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ENVIRONMENTAL IMPACT ASSESSMENT (SCOPING REPORT, INCLUDING IMPACT ASSESSMENT & EMP) FOR COOPERATIVE BULK HANDLING TERMINAL'S PROPOSED SULPHURIC ACID STORAGE AND HANDLING FACILITIES IN THE PORT OF WALVIS BAY

NOVEMBER 2024

Compiled for:
Cooperative Bulk Handling Terminal (Pty) Ltd
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COOPERATIVE BULK HANDLING TERMINAL

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DOCUMENT CONTROL

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EXECUTIVE SUMMARY

INTRODUCTION

CBHT, a wholly owned subsidiary of Bannerman Investments Namibia (Pty) Ltd and part of the Bannerman Energy Ltd Group of Companies, was awarded an area within the port of Walvis Bay for its proposed sulphuric acid storage and handling facility (CBHT Facility). The CBHT is tasked with the logistical management of importing and exporting materials, including sulphuric acid, an essential reagent in the mining industry's extraction of uranium (U_3O_8). Sulphuric acid (H_2SO_4) (98%) is required Bannerman Resources Namibia's Etango Mine.

This Environmental Impact Assessment (EIA) Scoping (including Impact Assessment) Report and Environmental Management Plan (EMP) (**Appendix H**) have been compiled as part of the EIA process that is being undertaken for Cooperative Bulk Handling Terminal (Pty) Ltd's (CBHT) proposed sulfuric acid storage and handling facility in the Port of Walvis Bay and transport from the CBHT Facility to the Etango Mine.

Figure 1 and **2** shows the area which was awarded to CBHT at the port of Walvis Bay and the transport route from the port to the Etango Mine. An Environmental Clearance Certificate (ECC) needs to be granted by the MEFT (DEA) for the construction and operation of the sulphuric acid facilities at Walvis Bay Port (and the related activities) and the basis of an approved Application and associated EIA process.

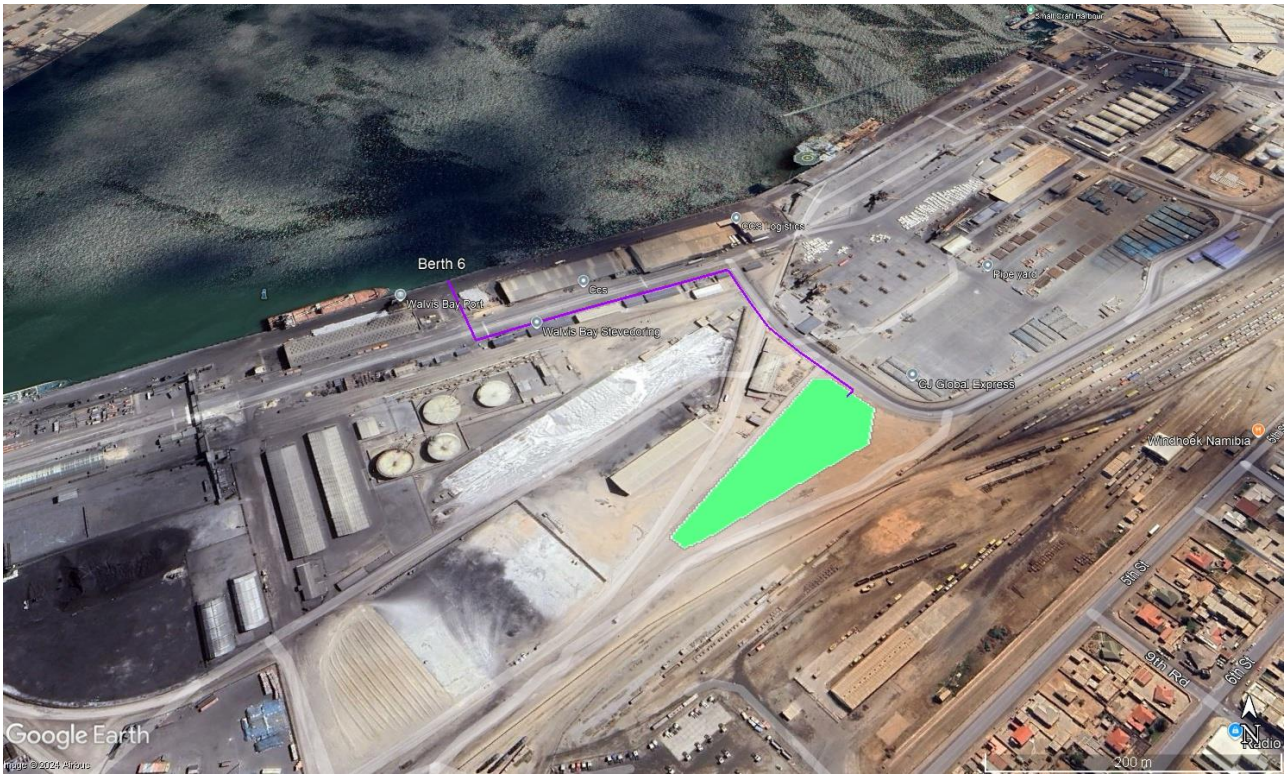

Figure 1: Sulphuric storage and handling facility (green) and pipeline (purple) from berth 6 to the facility in the Port of Walvis Bay. Please note: the four Rössing tanks are directly opposite from berth 6.

MOTIVATION FOR THE PROPOSED PROJECT

Bannerman is in the process of constructing its Etango uranium mining and processing (and associated activities) Project. Sulphuric acid is an essential reagent in the mining industry for extraction of uranium. With reference to section 1.2, Bannerman's metallurgical process will also use sulphuric acid leaching to extract the uranium from the ore.

The sulphuric acid will either be sourced from a local Namibian supply or from abroad, either transported by rail within Namibia or shipped by vessels to the port, and decanted into the new storage tanks at the port.

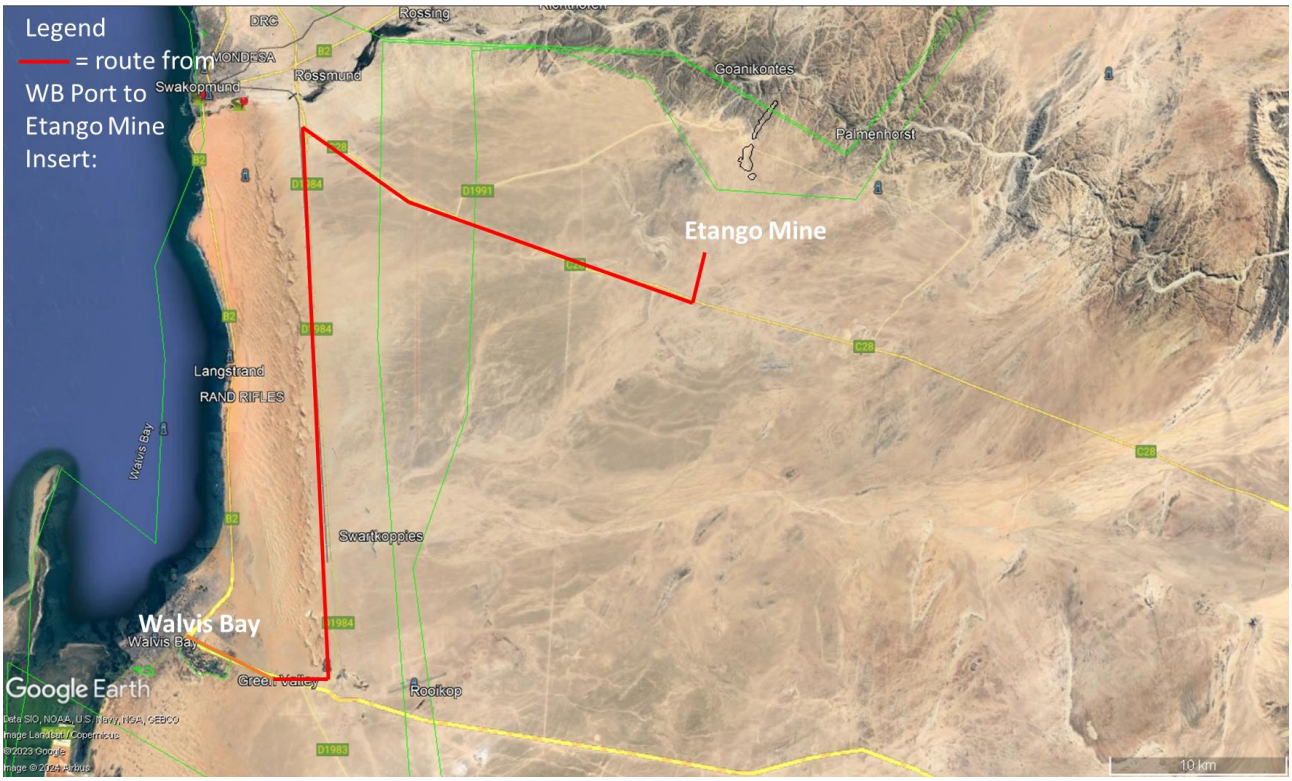

Figure 2: Road transport route from the sulphuric storage and handling facility at the Port of Walvis Bay to the Etango Mine.

ASSUMPTION AND LIMITATION

It is assumed that the transport companies for the sulphuric acid as well the operator of the CBHT Facility at the Port of Walvis Bay will have the relevant emergency procedures in place for any spillages or in case of transport spillages and fires resulting from a road or rail accident.

The transport by rail to the CBHT Facility has been excluded in this report and is part of TransNamib's requirements to have this in place.

Similarly, the transport of the acid by vessels (i.e. on sea) is excluded from this EIA process. It is assumed that CBHT will confirm that the respective Transport Companies have the required Risk Assessments, Emergency Response Procedures, etc. in place. The Scope of this EIA (and report) therefore include only the discharge of the acid from the vessels, once they've docked at the quayside, and not the transport from another Country to the Walvis Bay harbour / port.

EIA PROCESS FOR THE PROPOSED SULPHURIC ACID STORAGE AND HANDLING FACILITY AT THE PORT OF WALVIS BAY AND TRANSPORT OF THE SULPHURIC ACID

The main purpose of this report is to provide information relating to CBHT's proposed sulphuric acid storage and handling facility at the port of Walvis Bay and transport of the sulphuric acid to the Etango Mine and to list the environmental aspects and impacts that are identified during the scoping process; to assess them; and to provide relevant management and mitigation measures to avoid or minimize the potential impacts (included in the EMP, attached as **Appendix H**).

Objectives	Corresponding activities
Screening Phase (internal) (July – August 2024)	
• Early identification of Identify interested and/or affected parties (IAPs) and list environmental issues associated with the project.	• Review project information, early identification of IAPs and also the potential impacts that would require assessment. • Outline the EIA process to be followed.
Scoping phase (including assessment of impacts) (September 2024 – February 2025)	
• Identify interested and/or affected parties (IAPs) and involve them in the EIA (scoping) process through information sharing. • Identification of environmental and social aspects and potential impacts • Provide a description of the affected environment. • Assessment of potential environmental impacts associated with the proposed project. • Compile an EMP with mitigation measures.	• Submission of Application Form No. 1 to the MWT as the Competent Authority. • Register the application with MEFT. • Identify government authorities and IAPs and notify them of the project and EIA process. • Email a Background Information Document (BID) to all IAPs on the project EIA database. • IAP registration and initial comments period. • Compilation of Scoping (including impact assessment) Report and EMP. • Distribute Scoping Report and EMP to relevant authorities and IAPs for review. • Meetings with I&APs were conducted in September 2024, where the study findings associated with the proposed project were shared, during the review period of the EIA report (see section 4 for further details) • Forward finalised Scoping Report and EMP with IAPs comments to MWT and MEFT for decision making.

PUBLIC PARTICIPATION PROCESS

The public participation process for the proposed project (i.e. construction and operation of the sulphuric acid storage and handling facility and the transport of acid to the Etango Mine) aimed to ensure that all persons and or organisations that may be affected by, or are interested in the proposed activities and infrastructure, were informed of the project, and could register their views and concerns. By consulting with relevant authorities and IAPs, the range of environmental issues to be considered in this report has been given specific context and focus. The table below list the tasks and a short description of the public participation process.

TASK	DESCRIPTION	DATE
Notification - regulatory authorities and IAPs		
Notification to MWT and MEFT	ASEC notified the DEA of the MEFT of the proposed project through registering the project on the MEFT online portal and uploading the BID. The ECC application form and BID were submitted to the competent authority (MWT).	18 September 2024
IAP identification	The stakeholder database was developed as part of the screening phase (i.e. prior to the commencement the formal Application process – see section 2.1) and is updated as and when required. See a summary of the IAPs in **section 4.1** and	July / August 2024 - ongoing

TASK	DESCRIPTION	DATE
	the comprehensive list in **Appendix C.**	
Newspaper Advertisements	Block advertisements were placed in the Market Watch (on 11 and 18 September 2024) as part of the following newspapers: • Allgemeine Zeitung • Republikein • Namibian Sun Copies of the advertisements are attached in **Appendix E**.	September 2024
Distribution of background information document (BID)	BIDs were emailed to I&APs listed in section 4.1 (and **Appendix C**). The first emails were sent out on the 12th of September 2024, whereafter further emails were sent out on request by IAPs. The purpose of the BID was to inform IAPs about the proposed sulphuric acid storage and handling facility in the port of Walvis Bay and the transport of acid to the Etango Mine, the EIA (Scoping) process being followed, potential environmental impacts identified by the Environmental Team and means of providing input to the EIA (Scoping) process. IAPs had an opportunity to submit their names, contact details and comments on the project. A copy of the BID is attached in **Appendix B**.	September 2024
Site notice and Flyers	A Site Notice was placed on the main entrance gate to the Port of Walvis Bay to notify IAPs of the proposed project, and the EIA process being following. Photos of the Site Notice that was displayed are attached in **Appendix E**. Flyers, which contained similar information as the Site Notice and Newspaper Adverts were hand delivered to the residences (i.e. private properties) outside the port along 5th Street (between 8th Road and 10th Road). Refer to **Appendix E** for the copy of the Flyers and a map showing the houses where the Flyers were dropped off.	September 2024
Key stakeholder and focus group meetings		
Focus Group Meetings	Various Focus Group meetings were arranged with Key Stakeholders. See section 4.1 for the objectives of the meetings. The newspaper advert, Site Notice and email notifications also indicated that "Focus group meetings with I&APs have been scheduled. Further meetings can be scheduled on request to ASEC". Further details of the meetings are provided in **Section 4.3**. The minutes of these meetings are summarised and attached under **Appendix D**.	September 2024
Comments		
Comments and Responses	Comments and issues raised during the focus group meetings are summarized in **section 4.4** and an Issue and Response Report can be found in **Appendix F**.	November 2024
Review of draft Scoping (including Impact Assessment) Report and EMP		
IAPs and authorities (excluding MEFT)	The EIA Scoping (including Impact Assessment) Report will be distributed to all IAPs that are registered on the IAP database via e-mail. Electronic copies of the report will also be available	End November 2024 to January 2025

TASK	DESCRIPTION	DATE
review of Scoping Report and EMP	on request from ASEC. A hard copy of the full report will be available at the Walvis Bay Public Library. The report will also be uploaded onto the ASEC website. Authorities and IAPs have 21 working days to review the EIA documents and submit comments in writing to ASEC. The closing date for comments is **24 January 2025**, as the review period falls within the December holidays.	
MEFT review of Scoping Report and EMP	ASEC will incorporate the comments received into a final report. A copy of the final report with the Application Form, including comments from authorities and I&APs, will be submitted to the MWT for review and recommendation to MEFT who will do the final review for decision-making. The final report (including IAPs comments) and application will also be uploaded onto the MEFT portal.	February 2025

Focus group meetings

Organization	Date & Time	Venue
Rössing Uranium	20 September 2024 @ 15:30	Bannerman Office - Swakopmund
NamPort	23 September 2024 @ 8:00	NamPort Office – Walvis Bay
Neighboring tenants inside the port	23 September 2024 @ 10:00	NamPort Office – Walvis Bay
Ministry of Works and Transport (MWT): Directorate Maritime Affairs (DMA)	23 September 2024 @ 14:00	DMA Office – Walvis Bay
Other Mining Licence Holders in close proximity to the transport route of the sulphuric acid to the Etango Mine	24 September 2024 @ 8:00	Bannerman Office - Swakopmund
MEFT (DWNP)	24 September 2024 @ 11:00	Bannerman Office - Swakopmund
TASA	24 September 2024 @ 12:30	Paintball facilities - Swakopmund

Summary of key issues raised

An Issues and Response Report (IRR), which summaries the comments received (through e-mails) and during the Focus Group, is provided in **Appendix F**. The key issues raised by IAPs are summarised below:

- Safety aspects relating to the transfer of acid between the vessels and the tanks – i.e. spillages.
- The storage and handling of dangerous goods and the required safety standards must always apply.
- Benefits of constructing the CBHT Facility inside the port?
- Effects / dangers that can be caused from a spill and what will be the effect on the port.

- The key issue (i.e. challenge) to be considered and assessed relating to both parks (i.e. Dorob National Park and the Namibia Naukluft National Park) is the potential for acid spills and how to act during such an emergency.
- Will Berth 3 or Bert 6 be used?
- Ownership of the CBHT Facility.
- Avoid and damage to Rössing's existing pipeline.
- Material to be used to construct the tanks and what will the capacity be, keeping in mind that corrosion is bad at the coast.
- The size of the tanks and if they will fit, considering the bunding requirements.
- How The vessel operations (i.e. off-loading) takes approximately 2 days (depending on the size of the vessel, which varies between 20,000 and 25,000 tonnes). If the same Berth (i.e. Berth 6) is used in future for the proposed new CBHT Facility, there could be challenges in terms of the off-loading schedules.
- Emergency Reponses and responsibilities during emergency situations (i.e. during a spill).
- Key is to avoid disruption of other users, i.e. salt works during both construction and operations (if vessels arrive at the same time).
- The main Port road that will now be routed adjacent (south) to the proposed new CBHT Facility. This (current) gravel road will be upgraded and the construction activities could overlap with the construction activities of the CBHT Facility.
- Various pieces of old equipment, scrap metal, sleepers, etc. are currently stored on the site where the CBHT Facility is proposed.
- Road congestion (i.e. outside the port).
- Spillage prevention at the mine. (Covered in the Etango EIA).

ALTERNATIVES

The identification and consideration of alternatives is recognized as required practice in environmental assessment procedures globally and is a regulatory requirement in terms of the Namibian Environmental Management Act, 2007 (Act No. 7 of 2007).

In the context of the proposed transportation of the sulphuric acid by road to the Etango Mine, site alternatives could not be addressed as no railway line (route) extends to the Etango Mine located in the Namib Naukluft National Park.

The only alternatives that require investigation relate to the road transport option from the CBHT Facility in the Walvis Bay port to the Etango mine, the alternative could be via rail transport to a siding that would have to be constructed behind the dune belt and then via road transport the Etango Mine; and the no-go alternative for developing the CBHT Facility at the WB Port.

PROJECT DESCRIPTION - STORAGE AND HANDLING FACILITY AT WALVIS BAY PORT AND TRANSPORT TO THE ETANGO MINE FROM THE CBHT FACILITY

The facilities to be provided in the port include the following:

- Storage capacity of 40,000 tonnes of 98% sulphuric acid in 4 tanks.
- Related infrastructure for the transfer of acid into the storage tanks from shipping vessels or rail acid tankers.

- Related infrastructure to transfer acid from the storage tanks to acid road tankers to transport the acid to the Etango Mine.
- Related infrastructure for safe operation of all facilities.

WHAT IS SULPHURIC ACID?

Sulphuric acid (alternative spelling "sulfuric acid") (H_2SO_4) is a is a highly corrosive strong mineral acid. It is a colourless to slightly yellow, odourless, viscous liquid which is soluble in water at all concentrations. Sulphuric acid is a very important commodity chemical. It is often used as an indicator of a country's industrial strength.

Sulphuric acid has a wide range of uses. It plays some part in the production of many manufactured goods, with its major use is in the production of fertilizers, e.g. superphosphate of lime and ammonium sulfate. It is also used to manufacture explosives, other acids, dyes, glue, wood preservatives.

Bannerman's metallurgical process will use sulphuric acid leaching to extract the uranium from the ore.

Description of Operation Activities and Infrastructure

Off-loading activities at Berth 6

Berth 6 (see **Figure 1**) is the dedicated berth to off load sulphuric acid. It is as well used over the last decades by Rössing. Should any other vessel moor at the berth when a vessel with sulphuric acid arrives, it needs to leave to allow the vessel that transports the sulphuric acid to moor immediately.

2x flexible hose connections will connect the main supply line manifold to the vessel. The pumping CBHT Facility for offloading will be onboard each vessel and flow normally regulated by maintaining pressure below 700kPa which ensures that the flow velocity is also maintained at 1m/s. Because of the high specific gravity of sulphuric acid, very high pump pressure may be experienced. In such cases care must be taken not to open or close valves too quickly in the pump system as this causes pressure surges that may rupture lines or hoses.

Pipelines between Berth 6 and new CBHT Facility

Three main supply lines (2x duty, 1x standby) will run from berth 6 to the storage CBHT Facility.

The acid will have to be decanted from the ship via flexible bullhoses to the decanting manifold. The two decanting lines will be schedule 80, 400mm diameter steel pipelines which are sized to allow for a maximum flow speed of 1m/s. The pipes were sized to each handle 550 ton per hour so as to not exceed the critical velocity of 1m/s in the pipe.

The pipelines will be installed inside a proposed new concrete culvert, with the first section running parallel to Rössing's existing pipelines (see **Figure 1**). The culvert shall be constructed for the entire length of pipeline. The entire length of the culvert shall be lined with a HDPE liner to prevent soil contamination in case of an acid leak.

Proposed new Storage and Handling Facility

The site allocated by NamPort to CBHT lies approximately 450m from Berth 6 as the crow flies. However, the pipelines will follow an allocated pipeline servitude and the distance from berth 6 to the site will be approximately 680m (see **Figure 1**). The closest residential houses are approximately 250m from the site. It must be noted that the access to the CBHT Facility in the port is controlled and residents cannot enter the port without authorization.

Sulphuric Acid Storage Tanks

4 tanks with a combined capacity of 40,288 Mt are required to store sufficient acid. Since sulphuric acid (98%) has a specific gravity of 1.84, it equates to a total volume of 21,896 m^3, or 5,474m^3 per tank. For practical reasons such that the acid does not come into contact with the roof support beams, four covered circular tanks measuring 28.12m in diameter and 10.2m to its eave will be constructed from steel plates of varying thickness. This will result in a tank with a safe live volume

of 5,504m³, leaving a freeboard of 930mm to the underside of the roof support beams and a freeboard volume of 577m³. The density of sulfuric acid is 1.84 g/cm³ which thus yield a capacity of 10,127 Mt per tank, and a total storage capacity of 40,509 Mt.

The tank construction will be welded circular steel plate walls with a sloped welded steel plate floor. A reinforced concrete ring beam is provided below the walls as a stiffening beam and to create a raised level starting point to fix the wall panels to. The roof structure of the tank is a steel beam construction covered with 6mm thick mild steel plate at a 9.5° slope outwards from the centre.

Sub-floor drainage was allowed for beneath the tanks which drains towards an inspection manhole that is cladded with acid bricks. The purpose of the sub-surface drainage channels is for early detection of any possible acid leaks in the tank floors.

The tanks will be designed to British Standard 2654:1989 and the design considers loads from stored product, wind loading, vacuum loads, and a super imposed roof load. The tank design will be based on a grade 300 WA steel limited to a design stress of 170MPa.

The concrete specification for the ring beam is a 40MPa concrete mix, with a maximum water to cement ratio of 0.45 and a minimum binder content of 420kg/m³. A minimum of 75mm cover to reinforcement should be maintained throughout.

In addition, cathodic protection will be provided to the tank to prevent corrosion. The inside of the tank will not be protected against the product other than an allowance being made in the design of the steel thickness for loss of steel caused by corrosion. The amount of steel loss over a 20-year life cycle is calculated and added to the required steel thickness.

The proposed Cathodic protection system is a Piggyback anode system installed in the layer materials under the tank floor. Each tank shall have its own cathodic protection installation. Clean homogenous sand shall be used to provide a relatively benign tank bottom environment.

The lightning protection and earthing installation for the new tanks shall be designed to be compatible with the cathodic protection installation. The design is in accordance with the requirements of SABS IEC 1024-1:1990.

Separate earth electrodes shall be installed at the road and rail facilities for earthing of the road and rail loading structures. All earth electrodes on the site shall be interconnected to create an equipotential. The earthing system shall be connected to the cathodic protection anode by means of a spark gap in the junction box.

The bunded area will be constructed to contain 110% of the capacity of one tank. The capacity of one tank is 5,504m³. One should thus allow for the total capacity of 6,055m³ if 110% storage capacity is required for accidental spillage due to rupture. The bunded area was designed to be 2.2m high, of which 0.15m is freeboard allowance, as the space is limited on site. A total area of 4,814m² is thus required to accommodate the capacity of a ruptured tank while taking the footprint area of three additional tanks into consideration.

Offloading from trains

In the case that sulphuric acid is sourced from a local Namibian supply it will be transported from the source to the CBHT Facility in the Port of Walvis Bay via train. The infrastructure for **rail offloading** will entail the following:

- A single sideline platform housing 8x offloading hoses with related pump and decanting setup.
- 2x supply lines connected to the 8x offloading stations each. The supply line design forms a closed loop with intermediate shut off valve to allow reduced operation on either line while the other is being repaired or replaced.
- The pumping facility for loading will be shared between rail loading and road loading with variable flow control based on demand.
- Each offloading station has its own offloading pump and decanting assembly.
- A rail siding for stacking at least 8x rail tankers while the other 8 are being docked next to the platform and offloaded.

To offload the sulphuric acid from the rail tankers suctions arms are lowered into the acid rail tankers through the top loading/offloading hatch and pumped into the acid storage tanks. The loading/off-loading facility and activities will be designed and managed to aim for a zero-spillage system.

Pumping from vessels to storage tanks

The infrastructure for **vessel offloading** of the sulphuric acid at the Walvis Bay Port will entail the following:

- 3x main supply lines (2x duty, 1x standby) will run from the site to the required berth.
- 2x flexible hose connections will connect the main supply line manifold to the vessel.
- The pumping facility for offloading will be onboard each vessel and flow normally regulated by maintaining pressure below 700kPa which ensures that the flow velocity is also maintained at 1m/s.

Loading into Road Trucks

The infrastructure for **road loading** to transport the sulphuric acid to the Etango Mine will entail the following:

- A single overhead platform housing 2x loading arms in order to fill 2x road tankers simultaneously.
- 2x supply lines intended to form a closed loop to allow reduced operation on either line while the other is being repaired or replaced.

The bunded filling area will be constructed on well-prepared earthworks. The concrete bunded area will be sloped towards catchpits where the spilled acid can be collected and removed. The bunded area will have an upstand beam on the perimeter to contain the spillage. The concrete will be protected by an HDPE liner which is covered with sifted sand to prevent the acid from attacking the concrete as well as protecting the structure against mechanical damage.

The sulphuric acid will be loaded into road trucks by means of acid loading arms that are lowered into the acid road tankers through the loading opening at the top of the rail tanker. After each tanker is loaded, the hatch will be closed and bolted down. Each hatch will also be sealed. The loading activities will be overseen and inspected by a contractor, who will be appointed by CBHT.

Transport and Route between Port and Etango Mine

The transport of the sulphuric acid from the Port to the Etango Mine will be outsourced to a contractor. The road tankers will leave the Port of Walvis Bay and drive through Walvis Bay to meet up with the C14, from there the tankers will use the new B2 (i.e. double highway behind the dunes to the turn off onto the C28 to the Etango Mine turn off. An extra slip-lane will be constructed at the turn off at the Etango Mine to ensure that other traffic on the C28 is not affected when trucks slow down to turn to the Etango Mine access road. **Figure 2** shows the route.

Emergency Response Plan

Rössing Uranium shared their existing Emergency Response Plans for their sulphuric acid storage and handling facility at the port of Walvis Bay with CBHT. CBHT will develop their own Emergency Response Plans aligned with the Rössing Uranium ones during the detailed design phase.

Construction Period

The actual construction period extends over 14 months. It is envisaged that the construction will commence in June 2025 so as to be complete in September 2026.

DESCRIPTIONS OF THE CURRENT ENVIRONMENT

An understanding of the environment and the sensitivity of the site and surroundings is important to understand the potential impacts of the project and associated activities / facilities.

Climate

The climate in the general project area is arid and falls into southern Africa's summer-rainfall region. The climate of the central Namib Desert, where the Project is located, is strongly influenced by the quasi-stationary South Atlantic High off the southern Namibian coast. As a result of the sinking air over the cold Atlantic, temperatures close to the coast are moderate, the humidity is high, and overcast days and foggy nights are common. Sea temperatures along the central part of the Namibia coast are rarely warmer than 20°C. The cold sea has a profound climatic influence over the land that borders it – climatically this part is referred to as Cool Desert. (Namisun, 2023c).

Temperature

Average annual temperature over the central coast is less than 16°. Average daily temperatures vary between a minimum of 10°C in the coldest month and a maximum of 32°C in the warmest month in the area (Mendelsohn et al, 2002).

Precipitation

Rainfall over the central Namib Desert can be described as extremely variable, patchy, unreliable, and marked by a deviation coefficient of more than 100%. Rainfall events are rare and episodic, with the total annual rainfall seldomly exceeding 50 mm.

Wind

Along the coast, the south and southwest wind which originates from the South Atlantic High and blows over the cold ocean, is responsible for the prevailing wind direction and dominates daytime and night-time wind patterns. These wind components are characterised by a high frequency of moderate to strong wind speeds. Wind speeds exceeding 5 m/s occurred for 34% of the time with a maximum of 11.9 m/s recorded at Pelican Point. During the day the south-south-westerly and southerly winds are more dominant at Pelican Point and southerly winds are dominant as measured at the meteorological station in town. As is typical of night-time conditions an increase in calm conditions occur.

Receiving environment inside the Walvis Bay port

Surface water and groundwater

Surface runoff is a rarity in the central Namib Desert and occurs only after an episodic rainfall event. Although small puddles may form, precipitation from fog does not result into surface runoff.

The Port of Walvis Bay has no recognizable surface drainage line. When strong rainfall events do occur over Walvis Bay, the flatness of the terrain, combined with the sealed surfaces of the built-up areas of an urban environment, causes standing water and even sporadic flash floods of a high intensity. This may result in localized fluvial erosion, implying that a risk of stormwater events, flooding and erosion do exists. It furthermore implies that the necessary control measures must be in place, despite the long spells of rainless periods.

There is no known potable groundwater source in the vicinity of the site and the port of Walvis Bay does not fall within a Water Control Area (SLR, 2013). Depth to the water table is calculated as about 3.5 m below surface and implies a flow of water towards the sea, on top of water that is more saline (SLR, 2015).

Terrestrial biodiversity

There is no flora or natural fauna present on the proposed sulphuric acid storage and handling site, as is the case for the rest of the Port of Walvis Bay – the site has been previously disturbed and reclaimed.

The marine environment

Walvis Bay Wetland is located south and west of the town and comprises the natural areas of Walvis Bay lagoon. Parts of the wetland have been declared a RAMSAR site as it supports the

greatest number of coastal birds in southern Africa. The lagoon lies at the southern end of the open water and therefore south of Walvis Bay Port.

The central Namibian coastline falls into a biogeographical region known as the warm-temperate Namib Province, which extends from Lüderitz northwards into southern Angola (Emanuel et al. 1992 referenced in Pulfrich, 2020). Wind-induced upwelling is the principle physical process that shapes the marine ecology of this biogeographical region. It is characterized by the presence of cold surface water, high biological productivity, and highly variable physical, chemical and biological conditions (Barnard 1998, referenced in Pulfrich 2020). At Walvis Bay this ecosystem is wind- and tidally driven, deriving its main energy source from the offshore upwelling system, with a relatively high degree of mixing of water from the lagoon with water from the bay (Pulfrich, 2020).

Two habitats occur within the sheltered southern portion of the bay and within the lagoon, namely the extensive shallow, sandy shores that are regularly covered and exposed by tidal action, and a sandy / muddy subtidal seabed in waters of <5 m depth (Pulfrich, 2020). Within the southern part of the bay, it is this sandy / muddy subtidal seabed that dominates. In general, this habitat is nearly devoid of zoobenthos. Insignificant populations of benthic fauna occur in the upper reaches of the lagoon, while the parts close to the mouth of the lagoon is sparsely populated.

According to Geo-Pollution Services (2024), the marine mammals, occurring at various times in the Walvis Bay area, are the cetaceans, i.e. Common Bottlenose Dolphins, the Namibian endemic Heaveside's Dolphins, Dusky Dolphins, Humpback Whales, Southern Right Whales and Pigmy Right Whales. Cape Fur Seals also occur here and the Common Bottlenose Dolphin and Heaveside's dolphin and Cape Fur Seal is seen most frequently.

These marine mammals play a significant role in the ecosystem, but also contribute to the tourism industry of Walvis Bay (Geo-Pollution Services, 2024). Geo-Pollution Services (2024) furthermore states that the Namibian benthic and seashore communities are characterised by relatively low species diversity, with high abundance. It is regarded a dynamic ecosystem with relatively high resilience against impacts. The South Port is significantly degraded by various anthropogenic activities which are associated with historic and current harbour and periodic dredging activities (Geo-Pollution Services, 2024).

However, the EIA Report prepared for Rössing in 2000 (CSIR, 2000) explained that the marine environment within the confines of the Walvis Bay harbour is widely regarded as degraded.

Land Use / closest receptors

Walvis Bay is a sheltered deepwater harbour and Namibia's largest commercial port. The port is the dominant player for transshipment to Zambia, Botswana, Malawi, Zimbabwe, Angola, and the Democratic Republic of Congo (DRC), and is a natural gateway for Southern African Development Community (SADC) countries that export to Europe and the United States. Annually, more than 3,000 vessels are received at Walvis Bay and approximately five million tonnes of cargo is handled. The port is managed by NamPort, which was established in 1994 (Pulfrich, 2020).

The proposed CBHT sulphuric acid storage and handling facility site, is located inside the port, in an area earmarked for bulk handling and storage of commodities (see and **Figure 1**, **Section 1** and **Figure 4**, **Section 7.2.3**).

TransNamib's rail infrastructure and buildings are located south of the proposed CBHT Facility, inside the port boundaries. Other port tenants, nearby the proposed CBHT Facility include Grindrod Terminals WBBT, Pindulo Logistics and Walvis Bay Cargo Terminals. Rössing Uranium has been operating their (similar) sulfuric acid handling and storage facility since 1976, which is located ~250m north-west of CBHT's proposed facility. Rössing's, facility includes, amongst others, 4 tanks, road and rail loading / offloading facilities and relating pipeline to berth 6 for off-loading of acid from tankers.

The closest residential properties outside the port are the houses along 5th Street (between 8th Road and 10th Road), located ~240m south-east of CBHT's proposed facility.

Soil contamination / sampling on the site

As part of their plans to develop the proposed acid handling and storage facility at the specific site in the port, CHBT wants to ensure that the company does not become accountable for historic hydrocarbon contamination of the site. Even though hydrocarbons will not per se be stored on site by CHBT, the hydrocarbon spillage is always a possibility due to construction activities, vehicle and equipment movement, etc. Furthermore, possible signs of (historic) hydrocarbon contamination was visible on site.

For this reason, CHBT requested ASEC to take soil samples for a contaminant analysis (i.e. hydrocarbons only), as part of the scope of work of the EIA process.

The analysis can determine the possibility of past contamination for which CHBT cannot be held accountable for and will serve as baseline comparison with a future sampling and analysis when CHBT's operations cease.

Five soil samples were taken on the site. The samples were taken at five random places. As far as possible, the sites were selected in such a way to be in close vicinity of a "dirty spot" or possible sites of hydrocarbon contamination.

The results for fat, oil and grease (i.e. hydrocarbons) gave readings that vary widely – from <0.01 parts per million to 25 506 parts per million. In percentage it means that the readings vary between <0.01% and 2.55% mass per weight.

Receiving environmental along transport route

Surface water

The significant decrease in rainfall from east to west in Namibia, combined with the erratic nature of runoff, and the increase in evaporation potential (from east to west) results in highly episodic flow of all rivers in the central Namib Desert. These rivers generally contain discharge for a brief period of time, following exceptionally heavy rainfall events in the catchment (ASEC, 2022).

The transport route between the port and the Etango Mine does not cross any significant rivers. The nearest rivers to the transport activities include the Kuiseb River, located ~18 km south of the C14 / B2 intersection (i.e. where trucks will travel to and from the port) and the Swakop River located ~2 km north of the C28 / B2 intersection (trucks transporting the acid from the port along the B2 road will turn to the east onto the C28 road, towards the mine (see section 7.2.4 for further details).

The transport route, therefore crosses numerous small / poorly defined washes / drainage lines.

Biodiversity

The Atlas of Namibia classifies the dominant structure in this area as "grassland and dwarf shrubland". The section of the transport route along the B2 support very few plants or animals within the limits of the road reserve. Exceptions to this generalisation would occur after rainfall events when small areas of ephemeral grasses and plants would develop.

The route along the C28 and access road to the mine crosses a largely level landscape with extensive plains which are dissected by a network of dry washes (see section 8.3.1). The vegetation is very sparse (< 1 % cover) and grows not more than 0.5 m in height. Perennial vegetation (shrubs and multi-seasonal herbs) mostly grows in the washes and depressions; that is any areas that receive run-off from the rare rain events. The pencil bush (*Arthraerua leubnitziae*), a Namib Desert endemic, is the dominant shrub along the route. The dollar bush (*Zygophyllum stapffii*), another Namib Desert endemic, starts to become co-dominant in the eastern section of the route (ASEC, 2022).

The B2 is located on the eastern outskirts of the Swakopmund-Walvis Bay Dune Belt. the route along the C28 follows gypsum-rich soils and gravel plains, supporting a great diversity of ground-dwelling lichens and extend almost along the entire route along the C28 and the Etango Mine access road. Microphytic crusts (biocrusts) composed of algae, cyanobacteria, fungi and lichens also form in patches along this section of the route in undisturbed areas.

Land use / closest receptors / traffic

With reference to section 7.2.4, the route for transporting the sulphuric acid, from the port, first goes through Walvis Bay Municipal area (i.e. industrial area), to meet up with the C14. From there the tankers will use the new B2 (double lane highway) up to the turn off onto the C28 to the Etango Mine turn off.

The Dune 7 tourist attraction and Quad biking area is located near the C14 / B2 intersection. To the east of Dune 7 (east of the B2), is the Farm 58 Industrial site, which is being developed by various industries (i.e. part of the Walvis Bay Municipality).

The C28 road is not very frequently used by tourists and locals and the B2was recently upgraded to a double lane road with various significant bridges, etc. Existing traffic volumes along the C14 (between Walvis Bay and the turn off to the B2), as well as through Walvis Bay to the port is significant and various road sections inside the municipal boundaries of Walvis Bay show signs of deterioration. At the time of the study, numerous road works were undertaken at the C14 / B2 intersection.

IDENTIFICATION AND DESCRIPTION OF POTENTIAL ENVIRONMENTAL IMPACTS

Potential hazards that can lead to possible sulphuric acid spillage in the harbour/port, at the proposed CBHT Facility in the port or during the transport to the Etango Mine are listed below.

Activity	Hazard
Offloading from vessels to the pipeline	Human error
	Material failure of pipes due to poor maintenance
Pumping from the vessel to the CBHT Facility via pipelines	Material failure of pipes due to poor maintenance
Storing of the sulphuric acid in the tanks at the CBHT Facility	Material failure of tanks due to poor maintenance
	Poor design / material of tanks and bunding
Loading of road tankers	Human error
	Material failure due to poor maintenance
	Lack of spill containment
Transport to the Etango Mine	Human error
	Accidents caused by animals or other road users
	Weather conditions, i.e. Sand storms - sand covering the road, fog.

Environmental aspects and potential environmental impacts associated with the construction of the storage and loading facility and the associated infrastructure are summarized below.

ACTIVITY / FACILITY RELATING TO CONSTRUCTION PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT
Remove historic waste and contaminated soil (hydrocarbons) from site	General and hazardous waste disposal	Contamination of soil, water and the sea. General degradation and nuisance impacts.
Use of construction vehicles and equipment.	Hydrocarbon leaks (from construction vehicles and equipment).	• Contamination of soil. • Contamination of groundwater.

ACTIVITY / FACILITY RELATING TO CONSTRUCTION PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT
	Hydrocarbon spills (from handling of fuel and the onsite refueling of construction vehicles and equipment).	• Hydrocarbon spills washed into the harbour and impacting marine ecology
	Noise	• Increased disturbance to third parties (sensitive receptors).
	Air quality	• Release of airborne emissions • Dust, resulting in potential health and nuisance impacts.
	Traffic	• Congestion
General construction activities	Hazardous spills and leaks (of substances such as adhesives, paint, etc.)	• Contamination of soil.
		• Contamination of groundwater
		• Contamination of surface water and run off into the harbour and impacting marine ecology.
	Construction activities (specifically relating to the pipelines) in close proximity to other port users' (existing infrastructure)	• Damage to existing infrastructure (i.e. Rössing pipeline, Walvis Bay Salt Holdings Conveyer system)
		• Interference with operational activities of other port users
Laydown of equipment and construction materials.	Surface water	• Blocking of water flows, the diversion of water and erosion.
General waste management.	General waste	• Contamination of soil, water and the sea. • General degradation and nuisance impacts.
	Hazardous waste	• Contamination of soil, water and the harbour, impacting marine ecology
Socio-economic conditions	Employment	• Job creation and skills development (positive impact)

Environmental aspects and potential environmental impacts associated with the vessel offloading at Berth 6, the pipeline from Berth 6 to the CBHT Facility, the offloading from rail tankers and loading of road tankers at the new CBHT Facility and the transport to the Etango Mine are summarized below.

ACTIVITIES	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT
1. Normal operations (no incidences)		
Offloading from vessels to the pipeline and to the	Minor spillages from the offloading procedure and potential failure of pipeline	Impact on the marine environment
		Impact on surface water and groundwater resources

ACTIVITIES	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT
CBHT Facility		Impact on human health
Offloading of the sulphuric acid at the CBHT Facility from rail tankers into storage tanks and loading of road tankers	Potential spillages of sulphuric acid during the loading and offloading operations at the CBHT Facility (The offloading activities at the Etango Mine is not included in this EIA, as it was part of the Etango Mine EIA)	Impact on the marine environment
		Impact on human health
		Impact on surface water and groundwater resources
Storage of sulphuric acid at the new CBHT Facility	Leaking of tanks	Impact on human health
		Impact on surface water and groundwater resources
	Air emissions and odour	Impact on human (i.e. 3rd parties) health
	Fire and explosion hazard	Impact on 3rd parties' safety
Washing of the tanker	Cleaning of the tanker during maintenance/inspection causing pillage	Impact on surface water and groundwater resources
Transport from the CBHT Facility to the Etango Mine	Spillages caused by road accidents	Impact on surface water and groundwater resources
		Impacts on biodiversity (terrestrial) getting in contact with sulphuric acid
		Impacts on soil
		3rd parties (road users)
	Additional traffic	Impact to 3rd parties (road users)
2. Incidences/Accidents (emergency situations)		
Offloading from vessels to the pipeline and to the CBHT Facility	Sulphuric acid spillage	Impact on the marine environment
		Impact on human health
Offloading of the sulphuric acid at the CBHT Facility from rail tankers into storage tanks and loading of road tankers. Road tankers accidents on route to the Etango Mine.	Sulphuric acid spillage	Impact on surface water and groundwater resources
		Impact on human health from people getting into contact with the sulphuric acid
		Impact on biodiversity (terrestrial) getting into contact with the sulphuric acid
		Impact on soil

IMPACT ASSESSMENT – ENVIRONMENTAL IMPACTS OF THE PROPOSED OPERATION OF THE SULPHURIC ACID STORAGE/HANDLING FACILITY AT THE PORT OF WALVIS BAY AND TRANSPORT TO THE ENTANGO MINE

The environmental aspects assessed in **Section 10** of the EIA report relate to marine and terrestrial environment, groundwater and surface water and 3rd parties health and safety and are summarized below.

Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Impacts on marine environment						
Unmitigated	**M**	**L**	**M**	**L - M**	**L**	**L - M**
Mitigated	**L**	**L**	**M**	**L**	**L**	**L**
Impacts on tterrestrial biodiversity						
Unmitigated	**M**	**M**	**M**	**M**	**M**	**M**
Mitigated	**L**	**L**	**M**	**M**	**L**	**L**
Impacts on groundwater quality						
Unmitigated	**L**	**L**	**L**	**L**	**L**	**L**
Mitigated	**L**	**L**	**L**	**L**	**L**	**L**
Impacts on surface water quality						
Unmitigated	**M**	**M**	**L**	**M**	**L**	**L**
Mitigated	**L**	**M**	**L**	**L**	**L**	**L**
Impacts on third party health and safety						
Unmitigated	**H**	**H**	**M**	**H**	**M**	**H**
Mitigated	**M/L**	**M/L**	**M**	**M/L**	**L**	**L**

WAY FORWARD

The way forward for the EIA process is as follows:

- Distribute the EIA report (EMP included in **Appendix H**) via email and place the report on ASEC webpage for downloading for review by the IAPs and authorities;
- Receive comments from IAPs and authorities on **24 January 2025** (at the end of the review period);
- Submit the EIA report (EMP included in **Appendix H**) to MWT and MEFT; and
- Follow up on MEFT's decision.

ENVIRONMENTAL IMPACT STATEMENT AND CONCLUSION

The impact assessment presents the potential for positive and negative environmental and social impacts that can all be mitigated to acceptable levels. The most significant potential impacts (unmitigated) are all related to sulphuric acid spills during handling at the port and transportation to the Etango Mine.

The environmental aspects associated with the proposed storage and handling facility at the port of Walvis Bay and the transport to the Etango Mine have been successfully identified and assessed as part of this EIA process. Relevant mitigation measures for construction and operation have been provided and are included in the EMP that accompanies this EIA report. ASEC believes that a thorough assessment of the proposed project has been achieved and that MEFT and MWT can make an informed decision regarding the application for an environmental clearance certificate.

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ACRONYMS AND ABBREVIATIONS

ASEC	A. Speiser Environmental Consultants cc
BID	Background Information Document
CBHT	Cooperative Bulk Handling Terminal (Pty) Ltd's
CMSP	Central Marine Spatial Plan
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
DEA	Department of Environmental Affairs
DFT	Dry foam thickness
ECC	Environmental Clearance Certificate
EAPAN	Environmental Assessment Professionals of Namibia
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ERP	Emergency Response Plan
EQOs	Environmental Quality Objectives
HDPE liner	High-Density Polyethylene is a versatile geosynthetics material, known for its durability and longevity. Since HDPE liner provides UV and chemical resistance, it is a popular, cost-effective solution for protecting the environment.
H_2SO_4	Sulphuric acid
IAPs	Identify interested and affected parties
IRR	Issues and Response Report
ISO tanks	A stainless-steel container held within a 20-foot ISO frame that meets the International Organization for Standardization (ISO) standards
ISPS code	International Code for the Security of Ships and of Port Facilities
MEFT	Ministry of Environment, Forestry and Tourism
ML	Mining Licence
MSDS	Material Safety Data Sheet
MWT	Ministry of Works and Transport
NACOMA	Namibian Coast Conservation & Management Project
SEA	Strategic Environmental Assessments
SEMP	Strategic Environmental Management Plan
TASA	Tour and Safari Association of Namibia
UNFCCC	United Nations Framework Convention on Climate Change
WCE	Windhoek Consulting Engineers

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NOVEMBER 2024

ENVIRONMENTAL IMPACT ASSESSMENT (SCOPING REPORT, INCLUDING IMPACT ASSESSMENT & EMP) FOR COOPERATIVE BULK HANDLING TERMINAL'S PROPOSED SULPHURIC ACID STORAGE AND HANDLING FACILITIES IN THE PORT OF WALVIS BAY

1 INTRODUCTION

1.1 Purpose of the Report

This Environmental Impact Assessment (EIA) Scoping (including Impact Assessment) Report and Environmental Management Plan (EMP) (**Appendix H**) have been compiled as part of the EIA process that is being undertaken for Cooperative Bulk Handling Terminal (Pty) Ltd's (CBHT) proposed sulfuric acid storage and handling facility (CBHT Facility) in the Port of Walvis Bay and transport from the CBHT Facility to the Etango Mine.

This report provides:

- An introduction to the proposed project;
- The EIA approach and methodology being followed;
- The legal and policy framework;
- The motivation for the proposed project (i.e. the need and desirability);
- A description of the proposed project activities;
- A description of the key characteristics of the receiving (baseline) environment;
- Assessment of potential impacts of the proposed project (normal operations and upset conditions); and
- Mitigation and management key measures necessary to avoid or reduce potentially significant impacts.
- The EMP is included in **Appendix H**, which provides detailed mitigation and management measures.

This report is submitted to the Ministry of Works and Transport (MWT), as the competent authority, for consideration and review. In terms of Section 32 of the Environmental Management Act, 2007 (No. 7 of 2007), MWT is then required to make a recommendation on the application for the Environmental Clearance Certificate (ECC) to Ministry of Environment, Forestry and Tourism (MEFT): Directorate of Environmental Affairs (DEA), who will make the final decision on the application.

1.2 Background and Introduction to the proposed project

CBHT, a wholly owned subsidiary of Bannerman Investments Namibia (Pty) Ltd and part of the Bannerman Energy Ltd Group of Companies, was awarded an area within the port of Walvis Bay for its proposed sulphuric acid storage and handling facility. The CBHT is tasked with the logistical management of importing and exporting materials, including sulphuric acid, an essential reagent in the mining industry's extraction of uranium (U_3O_8). Sulphuric acid (H_2SO_4) (98%) is required Bannerman's Etango Mine.

CBHT has appointed A. Speiser Environmental Consultants (ASEC) to conduct an EIA for the construction and operation of the proposed sulphuric acid storage and handling facilities at the port and the transport of sulphuric acid to the Etango Mine). **Figure 1** and **2** shows the area which was awarded to CBHT at the port of Walvis Bay and the transport route from the port to the Etango Mine. An Environmental Clearance Certificate (ECC) needs to be granted by the MEFT (DEA) for the construction and operation of the sulphuric acid facilities at Walvis Bay Port (and the related activities) and the basis of an approved Application and associated EIA process.

1.3 Motivation for the proposed project

Bannerman is in the process of constructing its Etango uranium mining and processing (and associated activities) Project. Sulphuric acid is an essential reagent in the mining industry for extraction of uranium. With reference to section 1.2, Bannerman's metallurgical process will also use sulphuric acid leaching to extract the uranium from the ore. Bannerman plans to obtain the acid by transporting it per road (trucks) from the proposed new facility in the Port of Walvis Bay to the mine.

The sulphuric acid will either be sourced from a local Namibian supply or from abroad, either transported by rail within Namibia or shipped by vessels to the port, and decanted into the new storage tanks at the port. Further details regarding the sourcing of the acid and the related transport options are described in sections 6.1 and 7.3.

The Sulphuric acid has been stored in the port by Rössing Uranium for many years. The transfer of the sulphuric acid via pipelines should be the shortest possible distance, making a facility outside the port not feasible, taking in mind that sulphuric acid is much denser than water. Sulphuric acid can only be pumped at a speed of 1m/s and ideally not under high pressures. Pumping sulphuric acid over long distances in many cases compromises this requirement and introduces higher risks of pipe failures.

1.4 Assumption and Limitation

It is assumed that the transport companies for the sulphuric acid as well the operator of the CBHT Facility at the Port of Walvis Bay will have the relevant emergency procedures in place for any spillages or in case of transport spillages and fires resulting from a road or rail accident.

The transport by rail to the CBHT Facility has been excluded in this report and is part of TransNamib's requirements to have this in place.

Similarly, the transport of the acid by vessels (i.e. on sea) is excluded from this EIA process. It is assumed that CBHT will confirm that the respective Transport Companies have the required Risk Assessments, Emergency Response Procedures, etc. in place. The Scope of this EIA (and report) therefore include only the discharge of the acid from the vessels, once they've docked at the quayside, and not the transport from another Country to the Walvis Bay harbour / port.

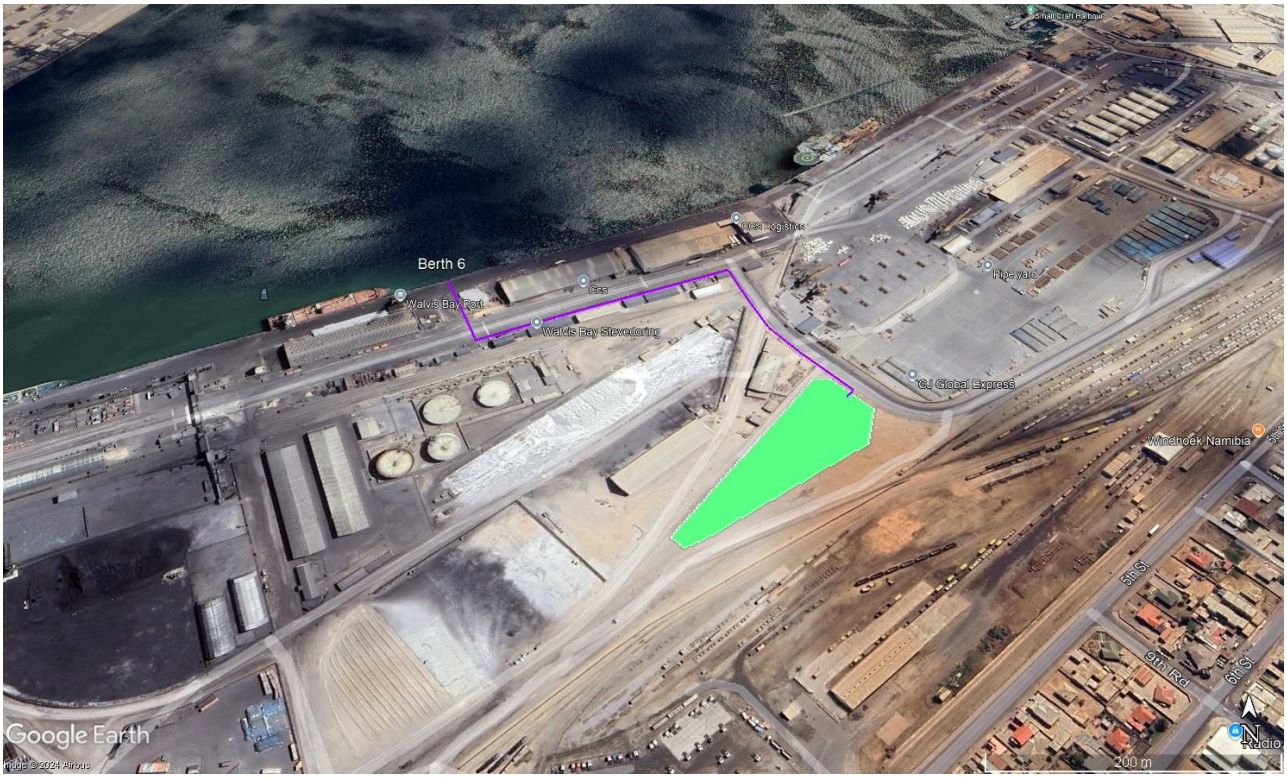

Figure 1: Sulphuric storage and handling facility (green) and pipeline (purple) from berth 6 to the facility in the Port of Walvis Bay. Please note: the four Rössing tanks are directly opposite from berth 6.

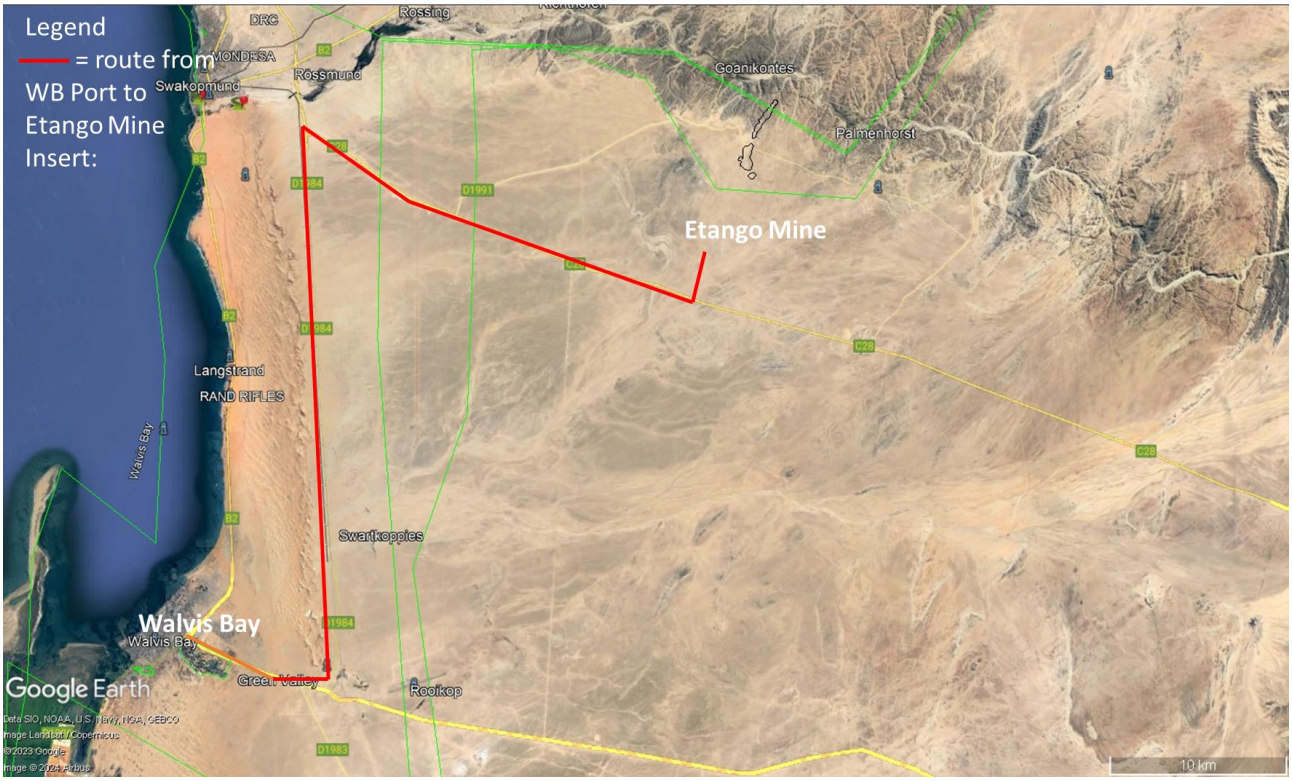

Figure 2: Road transport route from the sulphuric storage and handling facility at the Port of Walvis Bay to the Etango Mine.

2 INTRODUCTION TO THE EIA FOR THE PROPOSED CONSTRUCTION AND OPERATION OF THE SUPLPHURIC ACID STORAGE AND HANDLING FACILITY AT THE PORT OF WALVIS BAY AND TRANSPORT OF THE SULPHURIC ACID TO THE ETANGO MINE

EIAs are regulated by the MEFT (DEA) in terms of the Environmental Management Act, 7 of 2007. This Act was gazetted on 27 December 2007 (Government Gazette No. 3966). The List of Activities that may not be undertaken without an ECC and the EIA Regulations: Environmental Management Act, 2007 (Government Gazette No. 4878) were promulgated on 18 January 2012.

Below is a summary of the activity as listed in the Environmental Regulations from 2012, which is relevant to the proposed sulphuric acid storage and handling facility in the port of Walvis Bay:

9. HAZARDOUS SUBSTANCE TREATMENT, HANDLING AND STORAGE

9.1 The manufacturing, storage, handling or processing of a hazardous substance defined in the Hazardous Substances Ordinance, 1974.

9.2 Any process or activity which requires a permit, licence or other form of authorisation, or the modification of or changes to existing facilities for any process or activity which requires an amendment of an existing permit, licence or authorisation or which requires a new permit, licence or authorisation in terms of a law governing the generation or release of emissions, pollution, effluent or waste.

9.3 The bulk transportation of dangerous goods using pipeline, funiculars or conveyors with a throughout capacity of 50 tons or 50 cubic meters or more per day.

9.4 The storage and handling of a dangerous goods, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of more than 30 cubic meters at any one location.

9.5 Construction of filling stations or any other facility for the underground and aboveground storage of dangerous goods, including petrol, diesel, liquid, petroleum, gas or paraffin.

10. INFRASTRUCTURE

10.1 The construction of-

(a) oil, water, gas and petrochemical and other bulk supply pipelines;

2.1 EIA process for the proposed sulphuric acid storage and handling facility at the port of Walvis Bay and transport of the sulphuric acid

The main purpose of this report is to provide information relating to CBHT's proposed sulphuric acid storage and handling facility at the port of Walvis Bay and transport of the sulphuric acid to the Etango Mine and to list the environmental aspects and impacts that are identified during the scoping process; to assess them; and to provide relevant management and mitigation measures to avoid or minimize the potential impacts (included in the EMP, attached as **Appendix H**).

The EIA Scoping (including Impact Assessment) process and corresponding activities are outlined in **Table 1** below.

Table 1: EIA Scoping (including impact Assessment) process.

Objectives	Corresponding activities
Screening Phase (internal) (July – August 2024)	
• Early identification of Identify interested and/or affected parties (IAPs) and list environmental issues associated with the project.	• Review project information, early identification of IAPs and also the potential impacts that would require assessment. • Outline the EIA process to be followed.
Scoping phase (including assessment of impacts) (September 2024 – February 2025)	
• Identify interested and/or affected parties (IAPs) and involve them in the EIA (scoping) process through information sharing. • Identification of environmental and social aspects and potential impacts • Provide a description of the affected environment. • Assessment of potential environmental impacts associated with the proposed project. • Compile an EMP with mitigation measures.	• Submission of Application Form No. 1 to the MWT as the Competent Authority. • Register the application with MEFT. • Identify government authorities and IAPs and notify them of the project and EIA process. • Email a Background Information Document (BID) to all IAPs on the project EIA database. • IAP registration and initial comments period. • Compilation of Scoping (including impact assessment) Report and EMP. • Distribute Scoping Report and EMP to relevant authorities and IAPs for review. • Meetings with I&APs were conducted in September 2024, where the study findings associated with the proposed project were shared, during the review period of the EIA report (see section 4 for further details) • Forward finalised Scoping Report and EMP with IAPs comments to MWT and MEFT for decision making.

2.3 Environmental Assessment Practitioner Team

ASEC is a successful Namibian company founded in 2003 with vast experience in conducting environmental and socio-economic related projects in Namibia.

The project team comprises Ms Alex Speiser (Project Manager) and Mr. Werner Petrick (EIA Project Assistant). Ms Speiser is a member of the Chamber of Mines of Namibia and Chamber of Environment of Namibia.

The primary aims of ASEC are to promote and implement the three pillars of sustainable development (social, biophysical and economic) while providing efficient, cost-effective solutions that take current best practices into account at the planning, strategic and operational levels.

Mr. Petrick has more than twenty-five (25) years of relevant experience in environmental management, conducting/managing EIAs, compiling EMPs and implementing EMPs and Environmental Management Systems. Mr. Petrick is certified as a lead Environmental Assessment Practitioner and Reviewer under the Environmental Assessment Professionals Association of Namibia (EAPAN).

The relevant curriculum vitae documentation is attached in **Appendix A**.

The environmental project team is outlined in **Table 2**.

Table 2: Environmental Project Team.

Team	Name	Designation	Tasks and roles	Company
CBHT	Werner Ewald	Managing Director/ Project proponent	Responsible for the interface between CBHT and the environmental team, and for ensuring implementation of the EIA / EMP outcomes.	Cooperative Bulk Handling Terminal (Pty) Ltd
Project management	Alexandra Speiser	Project Manager	Management of the process, team members and other stakeholders. Report compilation. Review	ASEC
	Werner Petrick	Project Management Assistant	Management of the process, team members and other stakeholders. Report review	Namisun (Associated to ASEC)

3 EIA PROCESS METHODOLOGY

3.1 Information collection

Various sources were used to identify the environmental issues associated with the proposed storage and handling facility at the Port of Walvis Bay and the road transport to the Etango Mine. The main sources of information for the preparation of this Scoping (including impact assessment) Report include:

- Project information provided by CBHT,
- The Engineering Design and Cost Estimate Study for Acid Storage and Handling Facilities for Bannerman Mining Resources (Namibia), Windhoek Consulting Engineers Pty (Ltd), July 2022.
- Site visits to the site at the Port of Walvis Bay by ASEC.
- Various EIAs previously carried out within the vicinity by the EIA partitioners.
- Consultation with IAPs; and
- Consultation with relevant authorities.

3.2 Scoping (including Impact Assessment) Report

The main purpose of this Scoping (including impact Assessment) Report is to state which environmental aspects relating to the construction and operation of the CBHT Facility and transport have an impact on the environment, to assess them and to set out management and mitigation measures (further defined in the EMP **Appendix H**) to avoid or reduce these impacts. **Table 3** outlines the Scoping Report requirements contained in Section 8 of the EIA Regulations under the Environmental Management Act, 7 of 2007. The table includes reference to the relevant sections in the report.

Table 3: Scoping report requirements stipulated in the EIA regulation.

Requirements for a Scoping Report in terms of the February 2012 regulations	Reference in report
(a) the curriculum vitae of the EAP who prepared the report;	Appendix A
(b) a description of the activity;	Section 1.2 & Chapter 7
(c) a description of the site on which the activity is undertaken and the location of the activity on the site	Chapter 7
(d) a description of the environment that may be affected by the proposed activity and the manner in which the geographical, physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed listed activity;	Chapter 8
(e) an identification of laws and guidelines that have been considered in the preparation of the Scoping Report;	Chapter 5
(f) details of the public consultation process conducted in terms of regulation 7(1) in connection with the application, including - (i) the steps that were taken to notify potentially interested and affected parties of the proposed application; (ii) proof that notice boards, advertisements and notices notifying potentially interested and affected parties of the proposed application have been displayed, placed or given; (iii) a list of all persons, organisations and organs of state that were registered in terms of regulation 22 as interested and affected parties in relation to the application; and	Chapter 4 Appendix B, C, D, E & F

Requirements for a Scoping Report in terms of the February 2012 regulations	Reference in report
(iv) a summary of the issues raised by interested and affected parties, the date of receipt of and the response of the EAP to those issues;	
(g) a description of the need and desirability of the proposed listed activity and any identified alternatives to the proposed activity that are feasible and reasonable, including the advantages and disadvantages that the proposed activity or alternatives have on the environment and on the community that may be affected by the activity;	Section 1.3 & Chapter 6
(h) a description and assessment of the significance of any significant effects, including cumulative effects, that may occur as a result of the undertaking of the activity or identified alternatives or as a result of any construction, erection or decommissioning associated with the undertaking of the proposed listed activity;	Chapter 9 & 10
(i) terms of reference for the detailed assessment; and	
(j) a draft management plan, which includes - (i) information on any proposed management, mitigation, protection or remedial measures to be undertaken to address the effects on the environment that have been identified including objectives in respect of the rehabilitation of the environment and closure; (ii) as far as is reasonably practicable, measures to rehabilitate the environment affected by the undertaking of the activity or specified activity to its natural or predetermined state or to a land use which conforms to the generally accepted principle of sustainable development; and (iii) a description of the manner in which the applicant intends to modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation remedy the cause of pollution or degradation and migration of pollutants.	Appendix H

4 PUBLIC PARTICIPATION PROCESS

The public participation process for the proposed project (i.e. construction and operation of the sulphuric acid storage and handling facility and the transport of acid to the Etango Mine) aimed to ensure that all persons and or organisations that may be affected by, or are interested in the proposed activities and infrastructure, were informed of the project, and could register their views and concerns. By consulting with relevant authorities and IAPs, the range of environmental issues to be considered in this report has been given specific context and focus.

Section 4.1 provides a summary of IAPs consulted, Section 4.2 describes the process that was followed, and the issues that were identified are summarized in Section 4.3.

4.1 Stakeholders

The broad list of persons, group of persons or organisations that were identified by ASEC and informed about the proposed project are listed below. These stakeholders were requested to register as IAPs, should they be interested and or affected:

- Namport.
- The Department of Transport (Directorate of Maritime Affairs) at the MWT.
- The DEA at the MEFT (Office of the Environmental Commissioner).
- MEFT: Directorate of Wildlife and National Parks
- Erongo Regional Council.
- The local authority of Walvis Bay.
- Ministry of Fisheries and Marine Resources (MFMR).
- Other port users (neighbours and other tenants in the port area).
- Tour and Safari Association of Namibia (TASA).
- Police – Water Wing.
- Relevant Mining Licence holders in close proximity to the transport route of the sulphuric acid to the Etango Mine.
- Residents of Walvis Bay, closest to the proposed sulphuric acid storage and handling facility (i.e. neighboring the port).
- Other I&APs.

The Background Information Document (BID) (see **Appendix B**) was emailed (where relevant) to the identified I&APs at the start of the EIA (Application) process. These stakeholders were therefore informed about the need for the proposed project activities, the EIA process (including the public consultation), and will be informed about the outcomes of the assessment.

The detailed list of IAPs that were either identified by ASEC, or who requested to be registered as an IAP, can be found in **Appendix C**.

Various focus group meetings were held with key stakeholders with the following objectives:

- Provide the location and description of the proposed activities.
- Provide a description of the EIA process

- Provide IAPs with initial opportunity to be involved in the EIA.
- (Further) identify any potential environmental issues and impacts.
- Describe the way forward, highlighting further opportunities to be involved in the EIA process

Minutes of the meetings are contained in **Appendix D**.

4.2 Steps in the consultation process

Table 4 sets out the steps in the consultation process that were conducted during the EIA process:

Table 4: Consultation process with IAPs.

TASK	DESCRIPTION	DATE
Notification - regulatory authorities and IAPs		
Notification to MWT and MEFT	ASEC notified the DEA of the MEFT of the proposed project through registering the project on the MEFT online portal and uploading the BID. The ECC application form and BID were submitted to the competent authority (MWT).	18 September 2024
IAP identification	The stakeholder database was developed as part of the screening phase (i.e. prior to the commencement the formal Application process – see section 2.1) and is updated as and when required. See a summary of the IAPs in **section 4.1** and the comprehensive list in **Appendix C.**	July / August 2024 - ongoing
Newspaper Advertisements	Block advertisements were placed in the Market Watch (on 11 and 18 September 2024) as part of the following newspapers: • Allgemeine Zeitung • Republikein • Namibian Sun Copies of the advertisements are attached in **Appendix E**.	September 2024
Distribution of background information document (BID)	BIDs were emailed to I&APs listed in section 4.1 (and **Appendix C**). The first emails were sent out on the 12th of September 2024, whereafter further emails were sent out on request by IAPs. The purpose of the BID was to inform IAPs about the proposed sulphuric acid storage and handling facility in the port of Walvis Bay and the transport of acid to the Etango Mine, the EIA (Scoping) process being followed, potential environmental impacts identified by the Environmental Team and means of providing input to the EIA (Scoping) process. IAPs had an opportunity to submit their names, contact details and comments on the project. A copy of the BID is attached in **Appendix B**.	September 2024

TASK	DESCRIPTION	DATE
Site notice and Flyers	A Site Notice was placed on the main entrance gate to the Port of Walvis Bay to notify IAPs of the proposed project, and the EIA process being following. Photos of the Site Notice that was displayed are attached in **Appendix E**. Flyers, which contained similar information as the Site Notice and Newspaper Adverts were hand delivered to the residences (i.e. private properties) outside the port along 5th Street (between 8th Road and 10th Road). Refer to **Appendix E** for the copy of the Flyers and a map showing the houses where the Flyers were dropped off.	September 2024
Key stakeholder and focus group meetings		
Focus Group Meetings	Various Focus Group meetings were arranged with Key Stakeholders. See section 4.1 for the objectives of the meetings. The newspaper advert, Site Notice and email notifications also indicated that "Focus group meetings with I&APs have been scheduled. Further meetings can be scheduled on request to ASEC". Further details of the meetings are provided in **Section 4.3**. The minutes of these meetings are summarised and attached under **Appendix D**.	September 2024
Comments		
Comments and Responses	Comments and issues raised during the focus group meetings are summarized in **section 4.4** and an Issue and Response Report can be found in **Appendix F**.	November 2024
Review of draft Scoping (including Impact Assessment) Report and EMP		
IAPs and authorities (excluding MEFT) review of Scoping Report and EMP	The EIA Scoping (including Impact Assessment) Report will be distributed to all IAPs that are registered on the IAP database via e-mail. Electronic copies of the report will also be available on request from ASEC. A hard copy of the full report will be available at the Walvis Bay Public Library. The report will also be uploaded onto the ASEC website. Authorities and IAPs have 21 working days to review the EIA documents and submit comments in writing to ASEC. The closing date for comments is **24 January 2025**, as the review period falls within the December holidays.	End November 2024 to January 2025
MEFT review of Scoping Report and EMP	ASEC will incorporate the comments received into a final report. A copy of the final report with the Application Form, including comments from authorities and I&APs, will be submitted to the MWT for review and recommendation to MEFT who will do the final review for decision-making. The final report (including IAPs comments) and	February 2025

TASK	DESCRIPTION	DATE
	application will also be uploaded onto the MEFT portal.	

4.3 Focus group meetings

Focus group meetings were scheduled in September 2024. **Table 5** lists the meetings held. Minutes of the meetings can be found in **Appendix D**.

Table 5: List of Focus Group Meetings.

Organization	Date & Time	Venue
Rössing Uranium	20 September 2024 @ 15:30	Bannerman Office - Swakopmund
NamPort	23 September 2024 @ 8:00	NamPort Office – Walvis Bay
Neighboring tenants inside the port	23 September 2024 @ 10:00	NamPort Office – Walvis Bay
Ministry of Works and Transport (MWT): Directorate Maritime Affairs (DMA)	23 September 2024 @ 14:00	DMA Office – Walvis Bay
Other Mining Licence Holders in close proximity to the transport route of the sulphuric acid to the Etango Mine	24 September 2024 @ 8:00	Bannerman Office - Swakopmund
MEFT (DWNP)	24 September 2024 @ 11:00	Bannerman Office - Swakopmund
TASA	24 September 2024 @ 12:30	Paintball facilities - Swakopmund

Discussions (informal) were also held between Bannerman and ASEC (respectively) with the Walvis Bay Municipality Engineer (responsible for the Roads) Mr. T. Potgieter, in September 2024.

4.4 Summary of key issues raised

An Issues and Response Report (IRR), which summaries the comments received (through e-mails) and during the Focus Group, is provided in **Appendix F**. The key issues raised by IAPs are summarised below:

- Safety aspects relating to the transfer of acid between the vessels and the tanks – i.e. spillages.
- The storage and handling of dangerous goods and the required safety standards must always apply.
- Benefits of constructing the CBHT Facility inside the port?
- Affects / dangers that can be caused from a spill and what will be the effect on the port.
- The key issue (i.e. challenge) to be considered and assessed relating to both parks (i.e. Dorob National Park and the Namibia Naukluft National Park) is the potential for acid spills and how to act during such an emergency.

- Will Berth 3 or Bert 6 be used?
- Ownership of the CBHT Facility.
- Avoid and damage to Rössing's existing pipeline.
- Material to be used to construct the tanks and what will the capacity be, keeping in mind that corrosion is bad at the coast.
- The size of the tanks and if they will fit, considering the bunding requirements.
- How The vessel operations (i.e. off-loading) takes approximately 2 days (depending on the size of the vessel, which varies between 20,000 and 25,000 tonnes). If the same Berth (i.e. Berth 6) is used in future for the proposed new CBHT Facility, there could be challenges in terms of the off-loading schedules.
- Emergency Reponses and responsibilities during emergency situations (i.e. during a spill).
- Key is to avoid disruption of other users, i.e. salt works during both construction and operations (if vessels arrive at the same time).
- The main Port road that will now be routed adjacent (south) to the proposed new CBHT Facility. This (current) gravel road will be upgraded and the construction activities could overlap with the construction activities of the CBHT Facility.
- Various pieces of old equipment, scrap metal, sleepers, etc. are currently stored on the site where the CBHT Facility is proposed.
- Road congestion (i.e. outside the port).
- Spillage prevention at the mine. (Covered in the Etango EIA).

5 LEGAL AND POLICY REQUIREMENTS

The Republic of Namibia has five tiers of law and a number of policies relevant to environmental assessment and protection, which includes:

- The Constitution.
- Statutory law.
- Common law.
- Customary law.
- International law.

Key policies currently in force include:

- The EIA Policy (1995).
- Namibia's Environmental Assessment Policy for Sustainable Development and Environmental Conservation (1994).
- Environmental Management Act, 7 of 2007 and regulations.

As the main source of legislation, the Constitution of the Republic of Namibia (1990) makes provision for the creation and enforcement of applicable legislation. In this context and in accordance with its constitution, Namibia has passed numerous laws intended to protect the natural environment and mitigate against adverse environmental impacts.

5.1 Applicable laws and policies

In the context of the proposed Project, several laws and policies are currently applicable. They are listed in **Table 6**.

Table 6: List of laws applicable to the EIA.

NAME	Natural Resource Use (energy & water)	Emissions to air (fumes, dust & odours)	Emissions to land (non-hazardous & hazardous)	Emissions to water / sea	Noise	Visual	Traffic	Impact on Land use	Impact on biodiversity	Impact on Archaeology	Socio-economic	3rd Party Safety & Health	Other
The Constitution of the Republic of Namibia of 1990	X	X	X	X	X	X	X	X	X	X	X	X	
Water Resources Management Act 11 of 2013	X			X							X		
National Heritage Act, 2004 (No. 27 of 2004)										X			

NAME	Natural Resource Use (energy & water)	Emissions to air (fumes, dust & odours)	Emissions to land (non-hazardous & hazardous)	Emissions to water / sea	Noise	Visual	Traffic	Impact on Land use	Impact on biodiversity	Impact on Archaeology	Socio-economic	3rd Party Safety & Health	Other
Soil Conservation Act (amended in 1971, 1973, 1974 & 1977)	X			X				X					
Hazardous Substance Ordinance, No. 14 of 1974		X	X	X								X	X
Nature Conservation Ordinance 14 of 1975 (amended 1990, 1996) Nature Conservation Amendment Act, 2017	X			X					X	X			
Atmospheric Pollution Prevention Ordinance 11 of 1976		X										X	
Petroleum Products and Energy Act, No. 13 of 1990 Petroleum Products and Energy Amendment Act, 2003		X	X	X					X			X	X
The Wildlife and Protected Areas Management Bill									X				
Pollution Control and Waste Management Bill (3rd Draft September 2003)		X	X	X	X								
Labour Act, 2007 (No. 11 of 2007)											X		
Environmental Management, Act 7	X	X	X	X	X	X	X	X	X	X	X	X	

NAME	Natural Resource Use (energy & water)	Emissions to air (fumes, dust & odours)	Emissions to land (non-hazardous & hazardous)	Emissions to water / sea	Noise	Visual	Traffic	Impact on Land use	Impact on biodiversity	Impact on Archaeology	Socio-economic	3rd Party Safety & Health	Other
of 2007													
Regulations promulgated in terms of the Environmental Management, Act 7 of 2007	X	X	X	X	X	X	X	X	X	X	X	X	X
Road Traffic and Transport Act No. 22 of 1999							X					X	
Road Traffic and Transport Regulations 2001							X					X	
Public and Environmental Health Act No. 1 of 2015												X	

5.2 International treaties and protocols

The following international treaties and protocols have been ratified by the Namibian Government:

- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), 1973 Amendment to Article XI of the Convention on International Trade in Endangered Species of Wild Fauna and Flora, Bonn, 1979
- United Nations Framework Convention on Climate Change (UNFCCC), 1992
    - Kyoto Protocol to the UN Framework Convention on Climate Change, 1997
    - *Doha Amendment to the Kyoto Protocol to the United Nations Framework Convention on Climate Change, 2012
    - Paris Agreement, 2015
- Vienna Convention for the Protection of the Ozone Layer, 1985
    - Montreal Protocol on Substances that Deplete the Ozone Layer, 1987
        - Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, adopted by the Second Meeting of the Parties at London on 29 June 1990 (London Amendment)
        - Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, adopted by the Fourth Meeting of the Parties at Copenhagen on 25 November 1992 (Copenhagen Amendment)

- Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, adopted by the Ninth Meeting of the Parties at Montreal on 17 September 1997 (Montreal Amendment)
- Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, adopted by the Eleventh Meeting of the Parties at Beijing on 3 December 1999 (Beijing Amendment)
- Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, adopted by the Twenty-Eighth Meeting of the Parties at Kigali from 10 to 15 October 2016 (Kigali Amendment)

- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel Convention), 1989 Amendment to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, 1995
- Convention on Biological Diversity (1992)
- World Heritage Convention (1972)
- Convention to Combat Desertification (1994)
- Stockholm Convention on Persistent Organic Pollutants (2001)

5.4 Strategic Environmental Assessments in the Region

5.4.1 Coastal SEAs

Two Namibian coastal Strategic Environmental Assessments (SEAs) were undertaken between 2006 and 2008, i.e. one for the northern regions of Kunene and Erongo and another for the southern regions of Karas and Hardap. These draw on international experience and were undertaken at a time of mounting production sector pressures within Namibia. Being an initiative of the Namibian Government through MEFT, the two SEAs seek to inform political and technical decision makers at local, regional and national levels. The 2008 “SEA for the coastal areas of the Erongo and Kunene Regions” compiled by the Namibian Coast Conservation & Management Project (NACOMA) aimed at ensuring informed decisions on issues related to biodiversity conservation, land use planning and socio-economic development planning in the Kunene and Erongo coastal regions.

A Rapid SEA was undertaken in 2022 (SAIEA, 2022). The aim of this rapid SEA was to assess the proposed measures of the Central Marine Spatial Plan (CMSP) against a range of socio-economic and biophysical criteria. This would help ensure that sustainable development is integrated into the emerging plan and equip government with an improved basis for considering and adopting the plan. the Rapid SEA assessed the zonations and the regulations pertaining to each zone of the CMSP, against sustainability criteria relating to the main aims of the marine spatial planning process, namely (SAIEA, 2022):

- Ecosystem health.
- Social and economic benefits.
- Research and monitoring.
- Spatial governance.

Regarding ports (i.e. Walvis Bay port and related activities), the SEA summarised the following:

- With Walvis Bay being the primary national port, this is a significant contribution toward national planning priorities. Unfortunately, this comes with an increase in pollution risk and the associated potential negative impacts on biodiversity in the nearby Ramsar site. However, the lack of data and understanding of thresholds makes this potential risk difficult to define. Diligent and continuous intersectoral coordination is key if this trade-off is to be sustainable (SAIEA, 2022).

5.4.2 Uranium Rush SEA

In 2009, when prices for fuel for civil nuclear reactors were rising fast, resulting in a worldwide boom in uranium exploration and mining, the Namibian uranium industry recommended to the Namibian Government the undertaking of a Strategic Environmental Assessment (SEA) of the Namibian uranium province, where exploration for uranium was expanding rapidly. Subsequently, such an assessment was carried out by the Ministry of Mines and Energy's Geological Survey of Namibia, it provided vision, and importantly generated a culture of cooperation between the uranium mining industry, government, and the public. A Strategic Environmental Management Plan (SEMP) was developed from the results of this SEA. It is an overarching framework and roadmap addressing the cumulative impacts of existing and potential developments, and the extent to which uranium mining is impacting the central Namib, and is implemented jointly by government and the industry since 2011. The SEMP has 12 themes, the so-called Environmental Quality Objectives (EQOs), each articulating a specific goal, providing context, setting standards, and having a number of key indicators that are monitored. These themes include socio-economic development, employment, infrastructure, water, air quality, health, effect on tourism, ecological integrity, education, governance, heritage and future, and mine closure and future land use. Each EQO has a number of indicators that are assessed and placed into 4 categories, namely "met", "in progress", "not met" and "exceeded". The Namibian Uranium Institute has from the beginning been actively involved in the compilation of the annual SEMP reports, and in 2021 data collection for the 2020/2021 report continues.

The sections of the SEA that are applicable to the proposed Project include:

EQO 3: PUBLIC HEALTH (change in the rate of road accidents in Erongo Region directly attributable to uranium mining)

EQO 13: RELIABLE INFRASTRUCTURE (Roads are designed for maximum safety and are in good condition)

6 ALTERNATIVES

The identification and consideration of alternatives is recognized as required practice in environmental assessment procedures globally and is a regulatory requirement in terms of the Namibian Environmental Management Act, 2007 (Act No. 7 of 2007).

In the context of the proposed transportation of the sulphuric acid by road to the Etango Mine, site alternatives could not be addressed as no railway line (route) extends to the Etango Mine located in the Namib Naukluft National Park.

The only alternatives that require investigation relate to the road transport option from the CBHT Facility in the Walvis Bay port to the Etango mine, the alternative could be via rail transport to a siding that would have to be constructed behind the dune belt and then via road transport the Etango Mine; and the no-go alternative for developing the CBHT Facility at the WB Port.

6.1 Alternative transport option

The alternative considered for transportation of the sulphuric acid from the CBHT Facility in the Port to the Etango Mine is by rail to the turn off on the C28.

The Etango Mine's annual requirement of 98% sulphuric acid is in the order of 150,000 tonnes per annum (i.e. 430t/day for 350 days/year). Daily the Etango Mine needs 500 tons 98% of sulphuric acid per day. This will translate to 14 trucks of a capacity of 30t. In addition, the ISO tanks transported by rail to a new siding near the turn off to the C28 need to be loaded onto trucks to reach the Etango Mine.

At present this alternative is economically not feasible. However, should the plant and treatment of ore increase at the Etango mine, this alternative might become feasible and will be investigated in future.

6.2 Considering Berth 3 and Berth 6 as an options

Both Berth 6 and Berth 3 were considered, as these were provided as options by Namport. However, Berth 6 is likely to be the only berth to be used for sulphuric acid. Sulphuric acid has been transferred through berth 6 for over 45 years.

6.2 The "no go" option linked to the need and desirability

This option entails that the Etango mine will not be constructed, hence no sulphuric acid needs to be transported to the Etango Mine. This would have major implications as Bannerman Mining Resources Namibia already started with the construction of the Etango mine. In addition, no new jobs will be created and revenues for Namibia are lost.

7 PROJECT DESCRIPTION - STORAGE AND HANDLING FACILITY AT WALVIS BAY PORT AND TRANSPORT TO THE ETANGO MINE FROM THE CBHT FACILITY

7.1 Background

The Etango Uranium Project is located on the Mining Licence 250 (ML 250) which was granted by the Ministry of Mines and Energy on 14 December 2023.

Information for the proposed storage and handling of sulphuric acid (i.e. "the project") was provided by CBHT and extracted from the "The Engineering Design and Cost Estimate Study for Acid Storage and Handling Facilities for Bannerman Mining Resources (Namibia)" Windhoek Consulting Engineers (WCE), July 2022.

The Etango Mine's annual requirement of 98% sulphuric acid is in the order of 150,000 tonnes per annum (i.e. 430t/day for 350 days/year). The sulphuric acid will either be sourced from a local Namibian supply or from abroad, either transported by rail within Namibia or shipped by vessels to the port and decanted into the storage tanks in the harbour. From there, it will be transported via road trucks to the mine.

The facilities to be provided in the harbour include the following:

- Storage capacity of 40,000 tonnes of 98% sulphuric acid in 4 tanks.
- Related infrastructure for the transfer of acid into the storage tanks from shipping vessels or rail acid tankers.
- Related infrastructure to transfer acid from the storage tanks to acid road tankers to transport the acid to the Etango Mine.
- Related infrastructure for safe operation of all facilities.

7.1.1 Sulphuric acid properties

Sulphuric Acid is a highly corrosive substance and can attack and corrode many materials, for example, cloth, paper, and several metals. It is therefore imperative to design with corrosion and safety in mind.

Inhalation of H_2SO_4 may cause irritation to the respiratory tract with burning pain in the nose and throat, coughing, wheezing, shortness of breath and pulmonary edema. Contact with skin causes burns and irritation. Eye contact causes burns, irritation, a may cause blindness.

Ingestion may cause permanent damage to the digestive tract. **Table 10** provides the physical properties of sulphuric acid. The Material Safety Data Sheet (MSDS) for sulphuric acid as published by SASOL is included in **Appendix G** (SASOL, 2020).

Table 7: Physical Properties of Sulphuric Acid (SASOL, 2020).

PROPERTIES	98%
Melting point	- 35 – 10.36 °C
Freezing Point	-2°C
Boiling Point	327°C
Flash point	Non-flammable
Vapour pressure	0.024 hPa; 20 °C
Density	1.8 g/m^3
Appearance	Clear to slightly turbid oily liquid
Odour	sulphurous

WHAT IS SULPHURIC ACID?

Sulphuric acid (alternative spelling "sulfuric acid") (H_2SO_4) is a is a highly corrosive strong mineral acid. It is a colourless to slightly yellow, odourless, viscous liquid which is soluble in water at all concentrations. Sulphuric acid is a very important commodity chemical. It is often used as an indicator of a country's industrial strength.

Sulphuric acid has a wide range of uses. It plays some part in the production of many manufactured goods, with its major use is in the production of fertilizers, e.g. superphosphate of lime and ammonium sulfate. It is also used to manufacture explosives, other acids, dyes, glue, wood preservatives.

Bannerman's metallurgical process will use sulphuric acid leaching to extract the uranium from the ore.

7.2 Description of Operation Activities and Infrastructure

7.2.1 Off-loading activities at Berth 6

Berth 6 (see **Figure 1**) is the dedicated berth to off load sulphuric acid. It is as well used over the last decades by Rössing. Should any other vessel moor at the berth when a vessel with sulphuric acid arrives, it needs to leave to allow the vessel that transports the sulphuric acid to moor immediately.

2x flexible hose connections will connect the main supply line manifold to the vessel. The pumping CBHT Facility for offloading will be onboard each vessel and flow normally regulated by maintaining pressure below 700kPa which ensures that the flow velocity is also maintained at 1m/s. Because of the high specific gravity of sulphuric acid, very high pump pressure may be experienced. In such cases care must be taken not to open or close valves too quickly in the pump system as this causes pressure surges that may rupture lines or hoses.

The detailed design will be carried out by the Engineer company during the detailed design phase.

7.2.2 Pipelines between Berth 6 and new CBHT Facility

Three main supply lines (2x duty, 1x standby) will run from berth 6 to the storage CBHT Facility.

The acid will have to be decanted from the ship via flexible bullhoses to the decanting manifold. The two decanting lines will be schedule 80, 400mm diameter steel pipelines which are sized to allow for a maximum flow speed of 1m/s. The pipes were sized to each handle 550 ton per hour so as to not exceed the critical velocity of 1m/s in the pipe.

The pipelines will be installed inside a proposed new concrete culvert, with the first section running parallel to Rössing's existing pipelines (see **Figure 1**). The culvert shall be constructed for the entire length of pipeline. The entire length of the culvert shall be lined with a HDPE liner to prevent soil contamination in case of an acid leak. **Figure 3** shows a cross section of the culvert. Road reinstatement shall be done over the culvert. Removable concrete panels will be used to cover the culvert so as to allow access to pipes for maintenance purposes.

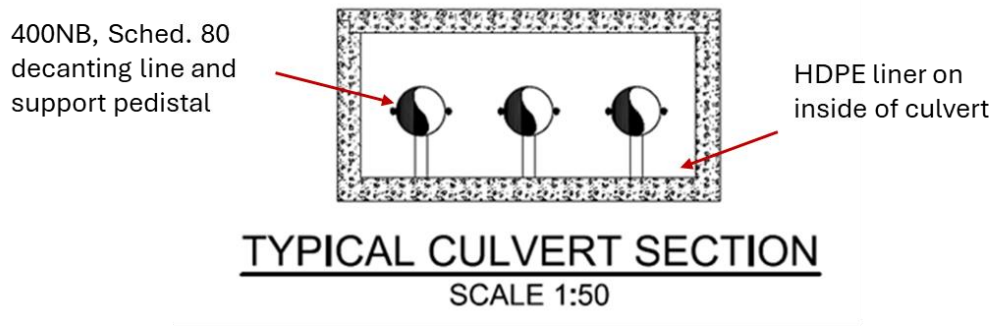

Figure 3: Typical cross section of a culvert.

7.2.3 Proposed new Storage and Handling Facility

7.2.3.1 Site layout

The site allocated by NamPort to CBHT lies approximately 450m from Berth 6 as the crow flies. However, the pipelines will follow an allocated pipeline servitude and the distance from berth 6 to the site will be approximately 680m (see **Figure 1**). The closest residential houses are approximately 250m from the site. It must be noted that the access to the port facility is controlled and residents cannot enter the port without authorization.

Table 9 provides the site parameters while **Figure 4** shows the layout of the storage and handling facility site.

Table 8: Site parameters.

Parameter	Value	Comment
Erf size	11,985 m^2	
Parking area and stacking distance		Suitable for 22 rail tankers and 4 road tankers.
Size of vessel that can moor on berth	Up to 35,000 ton	
Area available for storage tanks	4,866 m^2	Max. 4 x 10,000 MT tanks
Electricity and water		Substation available and water available

Bulk Services

The site will have access to all services and connections to these services will be possible. The site is also well situated for construction of the decanting line to the port berths. The different services are briefly described below.

Water

A 160mm asbestos cement water line which provide water for the TransNamib depot, crosses the site. This line will have to be relocated to the north of the site as the line is also one of the main water supply lines for Namport. Connection to the line will be made for water to site. The line has sufficient capacity in the event of emergency acid spillage management.

Rail Access

The existing rail tracks were constructed from old 30kg/m rails. These rails are not used anymore and are not according to SADC standards and can thus not be re-used. The rail tracks will have to be removed and discarded somewhere inside the Namport area. Disposal locations will be provided by Namport. New rail lines will be installed and linked up to the existing TransNamib rail infrastructure.

Electrical Supply

There is existing street lighting on the site which is located between the rail tracks. The street lighting will have to be removed as it will impede with the site development plan.

Electricity supply will be from the existing Namport “Substation M”, that is close to the site and the supply shall be three phase 250A at 400V.

The full site must be on standby power to comply with the Hazop requirements. Thus, a 200kVA standby generator with fully automatic change-over is proposed. The standby generator will be housed in a separate generator room. The generator room shall be fitted with automatic actuator operated louvres for air inlet and air outlet.

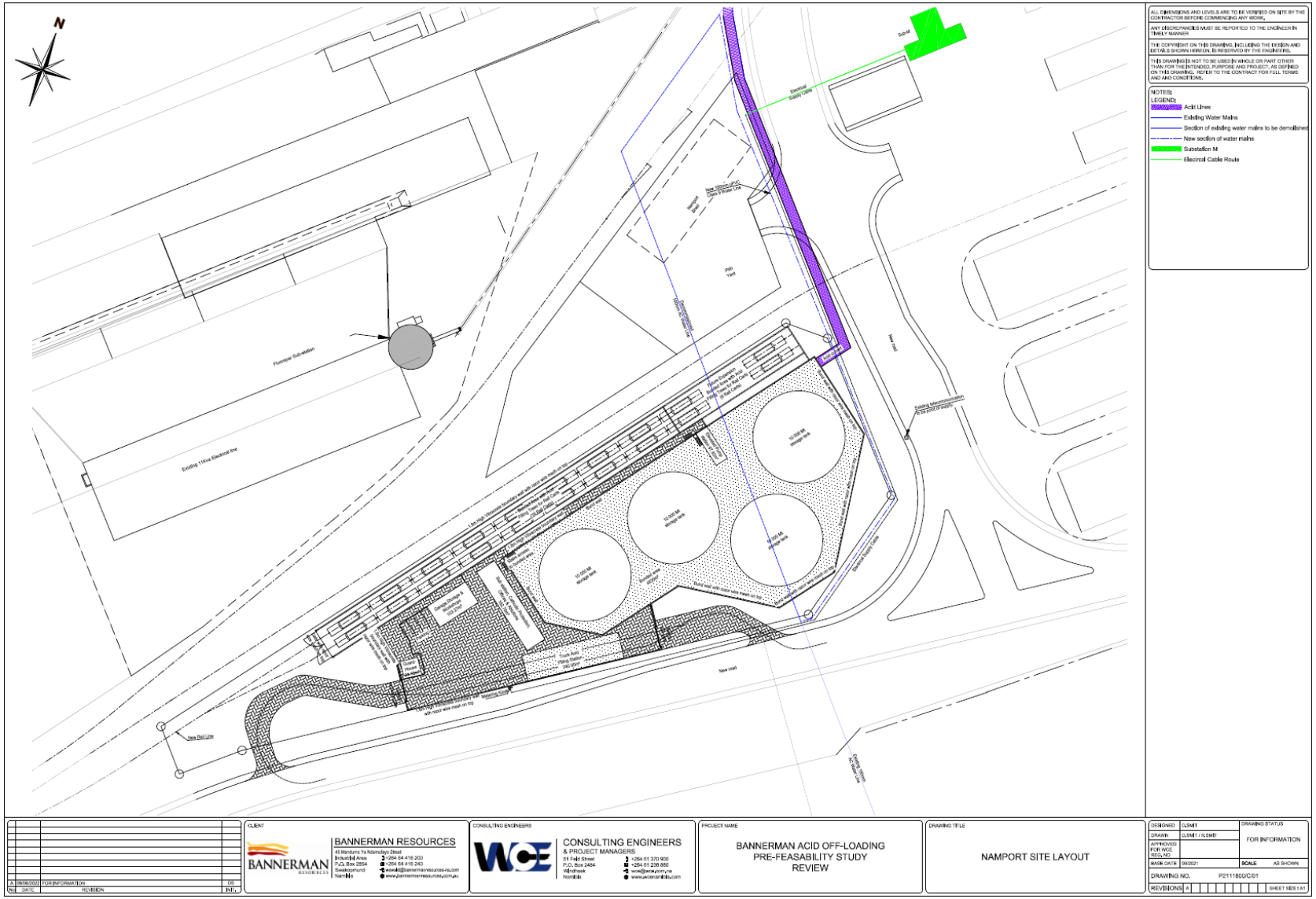

Figure 4: Site layout.

Sewerage Drainage

Namport indicated that a sewer line is situated to the north of the site. Access to the sewer line and manholes in the area could not be obtained through gravitation. The preliminary designs however indicated that it might be possible to connect to this infrastructure by pumping to it.

Road Access

The site is triangular in shape and borders two roads. The existing main road (marked main road on the drawing) is to the north-east of the site. Namport plans to construct a new T- intersection to the east of the site. A new main road which follows a north-east to south-west direction (marked Future Road to be Constructed by Namport in **Figure 5**) will be constructed in the foreseeable future. There will thus be a bitumen upgraded road to the south-east of the site and will hence make for easy access to site. Access to the site is currently via a gravel road.

Security

The site is situated within the Namport security area. For this reason, it was previously assumed that a guardhouse will not be required. A guardhouse is however included in the updated costs to control movement in and out of the site with the increased movement of trucks that will be loading acid on site. This is due to the safety risks which handling of acid poses. The site will, for safety purposes, be fenced with a PVC coated wire mesh fence with galvanized razor barbed wire on top. The north-east section will only be topped with barbed wire as the bund wall is high in this area and act as boundary wall. The International Code for the Security of Ships and of Port Facilities (ISPS code) will also be taken into consideration in this regard.

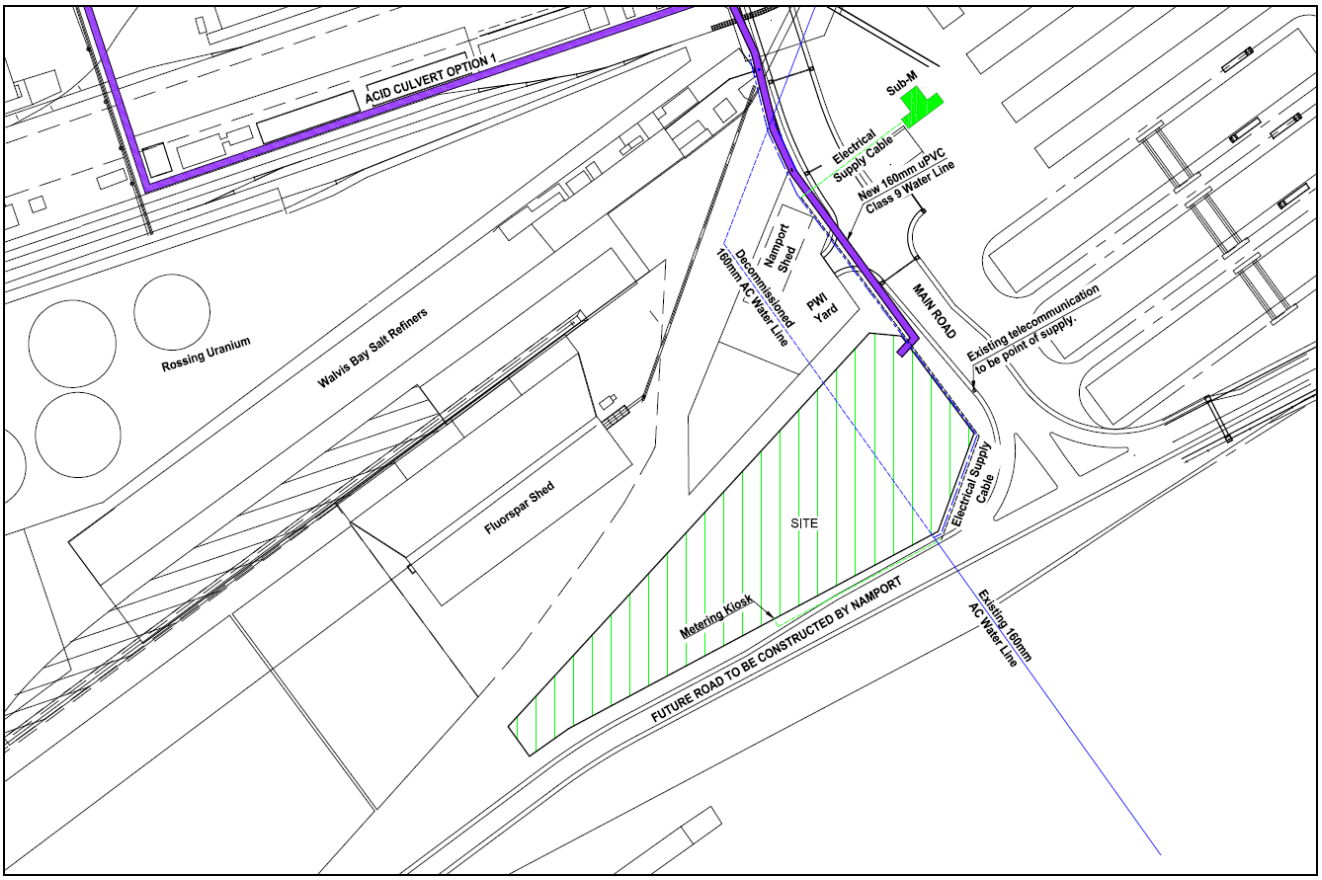

Figure 5: Location of important infrastructure on and around the site

7.2.3.2 Sulphuric Acid Storage Tanks

4 tanks with a combined capacity of 40,288 Mt are required to store sufficient acid. Since sulphuric acid (98%) has a specific gravity of 1.84, it equates to a total volume of 21,896 m^3, or 5,474m^3 per

tank. For practical reasons such that the acid does not come into contact with the roof support beams, four covered circular tanks measuring 28.12m in diameter and 10.2m to its eave will be constructed from steel plates of varying thickness. This will result in a tank with a safe live volume of 5,504m³, leaving a freeboard of 930mm to the underside of the roof support beams and a freeboard volume of 577m³. The density of sulfuric acid is 1.84 g/cm³ which thus yield a capacity of 10,127 Mt per tank, and a total storage capacity of 40,509 Mt.

The tank construction will be welded circular steel plate walls with a sloped welded steel plate floor. A reinforced concrete ring beam is provided below the walls as a stiffening beam and to create a raised level starting point to fix the wall panels to. The roof structure of the tank is a steel beam construction covered with 6mm thick mild steel plate at a 9.5° slope outwards from the centre. **Figure 6** below shows a typical cross section through a tank.

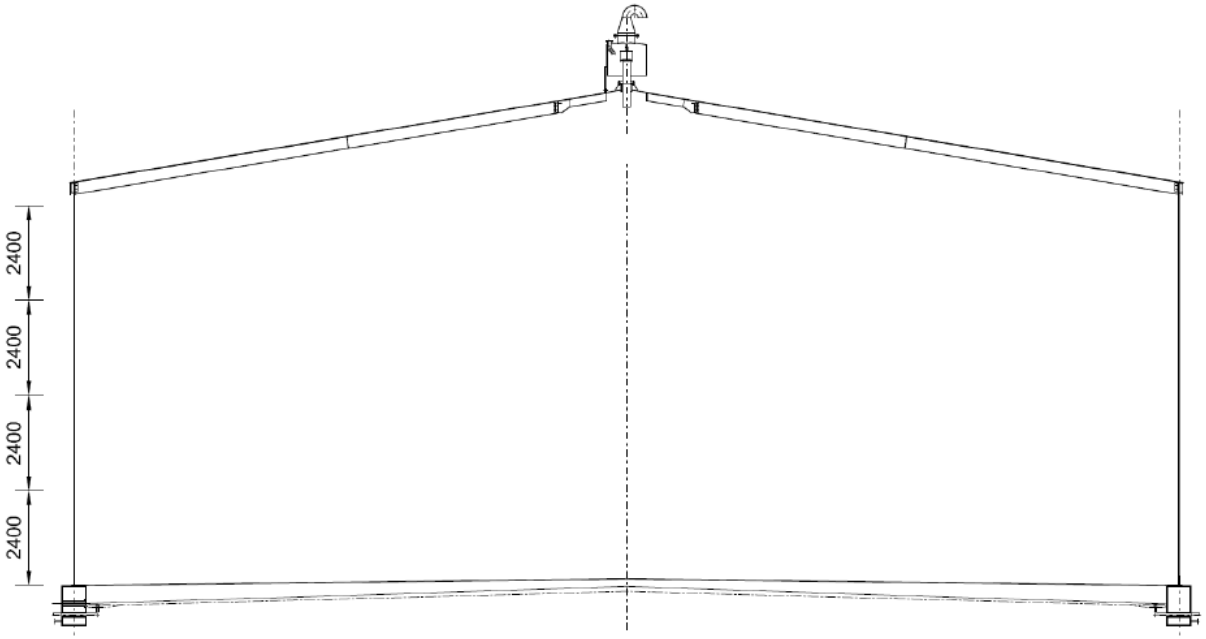

Figure 6: Typical Cross Section through tank.

WCE worked previously in the in Walvis Bay Harbour and from experience it is known that the bearing capacity in the Namport area is relatively poor, but with soil stabilization of the layer works below the tank floor, the relatively small foundation loads can be accommodated without the need for piled foundation as was successfully demonstrated by WCE on the Rössing acid storage tanks in Walvis Bay Harbour. Further Geotechnical work is however also planned.

Sub-floor drainage was allowed for beneath the tanks which drains towards an inspection manhole that is cladded with acid bricks. The purpose of the sub-surface drainage channels is for early detection of any possible acid leaks in the tank floors. **Figure 7** shows a typical tank footing.

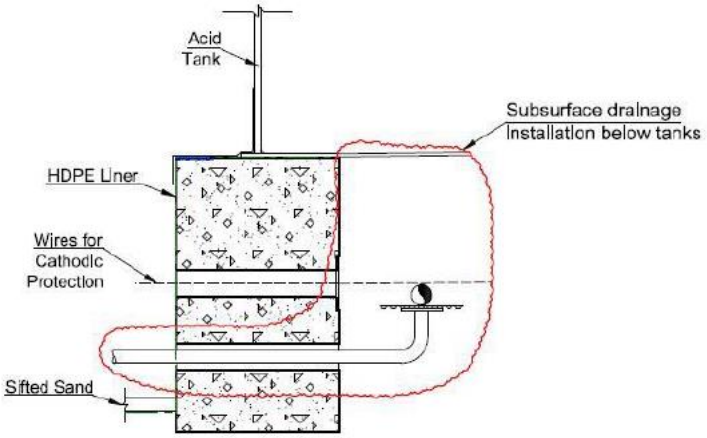

Figure 7: Typical Tank Footing.

The tanks will be designed to British Standard 2654:1989 and the design considers loads from stored product, wind loading, vacuum loads, and a super imposed roof load. The tank design will be based on a grade 300 WA steel limited to a design stress of 170MPa.

The concrete specification for the ring beam is a 40MPa concrete mix, with a maximum water to cement ratio of 0.45 and a minimum binder content of 420kg/m³. A minimum of 75mm cover to reinforcement should be maintained throughout.

The design of the tank assumes protection to the outside of the tank against corrosion by means of a 3 coat Marine C5 rated paint system, consisting of:

- Dry abrasive blasting to SA21/2 surface profile
- An epoxy polyamide primer to 75 microns DFT
- An epoxy mastic intermediate coat to 200 microns DFT
- An aliphatic acrylic polyurethane topcoat to 40 microns DFT

In addition, cathodic protection will be provided to the tank to prevent corrosion. The inside of the tank will not be protected against the product other than an allowance being made in the design of the steel thickness for loss of steel caused by corrosion. The amount of steel loss over a 20-year life cycle is calculated and added to the required steel thickness.

The following non-destructive testing will be required on the welds of the tanks:

- Floor joints – 100% Vacuum Box
- Floor to shell joints – 100% Vacuum Box
- Shell vertical joints – 30% Radiographic
- Horizontal welds – Spot Radiographs, not less than 10 per 360° seam.

In addition to the weld tests, the tank will be subjected to a rigorous water tightness test with 10 monitoring points on the base of the tank to ensure the tank is 100% watertight.

Cathodic Protection

The proposed Cathodic protection system is a Piggyback anode system installed in the layer materials under the tank floor (**Figure 8**). Each tank shall have its own cathodic protection installation. Clean homogenous sand shall be used to provide a relatively benign tank bottom environment.

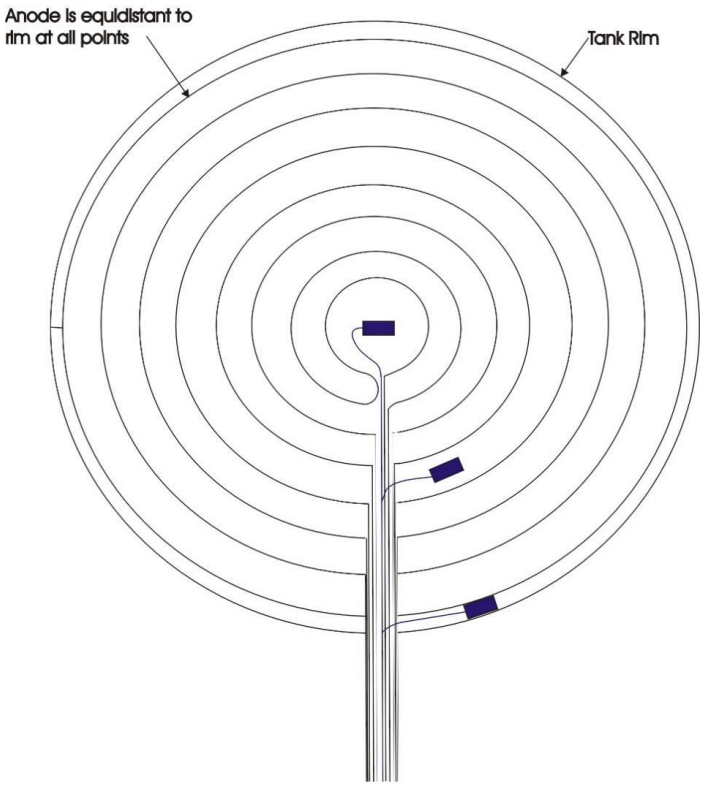

Figure 8: Cathodic protection system.

Earthing and lightning protection

The lightning protection and earthing installation for the new tanks shall be designed to be compatible with the cathodic protection installation. The design is in accordance with the requirements of SABS IEC 1024-1:1990. A soil resistivity test must be done during the final design stage, and the results will be utilized for the design of an earthing system with maximum resistance to earth of 10Ω per structure as prescribed in the code. Each earth electrode to be connected to the tank wall via an insulated copper earth wire. All earth rods shall be outside the bund wall and earth cables shall be surfaced on the concrete bund wall and connected to bund wall rebar.

Separate earth electrodes shall be installed at the road and rail facilities for earthing of the road and rail loading structures. All earth electrodes on the site shall be interconnected to create an equipotential. The earthing system shall be connected to the cathodic protection anode by means of a spark gap in the junction box.

Bunded Tank Area

The bunded area will be constructed to contain 110% of the capacity of one tank. The capacity of one tank is 5,504m³. One should thus allow for the total capacity of 6,055m³ if 110% storage capacity is required for accidental spillage due to rupture. The bunded area was designed to be 2.2m high, of which 0.15m is freeboard allowance, as the space is limited on site. A total area of 4,814m² is thus required to accommodate the capacity of a ruptured tank while taking the footprint area of three additional tanks into consideration.

There will be level difference of approximately 500mm form the inside of the tank farm to the outside natural ground level. The tank farm will be lower than the surrounding area. The consideration was done to economize on the design of the bund /retaining walls and also to limit the visual impression of a 2.2m high bund wall from the outside. The tank farm will be constructed near the future NamPort road intersection and site distances will be limited if the wall is two meters high.

The site layout and shape of the site determined the layout and placing of the tanks. The shape of the site caused that a bunded area of 4835m² will be used. Access staircases to the bunded area were allowed for and the area should be covered with a 2.0mm thick HDPE liner, that is covered with a layer of sifted sand. The walls will be of reinforced concrete 2,3m high, which was designed to contain the acid in the event of spillage. The walls will also be covered with the HDPE liner.

7.2.3.2 Offloading from trains

In the case that sulphuric acid is sourced from a local Namibian supply it will be transported from the source to the CBHT Facility in the Port of Walvis Bay via train. The infrastructure for **rail offloading** will entail the following:

- A single sideline platform housing 8x offloading hoses with related pump and decanting setup.
- 2x supply lines connected to the 8x offloading stations each. The supply line design forms a closed loop with intermediate shut off valve to allow reduced operation on either line while the other is being repaired or replaced.
- The pumping facility for loading will be shared between rail loading and road loading with variable flow control based on demand.
- Each offloading station has its own offloading pump and decanting assembly.
- A rail siding for stacking at least 8x rail tankers while the other 8 are being docked next to the platform and offloaded.

To offload the sulphuric acid from the rail tankers suctions arms are lowered into the acid rail tankers through the top loading/offloading hatch and pumped into the acid storage tanks. The loading/off-loading facility and activities will be designed and managed to aim for a zero-spillage system.

7.2.3.3 Pumping from vessels to storage tanks

The infrastructure for **vessel offloading** of the sulphuric acid at the Walvis Bay Port will entail the following:

- 3x main supply lines (2x duty, 1x standby) will run from the site to the required berth.
- 2x flexible hose connections will connect the main supply line manifold to the vessel.
- The pumping facility for offloading will be onboard each vessel and flow normally regulated by maintaining pressure below 700kPa which ensures that the flow velocity is also maintained at 1m/s.

7.2.3.4 Loading into Road Trucks

The infrastructure for **road loading** to transport the sulphuric acid to the Etango Mine will entail the following:

- A single overhead platform housing 2x loading arms in order to fill 2x road tankers simultaneously.
- 2x supply lines intended to form a closed loop to allow reduced operation on either line while the other is being repaired or replaced.

The bunded filling area will be constructed on well-prepared earthworks. The concrete bunded area will be sloped towards catchpits where the spilled acid can be collected and removed. The bunded area will have an upstand beam on the perimeter to contain the spillage. The concrete will be protected by an HDPE liner which is covered with sifted sand to prevent the acid from attacking the concrete as well as protecting the structure against mechanical damage.

The sulphuric acid will be loaded into road trucks by means of acid loading arms that are lowered into the acid road tankers through the loading opening at the top of the rail tanker. After each tanker is loaded, the hatch will be closed and bolted down. Each hatch will also be sealed. The loading activities will be overseen and inspected by a contractor, who will be appointed by CBHT.

Before opening the fill hole cover the road tankers needs to be completely depressurized. This should be done carefully and slowly since some residual air may be trapped in the pipe. Under no circumstances should the cap be removed from the eduction pipe before the pressure in the tank car or truck has been released and verified. The acid discharge hose must always be connected before the air piping is connected to the road tankers. Rubber hoses must never be used for acid discharge. Teflon lined hoses, with abrasion resistant outer covering are recommended for use with sulfuric acid.

Road Tanker specifications

The appointed transport company will be responsible that the design and construction of the vehicle used for the transport of dangerous goods shall comply with the design requirements covered by the relevant standard(s) valid at the time of manufacture of the vehicle, or in terms of the relevant national legislation. Road vehicles that transport dangerous goods shall –

- be inspected and tested in accordance with SANS 10230, and
- comply with design requirements specified in SANS 1518.

Cleaning of rail tankers and road tankers

The rail and road tankers will only be cleaned on the inside should maintenance or inspections (from the inside) be required. The cleaning of the road tankers for inspection purposes or repairs will be conducted either at the CBHT Facility or at the Etango Mine, if not otherwise agreed with the contractor company. The cleaning of the empty tankers will be carried out to international standards and will include the following:

- Pump any final volume of sulphuric acid from the tanker
- Test the tank inside for toxic or harmful/dangerous gasses
- Enter the tank from the top and end wall manholes
- Pump out any residual acid from the tanker using a small portable pump
- Wipe up and clean the inside of the tank with acid absorbing agents

7.2.4 Transport and Route between Port and Etango Mine

The transport of the sulphuric acid from the Port to the Etango Mine will be outsourced to a contractor. The road tankers will leave the Port of Walvis Bay and drive through Walvis Bay to meet up with the C14, from there the tankers will use the new B2 (i.e. double highway behind the dunes to the turn off onto the C28 to the Etango Mine turn off. An extra slip-lane will be constructed at the turn off at the Etango Mine to ensure that other traffic on the C28 is not affected when trucks slow down to turn to the Etango Mine access road. **Figure 2** shows the route.

7.2.5 Off loading at the Etango Mine

This has addressed in the Etango Project (Mine) Environmental and Social Impact Assessment, which was conducted by ERM in 2012.

7.2.6 Operational Workforce

The CBHT Facility will be well managed and operated by an international acid company and the workforce would then be determined by that company. However, it is expected that the CBHT Facility will comprise the following:

- 4 x operators,
- 1 x senior operator, and
- 1 x supervisor/foreman.

At night the CBHT Facility will have a single person that will do the security duties and facility inspections.

7.2.7 Operational Waste management

Waste management procedures for non-hazardous and hazardous waste will be compiled and aligned with the Environmental Management Plan for the Operations of the Habour: Port of Walvis Bay (Geo-Pollution Technologies, 2019).

Any spillage of sulphuric acid will be diluted with water and then pumped to the process ponds, as as to be used in the Etango Mine process plant.

7.3 Construction Phase

The construction phase of the project extends over 420 days (approx. 14 months) as shown in the schedule below (**Figure 9**).

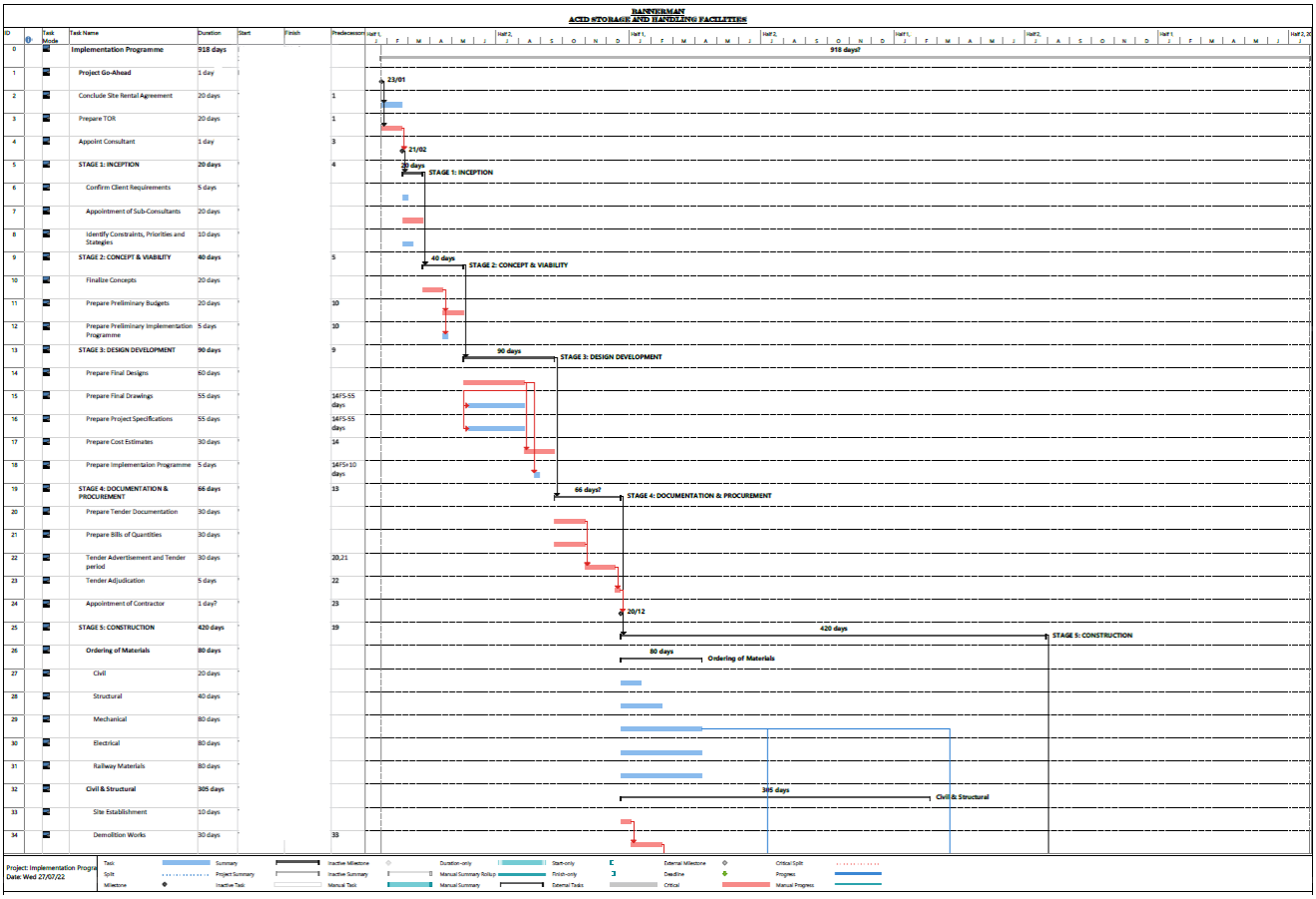

Figure 9: Overall construction schedule.

7.3.1 Construction Activities (Port)

The detailed construction activities and timing will be addressed during the detailed design, however, this will include for example the following:

- Clean site,
- Level,
- Compacting, and
- Construction of foundation.

7.3.2 Construction workforce

According to CBHT the workforce is approximately 30 – 40 people. Namibian companies will be given preference.

7.3.3 Construction waste management

The collection and disposal of waste needs to be carried out in a safe, responsible and legally-compliant manner, e.g. containers with lids are provided and labelled for each waste type. Where possible options to re-use and recycling waste will be implemented. The Action Plan: General and hazardouse waste management in **Section 4.1.5 in the EMP** (**Appendix H**) provides clear Management and mitigation measures.

7.3.4 Construction Timing

As shown in the schedule above the actual construction period extends over 14 months. It is envisaged that the construction will commence in June 2025 so as to be complete in September 2026.

7.4 Relevant Parties involved in the transportation

7.4.1 Vessel owner/operator

The vessel owner/operator will ensure that the vessels will comply with international standards pertaining to sulphuric acid transport.

7.4.2 CBHT

CBHT is the owner of the CBHT Facility and has overall responsibility for the safe storage and handling as well as transportation to the Etango Mine. Once the road tanker enter the Etango Mine, Bannerman Mining Resources Namibia takes over responsibility for the safe off-loading of the sulphuric acid.

7.4.3 TransNamib

TransNamib will transport the sulphuric acid on behalf of CBHT from the Namibian supplier. TransNamib is responsible for the proper maintenance of the rail infrastructure, locomotives and rail tankers.

7.4.4 Transport companies (trucks)

The appointed transport companies will transport the sulphuric acid on behalf of CBHT from the S CBHT Facility at the Port of Walvis Bay to the Etango Mine. The transport companies are responsible for the proper maintenance of the road tankers.

7.4.5 Bannerman Mining Resources Namibia (Etango Mine)

Bannerman Mining Resources Namibia will be responsible for the off-loading of the sulphuric acid at the Etango Mine.

7.5 Emergency Response Plans

7.5.1 Emergency Response Plan

Rössing Uranium shared their existing Emergency Response Plans for their sulphuric acid storage and handling facility at the port of Walvis Bay with CBHT. CBHT will develop their own Emergency Response Plans aligned with the Rössing Uranium ones during the detailed design phase.

This Emergency Response Plan should consist at least of the following:

- Emergency Response Plans (ERP) for the off-loading of vessels, the storage and handling facility and the route from the facility to the Etango Mine. This will include the emergency response process and lines of communication during, and after an emergency, as well as the subsequent cleanup process.
- All areas within the parameters of the Port will also include the Port's emergency response team. CBHT will be the primary response party and support from the Port will be requested as required.

7.5.2 Emergency Response Trailers

Emergency response trailers will be custom made and will be fitted with the following equipment:

- Acid recovery pumps
- Neutralizing agents, e.g. marble chips
- Safety showers
- Clean water
- Barricading & Personal Protective Clothing (PPE)
- Lights and an electrical generator (Genset)

8 DESCRIPTIONS OF THE CURRENT ENVIRONMENT

An understanding of the environment and the sensitivity of the site and surroundings is important to understand the potential impacts of the project and associated activities / facilities.

This chapter provides an overview of the current baseline conditions of the environment relating to the proposed new Acid Storage and Handling Facility at the Port of Walvis Bay and the associated activities, including the offloading of the shipping vessels at the Berth and the road transport of the acid from the port to the mine.

This chapter was compiled by utilizing the following sources of information:

- Atlas of Namibia (Mendelsohn et al., 2002).
- Site visit by ASEC (September, 2024).
- Consultations and focus group meetings with I&APs (September, 2024).
- Information retrieved from the current EMP for the Port of Walvis Bay (Namport, 2019).
- Relevant EIA Reports of similar activities inside the port:
    - Environmental Scoping (including impact assessment) Report for the proposed new warehouse for bulk handling of copper concentrate on the site of Walvis Bay Cargo Terminal (Pty) Ltd in the Port of Walvis Bay (Namisun, 2023a); Environmental Screening Report for the proposed Brine Plant of SLB in the Port of Walvis Bay (Namisun, 2023b), Environmental Scoping (including impact assessment) Report for the proposed new Liquid Mud Plant for SLB in the Port of Walvis Bay (Namisun, 2023c).
- Relevant EIA Reports outside the port (i.e. associated with baseline environment along the road transport route for the acid):
    - EIA for Bannerman's Mining Resources' Proposed new water pipeline from the base pumpstation near Swakopmund to the Etango Project Turn off from the C28 Road (ASEC, 2022).
    - ERM, 2012. Etango Project (Mine) Environmental and Social Impact Assessment
    - Other relevant EIA Reports (SLR, 2013; 2015 and 2022).
- Information retrieved from the internet:
    - http://worldpopulationreview.com/countries/namibia-population/;
    - www.mhss.gov.na;
    - www.meteoblue.com
- Socio-economic information retrieved from several reports (NPC, 2011; IHME, 2016; WHO, 2016; NSA, 2017 and 2019)
- Google Earth.

Only relevant aspects are discussed below, e.g. the proposed CBHT Facility will be implemented inside the port, which is a "brownfields area". The route (i.e. road transport) to the mine is along existing infrastructure and the access road to the mine (off the C28 road) is constructed and has been assessed as part of previous EIAs relating to the Etango Mine. The transport of sulphuric acid per rail to the port is not part of the Scope of this EIA, as this activity falls under the responsibility of TransNamib.

8.1 Climate

The climate in the general project area is arid and falls into southern Africa's summer-rainfall region. The climate of the central Namib Desert, where the Project is located, is strongly influenced by the quasi-stationary South Atlantic High off the southern Namibian coast. As a result of the sinking air over the cold Atlantic, temperatures close to the coast are moderate, the humidity is high, and overcast days and foggy nights are common. Sea temperatures along the central part of the Namibia coast are rarely warmer than 20°C. The cold sea has a profound climatic influence over the land that borders it – climatically this part is referred to as Cool Desert. (Namisun, 2023c).

The Project area lies within the area receiving fog which forms when moist air that has been cooled over the Benguela current is blown on-shore (Pallett, 1995). Along the coast, the air remains humid throughout the year as a result of moist air feeding off the Atlantic. Even at 14h00 in winter, average humidity values drop only to 60% or 70%, while they are generally above 80% at other times (Mendelsohn *et al.*, 2002). Walvis Bay area receives on average >125 fog days per year (Molloy & Reinikainen, 2003). The number of fog days per year decreases eastwards (Olivier, 1995).

8.1.1 Temperature

Average annual temperature over the central coast is less than 16°. Average daily temperatures vary between a minimum of 10°C in the coldest month and a maximum of 32°C in the warmest month in the area (Mendelsohn et al, 2002).

8.1.2 Precipitation

Rainfall over the central Namib Desert can be described as extremely variable, patchy, unreliable, and marked by a deviation coefficient of more than 100%. Rainfall events are rare and episodic, with the total annual rainfall seldomly exceeding 50 mm.

Although mean annual rainfall is in the region of only about 20 mm, regular fog is observed up to 60 km inland and may exceed rainfall in this area (Hachfeld & Jürgens 2000). Fog occurs frequently with more than 140 fog days recorded over the central coast per annum (Mendelsohn et al., 2002). The occurrence of fog peaks between August and October (Viles, 2005).

The relative humidity is high – with a long-term monthly average higher than 70% (Mendelsohn, et al., 2002). The lowest relative humidity readings per day are recorded in June, July and August, (<40%) i.e. the same months during which the highest temperatures – to the contrary – are recorded. Daily minima for the other months remain above 40%. In contrast, the average daily maxima is more than 96%, remaining above 95% in all months.

8.1.3 Wind

Along the coast, the south and southwest wind which originates from the South Atlantic High and blows over the cold ocean, is responsible for the prevailing wind direction and dominates daytime and night-time wind patterns. These wind components are characterised by a high frequency of moderate to strong wind speeds. Wind speeds exceeding 5 m/s occurred for 34% of the time with a maximum of 11.9 m/s recorded at Pelican Point. During the day the south-south-westerly and southerly winds are more dominant at Pelican Point and southerly winds are dominant as measured at the meteorological station in town. As is typical of night-time conditions an increase in calm conditions occur.

Although the highest wind speed in all months exceeds 20 km/h, windspeed of between 10 and 20 km/h is more common – in 40% of all cases, when the wind direction is south-southwest and south. Windspeed above 20 km/h occurs in 25% of all cases when these winds blow (retrieved from www.meteoblue.com). Away from the coast, wind speed decreases and direction become more variable.

Occasional east winds (more accurately, from the northeast) blow during winter, as a result of cold sinking air over the interior that descends along the escarpment and flows towards the coast. This air heats up (adiabatic warming) as it blows towards the coast, and result in the recording of higher temperatures, often exceeding 30°C. Important, these hot, dry winds have a profound desiccation

effect on the coast, and relative humidity figures drop noticeably during these events (Namisun, 2023c).

East winds occur 12.5% of the time and in 40% of the cases, have a speed of 5 - 10 km/h and in 30% of the cases have a speed of 10 – 20 km/h (retrieved from www.meteoblue.com).

The highest wind speeds as well as the highest wind gusts are recorded in August, i.e. when the potential diurnal range of temperatures are the widest. This situation is associated with eastwind episodes. In April, from June to August, and in October wind gusts are the highest, most likely associated with east wind episodes between April and August and most likely associated with strong south-southwest and south winds during October. During east wind episodes wind speed may exceed 20 km/h and the wind gust may exceed 40 km/h. Except the higher temperatures and drier conditions, east winds are loaded with dust from the interior.

8.1.4 Air Quality

As described in Namisun 2023c, emissions from fuel combustion or production processes as well as noise, vibration, light, heat, and other forms of radiation are possible in any human settlement (i.e. Walvis Bay). Emissions may also result into pollutants, impurities, fumes, and odours. Air quality of any place is closely coupled to the local climate conditions, and specifically the wind regime.

Whereas other towns in Namibia have a particular problem with dust generated from unsealed surfaces such as roads, or the proximity of activities such as crushers or mining activities, ambient dust over Swakopmund and Walvis Bay is largely associated with wind, especially east winds from the interior. In a recent study it was found that PM_{10} concentrations were the highest along the coast during east wind conditions. Over the coastal towns the ambient dust conditions are also prolonged because of the northeast / southwest wind conversion lines and cyclonic circulation associated with coastal troughs and coastal lows. $PM_{2.5}$ does not seem to be a pollutant of concern at the coastal towns, though (Ministry of Mines and Energy, 2019).

At a regional scale, the main air pollution sources, as identified in the same study of 2019, include mining operations, exploration activities, public roads (paved, unpaved and salt / treated), and natural exposed areas prone to wind erosion. In addition, there are a number of other sources in the region emitting PM such as harbour emissions (ships, loading and unloading activities, mobile equipment, maintenance activities, etc.), small boilers and incinerators, commercial activities, charcoal packaging, construction activities (roads, buildings, etc.), and marine aerosols (sea salts and organic matter originating from the ocean) (Ministry of Mines and Energy, 2019).

From the data available, ambient air quality at the coast is likely to exceed the PM_{10} daily limit more than 3 days in a year, but the annual average is likely to be within the acceptable limit (Airshed, 2022 referenced in Namisun, 2023c).

The major contributor to deteriorated air quality in the port area is windblown dust generated during ship repair procedures (grit blasting and spray painting) and as a result of bulk handling of some commodities (e.g. coal, lithium, manganese, copper concentrate, etc.), which can be aggravated during periods of strong wind (>40 km/h). In addition to posing health risks to workers and third parties, dust has an impact on surrounding industries as well. A clear example is the contamination of the salt stockpiles by dust from other commodities. (Note: The salt stockpiles are currently covered and will be completely housed in a warehouse by mid-2025.) Dust can also have a deteriorating effect on seawater quality, which in turn can have consequences on the marine ecology and the mariculture industry (Namport, 2019).

8.2 Receiving environment inside the Walvis Bay port

8.2.1 Surface water and groundwater

Surface runoff is a rarity in the central Namib Desert and occurs only after an episodic rainfall event. Although small puddles may form, precipitation from fog does not result into surface runoff.

The Port of Walvis Bay has no recognizable surface drainage line. About 15 km inland from the port area, the paleo-delta of the Kuiseb River is still visible. The delta was defined by a predominant northern and southern arm. The northern arm ended in the ocean where the present Kuisebmund settlement is located and the southern arm 25 km south from this point. The northern arm was cut off by a flood protection wall in 1961 and only the southern arm is still functioning. Little of the former delta is still visible due to the alterations as a result of the built-up area of Walvis Bay (SLR, 2015).

When strong rainfall events do occur over Walvis Bay, the flatness of the terrain, combined with the sealed surfaces of the built-up areas of an urban environment, causes standing water and even sporadic flash floods of a high intensity. This may result in localized fluvial erosion, implying that a risk of stormwater events, flooding and erosion do exists. It furthermore implies that the necessary control measures must be in place, despite the long spells of rainless periods.

There is no known potable groundwater source in the vicinity of the site and the port of Walvis Bay does not fall within a Water Control Area (SLR, 2013). Depth to the water table is calculated as about 3.5 m below surface and implies a flow of water towards the sea, on top of water that is more saline (SLR, 2015). The hydraulic conductivity of the sediments in the unsealed parts of the port area is expected to be relatively high, and vertical flow would be mainly because of primary porosity. Natural recharge of groundwater is expected to be low, due to the scarcity of rainfall and the absence of surface water flow. (Namisun, 2023c).

8.2.2 Terrestrial biodiversity

There is no flora or natural fauna present on the proposed sulphuric acid storage and handling site, as is the case for the rest of the Port of Walvis Bay – the site has been previously disturbed and reclaimed.

However, the EMP for the Port of Walvis Bay points out that operations of the port may have impacts on the near ecological sensitive areas such as the Walvis Bay lagoon and the protected areas along the shore.

The EMP states that “ecological impacts from the port would mostly be limited to the marine environment - see section 8.2.3 for further information regarding the marine baseline. Impacts include deterioration of water and sediment quality as a result of pollutants, introduction of alien species through ballast water or biofouling on ships’ hulls, mammal strikes by ships, underwater noise and potential habitat loss during additional construction events” (Namport, 2019).

8.2.3 The marine environment

Walvis Bay Wetland is located south and west of the town and comprises the natural areas of Walvis Bay lagoon. Parts of the wetland have been declared a RAMSAR site as it supports the greatest number of coastal birds in southern Africa. The lagoon lies at the southern end of the open water and therefore south of Walvis Bay Port.

Some of the relevant pointers regarding the marine environmental ecology, as summarized in Namisun, 2023c (referencing Pulfrich, 2020) are described below:

The bathymetry of Walvis Bay is well studied and understood. In general, the sea deepens gradually away from the shoreline, and the isobaths (depth contours) run almost parallel to the Namibian coastline. Within the bay, the water at Pelican Point is deeper than 20 m and at the entrance to the lagoon the water depth is around 2.5 m. A dredged channel connects the harbour with the -12 m isobath (Pulfrich, 2020) – refer to **Figure 10**.

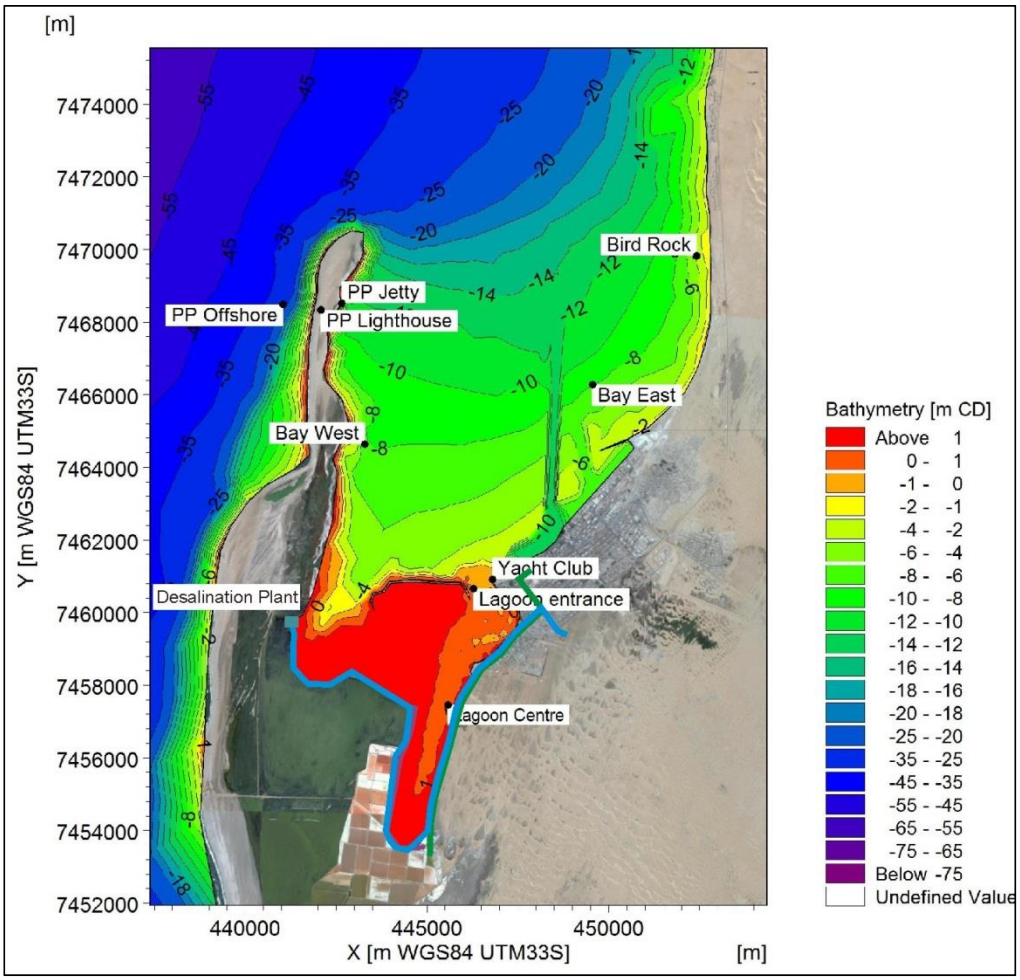

Figure 10: Bathymetry of Walvis Bay (Source: PRDW, 2015 referenced in Pulfrich, 2020)

The Walvis Bay lagoon formed between 1,500 and 500 years ago and is about seven km long and ~300 m wide at its mouth. The maximum depth at its mouth during low tide is ~2.5 m. As the sandspit (known today as Pelican Point) advanced northwards along the -30m isobath because of longshore deposition of sediments, it shelters the water body to its east – the bay and lagoon. This is an ongoing process and advancement takes place at a rate of about 17 m per year, with a probable faster rate since 2000 and a resulting sedimentation of the bay. The eastern shore of Pelican Point forms a 7 km-long sandy beach. Refraction of waves takes place around Pelican Point, which generates a southward longshore current into the bay and contributes to the shallowing process in the low energy environment behind Pelican Point. Interplay between natural forces creates a dynamic geomorphology, comprising of sand dunes on the eastern fringes of the lagoon, and peripheral sandspits and sand banks, tongues of silt and intertidal mudflats inside the lagoon (Pulfrich, 2020).

The entire nearshore of Walvis Bay is dominated by a belt of organic-rich sandy mud and mud, the main determinant of the formation of low-oxygen waters and sulphur eruptions off central Namibia. Sedimentation happened in the past from both fluvial inputs from the Kuiseb River and deposition of marine sediments transported northwards in the littoral drift (Pulfrich, 2020). Over time the fluvial deposits from the Kuiseb River diminished. In addition, aeolian sedimentation from the interior is effectively cut off nowadays because of the expansions of the salt works southeast, south, southwest, and west of the lagoon and because of the expansion of the built-up areas of Walvis Bay eastwards.

Water temperatures range from ~13 °C to ~18 °C, but in extreme events can rise to ~24 °C in the case of Walvis Bay. Diurnal ranges within the bay can be high, fluctuating as much as 6°C from one day to the next or 4°C during a single day. In the Walvis Bay lagoon temperatures may be elevated

due to insolation effects and temperature gradients can range from 16 °C at the entrance to 24.8 °C ~5 km towards the head of the lagoon (CSIR, 1992, referenced in Pullrich, 2020).

The Namibian coastline is strongly influenced by the Benguela Current, its major feature being upwelling and a longshore draft flowing north. Upwelling causes high nutrient supply to surface waters, which leads to high biological production and large fish stocks along the Namibian coast. Clockwise waterflows are also formed along the central parts of the Namibian coast. In the case of Walvis Bay, the flow of water is predominantly clockwise, mostly in the upper layers in the water column. Whereas the central Namibian coast is described as exposed, experiencing strong wave action and major swells generated by the persistent southwesterlies, the water body east of Pelican Point – the bay and lagoon – is sheltered. The sheltering causes the clockwise movement of water to progressively decrease southwards and a southward-setting longshore current in the east of the bay (Pulfrich, 2020).

The central Namibian coastline falls into a biogeographical region known as the warm-temperate Namib Province, which extends from Lüderitz northwards into southern Angola (Emanuel et al. 1992 referenced in Pulfrich, 2020). Wind-induced upwelling is the principle physical process that shapes the marine ecology of this biogeographical region. It is characterized by the presence of cold surface water, high biological productivity, and highly variable physical, chemical and biological conditions (Barnard 1998, referenced in Pulfrich 2020). At Walvis Bay this ecosystem is wind- and tidally driven, deriving its main energy source from the offshore upwelling system, with a relatively high degree of mixing of water from the lagoon with water from the bay (Pulfrich, 2020).

Two habitats occur within the sheltered southern portion of the bay and within the lagoon, namely the extensive shallow, sandy shores that are regularly covered and exposed by tidal action, and a sandy / muddy subtidal seabed in waters of <5 m depth (Pulfrich, 2020). Within the southern part of the bay, it is this sandy / muddy subtidal seabed that dominates. In general, this habitat is nearly devoid of zoobenthos. Insignificant populations of benthic fauna occur in the upper reaches of the lagoon, while the parts close to the mouth of the lagoon is sparsely populated. Abundance and biomass of biota is on average extremely low and most of the sediment surface below a water depth of a few meters is devoid of other than bacterial life with macrofaunal diversity reduced to a few opportunistic species that can tolerate recurrent anoxic conditions or recover fast after oxygen depletion (Pulfrich, 2020).

To the contrary, the extensive shallow, sandy shores that are regularly covered and exposed by tidal action in the lagoon provides nursery habitats for several species of fish, invertebrates, and aquatic reptiles. Labelled as one of the most productive coastal benthic ecosystems in the world, the lagoon is described as essential in supporting productivity in aquatic food webs (Uushona & Makuti 2008 referenced in Pullrich, 2020). Several research studies were conducted in the lagoon over the years, reporting that a relatively small number of species of large populations, none of them classified as endangered or rare, occur. The lagoon attracts and supports the greatest number of coastal birds in southern Africa, as it serves as a dry-season and drought refuge for intra-African migrants and as a non-breeding area for Palaearctic migrants. Counts of up to 250,000 birds at peak times during the summer season and about 80,000 to 100,000 birds during winter were reported. Key species are Greater and Lesser Flamingos, Chestnut-banded Plover, Black-necked Grebe and the African Black Oystercatcher (Pulfrich, 2020). As such, the lagoon forms part of an Important Bird Area and is one of the most important tourist attractions of Walvis Bay and the central coast of Namibia.

According to Geo-Pollution Services (2024), the marine mammals, occurring at various times in the Walvis Bay area, are the cetaceans, i.e. Common Bottlenose Dolphins, the Namibian endemic Heaveside's Dolphins, Dusky Dolphins, Humpback Whales, Southern Right Whales and Pigmy Right Whales. Cape Fur Seals also occur here and the Common Bottlenose Dolphin and Heaveside's dolphin and Cape Fur Seal is seen most frequently.

These marine mammals play a significant role in the ecosystem, but also contribute to the tourism industry of Walvis Bay (Geo-Pollution Services, 2024). Geo-Pollution Services (2024) furthermore states that the Namibian benthic and seashore communities are characterised by relatively low species diversity, with high abundance. It is regarded a dynamic ecosystem with relatively high resilience against impacts. The South Port is significantly degraded by various anthropogenic

activities which are associated with histrocic and current harbour and periodic dredging activities (Geo-Pollution Services, 2024).

However, the EIA Report prepared for Rössing in 2000 (CSIR, 2000) explained that the marine environment within the confines of the Walvis Bay harbour is widely regarded as degraded.

8.2.4 Land Use / closest receptors

Walvis Bay is a sheltered deepwater harbour and Namibia's largest commercial port. The port is the dominant player for transshipment to Zambia, Botswana, Malawi, Zimbabwe, Angola, and the Democratic Republic of Congo (DRC), and is a natural gateway for Southern African Development Community (SADC) countries that export to Europe and the United States. Annually, more than 3,000 vessels are received at Walvis Bay and approximately five million tonnes of cargo is handled. The port is managed by NamPort, which was established in 1994 (Pulfrich, 2020).

The proposed CBHT sulphuric acid storage and handling facility site, is located inside the port, in an area earmarked for bulk handling and storage of commodities (see and **Figure 1**, **Section 1** and **Figure 5**, **Section 7.2.3**).

TransNamib's rail infrastructure and buildings are located south of the proposed acid storage and handling facility, inside the port boundaries. Other port tenants, nearby the proposed CBHT Facility include Grindrod Terminals WBBT, Pindulo Logistics and Walvis Bay Cargo Terminals. Rössing Uranium has been operating their (similar) sulfuric acid handling and storage facility since 1976, which is located ~250m north-west of CBHT's proposed CBHT Facility. Rössing's, facility includes, amongst others, 4 tanks, road and rail loading / offloading facilities and relating pipeline to berth 6 for off-loading of acid from tankers.

The closest residential properties outside the port are the houses along 5th Street (between 8th Road and 10th Road), located ~240m south-east of CBHT's proposed facility.

Refer to **Figure 11** for other nearby port tenants and nearest residential properties, in relation to CBHT's proposed acid handling and storage facility.

Figure 11: Other nearby port tenants and nearest residential properties, in relation to CBHT's proposed acid handling and storage facility.

Various pieces of old equipment, scrap metal, sleepers, etc. are currently stored on the site where the sulphuric acid facility is proposed. ASEC conducted a site visit and took soil samples to test the possibility of hydrocarbon contamination on the site. Refer to **Figure 12** for photos of the material currently stored on site and the section below for the soil sampling and analysis.

Figure 12: Site photos.

8.2.5 Soil contamination / sampling on the site

As part of their plans to develop the proposed acid handling and storage facility at the specific site in the port, CHBT wants to ensure that the company does not become accountable for historic hydrocarbon contamination of the site. Even though hydrocarbons will not per se be stored on site by CHBT, the hydrocarbon spillage is always a possibility due to construction activities, vehicle and equipment movement, etc. Furthermore, possible signs of (historic) hydrocarbon contamination was visible on site.

For this reason, CHBT requested ASEC to take soil samples for a contaminant analysis (i.e. hydrocarbons only), as part of the scope of work of the EIA process.

The analysis can determine the possibility of past contamination for which CHBT cannot be held accountable for and will serve as baseline comparison with a future sampling and analysis when CHBT's operations cease.

Five soil samples were taken on the site. These positions are indicated in **Figure 13**. The samples were taken at five random places. As far as possible, the sites were selected in such a way to be in close vicinity of a "dirty spot" or possible sites of hydrocarbon contamination.

The sampling methodology was as follows:

- The depth of the sample holes excavated varied slightly depending on the thickness of the fill-in layer. In general, the depth of the holes varied around 20 to 30 cm.
- Composite samples (i.e. over the depth of the respective sample hole) were taken at each spot.
- Each of the samples were placed in an individually marked glass bottle.
- The five samples were delivered to the branch of the Analytical Laboratory Services in Walvis Bay, for forwarding them to the branch in Windhoek where the samples were analysed.

It must be noted that the laboratory analyses determined the percentage of "total hydrocarbons in the soil" as "fat, oil and grease" but could not determine whether it is specifically petrol, diesel or other hydrocarbons.

Figure 13: Soil sample locations on the proposed sulphuric acid handling and storage facility.

Findings

During the site visit to the site a few visible "dirt spots" were found and inspected to determine the spatial extent of the pollution. Visually, no case was found of deep penetration, nor was it found that the pollution still spreads horizontally. However, this was not verified with deeper excavations by ASEC.

The contaminant analysis report from Analytical Laboratory Services is summarized in **Figure 14**.

Test:		Fat, oil & grease	
Method Description:		Gravimetrically, solvent: dichloromethane extractable Material	
Unit:		% m/m	ppm
Lab No.	Sample ID		
I241907/1	Bannerman 1	0.01	96
I241907/2	Bannerman 2	2.55	25506
I241907/3	Bannerman 3	<0.01	<0.01
I241907/4	Bannerman 4	0.01	95
I241907/5	Bannerman 5	0.08	778

Figure 14: Analysis of the soil samples.

The results for fat, oil and grease (i.e. hydrocarbons) gave readings that vary widely – from <0.01 parts per million to 25 506 parts per million. In percentage it means that the readings vary between <0.01% and 2.55% mass per weight.

8.3 Receiving environmental along transport route

8.3.1 Surface water

The significant decrease in rainfall from east to west in Namibia, combined with the erratic nature of runoff, and the increase in evaporation potential (from east to west) results in highly episodic flow of all rivers in the central Namib Desert. These rivers generally contain discharge for a brief period of time, following exceptionally heavy rainfall events in the catchment (ASEC, 2022).

The transport route between the port and the Etango Mine does not cross any significant rivers. The nearest rivers to the transport activities include the Kuiseb River, located ~18 km south of the C14 / B2 intersection (i.e. where trucks will travel to and from the port) and the Swakop River located ~2 km north of the C28 / B2 intersection (trucks transporting the acid from the port along the B2 road will turn to the east onto the C28 road, towards the mine (see section 7.2.4 for further details). Refer to Error! Reference source not found. for the regional hydrology.

An east-west striking watershed separates the Swakop and the Tumas Catchment areas. The area to the north of the watershed forms part of the Swakop Catchment and drains towards the Swakop river in the north. To the south of the watershed, shallow drainage lines drain the terrain in a south-westerly direction towards the Swakopmund-Walvis Bay Dune Belt. These drainage lines are poorly defined and are conspicuous by the perennial plants they support (ASEC, 2022).

The transport route, therefore crosses numerous small / poorly defined washes / drainage lines (see **Figure 15**).

8.3.2 Biodiversity

The Atlas of Namibia classifies the dominant structure in this area as “grassland and dwarf shrubland”. The section of the transport route along the B2 support very few plants or animals within the limits of the road reserve. Exceptions to this generalisation would occur after rainfall events when small areas of ephemeral grasses and plants would develop.

The route along the C28 and access road to the mine crosses a largely level landscape with extensive plains which are dissected by a network of dry washes (see section 8.3.1). The vegetation is very sparse (< 1 % cover) and grows not more than 0.5 m in height. Perennial vegetation (shrubs and multi-seasonal herbs) mostly grows in the washes and depressions; that is any areas that receive run-off from the rare rain events. The pencil bush (*Arthraerua leubnitziae*), a Namib Desert endemic, is the dominant shrub along the route. The dollar bush (*Zygophyllum stapffii*), another Namib Desert endemic, starts to become co-dominant in the eastern section of the route (ASEC, 2022).

The B2 is located on the eastern outskirts of the Swakopmund-Walvis Bay Dune Belt. the route along the C28 follows gypsum-rich soils and gravel plains, supporting a great diversity of ground-dwelling lichens and extend almost along the entire route along the C28 and the Etango Mine access road.

Microphytic crusts (biocrusts) composed of algae, cyanobacteria, fungi and lichens also form in patches along this section of the route in undisturbed areas.

Figure 15: Regional hydrology along the transport route.

8.3.3 Land use / emergency services / closest receptors / traffic

Land Use

With reference to section 7.2.4, the route for transporting the sulphuric acid, from the port, first goes through Walvis Bay Municipal area (i.e. industrial area), to meet up with the C14. From there the tankers will use the new B2 (double lane highway) up to the turn off onto the C28 to the Etango Mine turn off.

The Dune 7 tourist attraction and Quad biking area is located near the C14 / B2 intersection. To the east of Dune 7 (east of the B2), is the Farm 58 Industrial site, which is being developed by various industries (i.e. part of the Walvis Bay Municipality).

Traffic

The C28 road is not very frequently used by tourists and locals and the B2was recently upgraded to a double lane road with various significant bridges, etc. Existing traffic volumes along the C14 (between Walvis Bay and the turn off to the B2), as well as through Walvis Bay to the port is significant and various road sections inside the municipal boundaries of Walvis Bay show signs of deterioration. At the time of the study, numerous road works were undertaken at the C14 / B2 intersection.

Emergency services

a) Police

Police stations are in Walvis Bay and Kuisebmond.

b) Fire brigade

There are fire brigade services in Walvis Bay and Swakopmund.

c) Erongo Road Safety Forum

The Erongo Road Safety Forum initiated by the Erongo Governor's office meets regularly with affected parties e.g. municipalities, mines, transport companies etc. to assess road safety risks and possible mitigations to lower such risks. The Namibian Uranium Institute also has a Services Working Group represented by all the uranium companies and one of the particular focus areas of the working group is on the joint disaster response efforts together with the Motor Vehicle Accident Fund.

d) Hospitals

Both Walvis Bay and Swakopmund have hospitals that can render assistance in medical emergencies.

8.3.4 Sensitive (risk) Areas

With reference to sections 8.3.1 to 8.3.3, the most sensitive / risk areas along the route, relating to potential impacts associated with accidental spills of sulfuric acid, include the following:

- The route through the town of Walvis Bay, where bigger numbers of third parties could potentially be in close proximity to a spill.
- The Dune 7 Tourist attraction area, situation near the B2 where visitor could potentially be in relevantly close proximity to a spill.
- The route traverses through the Dorob National Park and the Namib Naukluft National Park.
- Small washed / drainage line in close proximity to the roads.

9 IDENTIFICATION AND DESCRIPTION OF POTENTIAL ENVIRONMENTAL IMPACTS

Table 9 provides a summary of potential hazards that can lead to possible sulphuric acid spillage in the harbour, at the proposed CBHT Facility in the port or during the transport to the Etango Mine.

Table 10 provide a summary of the environmental aspects and potential impacts associated with the construction phase activities of the storage tanks and associated infrastructure). **Table 11** provides a summary of the environmental aspects and potential impacts associated with the vessel off loading at Berth 6, the pipeline from Berth 6 to the CBHT Facility, the offloading from rail tankers and loading of road tankers at the new CBHT Facility and the transport to the Etango Mine. Transport of sulphuric acid by rail is excluded from this EIA, as well as the offloading of sulphuric acid at the Etango Mine as this has been covered in the original EIA of the Etango Mine.

The relevance of the potential impacts (initial screening) is also presented in **Table 10** and **Table 11** to determine if certain aspects need to be assessed in further detail (Section 10 of this report). Taking into consideration that sulphuric acid has been offloaded, pumped to the storage tanks and loaded onto rail tankers since the Rössing Mine started in the 1970's and no incident has occurred (pers. Com. W. Ewald, Director). Since than technology has advanced and the CBHT Facility will use the latest technology / material available. Potential impacts can be assessed and the relevant management and mitigation measures, to minimize or prevent the potential impacts, will be provided in Section 10 and the EMP (**Appendix H**).

The main impacts during all activities might result from potential spillages while handling the sulphuric acid and in the event of an accident while transporting the acid by the road tankers to the mine (transport per vessel and train to the port is exclude from this EIA, see **Section 1.4**).

Table 9: Potential Hazards.

Activity	Hazard
Offloading from vessels to the pipeline	Human error
	Material failure of pipes due to poor maintenance
Pumping from the vessel to the CBHT Facility via pipelines	Material failure of pipes due to poor maintenance
Storing of the sulphuric acid in the tanks at the CBHT Facility	Material failure of tanks due to poor maintenance
	Poor design / material of tanks and bunding
Loading of road tankers	Human error
	Material failure due to poor maintenance
	Lack of spill containment
Transport to the Etango Mine	Human error
	Accidents caused by animals or other road users
	Weather conditions, i.e. Sand storms - sand covering the road, fog.

Table 10: Environmental aspects and potential impacts associated with the construction phase of the project[1].

ACTIVITY / FACILITY RELATING TO CONSTRUCTION PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT
Remove historic waste and contaminated soil (hydrocarbons) from site	General and hazardous waste disposal	Contamination of soil, water and the sea. General degradation and nuisance impacts.	Even though the historic waste / contaminated soil (see section 8.2.5) is not waste generated by CBHT, the handling and safe disposal thereof needs to be addressed by means of the contractual agreements between CBHT and NamPort. Refer to the EMP for relevant management and mitigation measures.
Use of construction vehicles and equipment.	Hydrocarbon leaks (from construction vehicles and equipment). Hydrocarbon spills (from handling of fuel and the onsite refueling of construction vehicles and equipment).	• Contamination of soil. • Contamination of groundwater. • Hydrocarbon spills washed into the harbour and impacting marine ecology	Accidental spills and leaks of hydrocarbons can occur onsite during construction, but the scale of activities is small and localized, and not many construction vehicles and equipment are required. Therefore, big spills and leaks are unlikely, and those that may occur can be cleaned-up shortly after an incident and without complication. Due to the scale of the activities and possible volumes of spills, the accidental entry into groundwater is unlikely. In case spills and leaks do occur, their impacts can be mitigated and managed through the implementation of the EMP for CBHT, which includes arrangements for containment and clean-up and preventing it from entering the harbour. The site for the CBHT Facility is however more than 300 m from the quayside, therefore, hydrocarbons entering the harbour due to spillage at the CBHT Facility is unlikely. Minor spills from equipment used for the installation of the pipes (closer to the quayside) is more likely to enter the harbour though but the scale of operations and the length of time to undertake the work is minimal. The EMP for CBHT is also aligned to the EMP and the operating and systems procedures and plans of Namport. The potential impacts are thus screened out as significant issues. No further assessment is required. However, refer to the EMP for relevant management and mitigation measures.

[1] Where relevant, construction activities similar to other projects' EIAs were considered. Therefore, screening information from Namisun, 2023c were used, where relevant.

ACTIVITY / FACILITY RELATING TO CONSTRUCTION PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT
	Noise	• Increased disturbance to third parties (sensitive receptors).	The construction activities are temporary and restricted to the site, specific times and to daylight hours. It is likely that noise levels during construction may increase, albeit intermittently. However, noise generation during construction is not expected to be significant or contribute to the cumulative impacts significantly. Ambient noise levels from the Port of Walvis Bay are already more than the typical ratings for an industrial district (SLR, 2015). With reference to Section 8.2.4, the closest sensitive (noise) receptors are other tenants leasing from Namport and the residential properties outside the port, located ~240 m south-east of CBHT's proposed CBHT Facility. The potential impacts of excessive noise can be mitigated and managed through the implementation of the EMP for CBHT, which is aligned to the EMP and the operating and systems procedures and plans of Namport. This potential impact is thus screened out as a significant issue. No further assessment is required. However, refer to the EMP for relevant management and mitigation measures.
	Air quality	• Release of airborne emissions • Dust, resulting in potential health and nuisance impacts.	During the construction activities airborne emissions will be released and dust might be created, but the construction activities are restricted to the site, is of a small scale and short duration, and limited to daylight hours. This means that the potential impacts associated with the release of airborne emissions and dust generation during construction are not expected to be significant or contribute to the cumulative impacts significantly. As a result, these potential impacts are screened out as significant issues. No further assessment is required. However, refer to the EMP for relevant management and mitigation measures.
	Traffic	• Congestion	Traffic congestion occurs to and from the main gate on the roads outside of the port already, resulting in deterioration of the road conditions and challenges related to road safety. Namport is in the process of developing a new traffic flow arrangement for the port, with planned new entrance and exit points, flow lines and truck staging lots. It is expected that the proposed new traffic flow arrangement will alleviate and improve the potential situation of traffic congestions to and from and inside the port area,

ACTIVITY / FACILITY RELATING TO CONSTRUCTION PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT
			also taking into consideration that the main Port road will be routed adjacent (south) to the proposed new sulphuric acid facility. The (current) gravel road will be upgraded and the construction activities could overlap with the construction activities of the sulphuric acid facility. CBHT need to consult with NamPort in this regard, closer to the time. It is unlikely that the proposed construction activities of CBHT will increase traffic to and from the port and inside the port area significantly. This potential impact is screened out as a significant issue. No further assessment is required.
General construction activities	Hazardous spills and leaks (of substances such as adhesives, paint, etc.)	• Contamination of soil. • Contamination of groundwater	The scale of activities is small and restricted to the site. Big spills and leaks are unlikely, and when they occur it can be cleaned-up shortly after an incident and without complication. The impacts of spills and leaks can be mitigated and managed through the implementation of the EMP for CBHT, which includes arrangements for containment and clean-up. The EMP for CBHT is also aligned to the EMP and the operating and systems procedures and plans of Namport. As a result, these potential impacts are screened out as significant issues. No further assessment required.
		• Contamination of surface water and run off into the harbour and impacting marine ecology.	No contamination of surface water because of hazardous spills and leaks is foreseen as drainage lines and permanent surface water are absent. Spillage directly into the sea is unlikely due to the small scale of activities, as the fact that the construction site is > 300 m from the quayside, therefore, impacts of spills and leaks entering the harbour due to spillage at the CBHT Facility is unlikely. Minor spills from equipment used for the installation of the pipes (closer to the quayside) is more likely to enter the harbour though but the scale of operations and the length of time to undertake the work is minimal. The impacts of spills and leaks entering the harbour can therefore be avoided by the implementation of the EMP for CBHT, which includes arrangements for containment and clean-up. The EMP for CBHT is also aligned to the EMP and the

ACTIVITY / FACILITY RELATING TO CONSTRUCTION PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT
			operating and systems procedures and plans of Namport. As a result, this potential impact is screened out as a significant issue. No further assessment is required.
	Construction activities (specifically relating to the pipelines) in close proximity to other port users' (existing infrastructure)	• Damage to existing infrastructure (i.e. Rössing pipeline, Walvis Bay Salt Holdings Conveyer system) • Interference with operational activities of other port users	During construction of the pipeline damage to existing infrastructure needs to be avoided at all costs. Careful planning of the construction activities to ensure that any operations are not disturbed during this period. There needs to be clear commitments in the EMP making CBHT accountable to ensure their design and construct the pipeline in such a way not to damage any of the existing infrastructure and not to cause operations disruptions. Also, when the need to cross the road of the port, etc. As a result, this potential impact is screened out as a significant issue. No further assessment is required.
Laydown of equipment and construction materials.	Surface water	• Blocking of water flows, the diversion of water and erosion.	No disturbance or interference with surface water flow is foreseen as drainage lines are absent. As a result, this potential impact is screened out as a significant issue. No further assessment is required.
General waste management.	General waste	• Contamination of soil, water and the sea. • General degradation and nuisance impacts.	Although the current waste management practice will apply during construction, potential contamination-related impacts resulting from improper waste management is possible. Expected waste items include building remains, empty containers and packaging, and domestic refuse. Also refer to the "removal of historic waste and contaminated soil (hydrocarbons) from site" activity above. The scale of the construction activities is however small, and the construction team is relevantly small, meaning that the potential impacts of waste can be effectively mitigated and managed through the implementation of the EMP for CBHT. As a result, this potential impact is screened out as a significant issue. No further assessment is required.
	Hazardous waste	• Contamination of soil, water and the harbour,	Small quantities of hazardous waste (empty containers of hazardous substances,

ACTIVITY / FACILITY RELATING TO CONSTRUCTION PHASE	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (SCREENING) OF POTENTIAL IMPACT
		impacting marine ecology	hydrocarbon waste, etc.) during construction is possible. The potential impacts of hazardous waste contamination of soil and groundwater or entering the harbour can be avoided and by the implementation of the EMP for CBHT. As a result, this potential impact is screened out as a significant issue. No further assessment is required.
Socio-economic conditions	Employment	• Job creation and skills development (positive impact)	With reference to section 7.3.2, 30 - 40 people will be temporarily employed during construction. The socio-economic benefits are therefore limited but constructive and will manifest in creating work, skills development, local procurement, and taxes. Nevertheless, these benefits are seen as positive impacts and will be optimized. No further assessment is required.

Table 11: Environmental aspects and potential impacts associated with the offloading, storage and loading of sulphuric acid at the new CBHT Facility.

ACTIVITIES	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (INITIAL SCREENING) OF POTENTIAL IMPACT
3. Normal operations (no incidences)			
Offloading from vessels to the pipeline and pumping via the pipelines to the CBHT facility	Minor spillages from the offloading / pumping from the vessels and potential failure of pipeline	Impact on the marine environment Impact on surface water and groundwater resources Impact on human health	With reference to section 7.2 of this report and by implementing the EMP requirements (Appendix H) it is unlikely that sulphuric acid will be spilled during offloading of the vessels and during pumping. In the (unlikely) event that spilled sulphuric acid from the offloading operations ending up in the marine environment this could affect the adjacent Walvis Bay Lagoon (Ramsar site). The impacts associated with surface- and groundwater, human health and biodiversity (i.e. marine ecology) will however be addressed under emergency situation (section 2 of this Table and Section 10) – assessing the worst-case scenarios.
Offloading of train tankers and loading of road tankers at the CBHT facility	Potential spillages of sulphuric acid during the loading and offloading operations at the CBHT Facility (The offloading activities at the Etango Mine is not included in this EIA, as it was part of the Etango Mine EIA)	Impact on the marine environment Impact on human health Impact on surface water and groundwater resources	With reference to section 7.2, the distance between the quay wall and the nearest tank (and loading activities) is ±300 m. In the event of a spill, the possibility of the spilled acid reaching the marine environment is unlikely as this would be contained at the CBHT Facility. The impacts associated with surface- and groundwater and human health will be addressed under emergency situation (section 2 of this Table and Section 10) – assessing the worst-case scenarios.
Storage of sulphuric acid at the new CBHT Facility	Leaking of tanks	Impact on human (i.e. 3rd parties) health	Under normal operations, no sulphuric acid will be leaking from the tanks. As described in section 7.2.3.2 a cathodic protection system will be installed under each tank, which will provide an early warning should a leak occur. However, management measures relating to maintenance and inspections of the rail tankers have been included in the EMP.

ACTIVITIES	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (INITIAL SCREENING) OF POTENTIAL IMPACT
		Impact on surface water and groundwater resources	The tanks are built in a bunded and lined area and any sulphuric acid leaking from a tank will be contained. However, refer to section 2 of this table for incidences /accidents relating to the contaminant of possible spills.
	Air emissions and odour	Impact on human (i.e. 3rd parties) health	Sulphuric acid has a sulphurous odour. However, the acid is contained in closed pipes while pumping from the vessel and in closed storage tanks at the CBHT facility. One also has to take into consideration that Rössing is handling sulphuric acid in the port since the 1970ties and so far, no complaint has been raised. Therefore, this issue has been screened out.
	Fire and explosion hazard	Impact on 3rd parties' safety	Sulphuric acid is a non-flammable substance and as such does not pose a fire or explosion risk. Other fire risks such as fires in buildings will be managed with standard smoke/fire detection systems and fire extinguishing equipment will be positioned in strategic places to limit this risk. During the detailed engineering design phase, a HAZOP will be done which will include this risk as well. Therefore, this issue has been screened out.
Washing of the tanker	Cleaning of the tanker during maintenance/inspection causing pillage	Impact on surface water and groundwater resources	Additional management and mitigation measures are however included in the EMP (**Appendix H**).
Transport from the CBHT Facility to the Etango Mine	Spillages caused by road accidents	Impact on surface water and groundwater resources	With reference to section 7.2 of this report and by implementing the EMP requirements (Appendix H) it is unlikely that sulphuric acid will be spilled from the road tankers under normal operations. The impacts associated with surface- and groundwater, human health and biodiversity will however be addressed under emergency situation (section 2 of this Table and Section 10) – assessing the worst-case scenarios.
		Impacts on biodiversity (terrestrial) getting in contact with sulphuric acid	
		Impacts on soil	
		Impact to 3rd parties (road users)	

ACTIVITIES	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (INITIAL SCREENING) OF POTENTIAL IMPACT
	Additional traffic	Impact to 3rd parties (road users)	Traffic congestion occurs to and from the main gate on the roads outside of the port already, resulting in deterioration of the road conditions and challenges related to road safety. Namport is in the process of developing a new traffic flow arrangement for the port, with planned new entrance and exit points, flow lines and truck staging lots. It is expected that the proposed new traffic flow arrangement will alleviate and improve the potential situation of traffic congestions to and from and inside the port area, also taking into consideration that the main Port road will be routed adjacent (south) to the proposed new sulphuric acid facility. The (current) gravel road will be upgraded and the construction activities could overlap with the construction activities of the sulphuric acid facility. CBHT need to consult with NamPort in this regard, closer to the time. During operation an additional 14 trucks per day will arrive and leave the port to transport sulphuric acid to the Etango Mine. Transport will only occur during daylight.
4. Incidences/Accidents (emergency situations)			
Offloading from vessels to the pipeline and pumping via pipelines to the CBHT Facility	Sulphuric acid spillage	Impact on the marine environment Impact on human health	Sulphuric acid spills could enter the harbour and impact the marine environment and workforce in the port. Emergency Response Plans will be in place to respond to any occurring spill.
Offloading of the sulphuric acid at the CBHT Facility from rail tankers into storage tanks and loading of road tankers. Road tankers accidents on route	Sulphuric acid spillage	Impact on surface water and groundwater resources Impact on human health from people getting into contact with the sulphuric acid	Sulphuric acid spills could impact on surface water and ground water; 3rd parties' health and safety; and biodiversity. Emergency Response Plans will be in place to respond to any occurring spill.

ACTIVITIES	ASPECT	POTENTIAL ENVIRONMENTAL IMPACT	RELEVANCE (INITIAL SCREENING) OF POTENTIAL IMPACT
to the Etango Mine.		Impact on biodiversity (terrestrial) getting into contact with the sulphuric acid	
		Impact on soil	According to the EIA Report prepared for Rössing in 2000 (CSIR, 2000) an acid spill could cause soil contamination at the spill site, which is expected to be a short-term minor negative impact of low significance with proper management and mitigation measure being implemented (refer to the EMP in **Appendix H**). This impact will therefore not be further assessed.

Table 10 and **11** above, and the issues raised during the public consultation process, the following impacts that might be caused from sulphuric acid spills were identified to be further assessed:

- Groundwater quality;
- Surface water quality;
- 3rd parties getting in contact with the acid - health and safety impacts
- Impact on biodiversity including:
    - Terrestrial
    - Marine environment (i.e. Ramsar site)

Furthermore, the potential fire and explosion risks associated with the storage of Sulphuric Acid in the port, and the related impacts to 3rd parties' safety is further assessed in Chapter 10.

Further, IAPs raised the following issues (see Section 4.4 and **Table 10** and **11** above) during the public consultation process, which will be addressed in the EMP as well by CBHT during construction.

- Emergency Reponses and responsibilities during emergency situations (i.e. during a spill).
- Key is to avoid disruption of other users, i.e. salt works during both construction and operations (if vessels arrive at the same time).
- Damage of RUL pipeline during construction of the CBHT pipelines.
- Road congestion. Please note that the traffic from and to the port will not use any road through the centre of town, but will go through industrial and business areas of Walvis Bay. (Not much can be done, as all roads to the Port go through the Town of Walvis Bay)
- Spillage prevention at the mine. (This has been covered in the Etango EIA)

Refer to Section 10 of this Scoping Report for an assessment of the above-mentioned issues.

10 IMPACT ASSESSMENT – ENVIRONMENTAL IMPACTS OF THE PROPOSED OPERATION OF THE SULPHURIC ACID STORAGE/HANDLING FACILITY AT THE PORT OF WALVIS BAY AND TRANSPORT TO THE ENTANGO MINE

Environmental Aspects and potential impacts during construction have been screening out, but mitigation measures will be stated in the EMP (**Appendix H**).

The environmental aspects that require further assessment (as identified in Section 9 of this EIA Report) relate to marine and terrestrial environment, groundwater and surface water and 3rd parties' health and safety during operation. Also, the potential fire and explosion risks associated with the storage of Sulphuric Acid in the port, and the related impacts to 3rd parties' safety require further assessment.

The assessments below relate to potential impacts associated with the accidental spillage of sulphuric acid in the event of an accident / incident (i.e. while offloading a vessel, pipe failure, offloading of rail tankers / loading of road tankers at the CBHT Facility and road tanker accidents along the transport route to the mine).

The potential impacts on the marine environment relate to spillages during the offloading operations from a vessel at the port.

The activities that are summarized in this chapter, link to the descriptions provided in Sections 7 and 9 (**Table 10** and **11**).

Management and mitigation measures to address the identified impacts are discussed in this section and are included in more detail in the EMP report that appear in **Appendix H**.

It must be noted that the likelihood of spillages during vessel offloading is very low, as experience shows of the RUL operation in the Port since the 1970ties – no accident occurred snce the start of the operation. Accidents and potential spillages during rail tanker and vessel transport have been excluded in this EIA, as this is the responsibility of TransNamib and the vessel operator.

Both the criteria used to qualitatively assess the impacts and the method of determining the significance of the impacts are outlined in **Table 12**. This method complies with the Environmental Impact Assessment Regulations: Environmental Management Act, 2007 (Government Gazette No. 4878) EIA regulations.

Table 12: Criteria for assessing potential impacts.

IMPACT assessment criteria	
SIGNIFICANCE determination	Significance = consequence x probability
CONSEQUENCE	Consequence is a function of: • Nature and Intensity of the potential impact • Geographical extent should the impact occur • Duration of the impact

Ranking the NATURE and INTENSITY of the potential impact	
Negative impacts	
Low (L)	The impact has no / minor effect/deterioration on natural, cultural and social functions and processes. No measurable change. Recommended standard / level will not be violated. (Limited nuisance related complaints).
Moderate (M)	Natural, cultural and social functions and processes can continue, but in a modified way. Moderate discomfort that can be measured. Recommended standard / level will occasionally be violated. Various third party complaints expected.
High (H)	Natural, cultural or social functions and processes are altered in such a way that they temporarily or permanently cease. Substantial deterioration of the impacted environment. Widespread third party complaints expected.
Very high (VH)	Substantial deterioration (death, illness or injury). Recommended standard / level will often be violated. Vigorous action expected by third parties.

Positive impacts	
Low (L) +	Slight positive effect on natural, cultural and social functions and processes Minor improvement. No measurable change.
Moderate (M) +	Natural, cultural and social functions and processes continue but in a noticeably enhanced way. Moderate improvement. Little positive reaction from third parties.
High (H) +	Natural, cultural or social functions and processes are altered in such a way that the impacted environment is considerably enhanced /improved. Widespread, noticeable positive reaction from third parties.
Very high (VH) +	Substantial improvement. Will be within or better than the recommended level. Favourable publicity from third parties.

Ranking the EXTENT	
Low (L)	Local: confined to within the project concession area and its nearby surroundings
Moderate (M)	Regional: confined to the region, e.g. coast, basin, catchment, municipal region, district, etc.
High (H)	National; extends beyond district or regional boundaries with national implications
Very high (VH)	International: Impact extends beyond the national scale or may be transboundary

Ranking the DURATION	
Low (L)	Temporary/short term. Quickly reversible. (Less than the life of the project).
Moderate (M)	Medium Term. Impact can be reversed over time. (Life of the project).
High (H)	Long Term. Impact will only cease after the life of the project.
Very high (VH)	Permanent

Ranking the PROBABILITY	
Low (L)	Unlikely
Moderate (M)	Possibly
High (H)	Most likely
Very high (VH)	Definitely

SIGNIFICANCE Description		
	Positive	**Negative**
Low (L)	Supports the implementation of the project	No influence on the decision.
Moderate (M)	Supports the implementation of the project	It should have an influence on the decision and the impact will not be avoided unless it is mitigated.
High (H)	Supports the implementation of the project	It should influence the decision to not proceed with the project or require significant modification(s) of the project design/location, etc. (where relevant).
Very high (VH)	Supports the implementation of the project	It would influence the decision to not proceed with the project.

DETERMINING THE CONSEQUENCE

DETERMINING THE CONSEQUENCE					
INTENSITY OF IMPACT = LOW					
DURATION	**VH**	**Moderate**	**Moderate**	**High**	**High**
	H	**Moderate**	**Moderate**	**Moderate**	**Moderate**
	M	**Low**	**Low**	**Low**	**Moderate**
	L	**Low**	**Low**	**Low**	**Moderate**
INTENSITY OF IMPACT = MODERATE					

DURATION	VH	Moderate	High	High	High
	H	Moderate	Moderate	High	High
	M	Moderate	Moderate	Moderate	Moderate
	L	Low	Moderate	Moderate	Moderate
INTENSITY OF IMPACT = HIGH					
DURATION	VH	High	High	Very High	Very high
	H	High	High	High	Very High
	M	Moderate	Moderate	High	High
	L	Moderate	Moderate	High	High
INTENSITY OF IMPACT = VERY HIGH					
DURATION	VH	Very high	Very High	Very High	Very high
	H	High	High	Very High	Very high
	M	High	High	High	Very High
	L	Moderate	High	High	Very High
		L	M	H	VH
		EXTENT			

DETERMINING the SIGNIFICANCE

DETERMINING THE SIGNIFICANCE					
PROBABILITY	VH	Moderate	High	High	Very high
	H	Moderate	Moderate	High	Very high
	M	Low	Moderate	High	High
	L	Low	Low	Moderate	High
		L	M	H	VH
		CONSEQUENCE			

10.1 Biophysical environment

During the screening process it was deemed necessary to carry out a qualitative assessment of the potential impacts on the biophysical environment.

10.1.1 Issue: Sulphuric acid spillage in the Walvis Bay port impacting on the Marine Environment

10.1.1.1 Introduction

With reference to section 7, the loading/offloading facility and activities will be designed and managed to aim for a zero-spillage system under normal operating conditions. However, this assessment is based on an "upset condition"; in other words when an incident occurs and sulphuric acid is spilled.

10.1.1.2 Assessment of impact

Nature of potential impact /Severity

The pipelines pumping the sulphuric acid from the vessels to the CBHT Facility are placed in a culvert, that is in its entire length lined with a HDPE liner to prevent seepage into the harbour or soil contamination in case of an acid leak.

With reference to section 8.2.3 the marine environment within the confines of the Walvis Bay harbour is widely regarded as degraded (CSIR, 2000). However, the Walvis Bay Wetland (lagoon) to the south of the town is a Ramsar site and an area of very high conservation priority. Sulphuric acid is toxic to the aquatic life (refer to section 7.1.1).

With reference to section 7.2, only potential sulphuric acid spills during offloaded from vessels at berth 6 could reach the harbour and effect the associated marine ecology. Emergency Response Procedures will be in place to prevent any spilled sulphuric acid reaching the harbour.

Also, sulphuric acid is denser than seawater, meaning that any spillage ending up in the sea will sink to the surface of the bottom sediments. As described by CSIR (CSIR, 2000) the acid will react with the seawater and the sediment material and gradually dilute and neutralize. With the absence of

significant marine life in the immediate vicinity of the berth and the distance and shallower water associated with the lagoon, small spills ending in the sea is unlikely to have significant effects. The severity in the unmitigated scenario is medium and in the mitigated it is considered to be low.

Duration

The effects of the sulphuric acid on the marine environment are short term (low).

Extent/Spatial scale

Due to the fact that the spilled material could end up in the ocean it is medium in both the unmitigated and mitigated scenarios. A small spill is not expected to materially impact on the Ramsar site.

Consequence

The consequence as a product of severity, duration and scale is low to medium in the unmitigated and low in the mitigated scenarios.

Probability

Due to the fact that the offloading facility and activities will be designed and managed to aim for a zero-spillage system with Emergency Response Procedures in place; the probability for a spill into the marine environment is unlikely. Furthermore, as described under the severity section, impacts on the Ramsar site (Lagoon) is unlikely, should sulphuric acid end up in the sea. Therefore, the probability is low in both the unmitigated and mitigated scenarios.

Especially, as no spillage into the marine environment has occurred during Rössing operation in the port over the last decades.

Significance

The significance of this potential impact is low to medium in the unmitigated and low mitigated scenarios.

Tabulated summary of the assessed impact – marine environment

Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Unmitigated	**M**	**L**	**M**	**L - M**	**L**	**L - M**
Mitigated	**L**	**L**	**M**	**L**	**L**	**L**

10.1.1.3 Mitigation measures

Objective

Even though a sulphuric acid spill and the associated impacts on the marine environment are assessed as a low significant in the mitigated scenario, spillage into the marine environment must be avoided.

Management and Mitigation measures

Refer to EMP (**Appendix H**)

10.1.2 Issue: Sulphuric acid spillage at the CBHT facility in the port of Walvis Bay port and during road tanker transport to the Etango Mine impacting on the terrestrial environment

10.1.2.1 Introduction

During the site visit no fauna or flora was encountered at the proposed CBHT Facility site in the port of Walvis Bay. Therefore, the assessment only focuses on the impact on terrestrial environment during transport to the Etango Mine.

The following section is a desk-based assessment of the potential impacts on the biophysical environment due to spillage of sulphuric acid during road tanker accident on the route to the Etango Mine.

10.1.2.2 Assessment of impact

Nature of potential Impact

The terrestrial environment between Walvis Bay and the Etango Mine has been briefly described in section 8.2 and 8.3.

There is no flora or natural fauna present on the proposed sulphuric acid storage and handling site, as is the case for the rest of the Port of Walvis Bay – the site has been previously disturbed and reclaimed (see section 8.2.2).

With reference to sections 8.3.1 to 8.3.3, the most sensitive / risk areas along the route, relating to potential impacts on biodiversity associated with accidental spills of sulfuric acid, include the following:

- The route traverses through the Dorob National Park and the Namib Naukluft National Park.
- Small washed / drainage line in close proximity to the roads.

As described in section 7.1.1 sulphuric acid is very destructive and causes burns to fauna and flora when exposed. Plant life present at the vicinity of a sulphuric acid spill would be destroyed and invertebrates killed.

Taking into consideration that a spill (unmitigated) could spread - depending on the amount of spillage – especially during rain events into washes and a number of species could be affected. However, vegetation along the route is very limited.

Taking the above mentioned into consideration, the potential impacts on the terrestrial biodiversity would be medium in the unmitigated scenario.

In the mitigated scenario, the severity will be reduced to low.

Duration

In the unmitigated scenario, the effects of the sulphuric acid on terrestrial biodiversity will be medium. With mitigation exposure is reduced to low.

Extent/Spatial scale

With impacts of a spill on the biodiversity could extend beyond the road reserve, in the unmitigated scenario. The spatial scale is therefore medium.

Consequence

The consequence in the unmitigated scenario will be moderate and with mitigation low.

Probability

In the unmitigated scenario where there are no controls and mitigation measures in place the probability of biodiversity (specifically important vegetation species) being affected as a result of a sulphuric acid spill is possible. In the mitigated scenario, the possibility for biodiversity being affected reduces to low.

Significance

The significance of this potential impact is medium in the unmitigated and low in the mitigated scenarios.

Tabulated summary of the assessed impact – Terrestrial biodiversity

Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Unmitigated	**M**	**M**	**M**	**M**	**M**	**M**
Mitigated	**L**	**L**	**M**	**M**	**L**	**L**

10.1.2.3 Mitigation measures

Objective

The objective of the measures is to avoid sulphuric acid spillages at all costs but where such incidences do occur, to ensure that biodiversity is rescued as far as possible and the affected area is cleaned up and restored to its original state, specifically important (i.e. protected) species and to inform the relevant authorities when a spill occur in the Dorob National Park or the Namib Naukluft National Park.

Management and Mitigation measures

Refer to EMP (**Appendix H**)

10.2 Groundwater

The information in this section was sourced from section 8.2.1.

10.2.1 Issue: Impact on Groundwater quality

10.2.1.1 Introduction

The major possible impact would be from pollution caused by sulphuric acid spillage, which could then soak into the ground and cause soil pollution, but will unlikely reach the groundwater.

10.2.1.2 Assessment of impact

Nature of potential impact / Severity

In the port of Walvis Bay there is no known potable groundwater source in the vicinity of the site and the port of Walvis Bay does not fall within a Water Control Area (SLR, 2013). Depth to the water table is calculated as about 3.5 m below surface and implies a flow of water towards the sea, on top of water that is more saline (SLR, 2015). Further information is provided in section 8.2.1.

The route from the port to the Etango Mine lies in an area characterized by rocky body with very limited groundwater potential. Hence the assessment was only carried out for Walvis Bay area.

The severity in both mitigated and unmitigated is rated low.

Duration

In the port the duration will be low in both scenarios.

Extent/Spatial scale

In the port and Town of Walvis Bay the spatial scale will be low in both scenarios.

Consequence

In the port the consequence will be low in both scenarios.

Probability

Groundwater contamination from spillages is unlikely at the port and is rated low in both scenarios, unmitigated and mitigated. Spillages at the CBHT Facility in the port will be contained within the bunded areas.

The potential for a small-scale spillage in case of a road tanker accident is medium as the leakage of road tankers is unlikely during unmitigated scenario and low in the mitigated scenario as these tankers have a number of safety measurements in place (see section 7.2.3.4).

Therefore, there the probability in the unmitigated case is medium, reduced to low in the mitigated case.

Significance

The overall significance is rated as medium in the unmitigated case and low in the mitigated case.

Tabulated summary of the assessed impact – groundwater quality

Mitigated / unmitigated	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Unmitigated	L	L	L	L	L	L
Mitigated	L	L	L	L	L	L

10.2.1.3 Mitigation measures

Objective

To reduce operating errors and equipment malfunctions, minimizing risk of spillage. Improve GIS database to improve emergency response.

Management and Mitigation measures

Refer to the EMP (**Appendix H**).

Mitigation measures that are planned to reduce the likelihood of spillage will include the regular training of truck drivers, dividing of the route into sections to help improve reaction times, the storage of emergency trailers at central locations for each section, the implementation of procedures and plans for reaction to any identified incidents and the setting up of a GIS database holding detailed information on the identified priority and sensitive areas. First response in the section closer to the Etango Mine will come from the Etango Mine.

10.3 Surface water

The information in this section was sourced from sections 8.2.1 and 8.3.1.

10.3.1 Issue: Impact on Surface water quality

10.3.1.1 Introduction

The major possible impact would be from pollution caused by spillage, being mobilized by the surface runoff and carried away from the local area making this difficult to treat. If the spillage occurred during the dry season into a dry river course, the impact would be significantly less and the clean-up required would be much easier and localized.

Surface runoff is a rarity in the central Namib Desert and occurs only after an episodic rainfall event. Although small puddles may form, precipitation from fog does not result into surface runoff.

The Port of Walvis Bay has no recognizable surface drainage line.

The transport route between the port and the Etango Mine does not cross any significant rivers. The nearest rivers to the transport activities include the Kuiseb River, located ~18 km south of the C14 / B2 intersection (i.e. where trucks will travel to and from the port) and the Swakop River located ~2 km north of the C28 / B2 intersection (trucks transporting the acid from the port along the B2 road will turn to the east onto the C28 road, towards the mine (see section 7.2.4 for further details). Small drainage lines along the B2 and C28 are poorly defined and are conspicuous by the perennial plants they support (ASEC, 2022).

10.3.1.2 Assessment of impact

Nature of potential impact / Severity

Surface water contamination from spillage could cause a small deterioration and a minor loss of surface water resources along the transport route. However, surface water along the route is used by terrestrial mammals, as no human surface water users are along the route. The potential for a small-scale spillage is medium in case of an accident.

Severity is considered medium in the unmitigated case and low in the mitigated case.

Duration

The duration would extend over the life of the transportation network and is therefore medium in both scenarios (mitigated and unmitigated).

Extent/Spatial scale

Spatial scale is considered low as no major rivers occur along the route (mitigated and unmitigated).

Consequence

Consequence is medium in the unmitigated and low in the mitigated scenario.

Probability

It is possible that surface water contamination could happen, but with only infrequent runoff events probability is considered low in both the unmitigated case and the mitigated case.

Significance

Summarizing the above assessment, the overall significance is rated as low for both scenarios in the unmitigated and the mitigated case.

Tabulated summary of the assessed impact – surface water quality

Mitigated / unmitigated	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Unmitigated	**M**	**M**	**L**	**M**	**L**	**L**
Mitigated	**L**	**M**	**L**	**L**	**L**	**L**

10.3.1.3 Mitigation measures

Objective

To reduce operating errors and equipment malfunctions, minimizing risk of spillage. Improve GIS database to improve emergency response management.

Management and Mitigation measures

Refer to EMP (**Appendix H**).

10.4 Third parties – Health and safety impacts

Walvis Bay is a sheltered deepwater harbour and Namibia's largest commercial port. The port is the dominant player for transshipment to Zambia, Botswana, Malawi, Zimbabwe, Angola, and the Democratic Republic of Congo (DRC), and is a natural gateway for Southern African Development Community (SADC) countries that export to Europe and the United States. Annually, more than 3,000 vessels are received at Walvis Bay and approximately five million tonnes of cargo is handled.

The closest residential properties outside the port are the houses along 5th Street (between 8th Road and 10th Road), located ~240m south-east of CBHT's proposed CBHT Facility.

With reference to section 8.2.4 of this report there are residential, commercial and industrial properties around the port of Walvis Bay, but non around the route to the Etango Mine, except for road users.

With reference to sections 8.3.1 to 8.3.3, the most sensitive / risk areas along the route, relating to potential impacts on third parties associated with accidental spills of sulfuric acid, include the following:

- The route through the town of Walvis Bay, where bigger numbers of third parties could potentially be in close proximity to a spill.
- The Dune 7 Tourist attraction area, situation near the B2 where visitor could potentially be in relevantly close proximity to a spill.

Other sensitive receptors include other port users.

10.4.1 Issue: Human (3rd parties) health and safety impacts due to spillages of sulphuric acid

10.4.1.1 Introduction

With reference to section 7.1.1, sulphuric acid can pose a number of potential health and safety risks to 3rd parties who may be exposed to spillages along the route or inside the port. The corrosive properties of sulphuric acid increases when it is diluted with water (i.e. when it rains) and some hydrogen gas is formed during the reaction (CSIR, 2000). If the spilled acid comes into contact with metals, it can also lead to the liberation of hydrogen gas.

The main types of 3rd party health risks associated with sulphuric acid can be summarized as follows:

- Severe burns and/or irreversible eye injury resulting from direct contact with the spilled acid
- Breathing sulphuric acid mists that can result in tooth erosion and respiratory tract irritation (ATSDR, 1998)
- Sensitive individuals, suffering from respiratory conditions and asthmatic children could experience shortness of breath or breathing problems if they breathe hydrogen or carbon dioxide gases related from an acid spill (CSIR, 2000).

The following section is a desk-based assessment of the potential impacts on the third parties' health and safety as a result of sulphuric acid spills.

10.4.1.2 Assessment of impact

Nature of Impact / Severity

Refer to section 7.1.1, inhalation of sulphuric acid may cause irritation to the respiratory tract with burning pain in the nose and throat, coughing, wheezing, shortness of breath and pulmonary edema. Contact with skin causes burns and irritation. Eye contact causes burns, irritation, a may cause blindness.

Acid spills could occur at the offloading of vessels, during the pumping to the CBHT Facility (which will be contained in the HDPE lined culvert), offloading of rail tankers and loading of road tankers at the CBHT Facility or during road tankers accidents enroute to the Etango Mine. Except for spillages during road tanker accidents, at all sites the workforce (which should have the correct PPE) will be exposed.

If not mitigated/controlled, a sulphur acid spill could cause substantial illness or injury. The severity is considered high.

In the mitigated scenario, the spill will be contained as far as possible, the emergency response plan will be implemented and relevant 3rd parties were made aware of the dangers associated to a sulphuric acid spill. In the mitigated scenario 3rd parties will therefore not be directly exposed to the sulphuric acid (or the exposure time will be very limited) and the severity therefore reduces to medium/low.

Duration

In the unmitigated scenario, the effects of the sulphuric acid on 3rd parties could be long term (high), with mitigation exposure is reduced or prevented (medium to low).

Extent/Spatial scale

The sulphuric acid spill will be contained within the work area/road reserve. Gaseous emissions from the spill might however spread beyond. The spatial scale is therefore medium.

Consequence

The consequence in the unmitigated scenario will be high and with mitigation medium/low.

Probability

In the unmitigated scenario, where there are no controls in place, the probability of third parties being impacted as a result of a sulphuric acid spill is as follows:

The sulphuric acid will be contained within the work areas or road reserve. In the unmitigated scenario, third parties might gather at the accident scene and the possibility exists that they can get exposed and their safety/health compromised, hence the rating is medium. In the mitigated scenario, it is reduced to low, as emergency responses will be rolled out.

Taken into consideration that no incident has been recorded of sulphuric acid exposure in the port since the operation of Rössing, the probability of 3rd parties exposure in the port is unlikely.

Significance

The significance of this potential impact is high in the unmitigated and low in the mitigated scenarios.

Tabulated summary of the assessed impact – third party health and safety impacts

Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Unmitigated	**H**	**H**	**M**	**H**	**M**	**H**
Mitigated	**M/L**	**M/L**	**M**	**M/L**	**L**	**L**

10.4.1.3 Mitigation measures

Objective

The objective of the measures is to avoid sulphuric acid spillages at all costs but where such incidences do occur, to ensure that 3rd parties are not exposed to the acid, and to ensure a contingency/emergency plan is in place.

Management and Mitigation measures

Refer to EMP (**Appendix H**)

11 WAY FORWARD

The way forward for the EIA process is as follows:

- Distribute the EIA report (EMP included in **Appendix H**) via email and place the report on ASEC webpage for downloading for review by the IAPs and authorities;
- Receive comments from IAPs and authorities on 24 January 2025 (at the end of the review period);
- Submit the EIA report (EMP included in **Appendix H**) to MWT and MEFT; and
- Follow up on MEFT's decision.

12 ENVIRONMENTAL IMPACT STATEMENT AND CONCLUSION

The impact assessment presents the potential for positive and negative environmental and social impacts that can all be mitigated to acceptable levels. The most significant potential impacts (unmitigated) are all related to sulphuric acid spills during handling at the port and transportation to the Etango Mine.

The environmental aspects associated with the proposed storage and handling facility at the port of Walvis Bay and the transport to the Etango Mine have been successfully identified and assessed as part of this EIA process. Relevant mitigation measures have been provided and are included in the EMP that accompanies this EIA report. ASEC believes that a thorough assessment of the proposed project has been achieved and that MEFT and MWT can make an informed decision regarding the application for an environmental clearance certificate.

12 REFERENCES

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APPENDIX A – CURRICULUM VITAE

A. Speiser Environmental Consultants cc
VAT Reg. No.: 3452708015 Reg. No.: cc 2003/0606
Alexandra Speiser
MSc MPhil
P.O. Box 40386 Windhoek Namibia Tel:+264 61 244 782 Cell: 081 124 5655 e-mail:amspeiser@yahoo.com

CURRICULUM VITAE

MARIE ALEXANDRA ANGELIKA SPEISER

A. PROFESSIONAL INFORMATION

First Names:	Marie Alexandra Angelika
Surname:	Speiser
Nationality:	German (Permanent Residence in Namibia 1999)
Countries worked:	Namibia, Mozambique, Angola, Botswana, Germany
Language:	German and English (fluent) Portuguese (reading, understanding: good; writing: poor) Afrikaans (fair)
Profession:	Environmental Scientists (MPhil), Geologist (MSc)
Contact details:	P.O. Box 40386 Windhoek – Namibia Tel +264 61 244782 Namibian cell 081 1245655; Portuguese mobile +351 922289857 E-mail: amspeiser@yahoo.com, aspeiser1910@gmail.com

B. EDUCATION

2000 **Master of Philosophy** in Environmental Science, University of Cape Town, South Africa.

Group Thesis Title: *Environmental Situation Analysis of the Orange and Fish River Catchments*

Individual Paper Title: *Small Scale Mining in Namibia*

1994 **Master of Science** in Geology and Paleontology, Georg-August University Göttingen/Germany.

Thesis Titles: *Fluid inclusion studies in vein quartz from the Kansanshi Mine (Zambia)* and *Geological mapping of the Kansanshi Mine and surroundings.*

C. Relevant Courses

November 2004

Environmental Auditor Trainings Course, Institute of Environmental Impact Assessment (IEMA) approved, Crystal Clear Consulting & Merchants (Pty) Ltd, RSA

D. Professional Activities

- Professional Institutes & Membership:
- Chamber of Mines of Namibia (member)
- Namibian Chamber of Environment (member)
- Geological Society of Namibia (member)

E. EMPLOYMENT HISTORY

2012 – to 2016 Associated Environmental Consultant to SLR Namibia

2003 - to date A. Speiser – Environmental Consultants cc, Director

Main work conducted and ongoing:

- **Environmental Consultant to LK Mining Pty Ltd**: Scoping Report including Environmental Impact Assessment & Environmental Management Plan for the offshore diamond mining activities on the proposed ML 220 of LK Mining, required for an Environmental Clearance Certificate.
- **Environmental Consultant to** Hope Namibia Mineral Exploration (Pty) Ltd (part of Bezant Resources PLC): Environmental Impact Assessment process for Hope Namibia Mineral Exploration activities on EPL 6605, located east of the Namib Naukluft National Park – overlapping the Erongo and Khomas Regions
- Work packages 6 leader of the **HiTech AlkCarb Project** funded by the European Union's Horizon 2020 research and innovation programme under grant agreement No. 689909 (Feb. 2016 to Jan. 2020)
- **Environmental Consultant to Virgo Resources Limited**: Environmental Impact Assessment (Scoping report & Environmental Management Plan (EMP)) for exploration activities on EPL 5796 (Namib Naukluft Park)
- **Environmental Consultant** to Kerry McNamara Architects Inc: Combined Scoping & EIA Report & EMP for the proposed Edelweiss Development (part of Okahandja Extension 7) in Okahandja
- **Environmental Consultant** to Bannerman Resources (Namibia) (Pty) Ltd: EIA/EMP for the proposed Pilot Plant on Bannerman Resources (Namibia) (Pty) Ltd EPL 3345
- **Environmental Consultant** to RPZC (Trevali): EIA/EMP for the proposed expansion of water and power infrastructure for RPZC Mine
- **Environmental Consultant** to RPZC (Glencore): EIA/EMP for the proposed zinc concentrate Storage shed at Lüderitz harbour
- **Environmental Consultant** to Metals Namibia. EO and EMP for exploration activities
- **Environmental Consultant** for the bulk chemical store of Crest Chemical Pty Ltd at Walvis Bay harbour
- **Environmental Coordinator** for the Kassinga (Angola) North and South Iron Ore Project – Area 1 (SMP / AEMR). JV between ASEC and Environmental Resource Management
- **Environmental Coordinator** for the exploration phase at Lofdal, Namibian Rare Earth (Pty) Limited
- **Environmental Consultant** to conduct bi-annual environmental audit reports for Glencore, Bannerman Resources (Namibia) Pty Ltd, Okorusu Fluorspar Pty Ltd, Namibia Rare Earth Pty Ltd, Swakop Uranium,
- **ESIA Coordinator** (amendments to the approved ESIA & ESMP) for the proposed U-mine at Etango (Bannerman Mining Resources Namibia (Pty) Ltd)
- **External Environmental Consultant** to Rössing Uranium (Rio Tinto) – SEMP: exploration drilling in the ML area within the Namib Naukluft Park
- **Reviewer** of Swakop Uranium SEIA conducted by Metago

- **ESIA Coordinator** (scoping phase) for the proposed Cu mine at Omitiomire (Craton Mining & Exploration (Pty) Ltd)
- **Mine Closure Plan** for Okorusu Fluorspar (Okorusu Fluorspar Pty Ltd)
- **Preliminary Environmental Overview** for Omitiomire Cu-deposit (Craton Mining & Exploration (Pty) Ltd)
- **ESIA Coordinator** for the proposed U-mine at Etango (Bannerman Mining Resources Namibia (Pty) Ltd) (Scoping & final ESIA approved by Government)
- **ESIA Coordinator** for the proposed Au-mine at Otjikoto, Central Namibia (Teal Exploration & Mining Inc.)
- Environmental Consultant to Walvis Bay Bulk Terminal (Pty) Ltd (EIA to construct a bulk sulphur loading & storage facility at WB harbour
- **Environmental Consultant** providing input to set up ISO 14001 & OSHAS 18000 at Rosh Pinah Mine, Rosh Pinah Zinc Corporation (Pty) Ltd
- **EIA Coordinator** for the proposed change to bulk sulphur at Skorpion Zinc, Chemical Initiatives (Pty) Ltd
- **September 2005 – June 2006, Environmental Coordinator** for the construction phase of Langer Heinrich Uranium (Pty) Ltd
- **EIA and EMP Coordinator** for proposed exploration activities for dimension stones, relevant document to grant licence by the Ministry of Mines and Energy, Olea Investment Number One (Pty) Ltd.
- **Standard Environmental Guidelines** for exploration activities, Helio Resource Corp., Canada
- **Coordinator** to compile the **Initial EMP for construction and operation** of the Langer Heinrich Uranium Mine, Paladin Resources Ltd
- **EIA & EMP (Phase 1 & 2) Coordinator** for exploration activities in the NW Namib Naukluft Park, West Africa Gold Exploration (Namibia) Pty. Ltd
- **EMP Coordinator** for Sarusas Mine, Skeleton Coast Park, Namibia, Igneous Mining Projects (Pty) Ltd
- **EIA & EMP Coordinator** for current & proposed mariculture projects of Alexkor, Alexander Bay, RSA
- **Environmental Consultant –** updating the EA & EMS for infrastructure changes at Navachab Mine, Anglogold Namibia (Pty) Ltd.
- **Team Leader**, Environmental and social assessment for World Bank/GEF Project 'Integrated ecosystem management in Namibia through the national conservancy network'
- **Bi-annual monitoring reports** auditing environmental performance of exploration activities (RPZC, B2Gold, Swakop Uranium, Okorusu Fluorspar, Namibia Rare Earth) - **ongoing**

2000 - 2003 Environmental Scientist at eco.plan (Pty) Ltd.

During this period, I conducted environmental assessments and developed environmental management plans for exploration and infrastructure projects. I further was involved in the project management, public participation processes and office administration.

1999 – 2000 University of Cape Town studying Environmental Science (MPhil degree)

1997 – 1999 Self employed, Contract Geologist Scientist

- RC drilling supervision – Apatite Project / Monapo, Mozambique, subcontracted by GeoAfrica Prospecting Services (Pty.) Ltd.
- Mapping and evaluation of possible talc deposits in Central Namibia, subcontracted by Dr. T. Smaley.
- Involvement in the preliminary fact finding phase to conduct an EIA to upgrade the Cement Factory in Otjiwarongo, Namibia.

- Several Desk Studies for Anglovaal Namibia (Pty) Ltd.
- Various investigations of diamondiferous gravels of the northern bank of the Orange River.
- Drilling Supervision in the Okavango Area for InterConsult Namibia (Pty) Ltd.
- Organization of the Public Meeting for the 'Proposed Klein Windhoek River Bridge and Upgrading of Mission Road.'

1995 to 1996 Project Assistant / Geologist at the German Technical Cooperation (GTZ)

- Participation in a six-week training course at the (GTZ) Headquarter in Eschborn/Frankfurt. Focus of the training course was on project management, rural public participation appraisal and social development workshops.
- Project Assistant to the GTZ-Adviser in the Ministry of Environment & Tourism. In cooperation with the Desert Research Foundation of Namibia (DRFN) the *Chemical Residue Analysis – Kavango Region* Project was conducted. The project assessed the environmental impacts of irrigation schemes along the Okavango River, special attention was given to the use of fertilisers and pesticides.
- Project Assistant/Geologist in the *Mineral Prospecting Promotion Project*. This project was set up in cooperation with the Geological Survey of Namibia (GSN) and the Federal Institute for Geo-science and Natural Resources (BGR). The work comprised geophysical interpretation and detailed geological/geophysical ground follow-ups.

1994 – 1995 Contract Geologist

- Supervision of construction sites and conduction of soil surveys to establish possible hydrocarbon-contamination (Germany).

F. PUBLICATIONS

Alexandra Speiser, Frances Wall, Kate Smith and Kathryn Moore (2019). Policy Brief - Social licence for exploration/mining in Europe is influenced by other georesource projects such as deep and shallow geothermal energy. Deliverable of the HiTech AlkCarb Project funded by the European Union's Horizon 2020 research and innovation programme (grant agreement No. 689909.

Boonzaier A., Kuiper S. and Speiser A. (1999). Community Benefits from the Richterveld National Park: The Golden Road to the future? in IAIAsa 1999 Conference Proceedings.

Speiser A., Hein U.F. and Porada H. (1995). The Kansanshi Copper Mine (Solwezi Area, northwestern Zambia): Geology, wall rock alteration and fluid inclusions, in Pasava J. Kirbek B. and Zak K. eds., Mineral deposits: From their origin to their environmental impacts: Third Biennial Society for Geology Applied to Ore Deposits Meetings, Rotterdam, Balkema, p. 289 – 392.

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APPENDIX B – BACKGROUND INFORMATION DOCUMENT

COOPERATIVE BULK HANDLING TERMINAL

BACKGROUND INFORMATION DOCUMENT

ENVIRONMENTAL IMPACT ASSESSMENT (SCOPING REPORT, INCLUDING IMPACT ASSESSMENT & EMP) FOR THE PROPOSED ACID STORAGE AND HANDLING FACILITIES FOR THE COOPERATIVE BULK HANDLING TERMINAL IN THE PORT OF WALVIS BAY

INTRODUCTION

The Cooperative Bulk Handling Terminal (Pty) Ltd (CBHT), a wholly owned subsidiary of Bannerman Investments Namibia (Pty) Ltd and part of the Bannerman Energy Ltd Group of Companies, was awarded an area within the port of Walvis Bay for its sulphuric acid storage and handling facility. The CBHT is tasked with the logistical management of importing and exporting materials, including sulphuric acid, an essential reagent in the mining industry's extraction of uranium (U_3O_8). Sulphuric acid (H_2SO_4) (98%) is required Bannerman's Etango Mine.

CBHT has appointed A. Speiser Environmental Consultants (ASEC) to conduct an Environmental Impact Assessment (EIA for the construction and operation of the sulphuric acid storage and handling facilities at the port and the transport of sulphuric acid to the Etango Mine). **Figure 1** shows the area which was awarded to CBHT at the port of Walvis Bay. An Environmental Clearance Certificate (ECC) needs to be granted by the Ministry of Environment, Forestry and Tourism (MEFT) for the construction and operation of the sulphuric acid facilities at Walvis Bay Port and the basis of an approved Application and associated EIA process.

ENVIRONMENTAL APPROVAL

In terms of the Environmental Management Act, 7 of 2007, a project of this nature requires an environmental impact assessment (EIA) process to apply for Environmental Clearance from the MEFT (Department of Environmental Affairs (DEA)).

PURPOSE OF THIS DOCUMENT

This document has been prepared to inform you:

* about the proposed construction and operation of the sulphuric acid facilities at port of Walvis Bay and the associated activities
* about the EIA process to be followed
* of possible environmental impacts, and
* how you can have input into the EIA process.

YOUR ROLE

Public involvement is an essential part of the EIA process.

You have been identified as an interested and / or affected party (IAP) who may want to know about the sulphuric acid storage, handling and transport, and also have input into the EIA process.

All comments will be recorded and addressed in the EIA process.

HOW TO RESPOND

Responses to this document can be submitted to the contact persons listed below.

If you would like your comments to be addressed in the EIA report, please submit them by

02 October 2024

WHO TO CONTACT

Alexandra Speiser (ASEC)
Email: amspeiser@yahoo.com **or**

Werner Petrick
Email: wpetrick@namisun.com
Telephone: 081 7394591

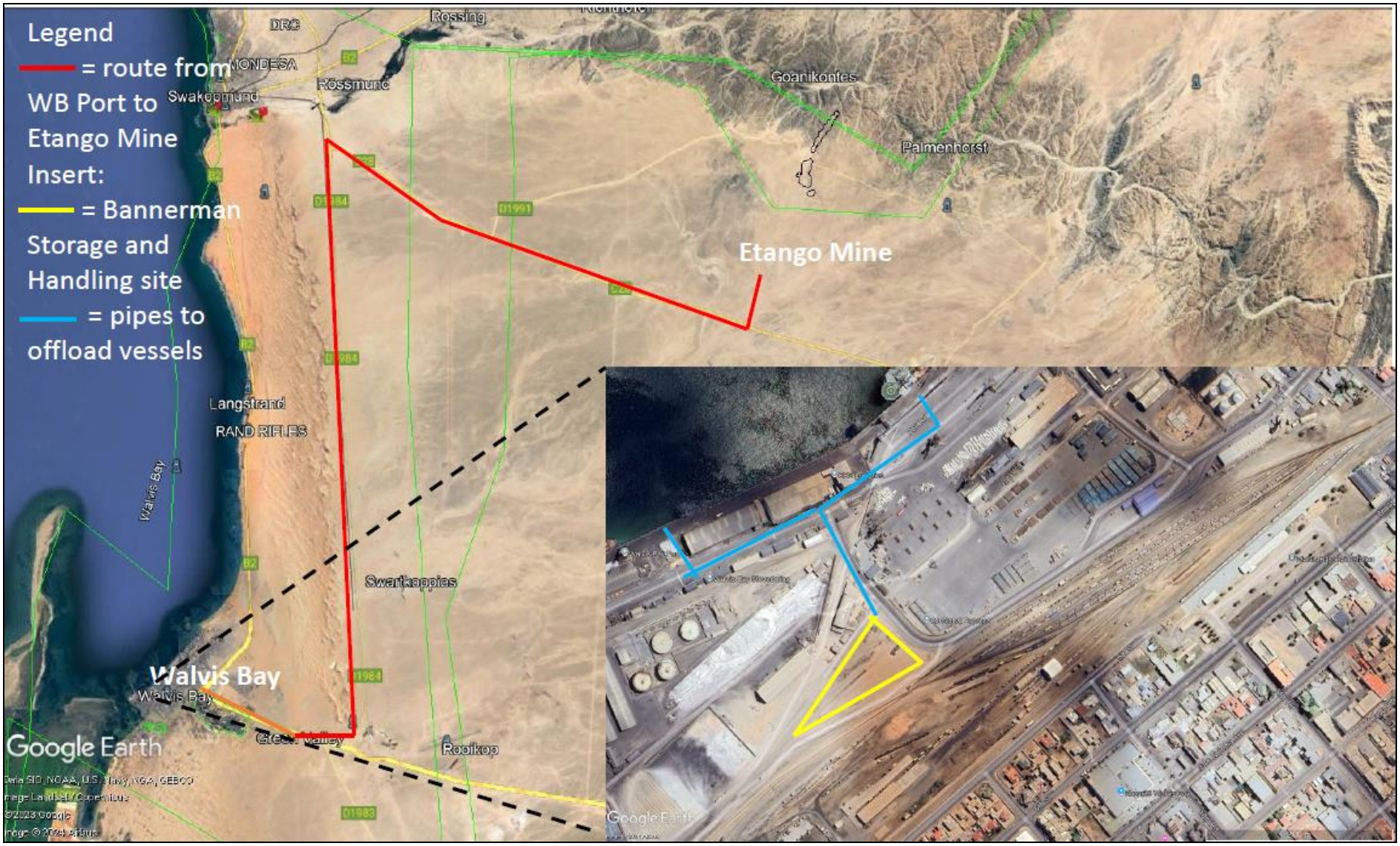

Figure 1: Location of the sulphuric acid facilities at port of Walvis Bay and transport route to the Etango Mine.

DESCRIPTION OF THE PROPOSED ACTIVITIES

The Etango Uranium Project is located on the Mining Licence 250 (ML 250) which was granted by the Ministry of Mines and Energy on 14 December 2023.

Information for the proposed storage and handling of sulphuric acid (i.e. "the project") was provided by CBHT and extracted from the "The Engineering Design and Cost Estimate Study for Acid Storage and Handling Facilities for Bannerman Mining Resources (Namibia), July 2022".

The Etango Mine's annual requirement of 98% sulphuric acid is in the order of 150,000 tonnes per annum (i.e. 430t/day for 350 days/year). The sulphuric acid will either be sourced from a local Namibian supply or from abroad, either transported by rail within Namibia or shipped by vessels to the port, and decanted into the storage tanks in the harbour. From there, it will be transported via road trucks to the mine.

The facilities to be provided in the harbour include the following:

- Storage capacity of 40,000 tonnes of 98% sulphuric acid in 4 tanks.
- Related infrastructure for the transfer of acid into the storage tanks from shipping vessels or rail acid tankers.
- Related infrastructure to transfer acid from the storage tanks to acid road tankers to transport the acid to the Etango Mine.
- Related infrastructure for safe operation of all facilities.

WHAT IS SULPHURIC ACID?

Sulphuric acid (alternative spelling "sulfuric acid") (H_2SO_4) is a is a highly corrosive strong mineral acid. It is a colourless to slightly yellow, odourless, viscous liquid which is soluble in water at all concentrations. Sulphuric acid is a very important commodity chemical. It is often used as an indicator of a country's industrial strength.

Sulphuric acid has a wide range of uses. It plays some part in the production of many manufactured goods, with its major use is in the production of fertilizers, e.g. superphosphate of lime and ammonium sulfate. It is also used to manufacture explosives, other acids, dyes, glue, wood preservatives.

Bannerman's metallurgical process will use sulphuric acid leaching to extract the uranium from the ore.

OFFLOADING AND LOADING OF SULPHURIC ACID TO AND FROM THE STORAGE TANKS

The infrastructure for **rail offloading** should sulphuric acid be delivered from local sources will entail the following:

- A single sideline platform housing 8x offloading hoses with related pump and decanting setup.
- 2x supply lines connected to the 8x offloading stations each. The supply line design forms a closed loop with intermediate shut off valve to allow reduced operation on either line while the other is being repaired or replaced.
- The pumping facility for loading will be shared between rail loading and road loading with variable flow control based on demand.
- Each offloading station has its own offloading pump and decanting assembly.
- A rail siding for stacking at least 8x rail tankers while the other 8 are being docked next to the platform and offloaded.

The infrastructure for **vessel offloading** of the sulphuric acid at the Walvis Bay Port will entail the following:

- 3x main supply lines (2x duty, 1x standby) will run from the site to the required berth.
- 2x flexible hose connections will connect the main supply line manifold to the vessel.
- The pumping facility for offloading will be onboard each vessel and flow is normally regulated by maintaining pressure below 700kPa and not necessarily by flow velocity.

The infrastructure for **road loading** to transport the sulphuric acid to the Etango Mine will entail the following:

- A single overhead platform housing 2x loading arms in order to fill 2x road tankers simultaneously.
- 2x supply lines intended to form a closed loop to allow reduced operation on either line while the other is being repaired or replaced.

The infrastructure for **road offloading** of the sulphuric acid at the Etango Mine will entail the following:

- Considering the application requirements of the facility and the distribution of acid to the Bannerman site as well as the anticipated mode of delivery, it does not make sense to construct a full-sized road offloading facility in the harbor as over-supplied sulfuric acid would be mainly transported on rail tankers. Based on this information, a single offloading station was provided with the option to extend this if the requirement arises in the future.
- 1x by-pass line connected to the storage tank incoming lines will be utilized to offload from a road tanker if/when required.
- The offloading station will have its own offloading pump and decanting assembly.

PROJECT SCHEDULE

The early works construction of the Etango Mine started in January 2024, while the major construction will commence in September 2024. It is anticipated that the mine will go into production in 2027. The construction of the sulphuric acid storage and handling facilities in the port is depended on an approved EIA (and ECC). The construction period is estimated to take 18 months and needs to be operational prior to the commissioning of the Etango Mine.

POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS

Limited environmental and social impacts of the construction of the sulphuric acid storage and handling facilities at the Walvis Bay Port is expected due to the location of the facility within the port boundaries, not far from a similar acid storage and handling facility.

However, potential negative impacts during the operations phase of the Project could occur, mainly as a result of potential spillages during offloading from rail and vessels and loading of road trucks to transport sulphuric acid to the mine site.

In addition, negative impacts (spillages) might occur if accidents happen during transport.

ENVIRONMENTAL ASPECT	POTENTIAL ISSUES TO BE CONSIDERED IN THE EIA PROCESS
Marine Ecology	Potential sulphuric acid impacting local marine ecology from spillages during pumping from shipping vessels to the tanks.
Terrestrial Biodiversity	Potential sulphuric acid contamination from spillages during transport, e.g. accident (outside the port boundaries).
Surface- /Groundwater	Potential sulphuric acid contamination from spillages during transport into water courses, e.g. accident.
Soil	Impacts of sulphuric acid spills on soil.
Socio-economic	There is a potential safety-related risk to third parties associated with sulphuric acid spills. It is toxic and harmful when inhaled, ingested or when it comes in contact with the skin.
	Increase in heavy track traffic from and to the WB Harbour through Walvis Bay Town.

Additional aspects might be raised during the process by the Environmental Team or by Interested and Affected Parties (IAPs) and will be considered in the EIA and mitigation measures put into the Environmental Management Plan (EMP).

THE WAY FORWARD

IAPs can register on the Project involvement database and submit any comments or questions to ASEC before 02 October 2024. These will be considered for inclusion in the draft EIA report and EMP. Meetings with focus groups are currently planned, where the preliminary study findings associated with the construction and operation of the sulphuric acid storage and handling facilities at Walvis Bay Port and the transport of sulphuric acid to the Etango Mine will be introduced. Should you wish to schedule a meeting or be part of a scheduled focus group meeting please contact ASEC.

APPENDIX C – LIST OF CONTACTED INTERESTED AND AFFECTED PARTIES AND EMAILS RECEIVED FROM IAPS AFTER THE ADVERTISMENT

Stakeholder type	Name 1: Authority / Organization's name and department	Name 2: Title and personal name
Authority	Directorate of Environmental Affairs	Mr Hiskia Mbura
		Damian Nchindo
		Saima Angula
	MEFT – DPW (Chief Control Warden Central Parks)	Manie Le Roux
	Chief Warden: Namib Naukluft Park	David Masen
	Chief Warden: Dorob National Park	Riaan Solomon
Authority (competent)	Directorate of Maritime Affairs	Executive Director, Mrs Esther N Kaapanda
		Deputy Executive Director, Department of Transport Mr Jonas Sheelongo
	Maritime Affairs, Walvis Bay Office	Mr Johannes Muzanima
		Theo Shipopyeni
		Mr Kalomo Shapua
	Roads Authority	
Authority	Chairperson Erongo Regional Council	Benitha Imbamba
	Erongo Regional Council	Mr. M. Ntelamo
Authority	MME: Mining Commissioner	Isabella Chirchir
Authority	Walvis Bay Municipality	Mr David Uushona
Authority		Ms Nangula Amutenya
Authority		Ms Lovisa Hailaula
Authority	Ministry of Fisheries and Marine Resources	Mrs. LaToya Shivute
Authority	Navy	Alweendo Amungulu
Parastatal	Namport	Stephanus Gariseb
Parastatal		Rauna Shikwaya
Parastatal		Justina Iiyambo
Parastatal		Shaheed Saban
Parastatal		Elzevir W Gelderbloem
Parastatal		Trevor Ndjadila
Parastatal		Tautinge M. Festus
Org	Uranium Institute	Gabi Schneider
Org	Chamber of Evnironment	Chris Brown
Org	Chamber of Mines	Signa Ndombo
		Lauren Graham
Mines	Langeheinrich	Bertram Swartz
		Michael Binneman
Mines	Orano	Kaarina NKANDI
Mines	Reptile	Johann van der Merwe
Mines	Rössing Uranium	Jacky Mwenze
		Robert Shaan van Schalkwyk
	Valencia	Pine van Wyk
Mines	Swakop Uranium	Marlon Izaks

Neighbour	Grindrod Terminals WBBT	Watyako Mumbala
		Tarja Ndevaetela
		Henry Izaaks
Neighbour	Pindulo Logistics	Kevin Changoo
		Santiana Gerber
Neighbour	WB Salt Refiners	Andre Snyman
		Klaus Frielingsdorf
		Gregory Swartz
		Dolf Cronje
		Gerome van Wyk
Neighbour	Woker Freight Services	
Neighbour	Manica	Patrick Kohlstaedt
Neighbour	Rennies	Cronje Grane
Neighbour	WBCT	Ockie Botha
Private	NEWS	Ndelimona Iipinge
Industry	Kahlgroup	Andra Heyman
Industry	Protea Chemicals	Fritz Schutz
Tourism	Coastal Tourism Association Nambia/ Baron Tours	Peter Von Ginkel
	Green Metals Refinery	Jacques du Toit
	Namibian Agricultural Union	Tanja Dahl
	private	Chamwe Chowa Kaira

EMAILS FROM IAPS

RE: BID for the ECC for the 'Environmental Impact Assessment (Scoping Report, including impact assessment & EMP) for the proposed Acid Storage and Handling Facilities for the Cooperative Bulk Handling Terminal in the Port of Walvis Bay' planned by Cooperate Bulk Handling Terminal
Stefanus Gariseb (Namport)
From:s.gariseb@namport.com.na
To: Alexandra Speiser
Cc:wpetrick@namisun.com
Fri, Sep 13 at 9:29 AM
Dear Alexandra
From the Namport side, the following colleagues are officially registering as Interested & Affected Parties for the proposed project.

- Stefanus Gariseb (s.gariseb@namport.com.na); SHEQ Manager & Acting Executive Risk
- Rauna Shikwaya (r.shikwaya@namport.com.na); Environmental Coordinator
- Justina Iyambo (j.iiyambo@namport.com.na); Property Manager
- Elzevir Gelderbloem (Elzevir@namport.com.na); Executive Engineering

Kind regards,
Stefanus Gariseb (Namport) *Manager: SHEQ*

Hi Werner / Alexandra
Kindly register Rossing Uranium Limited as an interested or affected party with regards to the EIA for the Cooperative Bulk Handling Terminal subsidiary of Bannerman for the acid handling facilities in the port and forward myself and those in copy the relevant documentation for consideration?
Since we have similar facilities in the port in the same vicinity to where you intend building these, we would have to ensure that there is no impact on the existing acid offloading infrastructure that could impact us.
Regards
Shaan van Schalkwyk
Chief Financial Officer
Rössing Uranium Limited

RE: BID for the ECC for the 'Environmental Impact Assessment (Scoping Report, including impact assessment & EMP) for the proposed Acid Storage and Handling Facilities for the Cooperative Bulk Handling Terminal in the Port of Walvis Bay' planned by Cooperate Bulk Terminal
Riaan Solomon
From:riaan.solomon@meft.gov.na
To: Alexandra Speiser
Mon, Sep 16 at 9:19 AM
Dear Madam
Received. Please add me as an interested and affected party. No comments at this stage.
Kind Regards

Riaan Solomon | Chief Warden

t: +264 64 404576 | **m:** +264 81 2527474 Riaan.Solomon@meft.gov.na
Ministry of Environment, Forestry and Environment | Co Bismarch and Sam Nuyoma Ave , Swakopmund Namibia

www.meft.gov.na

Tanja Dahl
From:nau@nau.com.na
To:amspeiser@yahoo.com,wpetrick@namisun.com
Fri, Sep 20 at 9:27 AM
Good morning Mr Petrick and Ms Speiser,
Please register me as an I&AP for:
Environmental Impact Assessment (Scoping Report, including impact assessment & EMP) for the proposed acid Storage and Handling facilities for the Cooperative Bulk Handling Terminal in the Port of Walvis Bay (and the transport of sulphuric acid to the Etango Mine)
Looking forward to receiving your confirmation of my registration.
Best regards

Cooperative Bulk Handling From: chamwe kaira (chamwe@gmail.com)
To: amspeiser@yahoo.com
Date: **Monday, September 30, 2024** at 03:53 PM GMT+2

Please add me as an interested part on the Cooperative Bulk Terminal.
Thanks Chamwe Chowa Kaira Mobile: +264810379954

APPENDIX D – MINUTES OF FOCUS GROUP MEETINGS

FOCUS GROUP MEETING CBHT Storage and handling of sulphuric acid at WB Port	
MEETING with Rössing Uranium Limited	**DATE**
Bannerman Boardroom, 15h30 – 16h30	20 September 2024

Attendance register
• Werner Ewald, Director, Cooperative Bulk Handling Terminal (Pty) Ltd (CBHT) (WE) • Shaan van Schalkwyk, Chief Financial Officer, Rössing Uranium Limited (SvS) • Robert Mutenda, Rössing Uranium Limited (RM) • Werner Petrick, Founder, Namisun (WP) • Alexandra Speiser, Director, ASEC (AS)
Attendance register is attached as **Appendix 1**.

Objectives of the meeting
• Provide the location and description of the proposed activities • Provide a description of the EIA process • Provide I&APs with initial opportunity to be involved in the EIA • Identify any potential environmental issues and impacts • Describe the way forward, highlighting further opportunities to be involved in the EIA process

Minutes/presentation/notes
WP introduced himself and AS as the independent Environmental Assessment Practitioners (on behalf of ASEC), conducting the EIA process, and welcomed all to the meeting. All other attendees of the meeting introduced themselves. WE provided a brief introduction and background to Bannerman and CBHT and also explained their motivation for the development of the proposed Project. This was followed by a short introduction by WP, which included: • The meeting agenda. • Procedure and objectives of the meeting. **<u>Presentation</u>** WP provided an overview of the proposed activities and facilities and EIA Process, by means of a PowerPoint presentation. The presentation included the following aspects: • General introduction and background to the proposed Project. • Description of the proposed project location, activities and infrastructure. • Brief explanation of the EIA process being followed, the EIA Team, etc. • Key potential environmental and social issues.

Q/A/C	Name	Questions / Answers / Comments
Q	SvS	Could NamPort take the facility over?
A	WE	A 3rd party is allowed to operate the facility. Namport previously raised a concern that not enough acid will be handled at the facility and therefore more Shareholders will likely form part of CBHT and use the facility.
C	SvS	Namport changed the rental agreement with RUL. RUL is concerned about the quality of the sulphuric acid (i.e. 98%) if others users are introduced at their facilities.
C	WE	The lease agreement between Namport and CBHT states that charges will be per tonne of product.
C	SvS	Our biggest concern relates to Rössing's pipeline, used for pumping their acid between Berth 6 and their tanks. When the proposed new pipelines are constructed the existing pipe must not be damaged.
C	WE	Well noted. Also, CBHT will construct 3 pipelines, one will be on standby should any maintenance to the proposed new pipes are required. CBHT plans that the pipelines will be constructed in a separate tunnel, however, the final decision lies with Namport.
Q	SvS	How and where will the sulphuric acid be off-loaded for the new facility?
C	WE	Reference was made to the presentation and the related maps, explaining the different options being considered for off-loading the sulphuric acid into the proposed new tanks. In terms of the sulphuric acid that would be exported, arriving per vessels, both Bert 6 and Bert 3 were considered, however, Berth 6 is likely to be the only option. Still possible that CBHT will construct a new rail siding near the C28.
C	SvS	The road is already congested.
C	WP	The main problem is the road from the port through the town of Walvis Bay. Informal discussions were held with the Walvis Bay Municipality Engineer (responsible for the Roads). The roads on Walvis Bay used by Port related traffic, amongst others, need to be refurbished. Not much can be done in terms of the capacity issues inside Walvis Bay (i.e. traffic in and out of the port).
C	RM	The vessel operations (i.e. off-loading) takes approximately 2 days (depending on the size of the vessel, which varies between 20,000 and 25,000 tonnes). If the same Berth (i.e. Berth 6) is used in future for the proposed new facility, there could be challenges in terms of the off-loading schedules.
Q	WE	CBHT will build their own pipelines for transferring the acid to their tanks. Also, key would be the establishment of Communication Channels (i.e. effective coordination) between Rössing and CBHT to ensure off-load times don't clash and vessels waiting before they can off-load. This would be very costly.
C	SvS	What will the size of the tanks be and will they fit? Also, what type of bunding will your facility have? RUL's bunding can take 200% of their biggest tank.

FOCUS GROUP MEETING CBHT Storage and handling of sulphuric acid at WB Port	
MEETING with NamPort	**DATE**
NamPort Main Office, 08h00 – 09h0	23 September 2024

Attendance register
• Werner Ewald, Director, Cooperative Bulk Handling Terminal (Pty) Ltd (CBHT) (WE) • Stefanus Gariseb (Namport) (SG) • Rauna Shikwaya (Namport) (RS) • Werner Petrick, Founder, Namisun (WP)
Attendance register is attached as **Appendix 1**.

Objectives of the meeting
• Provide the location and description of the proposed activities • Provide a description of the EIA process • Provide I&APs with initial opportunity to be involved in the EIA • Identify any potential environmental issues and impacts • Describe the way forward, highlighting further opportunities to be involved in the EIA process

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Q/A/C	Name	Questions / Answers / Comments
C	WP & SG	The various site neighbours (i.e. neighbouring tenants) were confirmed.
C	SG	Take note of the main Port road that will now be routed adjacent (south) to the proposed new sulphuric acid facility. This (current) gravel road will be upgraded and the construction activities could overlap with the construction activities of the sulphuric acid facility.
C	SG	Take note that various pieces of old equipment, scrap metal, sleepers, etc. are currently stored on the site where the sulphuric acid facility is proposed. It is Namport responsibility to remove all this, ensure the site is clean (i.e. also no contamination) before hand over.

FOCUS GROUP MEETING CBHT Storage and handling of sulphuric acid at WB Port	
MEETING with Neighbouring tenants inside the port	**DATE**
NamPort Main Office, 10h00 – 11h00	23 September 2024

Attendance register
• Werner Ewald, Director, Cooperative Bulk Handling Terminal (Pty) Ltd (CBHT) (WE) • Dolf Cronje (Walvis Bay Salt) (DC) • Gregory Swartz (Walvis Bay Salt) (GS) • Werner Petrick, Founder, Namisun (WP)
Attendance register is attached as **Appendix 1**.

Objectives of the meeting
• Provide the location and description of the proposed activities • Provide a description of the EIA process • Provide I&APs with initial opportunity to be involved in the EIA • Identify any potential environmental issues and impacts • Describe the way forward, highlighting further opportunities to be involved in the EIA process

Minutes/presentation/notes
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Q/A/C	Name	Questions / Answers / Comments
Q	DC	Are you considering Berth 3 as an option? This is the berth being used by the Salt Works.
C	WE	Both Berth 6 and Berth 3 were being considered, as these were provided as options by Namport. However, Berth 6 is likely to be the only berth to be used for sulphuric acid.
Q	DC	Is it not possible to connect (i.e. “Tee-off”) from Rössing’s infrastructure, i.e. pipelines and consider pumping the acid via Rössing’s facility to the proposed new facility?
C	WE	Joining infrastructure, even the same tanks were considered as an option by CBHT and discussed with Rössing and Namport. This is, however, not possible due to various contractual and other technical aspects.
Q	WE	How often is the salt vessels berthing?
C	DC	Every month – up to 3 vessels, loading ~10 000 tonnes / day.
C	DC	Key is to avoid disruption of other users, i.e. salt works during both construction and operations (if vessels arrive at the same time).
Q	JV	Will you sell Sulphuric acid also? There might be a need for acid at a new project proposed at Farm 58.
C	WE	The Sulphuric Acid currently required by Bannerman will be solely for the Etango Project. Other shareholders will likely join in future when other possibilities for supply could be considered.

FOCUS GROUP MEETING CBHT Storage and handling of sulphuric acid at WB Port	
MEETING with MWT - DMA	**DATE**
DMA Office – Walvis Bay, 14h00 – 15h00	23 September 2024

Attendance register
• Werner Ewald, Director, Cooperative Bulk Handling Terminal (Pty) Ltd (CBHT) (WE) • Johannes Muzanima, MWT (DMA) Deputy Director) (JM) • Theo Shipopyenie, MWT (DMA) (Surveyor) (TS) • Werner Petrick, Founder, Namisun (WP)
Attendance register is attached as **Appendix 1**.

Objectives of the meeting
• Provide the location and description of the proposed activities • Provide a description of the EIA process • Provide I&APs with initial opportunity to be involved in the EIA • Identify any potential environmental issues and impacts • Describe the way forward, highlighting further opportunities to be involved in the EIA process

Minutes/presentation/notes
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Q/A/C	Name / Organisation	Questions / Answers / Comments
Q	DMA	Will the Sulphuric Acid coming from Dundee be transported directly to the mine?
C	WE	If Sulphuric Acid is obtained from Dundee (Tsumeb) it will be transported via rail to the port, where it will be offloaded into the proposed tanks at the new facility first. Road Tankers will subsequently be transporting the acid from the port to the mine. Bannerman will investigate the possible off-loading of the acid at a proposed new siding near the C28 Road, from where it can be transported (per road) to the mine, with road tankers. This option is however not part of the current planning and this EIA process.
Q	DMA	Where does Dundee get their Sulphuric Acid from?
C	WE	Dundee produces Sulphuric Acid at their facility from the off-gases generated during the copper smelting process (i.e. at their Sulphuric Acid plant).
C	DMA	A key aspect to consider is the safety aspects relating to the transfer of acid between the vessels and the tanks – i.e. spillages.
C	DMA	The storage and handling of dangerous goods is very serious and the required safety standards must always apply.
Q	DMA	What are the benefits of constructing the facility inside the port? Why not outside the port? All dangerous good should not be stored inside the port.
C	WE	Sulphuric acid has been stored in the port by Rössing for many years. The transfer of the sulphuric acid via pipelines should be the shortest possible distance, making a facility outside the port not feasible, taking in mind that Sulphuric Acid is much denser that water. Sulphuric acid can only be pumped at a speed of 1m/s and ideally not under high pressures. Pumping sulphuric acid over long distances in many cases compromises this requirement and introduces higher risks of pipe failures. The design of the facility will include sufficient bunding to ensure spillages are contained, as has been the case with Rossing over the past +45 years.
Q	DMA	Are the relevant Berths (i.e. Berth 3 and Berth 6) declared as “chemical handling berths”?
C	WE	Sulphuric acid has been transferred through berth 6 for over 45 years. Namport to confirm if the berth is “Formally declared as a “chemical handling berth”.
Q	DMA	Are there other examples in the world where ports handle similar commodities (i.e. sulphuric acid)
C	WE	Yes, there are various such facilities for the handling and storage of sulphuric acid inside port in various countries. In South America especially Chile, Germany and ports in China are examples.
Q	DMA	What would be the affect / dangers that can be caused from a spill and what will be the effect on the port. Key is the safety of people and the possible impacts on port operations.

C	WP	The potential impacts associated with the potential spillages of the acid will be considered and assessed in the EIA.
Q	DMA	What material will be used to construct the tanks and what will the capacity be? Keep in mind that corrosion is bad at the cost.
C	WE	Mild Steel tanks will be installed. 4 tanks with a combined capacity of 40,288 Mt is required. 98%sulphuric acid will be stored in the tanks. This is the same as has been used at the Rossing Uranium facility.
Q	DMA	What is Swakop Uranium using in the processing at the Husab Mine?
C	WE	Sulphur is transferred to the Husab Mine where Sulphuric Acid is produced at the onsite Sulphuric Acid plant.
C	DMA	Rössing's tanks in the port are old. Better technology should be available.
C	DMA	The shipping of the acid must meet International Conventions.
C	DMA	The IMDGC and ISPS code must be taking into account as part of the safety considerations (and safety management system)
C	DMA	Proper training of staff and workers is key.
C	DMA	Also consult with the following stakeholders / institutions: Navy; MFMR; NAMRA; Police – Water Wing

FOCUS GROUP MEETING CBHT Storage and handling of sulphuric acid at WB Port	
MEETING with other ML holders	**DATE**
Bannerman Office – Swakopmund, 08h00 – 09h00	24 September 2024

Attendance register
• Werner Ewald, Director, Cooperative Bulk Handling Terminal (Pty) Ltd (CBHT) (WE) • Johann van der Merwe (Reptile Uranium) (JvdM) • Stefaans Gaeseb (Rössing) (SG) • Ann-August Sikongo (Rössing) (AS) • Werner Petrick, Founder, Namisun (WP)
Attendance register is attached as **Appendix 1**.

Objectives of the meeting
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Q/A/C	Name / Organisation	Questions / Answers / Comments
Q	SG	Will Berth 3 or Bert 6 be used?
C	WE	Both berths were initially being considered, as per communication with Namport. However, Berth 6 is the berth to be used for sulphuric acid.
Q	SG	Considering Emergency situations (i.e. during a spill), will the Sulphuric Acid be transported from the port to the Etango mine by Bannerman?
C	WE	No, a 3rd party will be contracted for the transport and who will also be responsible for the relevant Emergency Response and spill prevention and control. The CBHT will however ensure that the relevant emergency procedures are in place.

FOCUS GROUP MEETING CBHT Storage and handling of sulphuric acid at WB Port	
MEETING with Chief Warden of the Namib Naukluft National Park	**DATE**
Bannerman Boardroom, 11h00 – 12h00	24 September 2024

Attendance register
• Werner Ewald, Director, Cooperative Bulk Handling Terminal (Pty) Ltd (EW) • Dawid Mason, Chief Warden of the Namib Naukluft Park, Directorate of Wildlife and National Parks (DM) • Werner Petrick, Director, Namisun (WP) • Alexandra Speiser, Director, ASEC (AS)
Attendance register is attached as **Appendix 1**.

Objectives of the meeting
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Q/A/C	Name / Organisation	Questions / Answers / Comments
C	DM	The key issue (i.e. challenge) to be considered and assessed relating to both parks (i.e. Dorob National Park and the Namibia Naukluft National Park) is the potential for acid spills and how the act during such an emergency.
Q	DM	Will there be trucks transporting the acid from the port to the mine every day?
C	WE	Approximately 14 (30t) truck trips per day will be required for the transport to the mine.
Q	DM	How will spills be contained at the mine.
C	WE	The tanks at the mine will also have suitable bunding to ensure any possible spills from the tanks are contained.

FOCUS GROUP MEETING CBHT Storage and handling of sulphuric acid at WB Port	
MEETING with TASA	**DATE**
Paintball facilities - Swakopmund, 12h30 – 13h00	24 September 2024

Attendance register
• Werner Ewald, Director, Cooperative Bulk Handling Terminal (Pty) Ltd (EW) • Dawid Mason, Chief Warden of the Namib Naukluft Park, Directorate of Wildlife and National Parks (DM) • Werner Petrick, Director, Namisun (WP) • Alexandra Speiser, Director, ASEC (AS)
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APPENDIX E – NEWSPAPER ADVERTISEMENT, SITE NOTICE AND PHOTOS OF SITE NOTICE PLACEMENT

NHIES
Namibia Household Income and Expenditure Survey

Namibia Statistics Agency

2025/26 NAMIBIA HOUSEHOLD INCOME AND EXPENDITURE SURVEY: *PILOT SURVEY*

30 September - 20 October 2024

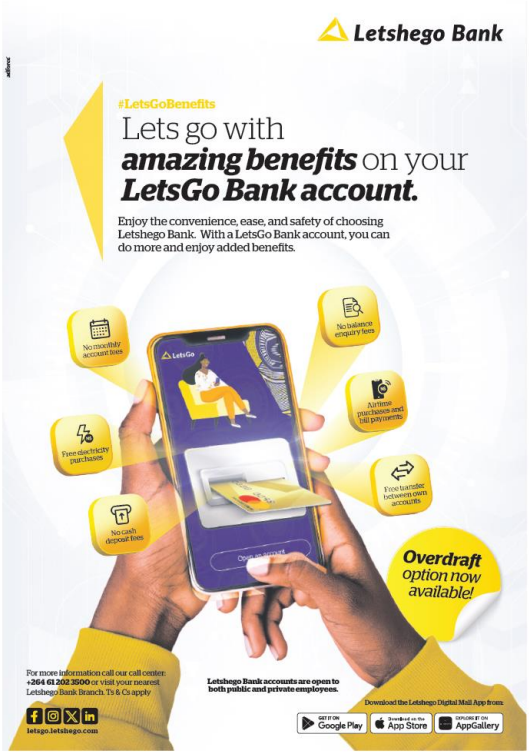
Selected areas for Pilot Survey

Regions:	Constituency	Specific areas
Erongo	Swakopmund	Ocean view (Streets are Sandpaper, Goswk, Sharewater, Plover, Emarald, Stick and Onyx).
Hardap	Mariental urban	Commercial Farms behind the Hardap Green Schemas
Zambezi	Kabbe South	Kasika area
Kavango West	Ncamangoro	Ncamangoro Farms and Karukuvisa West, Kulimina, Sihova and Mukuta
Kunene	Epupa	Otjihende, Oukavatye, Ombitisaori, Oruyombo, Oozonduuombe, Otjite, Okomukandi and Owakapaue
Khomas	Windhoek East	Ludwigsdorp (streets: Maria, Karin, Lanie, Gloudina, Qenta and Lyona Street).
Omusati	Oshikuku	Oshikuku town
Omaheke	Kalahari	Commercial farms on the road to Drimopsis

NB: Kindly note that not all households in the selected streets will participate in the survey

Namibia Statistics Agency
P.O. Box 2133,
FGI House, Post Street Mall,
Windhoek, Namibia

Tel: +264 61 431 3200
Fax: +264 61 431 3253
Email: info@nsa.org.na
www.nsa.org.na



SPORT ENGAGEMENT

synergi

Sales Representative

Duty Station: **Windhoek**

Are you passionate about sports and driven to create impactful commercial opportunities?

Synergi Marketing (PTY) Ltd is, an equal opportunity employer and has the following vacancy for a dynamic and energetic person with Namibian citizenship.

Key Responsibilities:

- Maximize Revenue:Develop and execute strategic plans to sell advertisements across online, print, and broadcast platforms, including events.
- Project Management: Lead the planning and management of special publications and events, while monitoring sales performance and reporting trends.
- Client Relations: Build and maintain strong relationships with clients across Namibia, South Africa, and other African regions, ensuring brand credibility and customer satisfaction

What We're Looking For:

- Experience: Minimum of 2 years in marketing and sales within a sports operational and corporate environment, with exposure to print and online media.
- Knowledge: Familiarity with several sports codes to effectively engage in your duties.
- Skills: Strong communication in English and Afrikaans, strategic planning for multimedia sales, and proficiency in Google Sheets, Docs, and Canva.
- Attributes: Creative, people-oriented, and able to thrive under pressure while managing multiple projects.

Requirements:

- Valid Code 08 Driver's license.
- Willingness to travel within Namibia and SADC regions.
- Grade 12, Diploma in Sales/Marketing will be an added advantage.

Join us if you're ready to bring your energy, creativity, and passion for sports to the next level.

Interested Candidates who qualify for the above position can forward their CV with certified copies of qualifications and relevant documentation to:
The Human Resources Department - **E-mail: vacancies@nmh.com.na.**
Please write "Sport Engagement Sales Representative" in the subject line.
For further details on job requirements and competencies visit http://nmh.com.na/vacancies

Only shortlisted candidates will be contacted.

Closing Date: 14 September 2024 **Interviews: 19-20 September 2024**

COOPERATIVE BULK HANDLING TERMINAL

ASEC

NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

ENVIRONMENTAL IMPACT ASSESSMENT (SCOPING REPORT, INCLUDING IMPACT ASSESSMENT & EMP) FOR THE PROPOSED ACID STORAGE AND HANDLING FACILITIES FOR THE COOPERATIVE BULK HANDLING TERMINAL IN THE PORT OF WALVIS BAY

Cooperative Bulk Handling Terminal (Pty) Ltd (CBHT), a wholly owned subsidiary of Bannerman Investments Namibia (Pty) Ltd and part of the Bannerman Energy Ltd Group of Companies herewith gives notice in terms of the Environmental Management Act, 7 of 2007 and Regulation 21 of the Environmental Impact Assessment (EIA) Regulations (January 2012), of their proposed construction and operation of the sulphuric acid storage and handling facilities at the port of Walvis Bay and the transport of sulphuric acid to the Etango Mine (**Figure 1**).

Prior to implementing the proposed Project, an EIA process will be conducted. An application for environmental clearance certificate (ECC) will be submitted to the Ministry of Environment, Forestry and Tourism (Environmental Commissioner) in terms of the above-mentioned regulations. This advertisement forms part of the EIA public participation process.

Applicant:

Cooperative Bulk Handling Terminal (Pty) Ltd

Nature and location of the proposed activity:

The Etango Mine's annual requirement of 98% sulphuric acid is in the order of 150,000 tonnes per annum (i.e. 430t/day for 350 days/year). The sulphuric acid will either be sourced from a local Namibian supply or from abroad, either transported by rail within Namibia or shipped by vessels to the port, and decanted into the storage tanks in the port. From there, it will be transported via road trucks to the mine. The facilities to be provided in the port include the following:

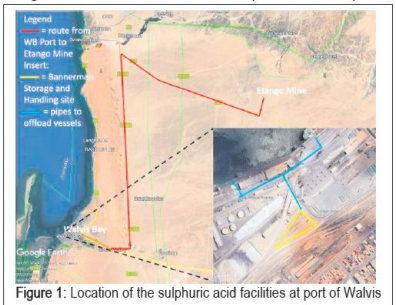


Figure 1: Location of the sulphuric acid facilities at port of Walvis Bay and transport route to the Etango Mine.

- Storage capacity of 40,000 tonnes of 98% sulphuric acid in 4 tanks.
- Related infrastructure for the transfer of acid into the storage tanks from shipping vessels or rail acid tankers.
- Related infrastructure to transfer acid from the storage tanks to acid road tankers to transport the acid to the Etango Mine.
- Related infrastructure for safe operation of all facilities.

Independent Environmental Assessment Practitioner:

A. Speiser Environmental Consultants CC (ASEC) has been appointed by CBHT as the independent Environmental Assessment Practitioner to undertake the EIA process for the proposed project.

Contact Person: Alexandra Speiser or Werner Petrick
Tel: 081 7394591
E-mail: amspeiser@yahoo.com or wpetrick@namisun.com

Registration to receive notifications / information and opportunity to comment:

To register as an interested and / or affected party, please submit your name and contact details to ASEC by e-mail, or by contacting Werner Petrick. A Background Information Document (BID) is available for a review and comment period from **11th September to 02nd October 2024**. Electronic copies of the BID are available on request from ASEC as per above details. Focus group meetings with I&APs have been scheduled. Further meetings can be scheduled on request to ASEC.

If you would like your comments to be addressed in the EIA Scoping (including Impact Assessment) Report please submit them to ASEC by **no later than 02nd October 2024**.

NOTICE TO ALL VENDORS

Attention: All esteemed Suppliers, Service Providers and Contractors

MTC hereby wishes to inform all its Suppliers, Service Providers and Contractors of its fiscal year end for 2023/2024 which ends on **September 30th, 2024.**

You are thus, urged to submit all unpaid invoices for goods delivered, services rendered and works completed to MTC on or before the close of business on **Friday, September 20th, 2024.**

All outstanding invoices must be forwarded to the Procurement department at **invoices@mtc.com.na** or **2nd floor, MTC Head Office in Olympia.**

Inquiries: Procurement department at the following numbers: **+264 81 888 2148/2326/2608/2757**

mtc.com.na

german cooperation
DEUTSCHE ZUSAMMENARBEIT

Implemented by giz

TENDER INVITATION

The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH is owned by the Federal Republic of Germany and works worldwide in international cooperation for sustainable development and international education. GIZ provides viable, forward-looking solutions for political, economic, ecological, and social development in a globalized world. Our actions are guided by the principles of sustainability, and we work to shape a future worth living around the world.

The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH supports the Namibian Government in terms of sustainable development. Following the interests of the government of Namibia, GIZ's work today focuses on these focal areas:

- Sustainable Economic Development
- Natural Resource Management
- Inclusive Urban Development

Considering the above, GIZ is inviting eligible and professional companies to participate in the following tenders:

Bid No: 91182445 – Supply and delivery of 1 - 4x4 Bakkies
(Only car dealerships are permitted to tender)

Bid Document to be requested via email to: NA_Inquiry@giz.de

Please indicate the bid number as a reference in the email subject line when requesting the bid document.

The deadline for submission of Bids is 27th September 2024 at 11h00 a.m. Bids must be hand-delivered to the following address: Procurement Unit, GIZ-Office Namibia, No. 88 John Meinert Street, Windhoek West.

ADM Network Administrative Services (Pty) Ltd an equal opportunity employer and has the following vacancy for a dynamic and energetic person with Namibian citizenship.

HUMAN RESOURCES OFFICER

Paterson Grade: C1

Job Purpose

To execute human resources activities in line with procedures through the application of good practice, rules and legislative requirements to ensure human resource administration and support to the Group in respect thereto.

Key Performance Areas

- Coordinate recruitment, employee relations, HR administration and induction programme.
- Coordinate performance appraisal.
- Liaise with HR related third parties.
- Coordinate Affirmative Action plan execution.
- Prepare and submit relevant HR reports.
- Execute line management accountabilities.
- Coordinate all HR related information sharing.
- Provide HR related advice and assistance.
- Administration of Industrial Relations.

Interested candidates who qualify for the above position can forward their C.V's with certified copies of qualifications and relevant documentation to:

The Human Resources Department
E-mail: vacancies@nmh.com.na. Please write "Human Resources Officer – Paterson Grade: C1" in the subject line. For further details on job requirements and competencies visit http://nmh.com.na/vacancies

Only shortlisted candidates will be contacted.
No documents will be returned.

CLOSING DATE: 20 SEPTEMBER 2024 INTERVIEWS: 30 SEPTEMBER 2024

ADM NETWORK ADMINISTRATIVE SERVICES

COOPERATIVE BULK HANDLING TERMINAL

ASEC

NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

ENVIRONMENTAL IMPACT ASSESSMENT (SCOPING REPORT, INCLUDING IMPACT ASSESSMENT & EMP) FOR THE PROPOSED ACID STORAGE AND HANDLING FACILITIES FOR THE COOPERATIVE BULK HANDLING TERMINAL IN THE PORT OF WALVIS BAY

Cooperative Bulk Handling Terminal (Pty) Ltd (CBHT), a wholly owned subsidiary of Bannerman Investments Namibia (Pty) Ltd and part of the Bannerman Energy Ltd Group of Companies herewith gives notice in terms of the Environmental Management Act, 7 of 2007 and Regulation 21 of the Environmental Impact Assessment (EIA) Regulations (January 2012), of their proposed construction and operation of the sulphuric acid storage and handling facilities at the port of Walvis Bay and the transport of sulphuric acid to the Etango Mine (**Figure 1**).

Prior to implementing the proposed Project, an EIA process will be conducted. An application for environmental clearance certificate (ECC) will be submitted to the Ministry of Environment, Forestry and Tourism (Environmental Commissioner) in terms of the above-mentioned regulations. This advertisement forms part of the EIA public participation process.

Applicant:

Cooperative Bulk Handling Terminal (Pty) Ltd

Nature and location of the proposed activity:

The Etango Mine's annual requirement of 98% sulphuric acid is in the order of 150,000 tonnes per annum (i.e. 430t/day for 350 days/year). The sulphuric acid will either be sourced from a local Namibian supply or from abroad, either transported by rail within Namibia or shipped by vessels to the port, and decanted into the storage tanks in the port. From there, it will be transported via road trucks to the mine. The facilities to be provided in the port include the following:

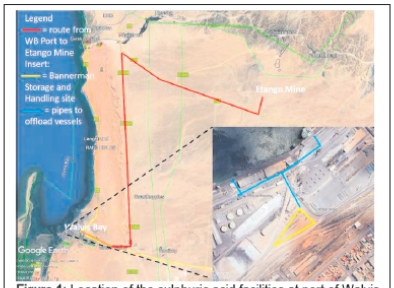


Figure 1: Location of the sulphuric acid facilities at port of Walvis Bay and transport route to the Etango Mine.

- Storage capacity of 40,000 tonnes of 98% sulphuric acid in 4 tanks.
- Related infrastructure for the transfer of acid into the storage tanks from shipping vessels or rail acid tankers.
- Related infrastructure to transfer acid from the storage tanks to acid road tankers to transport the acid to the Etango Mine.
- Related infrastructure for safe operation of all facilities.

Independent Environmental Assessment Practitioner:

A. Speiser Environmental Consultants CC (ASEC) has been appointed by CBHT as the independent Environmental Assessment Practitioner to undertake the EIA process for the proposed project.

Contact Person: Alexandra Speiser or Werner Petrick
Tel: 081 7394591
E-mail: amspeiser@yahoo.com or wpetrick@namisun.com

Registration to receive notifications / information and opportunity to comment:

To register as an interested and / or affected party, please submit your name and contact details to ASEC by e-mail, or by contacting Werner Petrick. A Background Information Document (BID) is available for a review and comment period from **11th September to 02nd October 2024**. Electronic copies of the BID are available on request from ASEC as per above details. Focus group meetings with I&APs have been scheduled. Further meetings can be scheduled on request to ASEC.

If you would like your comments to be addressed in the EIA Scoping (including Impact Assessment) Report please submit them to ASEC by **no later than 02nd October 2024**.

Site Notice

COOPERATIVE BULK HANDLING TERMINAL

ASEC

NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

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APPENDIX F – ISSUE AND RESPONSE REPORT

ISSUES AND RESPONSE REPORT

Name and how raised	Issue Raised / Comment	Response	Report Section
Shaan van Schalkwyk, Chief Financial Officer, RUL	Ownership of the facility	A 3rd party is allowed to operate the facility. Namport previously raised a concern that not enough acid will be handled at the facility and therefore more Shareholders will likely form part of CBHT and use the facility.	EIA: Section 1.2
Shaan van Schalkwyk, Chief Financial Officer, RUL	Avoid damage to Rössing's existing pipeline.	CBHT will construct 3 pipelines, one will be on standby should any maintenance to the proposed new pipes be required. CBHT plans that the pipelines will be constructed in a separate tunnel, however, the final decision lies with Namport. The description of the design of the pipeline has been shown and discussed in the EIA. The potential of damaging Rössing's existing pipeline is taken very seriously and have been addressed in the EMP.	EIA: Section 7.2.1, 9 & 10 EMP: Section 1.3, 4.17
Shaan van Schalkwyk, Chief Financial Officer, RUL	How and where will the sulphuric acid be off-loaded for the new facility?	The vessel operations (i.e. off-loading) takes approximately 2 days (depending on the size of the vessel, which varies between 20,000 and 25,000 tonnes). If the same Berth (i.e. Berth 6) will be used in future for the proposed new facility, good coordination in terms of the off-loading schedules will be required between the two companies. The operation of the CBHT facility will be similar to the existing one of Rössing. However, the newest technology will be applied to the design of the facility.	EIA: Section 7.2.1 & 7.2.2
Shaan van Schalkwyk, Chief Financial Officer, RUL	The road is already congested.	The main problem is the road from the port through the town of Walvis Bay. Informal discussions were held with the Walvis Bay Municipality Engineer (responsible for the Roads). The roads on Walvis Bay used by Port related traffic, amongst others, need to be refurbished. Not much can be done in terms of the capacity issues inside Walvis Bay (i.e. traffic in and out of the port). About 1 truck be hour during daylight will be added to the traffic volume.	EMP: 4.1.6

Shaan van Schalkwyk, Chief Financial Officer, RUL	What will the size of the tanks be and will they fit?	The design of the facility will be carried out by Windhoek Consulting Engineers (WCE), who were also involved in the design of the Rössing tanks. WCE will look at all aspects regarding bunding etc. Reference was made to the layout maps in the presentation, showing where the tanks will be located. The area can take four tanks as indicated on the preliminary design from WCE.	EIA: 7.2.3.2
Stefanus Gariseb (Namport)	Various pieces of old equipment, scrap metal, sleepers, etc. are currently stored on the site where the sulphuric acid facility is proposed.	Remove historic waste and contaminated soil (hydrocarbons) from site has been addressed in the EMP and will be carried out prior to the start of the construction.	EMP: 4.1.1
Dolf Cronje (Walvis Bay Salt) / Stefanus Gaeseb (Rössing)	Will Berth 3 or Berth 6 be used?	Both Berth 6 and Berth 3 were being considered, as these were provided as options by Namport. However, Berth 6 is likely to be the only berth to be used for sulphuric acid. According to NamPort berth 6 is the dedicated berth to off load sulphuric acid. It has been used for the last decades by Rössing. Should any other vessel moor at the berth when a vessel with sulphuric acid arrives, it needs to leave to allow the vessel that transports the sulphuric acid to moor immediately.	EIA: 6.2, 7.2.1 & 7.2.2
Dolf Cronje (Walvis Bay Salt)	Key is to avoid disruption of other users, i.e. salt works during both construction and operations (if vessels arrive at the same time).	This will be addressed in the scheduling of the construction activities and scheduling of vessel offloading during operation and has been addressed in the EMP.	EMP: 1.3 & 4.1.6

Johannes Muzanima, MWT (DMA) Deputy Director) / Theo Shipopyenie, MWT (DMA) (Surveyor)	A key aspect to consider is the safety aspects relating to the transfer of acid between the vessels and the tanks – i.e. spillages. The storage and handling of dangerous goods is very serious and the required safety standards must always apply.	Sulphuric acid has been stored in the port by Rössing for many years. The transfer of the sulphuric acid via pipelines should be the shortest possible distance, making a facility outside the port not feasible, taking in mind that Sulphuric Acid is much denser that water. Sulphuric acid can only be pumped at a speed of 1m/s and ideally not under high pressures. Pumping sulphuric acid over long distances in many cases compromises this requirement and introduces higher risks of pipe failures. The design of the facility will include sufficient bunding to ensure spillages are contained, as has been the case with Rössing over the past +45 years. Emergency procedures similar to Rössing Uranium will be in place before operations commence. No accident has been occurred at Rössing since the start of their operation.	EIA: 7.2.1 to 7.2.3 (design description) & 10 EMP: 5.1.1, 5.1.2 & 5.1.3
Johannes Muzanima, MWT (DMA) Deputy Director) / Theo Shipopyenie, MWT (DMA) (Surveyor)	What would be the effect / dangers that can be caused from a spill and what will be the effect on the port. Key is the safety of people and the possible impacts on port operations.	The potential impacts associated with the potential spillages of the acid will be considered and assessed in the EIA. This has been addressed in the design of the facility and in the EMP. Emergency Response Procedure will be in place.	EIA: 7.2.1 to 7.2.3 (design description) & 10.4.1 EMP: 5.1.1, 5.1.2 & 5.1.3
Dawid Mason, Chief Warden of the Namib Naukluft Park, Directorate of Wildlife and National Parks	The key issue (i.e. challenge) to be considered and assessed relating to both parks (i.e. Dorob National Park and the Namibia Naukluft National Park) is the potential for acid spills and how the act during such an emergency.	This has been addressed in the EIA assessment and EMP. Emergency Response Plans will be in place.	EIA: 10.1.2, 10.2, 10.3 & 10.4 EMP: 5.1.1, 5.1.2 & 5.1.3

APPENDIX G – MATERIAL SAFETY DATA SHEET – SULPHURIC ACID

Safety Data Sheet

Sulphuric Acid

Version 1.00 Revision Date 20.10.2020

SECTION 1. Identification of the substance/mixture and of the company/undertaking

Product identifier

Trade name	Sulphuric Acid
Synonyms	Dihydrogen sulfate
CAS-No.	7664-93-9
EINECS-No.	231-639-5

Relevant identified uses of the substance or mixture and uses advised against

Use	Industrial use.

Manufacturer or supplier's details

Company	Sasol Chemicals, a division of Sasol South Africa Ltd
Address	Sasol Place, 50 Katherine Street Sandton 2090 South Africa
Telephone	+27103445000
E-mail address	sasolchem.info.sa@sasol.com
Emergency telephone number	+44 (0)1235 239 670 (Europe, Israel, Africa, Americas) +44(0)1235 239 671 (Middle East, Arabic African countries) +65 3158 1074 (Asia Pacific) +86 400 120 6011 (China) +27 (0)17 610 4444 (South Africa) 0800 112 890 RSA-Local only +61 (2) 8014 4558 (Australia)

SECTION 2. Hazards identification

Classification of the substance or mixture

REGULATION (EC) No 1272/2008

Classification	Skin corrosion	Category 1B
	Serious eye damage	Category 1

Label elements

REGULATION (EC) No 1272/2008

Hazard pictograms :

Signal word : Danger

Hazard statements : H314 Causes severe skin burns and eye damage.

Precautionary statements

Prevention

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.

P264 Wash the contact area thoroughly after handling.

Response

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.

P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.

P363 Wash contaminated clothing before reuse.

Storage

P405 Store locked up.

Disposal

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. Composition/information on ingredients

Substance

Sulphuric acid

Contents: >= 95.00 - <= 100.00 %W/W

CAS-No. 7664-93-9 **Index-No.** 016-020-00-8 **EC-No.** 231-639-5

Hazard statements *H314*

SECTION 4. First aid measures

Description of necessary first-aid measures

Inhalation	Move to fresh air in case of accidental inhalation of vapours. If breathing is irregular or stopped, administer artificial respiration. Monitor breathing, get medical attention immediately.
Skin contact	Take off contaminated clothing and shoes immediately. Without any delay, irrigate the area of contact with copious amounts of water for an extended period. Summon emergency medical care and arrange for an emergency consultation with an appropriately experienced physician.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Protect unharmed eye. Call a physician immediately.
Ingestion	Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a physician immediately.

Most important symptoms/effects, acute and delayed

Refer to SECTION 11

SECTION 5. Firefighting measures

Suitable extinguishing media	Not combustible. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Special hazards arising from the substance or mixture	Do not allow run-off from fire fighting to enter drains or water courses. Exposure to decomposition products may be a hazard to health.

Special protective equipment for firefighters	Wear self-contained breathing apparatus and protective suit.

SECTION 6. Accidental release measures

Personal precautions	Use personal protective equipment. Do not breathe vapours or spray mist.
Environmental precautions	Do not flush into surface water or sanitary sewer system. Highly corrosive. Liberates high localized heat when when it comes in contact with water, causing acid smoke, boiling and spattering.
Methods for cleaning up	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Neutralise with lime or soda ash. Each kg acid will require approximately 1.27kg soda ash or 1.16kg hydrated lime to neutralise.
Reference to other sections	Refer to section 8 and 13

SECTION 7. Handling and storage

Safe handling advice	Wear personal protective equipment. Use only in area provided with appropriate exhaust ventilation. Do not breathe vapours or spray mist. Avoid contact with skin and eyes.
Advice on protection against fire and explosion	The product is not flammable.Product resists ignition and does not promote flame spread.
Requirements for storage areas and containers	Keep containers tightly closed in a dry, cool and well-ventilated place.Keep in an area equipped with acid resistant flooring.Keep away from direct sunlight.The product is hygroscopic.
Advice on common storage	No data available

SECTION 8. Exposure controls/personal protection

Components with workplace control parameters

NATIONAL OCCUPATIONAL EXPOSURE LIMITS

Components	Type	Control parameters	Update	Basis
SULPHURIC ACID	TWA	1 mg/m3	1995	South Africa RELs

Exposure controls

Engineering measures

Provide sufficient air exchange and/or exhaust in work rooms.

Personal protective equipment

Respiratory protection	Suitable respiratory equipment:
Hand protection	Gloves suitable for permanent contact: Material: fluoro carbon rubber - FKM, butyl-rubber Break through time: 8 hrs Material thickness: 0.5 mm Unsuitable gloves Material: natural rubber/natural latex, Polyvinylchloride, nitrile rubber/nitrile latex, polychloroprene
Eye protection	Tightly fitting safety goggles
Skin and body protection	Protective suit
Hygiene measures	Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice.

SECTION 9. Physical and chemical properties

Information on basic physical and chemical properties

Form	Viscous
State of matter	Liquid; at 20 ° C; 1,013 hPa
Colour	Clear
Odour	Sulphurous
Odour Threshold	No data available

Melting point/range	-35 - 10.36 ° C
Boiling point/boiling range	327 ° C
Flash point	Non-flammable
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Auto-ignition temperature	Not applicable
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapour pressure	0.024 hPa; 20 ° C
Relative vapour density	No data available
Density	1.8 g/m3
Water solubility	Completely miscible, Completely soluble

SECTION 10. Stability and reactivity

Reactivity	The substance does not present additional dangers of reactivity.
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	Attacks many metals, producing hydrogen (highly flammable) may form explosive mixtures with air. Alkali.
Conditions to avoid	Heat, flames and sparks.
Materials to avoid	Incompatible with strong bases and oxidizing agents. Avoid adding water to acid as this will cause excessive heat. Acid react violently with water and cause acid smoke, boiling and spattering.
Hazardous decomposition products	Sulphur oxides

SECTION 11. Toxicological information

Acute oral toxicity	Sulphuric acid: LD50 Rat: 2,140 mg/kg; (literature value)
Acute inhalation toxicity	Sulphuric acid: LC50 Rat: 2 h; vapour; 510 mg/l; (literature value)
Skin irritation	Sulphuric acid: Rabbit: Causes burns.; (literature value)

Eye irritation	Sulphuric acid: Rabbit: Highly irritating (literature value)
Eye contact	Causes eye burns.
Skin contact	Causes skin burns.

SECTION 12. Ecological information

Toxicity to fish	Sulphuric acid: static test; Brachydanio rerio; 96 h; > 500 mg/l; (literature value)
Toxicity to daphnia and other aquatic invertebrates	Sulphuric acid: Daphnia magna; 48 h; 70 - 80 mg/l(literature value)
Biodegradability	No data available
Bioaccumulation	No data available
Mobility in soil	No information available.
Results of PBT and vPvB assessment	This mixture contains no substance considered to be very persistent and very bioaccumulating (vPvB).

SECTION 13. Disposal considerations

Product	Dispose of as special waste in compliance with local and national regulations.
Packaging	Dispose of spent product packaging responsibly and lawfully with due consideration for health, safety and the environment.

SECTION 14. Transport information

ADR

UN number:	1830
Class:	8
Packaging group:	II; C1;
Proper shipping name:	SULPHURIC ACID

RID

UN number:	1830

Class:	8
Packaging group:	II; C1
Proper shipping name:	SULPHURIC ACID
ADNR	
UN number:	1830
Class:	8
Packaging group:	II; C1
Proper shipping name:	SULPHURIC ACID
IMDG	
UN number:	1830
Class:	8
EmS:	F-A, S-B
Packaging group:	II
Proper shipping name:	SULPHURIC ACID
Marine pollutant	Not a Marine Pollutant
ICAO/IATA	
UN number :	1830
Class:	8
Packaging group:	II
Proper shipping name:	SULPHURIC ACID

SECTION 15. Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

USA TSCA Inventory	All chemical constituents are listed in: USA TSCA Inventory (See chapter 3)
Canadian Domestic Substances List (DSL)	All chemical constituents are listed in: Canadian Domestic Substances List (DSL) (See chapter 3)
Australian Inv. of Chem. Substances (AICS)	All chemical constituents are listed in: Australian Inv. of Chem. Substances (AICS) (See chapter 3)
New Zealand Inventory of Chemicals (NZIoC)	All chemical constituents are listed in: New Zealand Inventory of Chemicals (NZIoC) (See chapter 3)

Jap. Inv. of Exist. & New Chemicals (ENCS)	All chemical constituents are listed in: Jap. Inv. of Exist. & New Chemicals (ENCS) (See chapter 3)
Japan. Industrial Safety & Health Law (ISHL)	All chemical constituents are listed in: Japan. Industrial Safety & Health Law (ISHL) (See chapter 3)
Korea. Existing Chemicals Inventory (KECI)	All chemical constituents are listed in: Korea. Existing Chemicals Inventory (KECI) (See chapter 3)
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	All chemical constituents are listed in: Philippines Inventory of Chemicals and Chemical Substances (PICCS) (See chapter 3)
China Inv. Existing Chemical Substances (IECSC)	All chemical constituents are listed in: China Inv. Existing Chemical Substances (IECSC) (See chapter 3)

SECTION 16. Other information

Full text of H-Statements

H314 Causes severe skin burns and eye damage.

All reasonable efforts were exercised to compile this SDS in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). The SDS only provides information regarding the health, safety and environmental hazards at the date of issue, to facilitate the safe receipt, use and handling of this product in the workplace and does not replace any product information or product specifications. Since Sasol and its subsidiaries cannot anticipate or control all conditions under which this product may be handled, used and received in the workplace, it remains the obligation of each user, receiver or handler to, prior to usage, review this SDS in the context within which this product will be received, handled or used in the workplace. The user, handler or receiver must ensure that the necessary mitigating measures are in place with respect to health and safety. This does not substitute the need or requirement for any relevant risk assessments to be conducted. It further remains the responsibility of the receiver, handler or user to communicate such information to all relevant parties that may be involved in the receipt, use or handling of this product.

Although all reasonable efforts were exercised in the compilation of this SDS, Sasol does not expressly warrant the accuracy of, or assume any liability for incomplete information contained herein or any advice given. When this product is sold, risk passes to the purchaser in accordance with the specific terms and conditions of sale.

APPENDIX H – ENVIRONMENTAL MANAGEMENT PLAN