PROPOSED CONSTRUCTION OF AN ADDITIONAL BIDVEST TANK TERMINAL (BTT) RAIL LINE AT SOUTH DUNES, WITHIN THE PORT OF RICHARDS BAY, KWAZULU-NATAL
INTEGRATED WATER AND WASTE MANAGEMENT PLAN

March 2017

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EXECUTIVE SUMMARY

PURPOSE OF THE IWULA
In terms of Chapter 4 of the National Water Act, 1998 (Act No 36 of 1998) (NWA), a Water Use Licence (WUL) is required for the construction of an additional Bidvest Tanks Terminal (BTT) rail line at South Dunes, located within the Port of Richards Bay. The proposed construction of the additional rail line is required to service and provide access to future South Dunes lease sites.

NEW WATER USES
The construction of the additional BTT rail line at South Dunes, will require the infilling of parts of one small depression/pan wetland, and will occur within close proximity of another depression/pan wetland. This application is therefore required for the authorisation of water uses in terms of section 21 (c) and (i), for the altering of the bed, banks, course or characteristics of a watercourse. The water uses below are applicable to this WULA:

- 21 (c) and (i) altering the bed, banks, course or characteristics of a watercourse; (The infilling of parts of Wetland 1, required for the construction of the additional rail line).
- 21 (c) and (i) altering the bed, banks, course or characteristics of a watercourse; (Construction within close proximity of the delineated edge of Wetland 2).

PROJECT MOTIVATION
The proposed development is aimed at improving access and service delivery to the South Dunes Precinct, which in turn, aims to attract investors to the South Dunes thus providing socio-economic benefits through job creation and investment into Richards Bay.

The demand for the proposed development is in line with the Spatial Development Framework of Richards Bay (2007) which states the following:

- “Transport networks are to be promoted as they are the ‘veins’ of economic growth and a catalyst in economic development.”
- “Areas that are highly accessible have better opportunities for economic growth by increasing their market threshold.”
- “Good transport systems ensure reliable transport of goods - increasing investor confidence.”
- “Diverse goods and services located along the transport network allows for the generation of income by taking advantage of passing traffic.”

IDENTIFICATION OF IMPACTS
As the proposed development will be undertaken entirely within the Port of Richards Bay, negative impacts of high significance are not anticipated. However the increased railway servitude footprint will result in the disturbance and loss of indigenous vegetation and wetland habitat. The loss of vegetative cover could encourage alien invasive plant species to spread, increase soil erosion, contaminate and ultimately change the hydrology and resultant diversity of the wetland environments. These impacts will need to be mitigated and managed, and offset mitigation may need to be put in place.

CONCLUSION
Transnet National Ports Authority (TNPA) undertakes to comply with the relevant legislation applicable to the project, in particular the NWA and applicable Regulations of this Act, as well as the project Environmental Management Programme (EMPr) and recommendations contained within this report. The Environmental Assessment Practitioner recommends approval of the proposed project, on condition that all commitments stated within this report and the EMPr are adhered to.
### ABBREVIATIONS AND ACRONYMS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACER</td>
<td>ACER (Africa) Environmental Consultants</td>
</tr>
<tr>
<td>BTT</td>
<td>Bidvest Tank Terminal</td>
</tr>
<tr>
<td>BAR</td>
<td>Basic Assessment Report</td>
</tr>
<tr>
<td>DAFF</td>
<td>Department of Agriculture, Forestry and Fisheries</td>
</tr>
<tr>
<td>DOT</td>
<td>Department of Transport</td>
</tr>
<tr>
<td>DWS</td>
<td>Department of Water and Sanitation</td>
</tr>
<tr>
<td>EA</td>
<td>Environmental Authorisation</td>
</tr>
<tr>
<td>ECO</td>
<td>Environmental Control Officer</td>
</tr>
<tr>
<td>EDTEA</td>
<td>Department of Economic Development, Tourism and Environmental Affairs</td>
</tr>
<tr>
<td>EIA</td>
<td>Environmental Impact Assessment</td>
</tr>
<tr>
<td>EKZNW</td>
<td>Ezemvelo KwaZulu-Natal Wildlife</td>
</tr>
<tr>
<td>EMPr</td>
<td>Environmental Management Programme</td>
</tr>
<tr>
<td>I&amp;APs</td>
<td>Interested and Affected Parties</td>
</tr>
<tr>
<td>IWULA</td>
<td>Integrated Water Use Licence Application</td>
</tr>
<tr>
<td>IWWMP</td>
<td>Integrated Water and Waste Management Plan</td>
</tr>
<tr>
<td>KZN</td>
<td>KwaZulu-Natal</td>
</tr>
<tr>
<td>NEMA</td>
<td>National Environmental Management Act</td>
</tr>
<tr>
<td>NEMWA</td>
<td>National Environmental Management Waste Act</td>
</tr>
<tr>
<td>NFA</td>
<td>National Forests Act</td>
</tr>
<tr>
<td>NWA</td>
<td>National Water Act</td>
</tr>
<tr>
<td>PDFP</td>
<td>Port Development Framework Plan</td>
</tr>
<tr>
<td>RE</td>
<td>Resident Engineer</td>
</tr>
<tr>
<td>SDF</td>
<td>Spatial Development Framework</td>
</tr>
<tr>
<td>SWMP</td>
<td>Storm Water Management Plan</td>
</tr>
<tr>
<td>TNPA</td>
<td>Transnet National Ports Authority</td>
</tr>
<tr>
<td>WULA</td>
<td>Water Use Licence Application</td>
</tr>
<tr>
<td>WUL</td>
<td>Water Use Licence</td>
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1. **INTRODUCTION**

1.1 **Activity background**

The Port of Richards Bay is South Africa’s premier bulk Port and is the largest in South Africa by tonnage, handling about 89 million tonnes of cargo per year (40% of South Africa’s total port demand). In addition to providing bulk facilities for the hinterland, the Port plays an important role in the local economy of the City of uMhlathuze, with its growing industrial base.

In an effort to diversify from its main commodity, namely coal, which was and currently is attracting low tariffs and revenue, the Port of Richards Bay embarked on a more intensive development approach to the South Dunes Precinct as a liquid bulk site in 2008. As a result, the Port approved a Port Development Framework Plan (PDFP) that earmarked the South Dunes Precinct for liquid bulk terminals. To realize the envisaged developments at South Dunes, the Port then submitted a business case in 2008 for the development of services infrastructure aimed at providing access to South Dunes sites as outlined in the PDFP.

TNPA is therefore seeking approval for the construction of an additional BTT rail line at South Dunes, within the Port of Richards Bay. The additional 1,100 m rail line will be constructed 8 m (centre to centre) west of the existing rail alignment, and will be in line with the PDFP by improving access and services delivery to the South Dunes Precinct. The authorisation of the additional BTT rail line on the west of the rail servitude will free up one of BTT’s two already authorised lines on the east of the rail servitude, which will allow TNPA to access future South Dunes lease sites.

![Proposed additional BTT rail line to the west of the existing servitude](image)

*Figure 1* Proposed additional BTT rail line to the west of the existing servitude (Google Earth 2016).
1.2 Contact Details

1.2.1 Application for water use licence as per NWA

Applicant: Transnet National Ports Authority
Contact: Mr. Hope Lekoa
Address: First Floor, Bayvue Building, Ventura Road, Richards Bay.
Postal: PO Box 181, Richards Bay, 3900, KwaZulu-Natal.
E-mail: Hope.Lekoa@transnet.net
Tel: 035 905 3635

1.3 Regional setting and location of activity

The project area is located entirely within the Port of Richards Bay at the South Dunes Precinct. The Port of Richards Bay is located within the province of KwaZulu-Natal, South Africa approximately 160 km North-East of Durban and 465 km South of Maputo on the eastern seaboard. The harbour falls within the W12F quaternary catchment, which has the Mhlathuze River as the main drainage feature. The Mhlathuze Estuary is approximately 550 m southwest of the site. No tributaries or natural drainage-lines occur in close proximity or within the site. The Port falls within the uMhlathuze Local Municipality and the newly formed King Cetshwayo District Municipality (formerly known as uThungulu).

Richards Bay is located within the fastest growing provincial economies at an average rate of 4.3% per annum. The Port of Richards Bay is one of the two largest and busiest Ports in Africa creating a drive for the area to be one of the major industrial investment opportunities. The Port plays an important economic role not only for this province but for the whole of South Africa (SA). Whilst they are presently export oriented, the potential for import prospects are being contemplated. The City also functions as a district node and dominant commercial centre in the uThungulu District providing greater economic opportunities for the town and hinterland (IDP, 2012/2017).

The area is the third most important in KZN in terms of economic production, contributing 16.7% to national Gross Domestic Product (GDP) whilst also the third most important primary manufacturing area in KwaZulu Natal (KZN) in terms of economic production. Manufacturing is highly specialised and export orientated, largely concentrated on basic iron and steel, paper and printing as well as food and beverages (IDP, 2012/2017).
Figure 3  Locality Map of the proposed additional BTT rail line.
1.3.1 Magisterial District, Regional Services Council Authority, Water Management Area

<table>
<thead>
<tr>
<th>Province</th>
<th>KwaZulu-Natal</th>
</tr>
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<tbody>
<tr>
<td>Magisterial District</td>
<td>Lower Umfolozi</td>
</tr>
<tr>
<td>Local Municipality</td>
<td>City of uMhlathuze Local Municipality</td>
</tr>
<tr>
<td>District Municipality</td>
<td>King Cetshwayo District Municipality</td>
</tr>
<tr>
<td>Water Management Area</td>
<td>W12 (uMhlathuze) part of the Usuthu to uMhlathuze Water Management Area</td>
</tr>
</tbody>
</table>

1.3.2 Land tenure and use of immediately adjacent land

The proposed project is situated in an industrial complex within the South Dune Precinct, which is located entirely within the Port of Richards Bay.

1.4 Property description

The property description and information regarding the owner/s and a contact person for the land on which the proposed development will occur are listed below:

<table>
<thead>
<tr>
<th>PROPERTY DESCRIPTION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Province</td>
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</tr>
<tr>
<td>District Municipality</td>
<td>King Cetshwayo District Municipality</td>
</tr>
<tr>
<td>Local Municipality</td>
<td>City of uMhlathuze Local Municipality</td>
</tr>
<tr>
<td>Ward number(s)</td>
<td>Ward 2</td>
</tr>
<tr>
<td>Nearest town(s)</td>
<td>Richards Bay</td>
</tr>
<tr>
<td>Farm name(s) and number(s)</td>
<td>Portion 3 of ERF 11478.</td>
</tr>
<tr>
<td>Portion number(s)</td>
<td>See above</td>
</tr>
<tr>
<td>SG 21 Digit Code(s)</td>
<td>NOGV04210001147800003</td>
</tr>
<tr>
<td>Zoning</td>
<td>Industrial / Port</td>
</tr>
<tr>
<td>Size (ha)</td>
<td>7,333,650 ha</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LANDOWNER DETAILS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Landowner:</td>
<td>Transnet National Ports Authority</td>
</tr>
<tr>
<td>Contact person:</td>
<td>Hope Lekoa</td>
</tr>
<tr>
<td>Postal address:</td>
<td>PO Box 181, Richards Bay</td>
</tr>
<tr>
<td>Postal code:</td>
<td>3901</td>
</tr>
<tr>
<td>E-mail:</td>
<td><a href="mailto:Hope.Lekoa@transnet.net">Hope.Lekoa@transnet.net</a></td>
</tr>
<tr>
<td>Cell:</td>
<td>083 989 5134</td>
</tr>
</tbody>
</table>

Table 1 Locality Map of the proposed additional BTT rail line.

1.4.1 Topography

The topography at South Dunes is relatively flat, has an average elevation of between 2.4 m – 6.3 m above mean sea level (AMSL) (Kelbe, 2015)
1.5 Purpose of the IWWMP

The purpose of the IWWMP is to support an application to the Department of Water and Sanitation (DWS) for a Water Use Licence (WUL) as required for the potential altering of the characteristics of two wetlands.

The IWWMP identifies all relevant water and waste issues and defines knowledge gaps with associated action plans. This IWWMP is therefore developed in support of the following objectives:

- To characterise the present status of the site.
- To formulate measures to address the management of storm water, groundwater and waste.
- To compile an action plan to ensure that management of storm water, groundwater and waste will take place to the satisfaction of the regulatory authority.

2. CONTEXTUALISATION OF THE ACTIVITY

2.1 Description of activity

TNPA is seeking approval for the construction of an additional BTT rail line at South Dunes, within the Port of Richards Bay. The additional 1,100 m rail line will be constructed 8 m (centre to centre) west of the existing rail alignment, and will be in line with the approved PDFP for improving access and services delivery to the South Dunes Precinct.

The authorisation of the additional BTT rail line on the west of the rail servitude will free up one of BTT’s two already authorised lines on the east of the rail servitude, which will allow TNPA to access future South Dunes lease sites.

2.2 Extent of the activity

The proposed additional 1,100 m rail line will be constructed 8 m (centre to centre) west of the existing rail alignment. The total area of the construction footprint will be a 1,250 m long x 8 m wide, extension on the west of the existing rail way servitude. Post construction, the entire construction footprint will be maintained as a servitude.

2.3 Key activity related processes and products

The additional 1,100 m rail line will be constructed 8 m (centre to centre) from the existing rail alignment, designed for slow moving trains with 20 ton axle loads, and constructed according to the S410 Specification for railway earthworks (2006) and the Geotechnical Service Handbook (1986). Layer works design is bulk earthworks fill or insitu subgrade, 400 mm (2 x 200 mm) layer thickness of B material type, 300 mm (2 x 150 mm) layer thickness of A material type, 200 mm layer thickness of SB material type.

The project will involve the following activities in preparation for the laying of the additional rail line:

- Bush clearing, grubbing and tree removal on the west of the existing rail servitude (12 m x 1,250 m strip)
- Bulk excavation: cutting into high banks and slope at 1.75:1.
- Box cut excavation for rail formation (250 mm depth).
Load and cart surplus material to be stockpiled to reserve the material for future needs of the Port's developments (part of the Port's strive to minimise waste land filling).

Following the necessary earthworks to create a suitable substructure, railway construction will comprise the following:

- Provision of a water-permeable stabilizing layer between the ballast bed and the substructure, to stabilize the ballast bed without adversely affecting the drainage of excess rainwater.
- Construction of a ballast layer in the form of a bed of broken stone poured onto the substructure. The ballast bed provides for stability, damping of the vibrations and the discharge of excess rainwater.
- Placement of a series of sleepers (cement or wooden) at a regular mutual distance intervals in the ballast (bed of broken stone).
- Fixing of the parallel pair of rails to the sleepers.

An overview of the anticipated activities that will take place during the various phases of the proposed BTT rail line at South Dunes is described below:

### 2.4 Activity life description

The phases of activity for the proposed project will include pre-construction, construction, rehabilitation, and operational.

The pre-construction of infrastructure is scheduled to commence following the granting of the required WUL, which is anticipated in mid 2017.

Construction activities will be undertaken for approximately 18 months, following which the new rail line and associated infrastructure will become operational.

The rehabilitation phase will be undertaken progressively during construction and will continue after construction so that the bulk of the rehabilitation activities that may be required can be completed by the time the rail line becomes operational.

### 2.5 Activity infrastructure description

The proposed additional 1,100 m rail line is required to match exactly the existing tracks at the rail yard, which is currently designed for slow moving trains with 20t axle loads.

The rail infrastructure will therefore be constructed according to the S410 Specification for railway earthworks (2006) and the Geotechnical Service Handbook (1986). Layer works design is bulk earthworks fill or insitu subgrade, 400 mm (2 x 200) layer thickness of B material type, 300 mm (2 x 150) layer thickness of A material type, 200 mm layer thickness of SB material type.

Additional infrastructure will be limited to ancillary items such as sign posts or “signalling lights” that may be required along the rail route, within the rail servitude.
2.6 Key water uses and waste streams

2.6.1 Key water uses

The key water uses for the construction of a rail line at South Dunes are in terms of section 21 (c) and (i) of the NWA:

- Section 21(c) - Impeding or diverting the flow of water in a watercourse.
- Section 21(i) - Altering the bed, banks, course or characteristics of a watercourse.

The following Section 21 (c) and (i) water uses apply for the construction of BTT rail line at South Dunes:

- 21 (c) and (i) altering the bed, banks, course or characteristics of a watercourse; (The infilling of parts of Wetland 1, required for the construction of the additional rail line).
- 21 (c) and (i) altering the bed, banks, course or characteristics of a watercourse; (Construction within close proximity of the delineated edge of Wetland 2).

2.6.2 Waste streams

No waste streams will be generated during the operational phase of the proposed rail line. Further details on waste management during the construction phase are provided in the Environmental Management Programme (Appendix 13).

2.7 Organisational structure of activity / company

Transnet is a State Owned Company (SOC), wholly owned by the Government of the Republic of South Africa and is the custodian of rail, ports and pipelines and responsible for enabling the competitiveness, growth and development of the South African economy through delivering reliable freight transport and handling services to satisfy customer demand. Transnet delivers thousands of tons of goods around South Africa, through its pipelines and both to and from its ports.

Transnet, although fully owned by the South African government, operates as a corporate entity aimed at both supporting and contributing to the country’s freight logistics network.

Transnet has a core of five operating divisions that complement each other. These are supported by a number of Company-wide specialist functions such as Transnet Projects which underpin the group as a whole.

Five core Operating Divisions:

- Transnet Freight Rail (TFR).
- Transnet National Ports Authority (TNPA) (formerly the NPA - fulfils the landlord function for South Africa’s port system).
- Transnet Port Terminals (TPT).
- Transnet Engineering (TE).
- Transnet Pipelines (TPL).

Three Specialist Units:

- Transnet Property (TP).
- Transnet Foundation (TF).
- Transnet Capital Projects (TCP).
Transnet has just successfully completed a four-point turnaround strategy and just embarked on a four-point growth strategy. As part of that growth strategy, Transnet is investing R110.6 billion on revitalizing and extending its infrastructure. These plans include widening and deepening ports; building a new pipeline and buying hundreds of new locomotives which will result in a significant increase in freight volumes, especially in commodities such as iron ore, coal and manganese. This will also lead to a significant modal shift from road to rail.

Transnet National Ports Authority (TNPA), the WUL applicant, is one of the five operating divisions of Transnet SOC Ltd and is responsible for the safe, effective and efficient economic functioning of the national port system, which it manages in a landlord capacity. It provides port infrastructure and marine services at the eight commercial seaports in South Africa and must operate within a legislative and regulatory environment created by the National Ports Act 2005 (Act No. 12 of 2005).

TNPA’s offers services in two primary categories:

1. The provision of port infrastructure.
2. The provision of maritime services. Maritime services include dredging, aids to navigation, ship repairs and marine operations.

TNPA has developed a three-tier strategy aligned with TRANSNET’s Four-point Growth Strategy, with an emphasis on providing port infrastructure capacity; efficient port and port operations management; and enhancing the ports’ geographical positioning as a leading gateway for trade emanating from the eastern and western seaboards. The strategy aims to meet the growth demands of the South African port system and focus on delivery in three main areas:

- Timely delivery of capital investment projects to sustain and increase existing port infrastructure and marine capacity.
- Improved efficiency in port services to promote productivity.
- Revenue growth and cost-effectiveness.

In view of evolving developments in the maritime industry, the National Ports Authority seeks to continue to enhance its role in facilitating trade, influencing growth through the provision of port infrastructure capacity ahead of demand; and aligning its core activities to changing market dynamics.
3. REGULATORY WATER AND WASTE MANAGEMENT FRAMEWORK

3.1 Summary of all water uses

The construction of the additional railway line will require the infilling of parts of Wetland 1, and will take place in close proximity of the delineated edge of Wetland 2 (both depression/pan wetlands). In terms of the NWA these activities constitute Section 21 (c) and (i) water uses for impeding or diverting the flow of water in a watercourse; and altering the bed, banks, course or characteristics of a watercourse respectively. TNPA is therefore required to apply for a licence to use water in terms of these sections as set out in Sections 40 (1) and 41 of the NWA. A summary of the wetlands assessed and the water uses applied for in this IWWMP is provided below.

A Wetland Delineation and Functional Assessment (ACER, 2016), which built on studies undertaken by ACER, 2015 and Eco-pulse, 2016, identified a total of 17 seasonal / temporary depressions or pans, within the regulated area (500 m) of the proposed development footprint (Figure 4). In terms of the specialist report, the construction of the additional BTT rail line is only anticipated to impact on two of these ‘coastal plain wetlands’, namely Wetlands 1 and 2 in terms of resource quality. Both of these affected wetlands are essentially inter-dune depressions linked with the regional water table, and lack permanent open water habitat. They are small in size and are being over-shaded and encroached by alien invasive trees and shrubs, and were consequently rated as low in terms of their provisioning of habitat suitable for red data species.

In terms of ecosystem services, both wetlands provide high benefits for erosion control. Moderately high benefits were provided for biodiversity maintenance and carbon storage. Intermediate benefits were provided for flood attenuation, phosphate assimilation, nitrate assimilation and toxicant assimilation. Moderately low benefits were provided for stream-flow regulation, sediment trapping, and provision of water for human use, and education and research. While low benefits were supplied for provision of harvestable resources, cultivated foods, cultural heritage, and tourism and recreation.

It is anticipated that most of Wetland 1 will be lost; while Wetland 2 is located about 11 m from the edge of the construction servitude and its resource quality could potentially be affected. It is anticipated that the proposed development will result in the permanent loss of approximately 290 m² of pan/depression wetland area.
Figure 4  Wetlands found within 500m of the proposed development footprint.
Figure 5  Wetlands (1 and 2) to be impacted in terms of resource quality by the proposed development
3.1.4 Area of interest – Wetland 1 and 2

Wetland 1 and 2 are anticipated to be impacted upon by the construction of the additional BTT rail line, in terms of resource quality. Both of these affected wetlands are essentially inter-dune depressions linked with the regional water table, and lack permanent open water habitat. They are small in size and are being over-shaded and encroached by alien invasive trees and shrubs, and were consequently rated as low in terms of their provisioning of habitat suitable for red data species.

In terms of ecosystem services, both wetlands provide high benefits for erosion control. Moderately high benefits were provided for biodiversity maintenance and carbon storage. Intermediate benefits were provided for flood attenuation, phosphate assimilation, nitrate assimilation and toxicant assimilation. Moderately low benefits were provided for stream-flow regulation, sediment trapping, and provision of water for human use, and education and research. While low benefits were supplied for provision of harvestable resources, cultivated foods, cultural heritage, and tourism and recreation.

It is anticipated that most of Wetland 1 will be lost; while Wetland 2 is located about 11 m from the edge of the construction servitude and its resource quality could potentially be affected.

3.2 Existing lawful water uses

Not applicable, no lawful water uses exist for the existing or proposed infrastructure.

3.3 Relevant exemptions

No exemptions applicable for proposed construction of an additional rail line or are included in this application.

3.4 Generally authorised water uses

No generally authorised water uses exist for the proposed additional BTT rail line or are included in this application.
3.5 New water uses to be authorised

<table>
<thead>
<tr>
<th>Water Uses</th>
<th>Wetland / Watercourse</th>
<th>Purpose</th>
<th>Hydro-geomorphic Type</th>
<th>PES</th>
<th>EIS</th>
<th>Volume (ha) / Dimensions</th>
<th>Property Description</th>
<th>Co-ordinates</th>
<th>Property Owner</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Section 21 (c)&amp;(i)</td>
<td>Wetland No. 1</td>
<td>For the construction of a rail line within 500 m of Wetland 1 and in-filling of parts of (290 m²) Wetland 1 as a result of the construction of a rail line.</td>
<td>Depression/Pan</td>
<td>C</td>
<td>C</td>
<td>0.1 ha / 507 m²</td>
<td>Portion 3 of Erf 11478 located in at South Dunes within the Port of Richards Bay.</td>
<td>28°49'33.12&quot;S 32° 3'31.48&quot;E</td>
<td>TNPA</td>
</tr>
<tr>
<td>2 Section 21 (c)&amp;(i)</td>
<td>Wetland No. 2</td>
<td>For the construction of a rail line within 500m of Wetland 2 (construction footprint ends 11 m from the delineated edge).</td>
<td>Depression/ Pan</td>
<td>C</td>
<td>C</td>
<td>72 m²</td>
<td>Portion 3 of Erf 11478 located in at South Dunes within the Port of Richards Bay.</td>
<td>28°49'38.56&quot;S 32° 3'25.73&quot;E</td>
<td>TNPA</td>
</tr>
</tbody>
</table>

Table 2 List of applicable water uses to be authorised for the construction of an additional rail line at South Dunes within the Port of Richards Bay.
3.6 Waste management activities (NEMWA)

No waste management activities under the National Environmental Management Waste Act, 2008 (NEMWA) (Act No.59 of 2008) are required for the construction of an additional rail line.

3.7 Waste related authorisations

No waste related authorisations are required for the proposed construction of additional rail line.

3.8 Other authorisations (EIAs, EMPRs, EAs, Regulations)

3.8.1 Environmental Authorisation (Basic Assessment)

Environmental Authorisation via a Basic Assessment (BA) is required as the proposed construction of an additional rail line triggered activities in Listing Notice 1 and 3 of the Environmental Impact Assessment (EIA) Regulations, 2014.

<table>
<thead>
<tr>
<th>Listed activity as described in GN R. 983, GN R. 984 and GN R.985</th>
<th>Description of project activity that may trigger the listed activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>GN R.983 Item 12: Development of; (xii) Infrastructure or structures with a physical footprint of 100 square meters or more. Where such development occurs – (a) Within a watercourse,</td>
<td>The construction of the additional rail track and will take place through parts of a wetland.</td>
</tr>
<tr>
<td>GN R.983 Item 19: The infilling or deposition of any material of more than 5 cubic meters into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic meters from; (i) A watercourse;</td>
<td>The construction required for the additional BTT rail line will result in the infilling of parts of a wetland.</td>
</tr>
<tr>
<td>GN R.985 Item 12: The clearance of an area of 300 square meters or more of indigenous vegetation... (a) In KwaZulu-Natal iv In a critically endangered or endangered ecosystem... v Critical biodiversity areas as identified in systematic biodiversity plans...</td>
<td>The southern end of the site for the proposed additional BTT rail line is indicated as KwaZulu-Natal Coastal Forest. This forest type is listed as an endangered ecosystem by NEMBA.</td>
</tr>
</tbody>
</table>

Table 3 Listed Activities in terms of EIA Regulations, 2014
3.8.2 Licence to destroy Protected Trees and Trees in a natural Forest

An application for a licence to destroy Protected Trees and Trees in a Natural Forest in terms of the National Forests Act, 1998 (Act No. 84 of 1998) section 7(1) and section 15(1) was submitted to the Department of Forests and Fisheries (DAFF) for their consideration. Subsequently, a license was granted by DAFF on the 7 March 2017 with the license number: KZN0235/03/16-17.

The licence is required for the destruction of approximately 5,860 m² of natural forest, which included protected tree species such as *Sideroxylon inerme* and *Mimusops caffra*.

4. PRESENT ENVIRONMENTAL SITUATION

4.1 Climate

4.1.1 Regional Climate

The City of uMhlathuze is characterized by a warm to hot and humid subtropical climate, with warm moist winters. Average daily maximum temperatures range from 29°C in January to 23°C in July, and extremes can reach more than 40 °C in summer. The average annual rainfall is 1228mm most of which falls in the summer, from October to March. Extreme rainfall and thundershowers are occasional occurrences in the Zululand Region, resulting in extensive flooding.

4.1.2 Rainfall

The average annual rainfall is 1 228 mm and most (~80%) of the rainfall occurs in the summer, from October to March, although rainfall also occurs in winter (~20%) (uMhlathuze Local Municipality, 2015).

4.1.3 Evaporation

Evaporation in the region exceeds the annual precipitation (Germishuyse, 1999), with estimates ranging between 1300 to 1400mm/year.

4.2 Surface water

4.2.1 Water Management Area

The South Dunes Precinct falls within the quaternary drainage region W12 of the Usutu to Mhlathuze Water Management Area. Extremely permeable soils often results in groundwater seepage to the surface in depression areas throughout the landscape. The hydrology of the area is linked with the shallow water table of the coastal plain.
4.2.2 Surface Water Hydrology

The South Dunes area arose from the original development of the Richards Bay harbour, which involved the redirection of the uMhlathuze River, with the creation of a new mouth to the sea. The area resembles an island and the natural drainage system in the immediate area of the South Dunes consists of fresh and salt water systems. It is connected to the main land via a narrow strip of land, which includes an artificial berm, constructed during harbour development to enable transportation linkages to the South Dunes area. The strip of land is highly developed and the majority of ecosystems found on site have been transformed and are severely degraded.

A result of the flat topography and the sandy type soils of the area is a high infiltration rate, and no natural drainage lines exist in the vicinity of the proposed additional BTT rail line.

4.2.3 Surface Water Quality

According to Kelbe, 2015, the wetland on South Dunes do not appear to have feeder or discharge streams and are created solely by an exposure of the water table within the inter-dune depressions. The depression/pan wetlands identified in the wetland delineation and functional assessment lacked permanent surface water, for this reason surface water quality sampling was not undertaken.

4.2.4 Mean Annual Runoff (MAR)

The runoff from the uMhlathuze catchment is difficult to estimate accurately due to inaccurate and inadequate gauging within the catchment. Runoff is also obviously affected by development within the catchment.


4.2.5 Wetland Ecosystem Services and Wetland Health

4.2.5.1 Wetland Ecosystem Services

The ecosystem services relate to the benefits provided to people by the ecosystem, and are either benefits that can be consumed directly or those which arise from the functions occurring within the ecosystem.

From a hydro-geomorphic perspective, both wetlands are classified as depressions (pans) and have an ecosystem service score of 4.0 each which indicates that both wetland 1 and 2 have moderately low capabilities of supplying benefits. In terms of ecosystem services, both wetlands provide high benefits for erosion control. Moderately high benefits were provided for biodiversity maintenance and carbon storage. Intermediate benefits were provided for flood attenuation, phosphate assimilation, nitrate assimilation and toxicant assimilation. Moderately low benefits were provided for stream-flow regulation, sediment trapping, and provision of water for human use, and education and research while low benefits were supplied for provision of harvestable resources, cultivated foods, cultural heritage, and tourism and recreation.

However, wetlands 1 and 2 lack permanent open water habitat, are being over-shaded and encroached by alien invasive trees and shrubs, are small in size and were consequently rated as low in terms of their provisioning of habitat suitable for red data species. In addition wetland
1 is situated immediately adjacent to the existing railway line and experiences high levels on on-going anthropogenic impacts (noise, rail verge maintenance, foot traffic).

A major influence in the scores of the remainder of the benefits is the restricted public access to the site as well as the hydro-geomorphic characterisation of the wetlands as pans. Pans are fed by both their local topographically-defined catchment as well as by a larger catchment feeding the regional water table. They are isolated from stream channels with no outlet and an inward draining pattern, which means that the opportunity for attenuating floods is limited. Pans are unlikely to play a significant role in stream-flow regulation. Pans are also not considered important locations for sediment trapping, with many pans, in fact, originating from the removal of sediment by wind (Kotze, et al., 2009).

4.2.5.2 Wetland Health
The Wet-Health tool (Macfarlane et al., 2007) is designed to assess the health or integrity of a wetland. Wetland health is defined as a measure of the deviation of wetland structure and function from the wetland's natural reference condition. The overall impact of activities that affect hydrological, geomorphological or vegetation health was calculated for each of the delineated HGM units, and this resulted in the PES score. For both wetlands 1 and 2, overall wetland health came out as moderately modified with an overall PES Category of C. Moderately modified is interpreted as a moderate change in ecosystem processes and a loss of natural habitats has taken place but the natural habitat remains predominantly intact. Both wetlands are currently being impacted by alien plant invasion, with species such as *Casuarina equisetifolia*, *Chromolaena odorata*, *Lantana camara* and *Schinus terebinthifolius* occurring.

EIS was calculated following the methodology outlined in the *Manual for the Rapid Ecological Reserve Determination of Inland Wetlands (Version 2.0)* (Rountree, et al., 2013) and resulted in a score for each wetland which integrated ecological importance and sensitivity, hydro-functional importance and direct human benefits into an overall importance and sensitivity score. Both wetlands 1 and 2 came out with an overall EIS score of C class (moderate). This classification is indicative that the wetlands are considered to be ecologically important and sensitive on a provincial or local scale. The biodiversity of these systems is not usually sensitive to flow and habitat modifications. They play a small role in moderating the quantity and quality of water of major rivers.

4.2.6 Receiving Water Quality Objectives and the Reserve
No reserve has been calculated or stated for Wetlands 1 and 2. The receiving water quality objectives should be based on water entering (rain water, storm water runoff, etc.), and exiting the wetlands.

4.2.7 Surface Water User Survey
Apart from the ecosystem services provided, Wetlands 1 and 2 have no other water users, or downstream users within the vicinity of the proposed development, as any subterranean flow will end up in the Indian Ocean (Kelbe, 2015).

4.2.8 Sensitive Areas Survey
It should be noted that all wetlands within the study area, irrespective of their state or functionality, are considered sensitive features of the natural environment. Wetland 1 will be partly infilled as a result of the additional BTT rail line, and Wetland 2 falls 11 m outside of the proposed 8 m wide construction and rail servitude. These wetlands and the extent of the
construction footprint must be delineated and demarcated prior to construction, to limit the disturbance on these sensitive habitats.

The natural vegetation within and adjacent to the proposed BTT rail construction footprint comprises a patchy mosaic of forest, thicket and wetland communities, which is deemed to be in a moderate to good ecological health overall (ACER, 2015a). The outer west edge of the construction servitude, which has been set at 16 m from the centre line of the outer most existing rail, must be demarcated prior to construction, to prevent further encroachment on natural vegetation.

4.3 Groundwater

A geohydrological study (Kelbe, 2015) was undertaken for TNPA’s proposed infrastructure on the South Dunes including a storm water channel as well as associated infrastructure which will service the proposed South Dunes Lease Sites.

The study used historical data to configure a three dimensional hydrodynamic groundwater flow model of the South Dunes area and calibrate the necessary parameters that will provide a reliable estimate of the water level profile. The model simulated the water table profile to within 0.5 m of the few available measurements and also simulated the extent and location of prominent wetlands. This is considered adequate to establish the likely impact of the proposed development on the groundwater regime and downstream resources.

The model for the storm water channel, which will be constructed parallel, but to the east of the existing rail servitude, indicated that nearly all contaminant sources that may enter the groundwater along the storm water channel would likely to flow into the deeper stratigraphic layer and towards the Indian Ocean, not contaminating the wetlands.

4.3.1 Aquifer Characterisation

According to Kelbe, 2015, previous studies have identified several aquifer units that may influence the hydrodynamics of the groundwater system and its interaction with the aquatic environment in the South Dune area. These studies have provided information and data to establish the main aquifer units and derive estimates of their hydraulic properties. According to these reports, the conditions in the study area are characterised by an upper unconfined aquifer and a lower partially confined aquifer separated by a silty layer. However, the majority of the South Dunes area is characterised by predominantly unconsolidated conditions.

4.3.2 Groundwater Quality

Groundwater quality is heavily influenced by the depositional environment, proximity to the coast and industrial activities. As such, the electrical conductivity values recorded in the Quaternary aquifers can be high, with an average of 100mS/m.
4.3.3 Hydro-census

According to Kelbe, 2015 a borehole was established by DLP (2002) at WB1 in the study area but it has not been possible to locate this monitoring point. However, the water level was recorded at 1.95m aMSL in 1998 by DLP (2002). Two additional (surveyed) monitoring boreholes were installed by HRU for the National Port Authority in 2004 at NPA4 and NPA5. A short record of the water level elevation exists for NPA4 but the borehole could not be located. The monitoring borehole at NPA5 in the central dune along the main road has been monitored at various times since 2004 and formed the main reliable data set for calibrating the groundwater model. There are also several monitoring boreholes in RBCT (BH1-6) and three new shallow ones installed in 2014 by Geomeasure (GWM). Unfortunately the three new sites have not been surveyed and can only provide the depth from the surface to the water table and not the elevation of the water table.

4.3.4 Potential Pollution Source Identification

Sources of potential pollution for Wetlands 1 and 2 include the following:

- Fill material from the earthworks phase.
- Solid waste emanating from the construction site.
- Spill or leakage from onsite ablution facilities.
- Accidental hydrocarbon spills from vehicles and machinery.
- Sediment carried by wind or surface runoff from the construction site.
- Runoff from the railway tracks, contaminated with hydrocarbons that have dripped on to the ballast.
- Accidental spillage from trains transporting hazardous material.

4.3.5 Groundwater Model

A ground water model for the South Dunes Precinct was developed by Kelbe, 2015 (See Appendix 17) to investigate the geohydrology of the region.

Historical data was sourced from several projects and compiled to enable a comprehensive groundwater assessment of the historical groundwater dynamics. These included borehole logs of the underlying stratigraphy and water level elevation. In addition, 15 years of rainfall and evaporation measurements for the study area were compiled. These data were used to configure a three dimensional hydrodynamic groundwater flow model of the South Dunes area and calibrate the necessary parameters that will provide a reliable estimate of the water level profile. The model simulated the water table profile to within 0.5 m of the few available measurements and also simulated the extent and location of prominent wetlands. This is considered adequate to establish the likely impact of the proposed development on the groundwater regime and downstream resources.

The model simulated the areas of groundwater exposure under dry, wet and average hydrological conditions for the past 15 years. The model was then configured to trace the hydrological perturbation from proposed infrastructural developments to downstream receiving waters using particle tracking.

The model indicated that nearly all contaminant sources that may enter the groundwater along the proposed storm water channel are likely to flow into the deeper stratigraphic layer (not contaminating the wetlands) and flow toward the Indian Ocean.
4.4 Socio-economic environment

According to the 2012/2017 Integrated Development Plan (IDP) for the uMhlathuze Municipality the South African unemployment rate is sitting at 25%, provincial at 22.6% and uMhlathuze’s is estimated at 40%.

According to the 2011 census (StatsSA, 2011), uMhlathuze Local Municipality has a total population of 334 459. 87.7% of the people in the municipality are African Black, 7.3% are White, with the other population groups making up the rest. Levels of unemployment are 30% and unemployment amongst the youth is 40.8%. From the total population of those aged 20 years and older, 42% have completed primary school, 23.5% have some secondary education, 21.2% have completed matric and 4.8% have some form of higher education. 7.5% of those aged 20 years and older have no form of schooling.

Furthermore, the 2012/2017 IDP attributes the high levels of unemployment to past social and economic injustices and that the fact that many individuals relocate from the rural communities hoping to be employed by the large manufacturing companies and are unsuccessful.

4.4.1 Economic and population profile for City of uMhlathuze Local Municipality

The City of uMhlathuze (KZ 282) area covers 795 km² and incorporates Richards Bay, Empangeni, eSikheleni, Ngwelezane, Nseleni, Felixton and Vulindlela, as well as the rural areas under Traditional Councils namely, Dube, Mkhwananzi, Khoza, and Zungu (Madlebe). The population is estimated at 334459 (StatsSA, 2011) and has increased on average by 1.45% per annum from 2011. In 2001 there were 289 189 people in the Municipality and in 2011 the census indicated a population of 334 459 with the number of households increasing from 67 127 in 2001 to 86 609 in 2011.

Some of the growing population can largely be attributed to the fact that Richards Bay falls within the fastest growing provincial economies at an average rate of 4.3% per annum which is in large part due to the economic and activities associated directly or indirectly with the Port of Richards Bay.

The Port is one of the two largest and busiest Ports in Africa creating a drive for the area to be one of the major industrial investment opportunities. The Port plays an important economic role not only for this province but for the whole of South Africa (SA). Whilst they are presently export oriented, the potential for import prospects are being contemplated. The City also functions as a district node and dominant commercial centre in the uThungulu District providing greater economic opportunities for the town and hinterland (IDP, 2012/2017).

The area is the third most important in KZN in terms of economic production, contributing 16.7% to national Gross Domestic Product (GDP) whilst also the third most important primary manufacturing area in KwaZulu Natal (KZN) in terms of economic production. Manufacturing is highly specialised and export orientated, largely concentrated on basic iron and steel, paper and printing as well as food and beverages (IDP, 2012/2017).

The City of uMhlathuze is rich in mineral resources. The mining of these minerals meets all of South Africa’s (S.A) demand for titanium dioxide, zircon and almost all of the country’s pig iron requirements. Most of the industrial and commercial activities are vested in Richards Bay, Empangeni and Felixton (specifically the industrial development nodes of the City of uMhlathuze).
5. **ANALYSIS AND CHARACTERISATION OF ACTIVITY**

5.1 **Site delineation for characterisation**

The proposed construction of the additional BTT rail line will take place entirely within Portion 3 of Erf 11478, at South Dunes, within the Port of Richards Bay. Portion 3 of Erf 11478 is zoned as harbour/industrial and owned by TNPA, whom will assume the operational management and maintenance of the rail once complete.

5.1.1 **Water and Waste Management**

5.1.1.1 **Process water (water supply, water balance, reuse and recycling, water conservation and demand management, sewerage management, point source discharges)**

The proposed additional BTT rail line will not require water during the construction or operational phases. Any water that may be required will be sourced from the municipal supply to the Port.

Sewerage management will be limited to portable chemical toilets that may be required during the construction phase only, management thereof must be undertaken as per the conditions of the EMPr (once approved) (Appendix 13):

5.2 **Storm water (clean and dirty water management)**

5.2.1.1 **Groundwater (identification of potential sources of pollution, source term characterization, impact prediction)**

Sources of potential pollution for groundwater include the following:

**CONSTRUCTION**
- Spill or leakage from onsite ablution facilities.
- Accidental hydrocarbon spills from vehicles and earth moving machinery.

**OPERATION**
- Hydrocarbons (oil and diesel) that have dripped from the trains on to the tracks.
- Accidental spillage from trains transporting hazardous material.

Through proper implementation of the EMPr throughout the life of the proposed development, the impacts associated with the potential pollution of groundwater are anticipated to be of low significance.
5.2.1.2 Waste (Waste stream identification, characterisation, reuse, recycling, minimisation)

The proposed construction of an additional BTT rail line will only generate waste stream during the construction phase. During which the concept of the waste hierarchy, illustrated in Figure 6 must be adopted. The general waste generated during construction must be managed by a dedicated service provider. Solid waste will be collected from sources and stored in temporary satellite storage areas before being transported to the central sorting facility. Waste is then sorted into different recyclable categories, and the remaining waste is disposed of at the approved landfill site.

![Waste Management Hierarchy](image-url)

Figure 6 Waste Management Hierarchy
5.3 Operational Management

5.3.1 Organisational structure

TNPA will assume the responsibilities for the operational maintenance and management of the additional railway line and the associated infrastructures once construction and rehabilitation have been successfully completed.

5.3.2 Resources and competencies

Transnet have dedicated teams of highly specialised environmental personnel that are committed to the environment and the environmental policies and procedures of their organisation. These teams and individuals act and respond to operational aspects and impacts to ensure environmental conformance and dedication.

The overall management responsibility for the EMPr rests with the Project Manager during construction and the General Manager during operation. An executive committee will take ultimate responsibility for the impacts of the Project.

5.3.3 Education and training

All personnel appointed will be suitably qualified and trained as per the present Transnet protocol. The environmental awareness training programme should include the following:

- The importance of compliance with all environmental policies, procedures, plans and systems.
- Understanding, and importance of, and the reasons why, the environment must be protected.
- Basic awareness and understanding of the key environmental features of the work site and environs, particularly sensitive habitats.
- The significant environmental impacts, actual or potential, as a result of their work activities.
- The mitigation measures required to be implemented when carrying out their work activities.
- The environmental benefits of positive environmental performance.
- The various roles and responsibilities in achieving compliance with the environmental policy and procedures, including emergency preparedness and response requirements.
- The potential consequences of departure from specified operating procedures.
- Health and safety awareness.

The Contractor must ensure that its Sub-contractors and employees (and any other third parties) attend the relevant training. At the discretion of the ECO and Environmental Manager, employees involved in events of non-compliance may be given further relevant training by the ECO.

A record of the environmental awareness training programme must be kept by the ECO and RE.
5.3.4 Internal and external communication

Liaison with I&APs is to be co-ordinated by the Project Engineer and the Contractor. This shall include liaison with Port tenants and Users, utility providers, neighbours, and relevant authorities.

Complaints or queries received from I&APs and actions taken to address complaints shall be addressed in writing (with copies forwarded to the Environmental Manager and ECO). Copies of all interactions and correspondence shall be kept as part of record keeping by the Environmental Manager and ECO.

5.3.5 Awareness Raising

The purpose of the environmental awareness programme is to promote ongoing environmental awareness amongst the workforce. This can be addressed by means of the implementation of the EMPr by TNPA through to the contractors and the actual construction staff on site and should include:

- General induction.
- Briefings / training seminars.
- Notice boards, graphs, reports, etc.
- Toolbox talks.
- Mass meetings.
- Audio visual / electronic media.
- Face to face meetings.
- Training on Environmental Hazards and Risks.

5.4 Monitoring and Control

During the various construction phases (design, pre-construction, construction and rehabilitation), the Environmental Manager, with assistance from the ECO, will monitor the overall compliance of the conditions of the EA and the mitigation measures outlined in the EMPr by all parties concerned.

5.4.1 Design Phase

During the design phase, the Environmental Manager will meet with the Project Engineer to highlight design needs as specified in the EMPr. On completion of the design, relevant information will be reviewed by the Environmental Manager to ensure that the design demonstrates compliance with environmental requirements. The Project Engineer will also provide preliminary construction site layout plans to the Environmental Manager for review.

5.4.2 Construction Phase

5.4.2.1 Construction Site Layout Plan

Prior to construction, the Project Engineer, with input from the Environmental Manager and ECO, must approve the construction site layout plan prepared by the Contractor showing the positions and extent of all permanent and temporary site structures and infrastructure. The Project Engineer is responsible for the co-ordination of construction site layout plans should there be overlap between multiple Contractors on site. The earlier this information is provided to the Project Engineer and ECO, the less likelihood of delays to construction and the less likelihood of unforeseen environmental impacts occurring during construction.
5.4.2.2 Method Statements

Prior to construction, the RE and ECO will agree which activities require a written method statement. Where relevant, the Contractor must submit a written method statement, which should include the following:

- The type of construction activity.
- Locality where the activity will take place.
- Identification of impacts that might result from the activity.
- Identification of activities or aspects that may cause an impact.
- Methodology and/or specifications for impact prevention for each activity or aspect.
- Methodology and/or specifications for impact containment for each activity or aspect.
- Emergency/disaster incident and reaction procedures.
- Treatment and continued maintenance of impacted environment.

The ECO must review the construction method statements to ensure that the environmental specifications contained within this EMP are adhered to.

5.4.2.3 Site Handover

The ECO will attend the site handover meeting, where the EMP will form part of the agenda. The construction site layout plan is a key component of site handover and must be finalised before site handover can be completed. The approved plan must be attached to the site handover meeting minutes. Amendments to this plan must be discussed and approved at subsequent site meetings.

5.4.2.4 Site Inspections and Meetings

The ECO will conduct fortnightly site inspections and attend site meetings to establish how well the Contractor is complying with the EMP. The ECO will compile a site inspection checklist, to be forwarded to the RE and Contractor for their attention and records. The checklists will also be included as an appendix to the quarterly audit report to be submitted to DEA.

Anything of an environmental nature that arises in between the fortnightly site audits must be recorded in the site diary and recorded in written correspondence to the ECO. If required, the ECO must conduct a site visit to address the matter and must report the matter in an addendum to the site inspection checklist.

5.4.2.5 Practical Completion

The ECO must attend the practical completion inspections. Outstanding environmental matters requiring attention must be provided to the RE for inclusion in the snag list, which is attached to the practical completion certificate.

5.4.2.6 Final Completion and Environmental Performance Certificate

Once the environmental items on the snag list have been addressed to the satisfaction of the ECO, the Environmental Manager will provide an environmental audit report confirming that the environmental specifications applicable to the Contractor(s) have been met. This report will be submitted to the Project Engineer prior to the final Certificate of Completion being issued.

5.4.2.7 Independent Environmental Auditing

Periodic auditing of environmental compliance by an independent auditor may be required and is also advisable as best environmental practice. As discussed with DEA, they may undertake periodic site audits to confirm the findings of the monthly audit reports submitted to them by the ECO.
5.4.3 Non-Compliance and Remedial Action

Matters of non-compliance by any parties must be reported to DEA within a reasonable period. This should be discussed with DEA. Failure to comply with these conditions of authorisation will, under Section 22(4) of the Environment Conservation Act, 1989 (Act No. 73 of 1989), render it invalid and the applicant liable to legal action under Section 29 of the said Act.

The Contractor(s) and their Sub-contractors are deemed not to have complied with the EMPr if:

- There is evidence of contravention of the EMPr specifications within the boundaries of the construction site, site extensions and haul/access roads.
- There is contravention of the EMPr specifications that relate to activities outside the boundaries of the construction site.
- Construction activities take place outside demarcated areas.
- Environmental damage ensues due to negligence or intent.
- Failure to comply with corrective or other instructions issued by the Project Engineer within a specific time period.

Where the ECO identifies non-compliance by the Contractors and Sub-contractors, it will be discussed at the fortnightly site visits (when identified) and remedial actions and timeframes specified. The ECO must record these incidents of non-compliance, the remedial actions and timeframes in the site inspection checklist. The RE must also record the relevant instructions for the Contractor(s) in the site diary.

If the specified remedial action has not been carried out by the Contractor(s) within the period stipulated, the non-compliance must be dealt with as follows:

- Where non-compliance has resulted in environmental damage to the site which cannot be rectified by the remedial action specified by the ECO, or the Contractor(s) has failed to carry out the remedial work within the prescribed time limit (or permitted extension thereof), the ECO shall convene a meeting between the RE and the Contractor to discuss the appropriate fine. Appropriate remedial work shall also be discussed and agreed.
- In determining appropriate remedial action, the Environmental Manager and Project Engineer shall consult with DEA and, where necessary, obtain specialist input.
- The Project Engineer shall issue an instruction to the Contractor to procure execution of the remedial work as agreed between the parties, and the Contractor shall be obliged to procure such remedial work within the prescribed period to the satisfaction of the Project Engineer.
- Failure by the Contractor to comply with an instruction from the Engineer to procure the carrying out of the required remedial work shall constitute a material breach of the Contract.
- Where the employer has taken action to procure the remediation of such consequences it shall be entitled to recover from the Contractor the full cost of remediation.

Incidents of non-compliance, the remedial actions and timeframes must be recorded in the site inspection checklist and the site diary. Fines, applied at the discretion of the Engineer (with input from the Environmental Manager) must be applied in addition to any remedial costs incurred as a result of non-compliance. The Engineer will inform the Contractor of the contravention and the amount of the fine, and will deduct the amount from monies due under the Contract.
5.4.4 Penalty Clause

Any avoidable non-compliance with the EMPr, Site-Specific Addendum, Environmental Authorisation or applicable regulations shall be considered sufficient grounds for imposing a penalty (fine). The penalty imposed shall be per incident. Upon receipt of a notice of non-compliance, the Contractor shall correct whatever is the cause for the issuing of the notice. The Rand values of the penalties to be imposed per incident or violation are provided in the table below. They reflect first-time incidents of non-compliance only. Penalties for repeat offences are calculated at an incremental increase of 10% up to a maximum of R100 000. Thus, the penalty for a first-time repeat incident would be 110% of the original penalty value, 120% for a second-time repeat incident, etc. Certain penalties may be waived or reduced at the discretion of the Project Engineer (with the approval of the Authority’s Environmental Manager). Where deemed necessary (e.g. where the receiving environment is particularly sensitive), penalty values greater than those contained in table below may be stipulated in the Site-Specific Addendum to the EMPr.

The enforcement of penalties shall be through a separate agreement between the employer, Project Engineer and Contractor. Penalties for non-compliance are imposed over and above the costs required for remediation/rehabilitation, and/or penalties that may be imposed in terms of relevant legislation. The following penalties for incidents of non-compliance shall apply:

In addition to a fine, the Contractor may be required to undertake the necessary rehabilitation/mitigation measures resulting from non-compliance. These will be as instructed by the Project Engineer, on the advice of the ECO.

5.4.5 Regulatory Authorities’ Site Inspections

DEA, and other relevant authorities, e.g. DWS and DAFF, EDTEA and EKZNW may conduct site inspections as desired.

5.4.6 Record Keeping

The Environmental Manager and ECO must ensure that all documentation related to the EMPr is filed, and made available on request to the authorities. The following documents may be relevant:

- Environmental Authorisation
- Environmental Management Programme.
- Fortnightly site inspection checklists.
- Monthly audit reports.
- Photographic record.
- Design documents and drawings.
- Construction site layout plans.
- Method statements.
- Communication and correspondence.
- Environmental awareness training programme.
- Environmental incident and accident reports.
- Emergency preparedness and response plans.
- Complaints register.
- Environmental performance certificates.
- Hazardous substances register.
5.5 Risk Assessment / Best Practice Assessment

This chapter documents the assessment of the potential impacts for the proposed construction of an additional BTT rail line. The assessment of potential impacts takes into account the current environment, the proposed construction process and the findings of the specialist studies.

- **Spatial extent:** A description of whether the impact would occur on a scale limited to the immediate areas of development activity (local); limited to within 5 km of the development (area); would affect the region as a whole (region); or would occur at a national or international scale (national/international).

- **Duration:** A prediction of whether the duration of the impact would be short term (0 to 5 years), medium term (5 to 15 years), long term (> 15 years, with the impact ceasing after the operational life of the development), or should be considered as permanent.

- **Probability of occurrence:** A description of the probability of the impact actually occurring as improbable (low likelihood), probable (distinct possibility), high (most likely) or definite (impact would occur regardless of prevention measures).

- **Significance:** The significance of identified impacts has been expressed qualitatively as follows:
  - **insignificant** - the impact is insubstantial and does not require management.
  - **low** - the impact is of little importance, but may require management
  - **medium** - the impact is important, management is required to reduce negative impacts to acceptable levels.
  - **high** - the impact is of great importance, negative impacts could render development options or the entire project unacceptable if they cannot be reduced to acceptable levels and/or if they are not balanced by significant positive impacts, management of negative impacts is essential.

- **Status of the impact:** A statement of whether the impact is positive (a benefit), negative (a cost), or neutral.

- **Degree of confidence in predictions:** A statement of the degree of confidence in the predictions, based on the availability of information and specialist knowledge.
### 5.5.1 Wetlands

An assessment of the different impacts as well as the recommended mitigation measures of the proposed construction of an additional BTT rail line on affected wetlands (Appendix 14 – Wetland Studies) are provided in the table below:

<table>
<thead>
<tr>
<th>Construction Phase</th>
<th>Impacts</th>
<th>Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disturbance and loss of vegetation and faunal habitat during site clearance and construction activities.</td>
<td>The impacts resulting from the construction phase can be mitigated through proper implementation of the approved EMPr (Appendix 13). A pre-construction walk down of the development footprint must be undertaken by a suitably qualified specialist to indentify and facilitate the relocation and translocation of ecologically important species. The extent of the construction footprint must be suitably and visibly demarcated during construction, and reduced to the minimum width near ecologically sensitive areas. Clearance of indigenous vegetation must be minimised to the agreed and approved areas. Alien plants should be controlled on site (where construction has resulted in disturbance) during construction. Ecologically sensitive areas outside the development footprint must be delineated and demarcated as no-go areas prior to the commencement of construction.</td>
<td></td>
</tr>
<tr>
<td>Disturbance and loss of wetlands located near or within the development footprint.</td>
<td>The Contractor must not cause any physical damage to any aspect of a wetland, other than that necessary to complete the works as specified and in accordance with the accepted method statement. The Contractor must repair the existing drainage systems and augment these where applicable with additional drainage or increased capacity so as to accommodate normal, as well as flood conditions. The Contractor must ensure that uncovered soil and stockpiles are not eroded and material washed away.</td>
<td></td>
</tr>
</tbody>
</table>
The Contractor must not alter the flow of water, i.e. it may not be stopped, disconnected, diverted or ponded.

The ECO and Contractor must ensure that Wetlands 1 and 2 have been identified, delineated, photographed and clearly marked by the ECO prior to any construction work on the rail line.

Timing of construction near Wetlands 1 and 2 areas should be during the low flow season to minimise increased sedimentation and turbidity.

The Contractor must avoid the unnecessary compaction and impacts on sensitive wetland soils.

No construction materials may be stockpiled in any wetlands or their buffer areas.

To avoid unnecessary erosion, no excavation of alternative channels to re-route any drainage line is allowed.

Replanting of wetland vegetation must be undertaken immediately after surface reinstatement is complete.

Where possible, plants must be replanted in wetland areas from which they were removed.

The pre-construction profile of the wetland must be returned to one similar to before construction.

Wetlands must have no created “ridge or channel” features present to ensure that no depressions remain, which could act as channels for preferential water flow thereby affecting the hydrological regime.

**Potential pollution Impacts from the generation of excess fill material from earthworks, the generation of solid waste during the construction phase, waste generated from the onsite ablation facilities and potential contamination of water resources (ground and or surface water) through accidental hydrocarbon spills in areas where machinery is operating.**

**Pollution of the surrounding wetlands must be avoided by strict control/handling of building materials such as cement and petrochemicals.**

Ablution facilities must be located well away from water courses and must be emptied on a weekly basis.

Refuelling and servicing of all machinery should take place off site at an approved facility.
All portable machinery must be placed on drip trays to prevent the risk of hydrocarbon spills due to leakage.

No contaminated runoff must be allowed to reach any water resource within or near the construction site.

Disturbance of soils (compaction and erosion), from surface water run-off and increased vehicular movement, spread of alien invasive species and a reduction of ecosystem services.

Keep vegetation clearance to a minimum.

Control soil erosion through the methods included in the EMPr (Appendix 13).

Control surface water run-off through the methods provided in the EMPr (Appendix 13).

If culverts are installed, then frog-friendly designs are used and that any surface flows are not concentrated, flow energy is not increased, culverts of adequate capacity are used and culverts are designed to the correct invert levels to prevent damming of flows or draining of wetlands.

Soil erosion control structures such as temporary soil berms, mitre drains, sandbags or rock bolsters should be used to control runoff and sedimentation where necessary.

The topsoil from the development footprint should be stripped off and stockpiled for use in site rehabilitation.

**Operational Phase**

<table>
<thead>
<tr>
<th>Impacts</th>
<th>Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disturbance or degradation of wetland habitat.</td>
<td>Accidental spills should be contained and cleaned up as soon as possible.</td>
</tr>
<tr>
<td>(Potential pollution from litter, fuel spills and oil leaks from passing trains and wagons could end up in the wetlands.)</td>
<td>Maintenance crews should attend to the tracks and clean up accidental spills.</td>
</tr>
<tr>
<td>Alien invasive plant species often colonise road verges due to their disturbed nature. Once colonised, these species spread to adjacent areas.</td>
<td>Maintain the rail servitude free of alien invasive plant species as per the methods in the EMPr and ensure sufficient budget is available for such maintenance.</td>
</tr>
</tbody>
</table>

**Table 4  Potential impacts and mitigation measures for wetlands**
5.6 Issues and responses from public consultation process

5.6.1 Pre-application consultation with the Department of Water and Sanitation

A meeting was held on site on the 22\textsuperscript{nd} June 2016 with the DWS, where it was confirmed that a section 21 (c) and (i) WULA will need to be submitted for the proposed construction of additional BTT rail line. The Department’s requirements, in terms of the WULA and supporting information were agreed through their subsequent comments submitted during the environmental authorisation process, and through extensive consultation thereafter.

5.6.2 Other stakeholders

During the environmental authorisation process, the applicant (TNPA) engaged with the various Port tenants, landowners and affected persons which may be impacted on by the proposed construction of an additional BTT rail line. These interested and affected persons include the following groups or Departments:

- Department of Environmental Affairs (National).
- Department of Water and Sanitation (KZN).
- Department of Agriculture Forestry and Fisheries (KZN).
- King Cetshwayo District Municipality.
- Ezemvelo KZN Wildlife (Richards Bay Game Reserve).
- Ezemvelo KZN Wildlife (KZN).
- Amafa AkwaZulu Natali (KZN).
- Birdlife Zululand.
- uMhlathuze Water.
- Department of Economic Development, Tourism and Environmental Affairs (KZN).
- City of uMhlathuze Local Municipality.
- Richards Bay Clean Air Association.
- Richards Bay Industrial Development Zone (RBIDZ).
- Richards Bay Ratepayers and Residents Association.
- Zululand Chamber of Business Foundation (ZCBF).
- Richards Bay Coal Terminal (RBCT).
- Richards Bay Ski-Boat Club.
- Meerensee Boat Club.
- National Sea Rescue Institute (NSRI).
- Zululand Yacht Club.
- Zululand Kayak Club.

5.6.2.1 Submission of WULA and public review

On 22\textsuperscript{nd} June 2016, ACER together with TNPA met with DWS on site to establish the requirement of a WULA and to provide clarity on the specifics for the proposed project. Following the meeting a confirmation e-mail was sent to DWS on the 24\textsuperscript{th} June 2016 in which the project details as described in this document were confirmed. Through no objection, ACER commenced with the compilation of the WULA.

The public participation process (newspaper adverts, onsite notice board, background information documents) undertaken for the environmental authorisation process, included the fact that, in addition to the proposed development requiring environmental authorisation, a Water Use Licence (WUL) from the Department of Water and Sanitation (DWS) is required for water uses in terms of Section 21 (c) and (i) of the NWA.
The Water Use License Application (WULA) for the proposed construction of an additional rail line at South Dunes will be submitted to the DWS for consideration, in terms of “Chapter 4 of the NWA”. The completed WULA will then be subjected to a 60 calendar day public participation process, after which, a Comments and Responses Report (CRR) will be submitted to DWS.

5.7 Matters requiring attention / problem statement

The main issues requiring attention as discussed in more detail in Section 5.5.1 are provided below:

- Disturbance and permanent loss of vegetation and faunal habitat during site clearance and construction activities.
- The possible disturbance and injury to fauna during site clearance and construction activities.
- Disturbance and permanent loss of wetlands located near or within the development footprint.
- Potential pollution Impacts from the generation of excess fill material from earthworks, the generation of solid waste during the construction phase, waste generated from the onsite ablation facilities and potential contamination of water resources (ground and or surface water) through accidental hydrocarbon spills in areas where machinery is operating.
- Disturbance of soils (compaction and erosion), from surface water run-off and increased vehicular movement.
- Colonisation of alien invasive plant species.

5.8 Assessment of level of confidence of information

In general it can be stated that the extent and level of information available is adequate to support the development of the IWWMP for the proposed construction of an additional BTT rail line.

6. WATER AND WASTE MANAGEMENT

6.1 Water and Waste Management Philosophy

For this project TNPA must implement mitigation measures to minimise the negative aspects and enhance the positive aspects of the project. TNPA must comply with the following principles and practices:

- To plan, design, construct and manage the proposed construction of an additional BTT rail line in a responsible manner, in accordance with all applicable legislative requirements.
- To minimise the impact on the receiving environment by limiting the extent of the rail footprint through the implementation of this document and the EMPr.
- To undertake all necessary rehabilitation.
- To the implement all monitoring required by this document and the EMPr.
6.2 Strategies

The EMPr for the Port of Richards Bay incorporates the principles of the ISO 14001 management approach. The Port of Richards Bay must be committed to continued improvement. Potential risks are identified through the Environmental Management Programme so that proper training and monitoring systems can be implemented. The EMPr presents the Port of Richards Bay’s commitment to environmental protection by minimising negative impacts and optimising positive impacts of their operations on the environment.

6.3 Performance Objectives

TNPA must be committed from both an effort and a financial aspect to ensuring improved environmental management. Key performance objectives for TNPA’s construction of the additional rail line at South Dunes are identified as follows:

- No contamination of surface and groundwater through spillage of fuel, hazardous chemicals, leaking vehicles or any other form of hydrocarbons.
- Prevention of erosion and sedimentation of water resources.
- Appropriate and correct storm water management.
- Appropriate and correct waste management.
- Appropriate and correct control of alien and invasive species.

6.4 Measures to Achieve and Sustain Performance Objectives

Measures to achieve and sustain performance objectives for storm water, groundwater, aquifer protection, waste management and area rehabilitation are detailed in the IWWMP action plan – Section 6.6. These performance objectives will be reviewed and assessed on a regular basis, once construction commences, to reflect the current situation and to determine if performance objectives are being met.

6.5 Options Analyses and motivation for implementation of preferred option

6.5.1 The type of activity to be undertaken

In terms of providing access to and servicing the future lease sites in the South Dunes Precinct with the relevant bulk cargoes (dry and/or liquid), rail is considered the only feasible alternative, and was therefore the only alternative considered during this assessment.

6.5.2 The location where it is proposed to undertake the activity

The proposed project involves the provision of an additional siding to existing rail servitude, for a distance of approximately 1,100 m, site alternatives are therefore limited to the existing rail alignment. Other alignments would result in new disturbances, or would impact on sites earmarked for future development as per the PDFP. In this context, therefore, the only alternative available is to align the proposed new rail line either east or west of the existing rail servitude.

Given that BTT already has in place authorisation to construct two additional rail lines on the east of the existing servitude, the side on which TNPA needs to provide access, TNPA is proposing the authorisation of an additional line on the west of the existing servitude, in exchange for the outer most of BTT’s already authorised rail.
6.5.3 The technology to be used in the activity

As mentioned above, the proposed rail line is required to match the existing tracks at the rail yard exactly, which is designed for slow moving trains with 20t axle loads. The rail infrastructure will therefore be constructed according to the S410 Specification for railway earthworks (2006) and the Geotechnical Service Handbook (1986). Layer works design is bulk earthworks fill or insitu subgrade, 400 mm (2 x 200) layer thickness of B material type, 300 mm (2 x 150) layer thickness of A material type, 200 mm layer thickness of SB material type. Following the necessary earthworks to create a suitable substructure, railway construction will comprise the following:

- Provision of a water-permeable stabilizing layer between the ballast bed and the substructure, to stabilize the ballast bed without adversely affecting the drainage of excess rainwater.
- Construction of a ballast layer in the form of a bed of broken stone poured onto the substructure. The ballast bed provides for stability, damping of the vibrations and the discharge of excess rainwater.
- Placement of a series of sleepers (cement or wooden) at a regular mutual distance intervals in the ballast (bed of broken stone).
- Fixing of the parallel pair of rails to the sleepers.

6.5.4 The operational aspects of the activity

In terms of what is proposed, an additional rail line, adjacent to an existing rail servitude, to service future lease sites in the South Dunes Precinct, no operational alternatives were considered during this assessment.

6.5.5 The option of not implementing the activity

The no-go alternative would mean the status quo will remain and TNPA will not be able to provide rail access to future lease sites at South Dunes which would hinder the Port of Richards Bay's effort to diversify from coal to liquid bulk terminals. The no-go option is therefore not considered desirable due to the negative socio-economic impacts that would result:

- Lack of development of the infrastructure will lock development of new operators within the lease sites.
- Potential growth of the bulk liquid and dry bulk terminal operations will be limited.
- Financial performance of business in terms of potential additional revenue and cargo dues revenue will be negatively impacted.
- Decrease in accelerated Shared Growth Initiative in South Africa.
- Decrease in national economic growth.
6.6 IWWMP Action Plan (Priority Actions)

The action plan is an evolving guideline that needs to be updated or adapted as progress is made, and successes and failures of procedures are identified. For successful rehabilitation, it is imperative that this plan is at all times used in conjunction with the approved EMP_r.

6.6.1 Pre-construction Phase

- Prior to the undertaking of any construction activities, a suitably qualified ecologist must be appointed to conduct a search and rescue operation of the entire development footprint.
- Detailed, colour photographs shall be taken of the proposed site prior to the commencement of construction. These records are to be kept by the ECO to aid in the rehabilitation of the site.
- The remnant parts of Wetland 1 and the entire of Wetland 2, as well as any other sensitive sites outside the development footprint must be identified and demarcated in collaboration with the ECO. This may require perimeter fencing or steel droppers with barrier tape.
- The extent of the construction site (1,250 m x 16 m) as indicated on the approved construction site layout plan must be demarcated using barrier tape with steel droppers or another method as approved by the Project Engineer and ECO.
- Ensure all applicable permits, licences and authorisations are in place prior to construction.

6.6.2 Construction Phase

The action plan during the construction phase will be the strict implementation of the measures contained in this report and the EMP_r, with emphasis on the following main items:

- Maintenance of the construction site and sensitive areas demarcation.
- Ensuring construction activities remain within the demarcated construction site.
- Implementing and maintaining appropriate storm water and erosion protection measures.
- Implementation of appropriate waste management procedures.
- Progressive rehabilitation of the construction footprint (alien plant control, shaping, topsoil replacement, re-vegetation, etc.)

6.6.3 Rehabilitation Phase

As per the EMP_r, the concept of progressive rehabilitation is to be implemented throughout the life of the project. As soon as work in one area is complete the rehabilitation of that site is to commence. This will involve returning the condition of the disturbed areas to a state that they were in before the project began, or better. Rehabilitation should focus on the following areas:

- Removal of all waste (general and hazardous) from site to an approved waste disposal facility.
- Removal of all temporary structures, construction plant, signage, storage containers, temporary fencing, etc from the construction site.
- Removal of all stockpiles and surplus material to an approved location off site.
- The reinstated construction site must be shaped to blend in with the surrounding landscape and to ensure free flow of run-off and to prevent damming of water.
- Topsoil must be replaced to the original depth (i.e. as much as was removed prior to construction).
The reinstatement of disturbed areas with locally indigenous herbaceous vegetation must be conducted progressively and as soon as possible.

Where wetlands have been affected by construction activities the banks are returned to their original profile, and re-vegetated using hygrophilous grassland or reed bed.

Post rehabilitation monitoring must be carried out by the onsite ECO to ensure that the rehabilitation has been successful. Vegetation growth, hydrological functioning, evidence of erosion and deposition are some of the key areas to be checked regularly. In this way, any problems can be rectified timeously and managed in an adaptive manner.

6.6.4 Operations Phase

The operations phase refers to the period of the project during which the project will be in operation. The EMPr outlines general environmental specifications that are required to be implemented by the employer. In terms of this action plan, emphasis should be on the following:

- Identification and demarcation the extent of the operational servitude and its access points, and indicate these on an operational site layout plan.
- No movement or work outside the operational servitude.
- Monitor all sites disturbed by operational activities for colonisation by weeds, exotics or invasive plants, and these are to be controlled as they emerge.
- Soils must be monitored for signs of erosion at regular intervals. Upon identification of a potential erosion problem, preventative measures are to be put in place.
- No litter or any other debris shall be left on site after the completion of monitoring or maintenance activities.

6.7 Control and Monitoring

6.7.1 Monitoring of change in baseline

The monitoring of change in baseline information will be achieved through the implementation of the EMPr (Appendix 13) and the Wetland Monitoring Programme (Appendix 23).

Reports will be submitted to various government departments as required and formal institutions as requested by management objectives, conformance targets and applicable legislation and other legal requirements. All results will be made electronically available to DWS.

6.7.2 Audit and report on performance of measures

Auditing and audit reporting is the external tool used that will ensure regulation and assist management in preventing significant environmental impacts. Monitoring and auditing of compliance with the EMPr and conditions of the EA should take place as follows:

- The applicant must appoint an independent and suitably experienced ECO prior to the construction phase and until completion of the rehabilitation phase of the project.
- The ECO will be responsible to ensure that the mitigation / rehabilitation measures and specialist recommendations are implemented.
- The ECO must undertake fortnightly inspections and reports to ensure compliance with the provisions of the EMPr and EA.
- The ECO must keep records of all activities on site, problems identified, transgressions and a task schedule of tasks undertaken by the ECO.
- The ECO must be appointed prior to construction starting any relevant details pertaining to the ECO must be forwarded to the DEA: Compliance Monitoring Department.
Quarterly audit reports must be submitted to the DEA Compliance and Monitoring Department.

- The environmental audit must specify the name of the auditor, the date of the audit, and the outcome of the audit in terms of compliance with the EA conditions and EMPr requirements.
- The EA holder must submit an environmental close out report 30 days after completion of the construction phase and similarly with respect to the rehabilitation phase.
- Internal environmental audits will be carried out regularly, according to the TPNA Internal Environmental Audits Procedure.

**6.7.3 Audit and report on relevance of action plan**

The IWWMP action plan is to be regularly updated and audited to monitor progress and ensure that implementation of goals is on track.

**7. CONCLUSION**

**7.1 Regulatory status of activity**

The water uses as set out in Table 1 of this document require approval in order to ensure all applicable legislation is being adhered to. This document is compiled to align with the other legal requirements (NEMA) and should therefore be implemented in conjunction with the other reports, specialist studies, licences and approvals.

**7.2 Statement on water uses requiring authorisation, dispensing with licensing requirement and possible exemption from regulations**

This report has been compiled in support of the application for the new planned water uses for the Port of Richards Bay. The water uses requiring authorisation are detailed in Table 1 above.

**7.3 Motivation in terms of section 27(1) of the NWA**

**7.3.1 Existing lawful water uses**

The Port of Richards Bay has no existing lawful uses applicable to the proposed construction of the additional BTT rail line.

**7.3.2 Contributions to redress the results of past racial and gender discrimination**

The South Dunes Precinct is located within Port of Richards Bay and is surrounded by land zoned as port or industrial with no communities directly adjacent to the site. As such the proposed construction of an additional BTT rail line will have little impact on surrounding communities during construction.

The indirect benefits associated with the construction of additional BTT rail line will have an effect on the local and possibly regional areas through job creation and employment opportunities becoming available with the investment of businesses and individuals into the Port of Richards Bay.

As such, the construction of an additional of BTT rail line can be seen as a catalyst for future development within the region, which is hoped to have significant positive benefits both to the communities within and around Richards Bay and South Africa.
7.3.3 Efficient and beneficial use of water in the public interest

The proposed construction of the additional BTT rail line is expected to have a number of benefits for society in general both during the construction and operational phases.

Benefits to society associated with the construction phase of the proposed development include the following:

- Stimulation of local economy through the provision of construction materials.
- Job creation during the construction phase.
- Investment into the area.
- Procurement of goods and services

Benefits to society associated with the operational phase of the proposed development include the following:

- Improved access to future South Dunes leases sites.
- Increase economic activity.
- Skills development.
- Growth in the liquid and dry bulk sectors.
- Increase in accelerated Shared Growth Initiative in South Africa.

7.3.4 The socio-economic impact of the water use/s if authorised

The proposed construction of the additional rail line will enable the Port of Richards Bay to implement its mandate of provision of infrastructure for the use of the companies that will be undertaking Port activities required for imports and exports to and from the country. This proposed development is also very critical as it will maximise the liquid and gas industry in the country which will in turn boost the country’s economy massively. The proposed construction of an additional rail line will provide timeous and continuous service to the South Dunes Precinct and connect the lease holder with the harbour bound industry and other consumers in land.

7.3.5 The socio-economic impact of the water use if not authorised

If the additional BTT rail line is not authorised, BTT would not be able to relinquish their already authorised outermost east rail, thus inhibiting TNPA from providing suitable access to future lease sites in the South Dunes Precinct. This would in turn, negatively affect the Port’s potential to expand their current services and attract new Port tenants.

Additionally, if the water use is not authorised, the status quo remains which includes the following:

- Limited access to the South Dunes lease sites.
- The local community will not experience any of the direct or indirect economic benefits associated with the development of the South Dunes lease sites.
- Limited potential growth in the liquid and dry bulk sectors.
- No potential increase in the financial performances of businesses in terms of additional revenue and cargo from the lease sites.
- The local community will not experience any socio-economic benefits associated with a development of this nature along with the income it generates to local suppliers and businesses.
This result will be undesirable and unrealistic in considering the social and economic needs of the local community and the potential for economic development within Richards Bay.

7.3.6 Relevant catchment management strategies and local government planning frameworks that support the proposed water use/s

The relevant management strategies and planning frameworks that support the proposed development are listed below:

- The location of the development site falls within the planned Richard’s Bay Port expansion discussed within the 2007 UMhlathuze Spatial Development Framework (SDF). The proposed development will directly service the area that the TNPA has earmarked as future lease sites.
- The development contributes towards the “Principle of Economic Potential” identified in the Provincial Spatial Development Framework (PSDF) which aims to improve productivity. In terms of Priority Intervention areas Richards Bay is one of the four towns that have been identified as provincial Secondary Nodes. This means Richards Bay as an urban centre with good existing economic development has the potential for growth and services to the regional economy.
- The 1996 Richard’s Bay Structure Plan goal is to “To provide a spatial framework, principles, policies, strategies and programmes of action which will ensure that the planning and development of the Core Area of Richards Bay will encourage on-going, and increased, economic growth in order to sustain the environmental, physical, social, economic and political well-being of all people within the jurisdiction of the Transitional Local Council (TLC)”.
- The development will complement the following National Development Plan (NDP) objectives:
  - Economy and Employment: Through improving infrastructure that attracts trade and job creation during the construction phase.
  - Economic infrastructure: Through construction of a additional rail line, which is a step towards expanding the Port of Richards Bay

7.3.7 The likely effect of the water use on the water resource and on other water users

The most significant impacts associated with the construction and operation of the additional Bidvest Tanks Terminal (BTT) Railway Line at South Dunes, are related to the disturbance and permanent loss of natural vegetation and wetland habitat.

The site has experienced historical disturbance through relocation of surface soils with subsequent succession taking place and the planting of alien species such as *Casuarina equisetifolia* for sand stabilisation. However, smaller stands of terrestrial forest are well developed in places and overall, the terrestrial vegetation occupying the proposed BTT rail footprint is in moderate to good ecological health.

Where the regional water table intersects with the inter-dune depressions, wetlands are present and despite the historical disturbance, still provide various levels of ecosystem services, which should be protected and improved where possible.

The potential impacts on the receiving environment that are likely to accompany the water use are as follows:

- Disturbance and permanent loss of natural vegetation and faunal habitat.
- Disturbance and injury to fauna.
7.3.8 Class and resource quality objectives (rqo’s) of the water use/s

Unknown.

7.3.9 Investments already made and to be made by the water user in respect of the proposed water use

The proposed development site falls entirely within an area planned for future expansion, as per the approved Port Development Framework Plan (PDFP). The proposed project will boost the liquid bulk industry in the Port, having social and economic benefits that will far outweigh the negative impacts to be incurred from the development. This is further iterated by the measures to be put in place to avoid and/or mitigate negative impacts that may be associated with the development.

As such, TNPA and various other business interests have already made significant investments into the development of the South Dunes lease sights.

7.3.10 The strategic importance of the water use/s to be authorised

The construction of the additional BTT rail line is required to improve access to the South Dunes Precinct, a purpose built industrial complex aimed at increasing development and economic investment within the Port and by extension the South-African economy. The proposed development is aimed at facilitating access and also service delivery to the South Dunes Precinct which in turn, is hoped to attract investors to this industrial site thus providing socio-economic benefits through job creation and investment into the Port.

7.3.11 The quality of water in the water resource which may be required for the reserve and for meeting international obligations

DWS is to determine the surface water, groundwater and ecological reserve requirements

7.3.12 The probable duration of any undertaking for which a water use is to be authorised

The construction impact will be of short duration (18 months).

7.4 Key Commitments

In addition to the conditions of the Environmental Authorisation and the approved EMPr, TNPA is committed to the implementation of this IWWMP as well as any conditions stipulated by DWS in the Water Use Licence, once issued.
8. REFERENCES


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