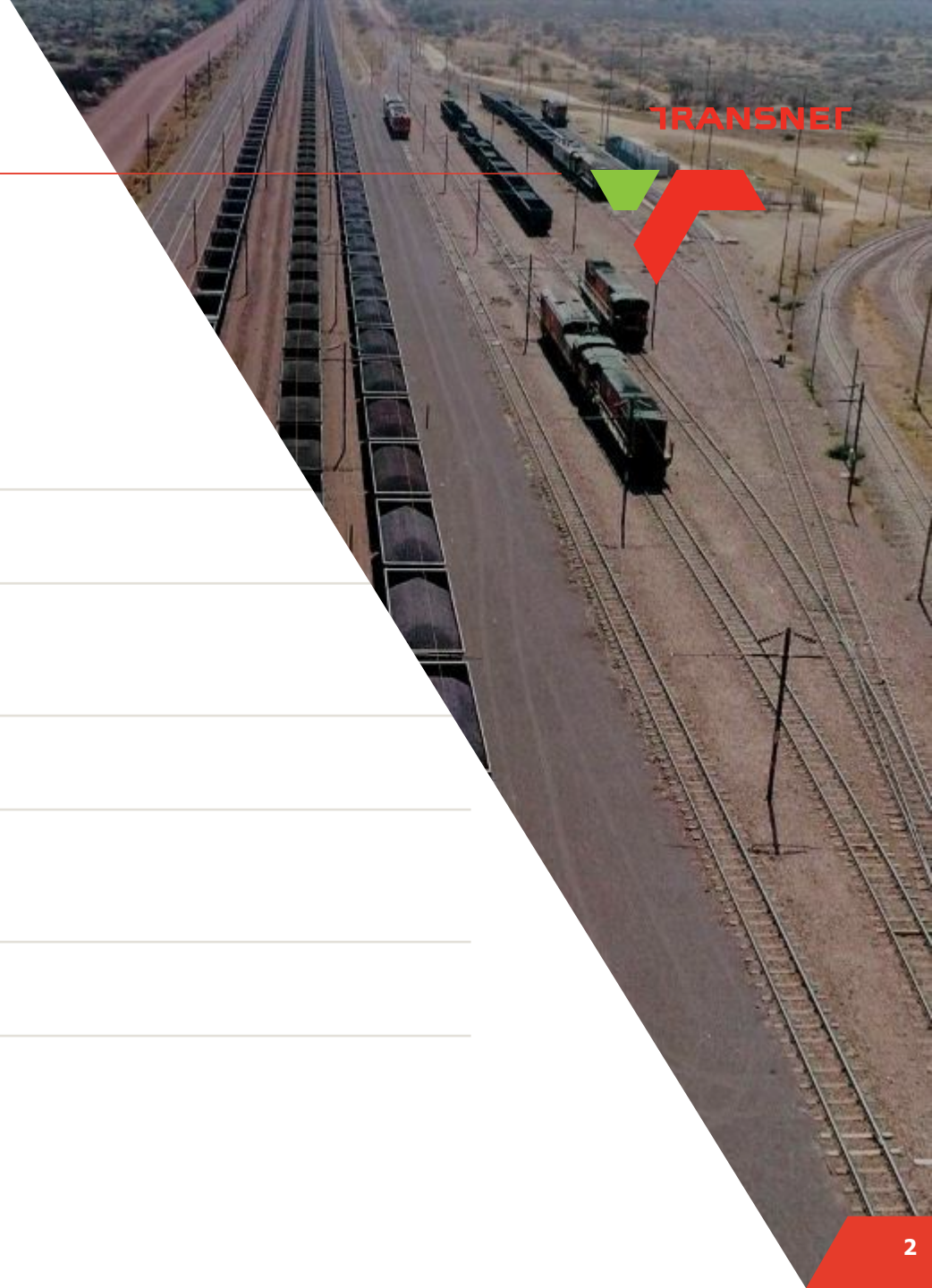
Transnet National Ports Authority

Boegoebaai Port & Rail Development
Site Selection

Date: 10 October 2024

Agenda

Boegoebaai Port & Rail Development



Boegoebaai Port: Site Selection Process

FUNDING AND OVERSIGHT

TRANSACTION ADVISORS

LANDSIDE AND SEASIDE ENGINEERING (PREFEASIBILITY)

It was found in the literature review that previous studies investigated different locations for the definition of supply chains and associated ports to move trade, the options included existing Ports in the surrounding areas of the province and a greenfield site.

The possible locations are best provided below:

- Option 1: Port Nolloth – Brownfield Development
- Option 2: Boegoebaai – Greenfield Development
- Option 3: 'Do Nothing' Option
- Option 4: Port of Saldanha Bay
- Options 5: Port of Ngqura
- Option 6: Port of Durban
- Option 7: Namibian Ports (Lüderitz and Walvis Bay).

As per the PPP guidelines, the seven possible logistics options have been evaluated in line with the **following considerations**:

1. Option description
2. Financial impact
3. Funding and affordability
4. Risk
5. BEE and other socio-economic aspects
6. Service delivery arrangements
7. Transitional management issues
8. Technical analysis
9. Site issues
10. Legislation and regulation
11. Human resources
12. Market capability and appetite
13. Qualitative factors.

Boegoebaai Port: Multi-Criteria Analysis Results (2019)

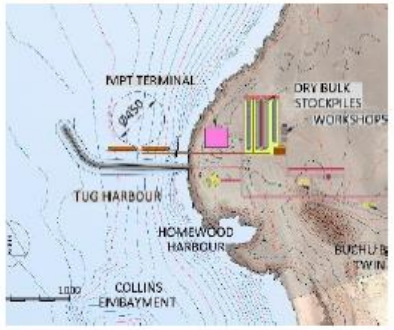
Table 4-1: Financial Impact Comparison

Cost component	Port Nolloth	Boegoe-baai	Do Nothing	Saldanha	Ngqura	Durban	Namibia
CAPEX	**7**	**3**	**1**	**2**	**4**	**6**	**5**
OPEX (20 YEAR)	**3**	**1**	**5**	**4**	**2**	**7**	**6**

Table 4-2: Comparison of Delivery Implications of Various Sites

Option	Advantages	Disadvantages
Option 1	Cheaper land, lesser development	Town already established
Option 2	Greenfield site, no development	Different owners of land
Option 3	Some established services available	Congestion, no development
Option 4	Port with services	Environmental issues and residential areas
Option 5	Newly established port with space	Minimal benefit for Northern Cape
Option 6	Established port, variety of services	Congested port, no back of port space
Option 7	Minimal impact on South Africa environment	Congested port, no back of port space, not within SA sovereignty

Table 4-3: Summary of High-Level Options Assessment

Criteria	Port Nolloth	Boegoebaai
		
Technical Analysis	A dredged approach channel is required. Existing port infrastructure and lack of back of port space for future expansion. However, would provide a shorter implementation schedule	Deepwater port therefore no dredging is required Greenfield site with sufficient area for future development. However, would have a longer implementation schedule
Socio-economic Impact	Future mining and subsistence operations may be impacted as a result of port upgrading and expansion	Would not impact on current and future mining and subsistence operations in Port Nolloth
Environmental Constraints	Close proximity to human settlements, upgrading involves possible beach erosion	Located far from human settlements and beaches
Legislative Process	Existing port in TNPA national ports system	Would require legal induction into TNPA national ports system

Boegoebaai Port: Why Boegoebaai is the go-forward option

In support of the above analysis, the preferred option was further assessed based on the following analysis:

- Economic Analysis
- Technical Engineering Analysis;
- Environmental Analysis;
- Safety and Well-being Analysis; and
- Integration into the regional and national social fabric.

Table 4-4: Appraisal and Measurement Criteria

High Level Appraisal Criteria	Appraisal Criteria Description	Measurement Criteria
Economic	Connectivity	Availability of Supply Chain capacity
		Supply Chain Cost
		Supply Chain Time
	Capital Cost	Supply Chain Infrastructure Cost
		Land Cost
		Equipment Cost
	Wider Economic impact	SA Job Creation Opportunities
		Unlocking Mineral Logistics Capacity
		Provincial Industrial Development
Technical	Ship Accessibility	Draft at Quays
		Channel Geometry
	Availability of land	Availability of Land for cargo servicing
		Scalability for future phases
	Bulk Services	Access to electricity
		Access to water
	Road/rail access	Current Rail links
		Current Road links
	Labour	Available Local Labour
		Deployment of Technical Skills
	Constructability	Impact on current operations
		Geotechnical Conditions
Environmental	Air Quality	Local Air Quality
		Dust Pollution
	Noise	Proximity to residential areas
	Landscape/biodiversity	Change in Flora Environment
		Change in Fauna Environment
Safety/Wellbeing	Reduction in accidents	Heavy Vehicle Accidents
		Road and Rail Congestion
	Housing, schools, health	Staff Housing
		Schools for staff children
		Health services/clinics
Integration	Land use	Community Commercial Development
		Availability of land around port
	Settlement severance	Relocation required
	Legal	Promulgated Port
	Social Services	Expansion of Regional Health Services
		Expansion of Regional Training Services

Figure 4-1: Option Scores

Transnet RFQ Process: Port Locations

1. Boegoebaai
2. Port Nolloth
3. Kleinsee
4. Hondeklipbaai

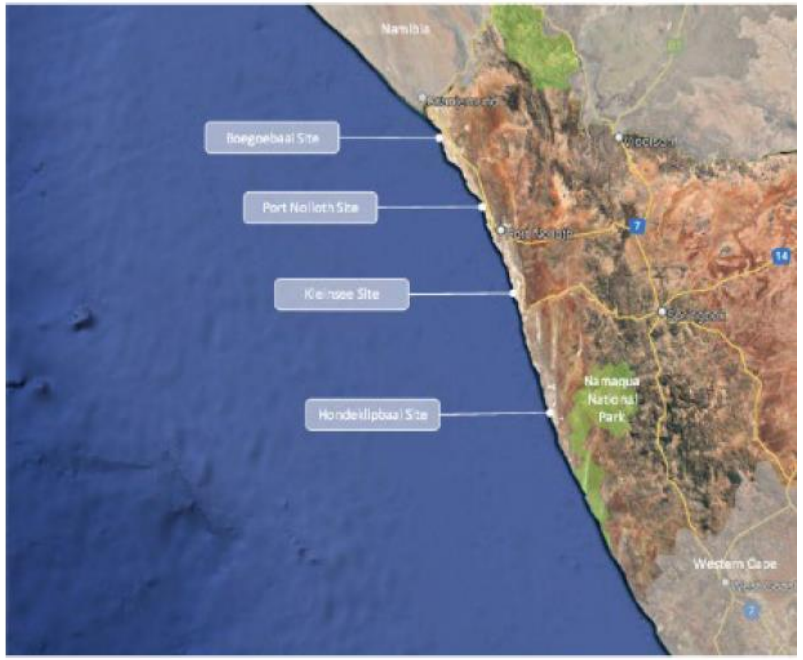
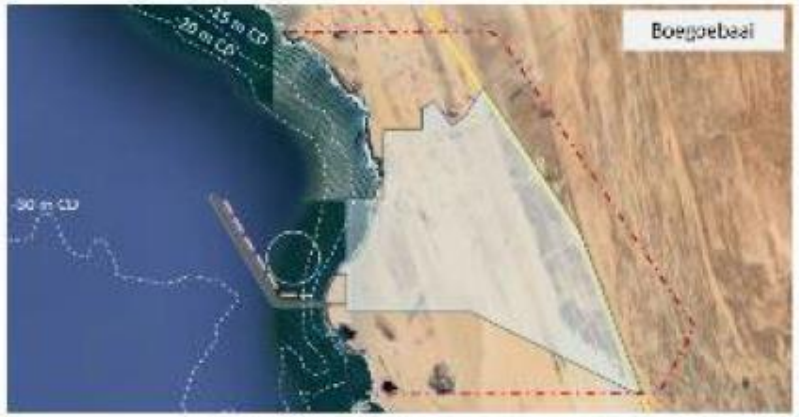
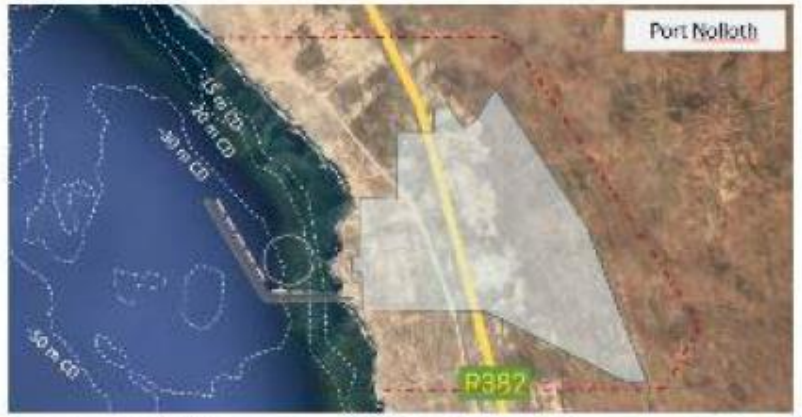


Figure 3-1: Overview of Potential Port Locations





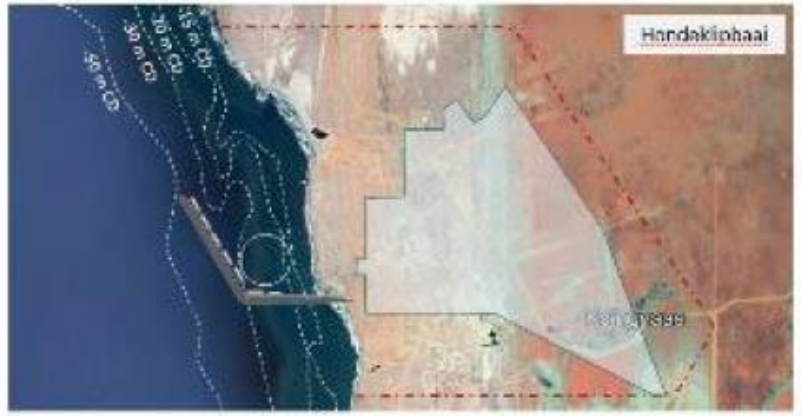


Figure 3-2 Masterplan Layout for each Location

Transnet RFQ Process: Rail Routings

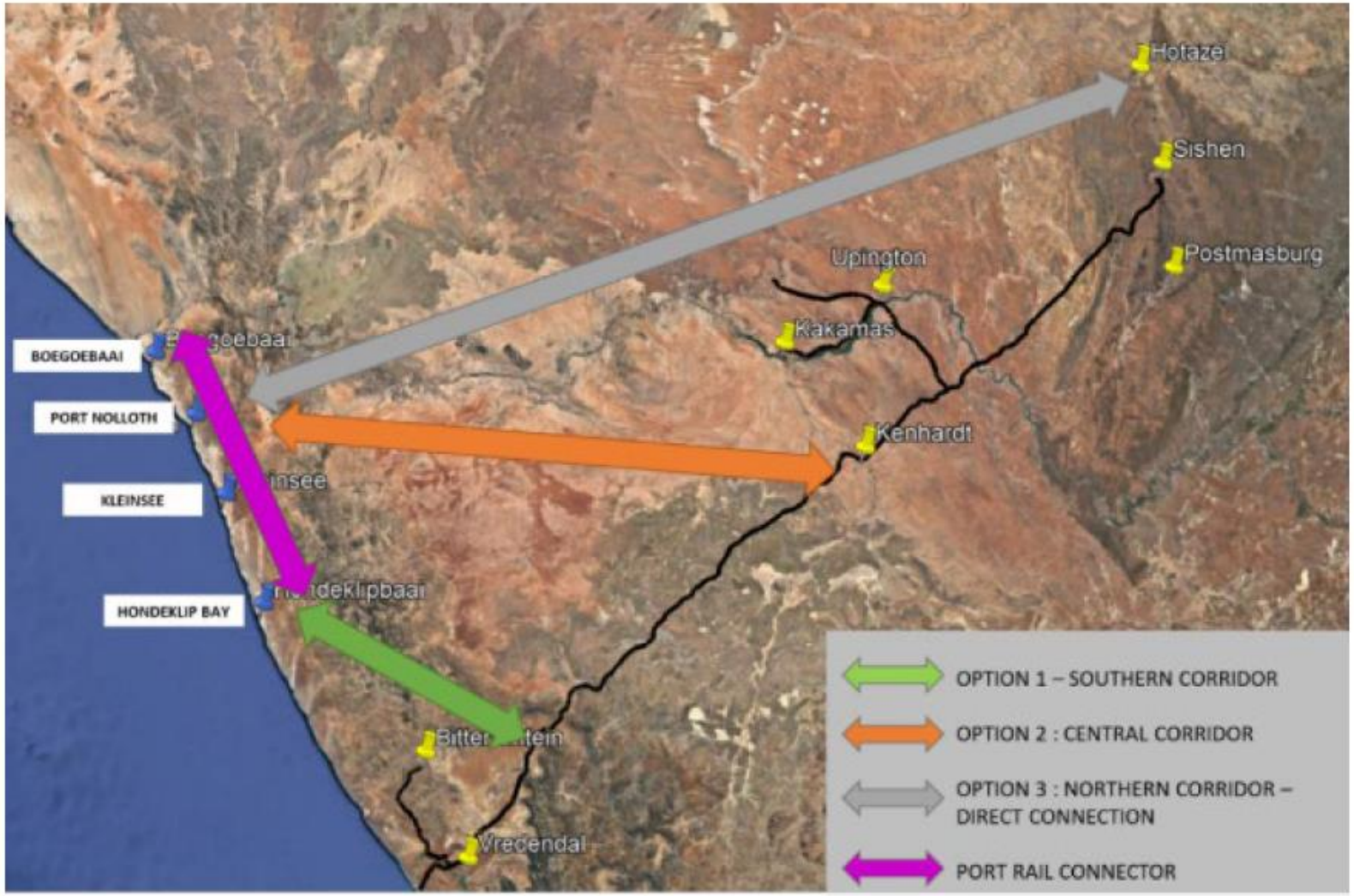


Figure 4-1: Rail Corridor Options

Option 1: A **southern corridor link** that connects to the existing OREX Line closer to the coast. This entails a shorter length of new line development, but longer travel distance on the existing OREX Line

Option 2: A **central corridor link** that connects to the existing OREX line in the region of Kenhardt. This entails a relatively longer length of new line development, but shorter travel distance on the existing OREX Line

Option 3: A **northern corridor link** that connects directly to Hotazel and connecting to the network at Hotazel and north of Upington. This has a relatively longer length of new line development compared to the other options, but by-passes the existing OREX Line

Port Site Selection Approach

To identify potential alternative port locations, **a desktop study of the Northern Cape coastline was conducted**. A range of site selection criteria were considered to identify three additional sites as alternative port locations. Although **the entire coastline was considered during the site selection process**, the areas identified in the **RFQ were used as a guideline.**

The port design basis establishes the requirements that need to be met for the project in the initial stages and long-term development. The site selection criteria that influence the identification of a particular location include:

- Environmental sensitivity
- Nearshore coastal characteristics
- Landside characteristics

1 Environmental Sensitivity

Any **area with possible coastal sensitivity issues was excluded**, as the construction of a deep-water port in an environmentally sensitive area could have significant consequences for the coastal environment, as well as constrain port expansion. Any **region considered as environmentally sensitive was therefore avoided** when considering alternative port locations. As a result, for a site to be considered appropriate for the new port, **it would need to avoid**:

- National parks and nature reserves
- Sandy shorelines and dunes
- River mouths
- Endangered species habitats
- Existing settlements

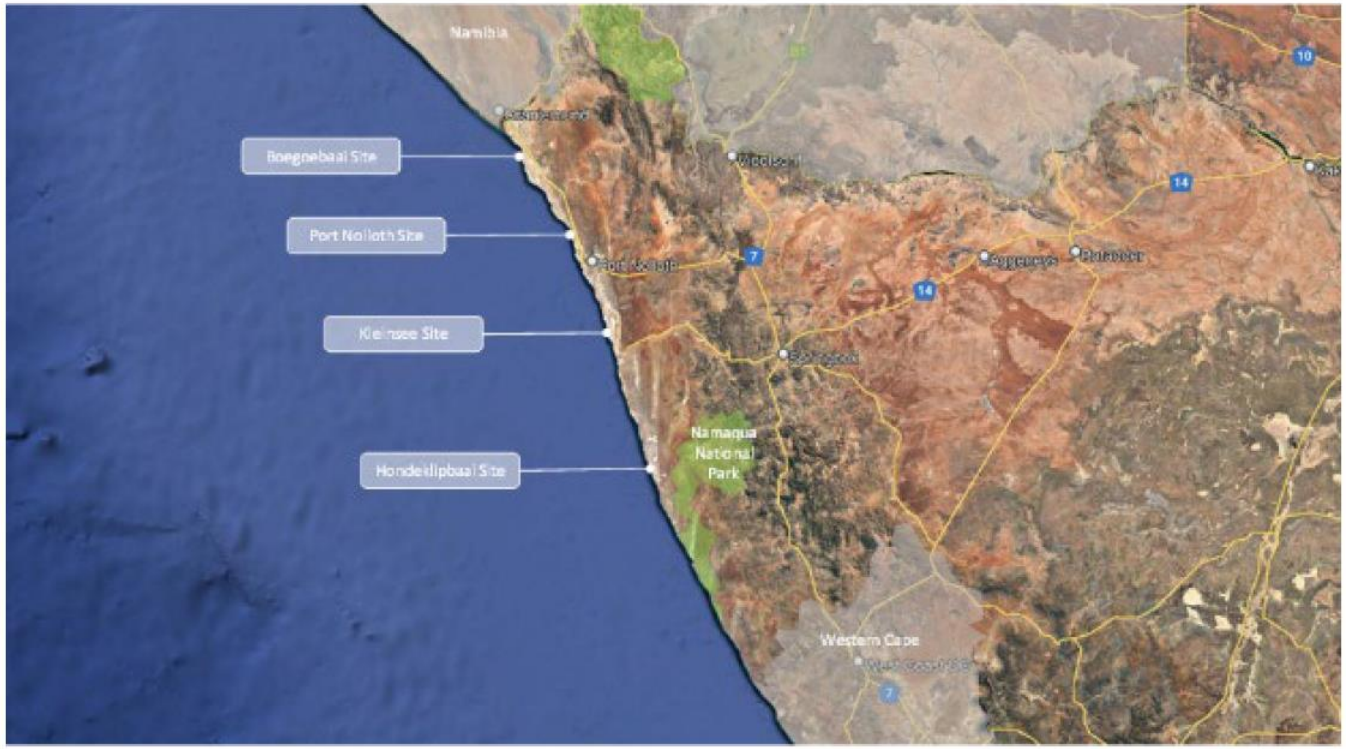


Figure 3-1: Overview of Potential Port Locations

Port Site Selection Approach contd.

2 Nearshore Characteristics

The **nearshore characteristics associated with a potential port location are vital** to ensuring that the functional requirements, as set out in the design basis, can be met. **Metocean conditions** along the West coast are essentially the same for all sites and therefore not considered as differentiators. **Coastal bathymetry presents the primary site** selection factor affecting the respective sites. To **accommodate the design vessels in the short and long-term development phases without extensive rock dredging**, the following nearshore characteristics were considered:

- Min water depth = -15 m CD (minimum depth requirements for berths)
- Max water depth = -25 m CD (entrance channel depth)
- Basin width = 1000 m (to accommodate channel and 800 m turning circle)
- Protected berths and semi protective turning circle

Although sufficient water depth is required to accommodate a variety of vessels, it is preferred that the water depth at the selected locations does not extend too far from the above-mentioned maximum depth of – 25m CD. This is with the aim of reducing the material volumes required for the marine structures within the port, in turn allowing for a balance between functionality and cost-effectiveness.

3 Landside Characteristics

Although the marine characteristics were a focal point for the desktop study, the **landside characteristics** of a potential site can have almost as much importance on the site selection process. Sufficient land area is required to meet all the functional requirements for the terminals, storage areas, and rail and road connections. The following landside characteristics were considered during the site selection process:

- Sufficient land area available
- 3 000 ha for port development
- 7 000 ha for SEZ
- Avoid existing settlements
- Good road connections
- Good rail access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Thank you