6 Northern view of sea wall location where wall is to be re-built

Figure 7 Northern adjacent property

Figure 8 Vegetation cover on sandbags on norther property as example of proposed rehabilitation for sea wall northern tie in area.

APPENDIX

Figure 9 Evidence of fractures within remaining portion of sea wall.

Figure 10 Cross Section View of remaining portion of sea wall.

Figure 11 Section of wall requiring reinforcement of remaining portion and tie in to section to be rebuilt.

Figure 12 Section of wall requiring reinforcement of remaining portion and tie in to section to be rebuilt.

APPENDIX

C SPECIALIST INPUTS

APPENDIX

C-1 HERITAGE IMPACT ASSESSMENT

APPENDIX

C-2 NORTON ROSE FULBRIGHT LETTER REQUEST TO AMAFA BUILT ENVIRONMENT

APPENDIX

C-3 *SPECIALIST STUDY OF HYBRID HARD/ SOFT COASTAL PROTECTION: ADDENDUM TO WSP REPORT OF 14 JULY 2010*

APPENDIX

C-4 *SALT ROCK HOTEL – REFURBISHMENT OF EXISTING WALL – EVALUATION BY COASTAL ENGINEER, 2016*

APPENDIX

C-5 *SALT ROCK SEA WALL AMENDMENT – EXCAVATION QUANTITIES, AND A LETTER DATED 6 JULY 2017 SALT ROCK HOTEL – CONSTRUCTION METHODOLOGY FOR REFURBISHMENT AND REINFORCING OF EXISTING SEA WALL*

APPENDIX

C-6 *PHYSICAL IMPACT ON THE COASTAL ENVIRONMENT AND THE PROPERTY (WSP AFRICA COASTAL ENGINEERS, 2010)*

APPENDIX

C-7 *THE EFFECT OF THE PROPOSED REINSTATEMENT OF THE VERTICAL CONCRETE SEA WALL ON THE COASTAL GEOMORPHIC PROCESSES, WITH PARTICULAR REFERENCE TO WHETHER THE WALL WILL DETRIMENTALLY AFFECT THE NEIGHBOURING PROPERTIES (SUBTECH, 2008)*

C-8 THE EVALUATION OF PHYSICAL IMPACTS OF THE PROPOSED SEAWALL RECONSTRUCTION AT THE SALT ROCK HOTEL (WSP AFRICA COASTAL ENGINEERS, 2009)

APPENDIX

D STAKEHOLDER ENGAGEMENT REPORT (SER)

APPENDIX

E LAYOUTS AND DRAWINGS

APPENDIX

E-1 *LAYOUT PLAN - DRAWING NUMBER 1522/01/05*

APPENDIX

E-2 *REINFORCED WALL ELEVATION AND PROFILE - DRAWING NUMBER 1522/01/010*

APPENDIX

F ENVIRONMENTAL MANGEMENT PROGRAMME (EMPR)

APPENDIX