TRANSNET NATIONAL PORTS AUTHORITY

TERMINAL OVERSIGHT AUDIT

INSPECTION REPORT

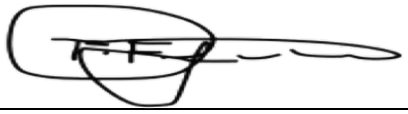
SITE: 10 BREMEN RD, BAYHEAD, DURBAN

LESSEE: ZUNGU- ELGIN ENGINEERING

COMPILED: TNPA PORT ENGINEERING DEPARTMENT

DATE: 13-01/2023 , 20 /01/ 2023

SIGNATORIES:

Compiled by:		24/01/2023
	Thandeka Gwala – Civil Engineer	Date
Compiled by:		24/01/2023
	Divina Seetharam – Civil Engineer	Date
Compiled by:		24 / 01 / 2023
	Harrison Sikhosana – Electrical Engineer	Date
Approved by:		24/01/2023
	Dumisani Mkhize – Deputy Port Engineer	Date

1. Introduction

Transnet National Ports Authority (TNPA) is obligated in terms of the National Ports Act to perform an oversight regulatory function on all Port Terminal Operators (PTO) and lessees. The aim of the oversight regulatory function is to ensure that each PTO adequately maintains their equipment so as to improve the reliability and availability of key infrastructure, which will aid with the performance of the terminal.

The Zungu Elgin Engineering site, located at 10 Bremen Road, Bayhead was inspected by the Port of Durban Port Engineering Department as part of the oversight audit inspection and an attempt to quantify an estimate for the refurbishment for all structures on this site.

The physical inspections took place on 13th and 20th January 2023. At the time of the inspection, as-built drawings were not be made available, therefore estimates and inspections are based on eyeball inspections. The leased site consists of two warehouses, an admin building, staff/canteen building and a gas station area. Warehouse 1 (see figure 1), includes offices inside the warehouse. A portion of the site is currently leased to Channel Construction which does not form part of the inspection. All structures were inspected, and the report presents findings, high level scope of works for refurbishments and estimates for refurbishment. Figure 1 below indicates the sites that were inspected.

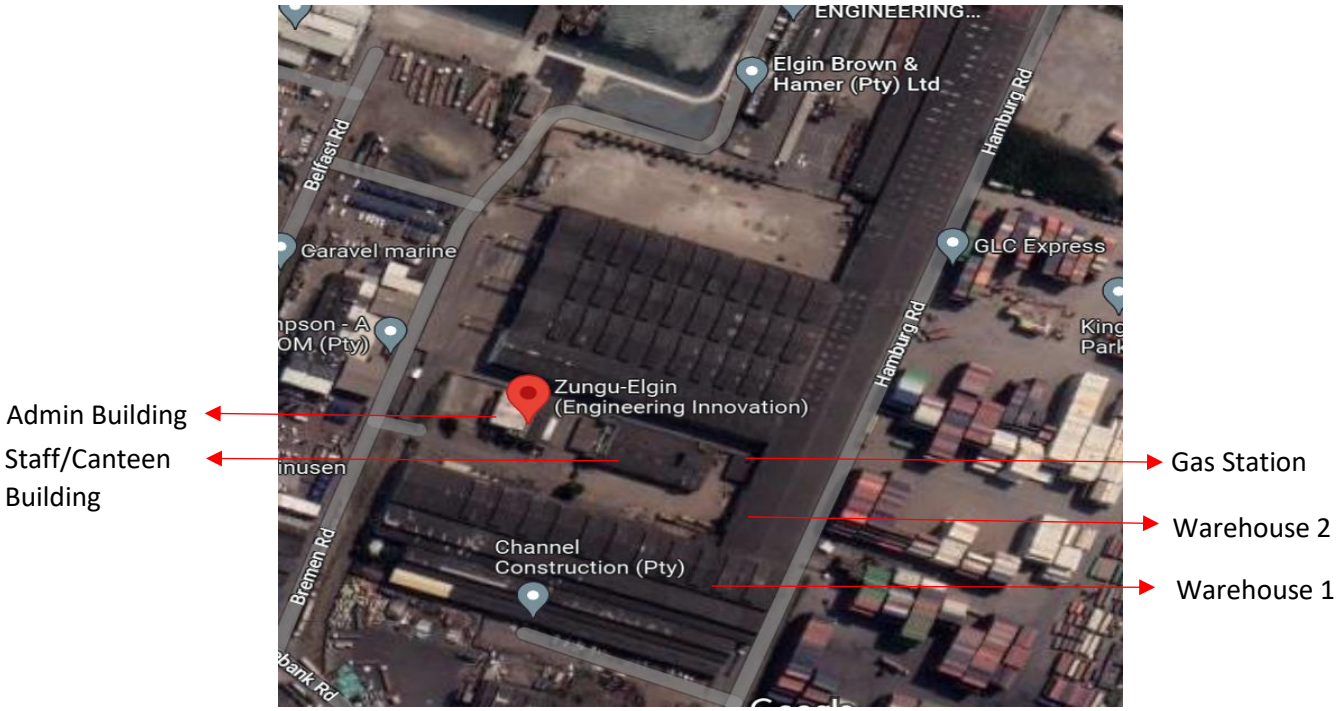


Figure 1: Elgin Engineering : Bayhead

2. Oversight Observations

The structural integrity of the warehouse is overall in a good condition, however, there are certain elements in the warehouse that requires refurbishment such as the flooring, walls, roof sheeting. The structural beams and columns in the warehouse is in a good condition. The attached offices in the warehouse require a complete refurbishment in terms of flooring, walls, ceilings. Exterior paving is in a good condition.

The concrete elements in the admin and staff building are in a poor condition, concrete spalling and corrosion of the rebar is visible, which requires further detail assessments. Water damage is visible, internal doors, ceilings and partioning are damaged, requiring replacement.

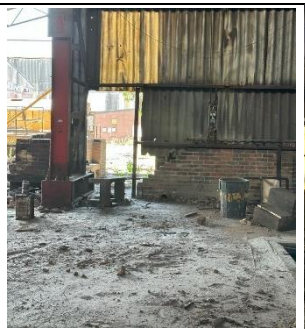
Figure 2: Warehouse

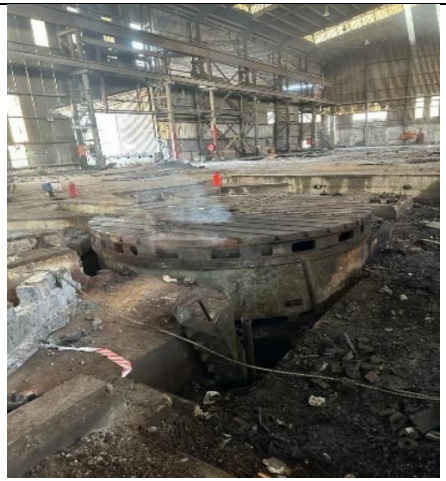
Figure 3: Admin Building

Figure 4: Staff / Canteen Building

2.1. Civil Assessment

Elements	Condition	Images
Roof	**Warehouses:** Both warehouses consist of asbestos roof sheeting. The roof sheeting is cracked & damaged in certain sections of the warehouse. **Admin building & Staff Building:** Both in the office & staff building some sections of the concrete slabs require waterproofing as there are signs of water ingress. Ceiling boards are damaged in the admin and staff building. Concrete spalling and reinforcement corrosion was noted. Some sections of the ceiling are damaged by water and is vandalised, which requires replacement.	 

Gutters & downpipes	Some gutters and downpipes are damaged and some are missing which needs to be replaced in the buildings and the warehouses.	
Walls & beams	The warehouse consists of asbestos cladding, which is damaged, broken, cracked and removed in certain places. Brickwork is cracked on the joint connecting to the concrete section in the warehouse and the buildings. Concrete spalling and reinforcement corrosion on beams was noted in the staff building. Paint is peeling off on several sections of the walls in all buildings. Gas station bricks are broken, moulded and paint wash is peeling off. There are numerous cracks in all buildings.	  

Doors & Windows	Window frames needs to be cleaned and painted, windowpanes are also missing both in the office and staff building. Door frames and doors need to be replaced.	 
Flooring	The concrete flooring in the warehouse is broken in certain places and consists of various trenches and deep openings which are filled with contaminated water.	 

Ablution	Pipes are broken, and sinks are also damaged. Shower rose and taps are removed from the showers. Toilet cisterns are damaged and non-functional.	

House Keeping & other	There is evidence of overgrown vegetation in some areas. Waste material has not been collected from site. There are a lot of waste inside the building comprising of old furniture, paper files, damaged celling panels, fuel containers, stripped cabling, gym equipment etc. Fire hose reels and hoses are not in an acceptable housekeeping condition. It should be noted, fire emergency stairway was not visible in the admin building.	 

2.2. Electrical Findings

2.2.1. Electrical Supply Arrangement

The facility receives 11 kV bulk electricity supply from eThekwini Municipality via the substation located just next to the gate of the site, this substation is currently de-energized due to damages during the KZN floods that took place in April 2022. The main substation is divided in to two rooms housing eThekwini and customer electrical switchgears that supply power to various substations in the facility, these substations consist of electromechanical equipment such as switchgears, transformers and standby generator.

Findings	Resolutions:
• The entire substation was submerged with water during the floods and is currently de-energized. • Customer side 11 kV medium voltage switchgear removed from site. • Medium voltage cables still lying in the trench. • TNPA has inherited the customer side asset and there is a project in place to replace the affected electrical equipment.	• Reported to eThekwini Municipality to test and undertake any possible repairs on the 11 kV medium voltage switchgear. • Treat supply cables in the trench as "live". • Apply for reconnection of electrical power supply to eThekwini Municipality.

2.2.2. Transformers

The electrical supply arrangement consists of seven (7) transformers that are used to step down the operating voltage from 11 kV to 400 V to supply electrical lights and power EL&P) to the facility, this includes the warehouse and administration building

Findings	Resolutions:
• No maintenance records were available. • Transformers are in a bad condition as they have not been operating for more than a year and has collected a lot of dust. • Steel casing is corroded in all transformers.	• Transformers and associated components need be tested. • Should the test results recommend replacement, new transformers sizes will depend on the new electrical distribution design as per the new tenant's operations electrical requirements.

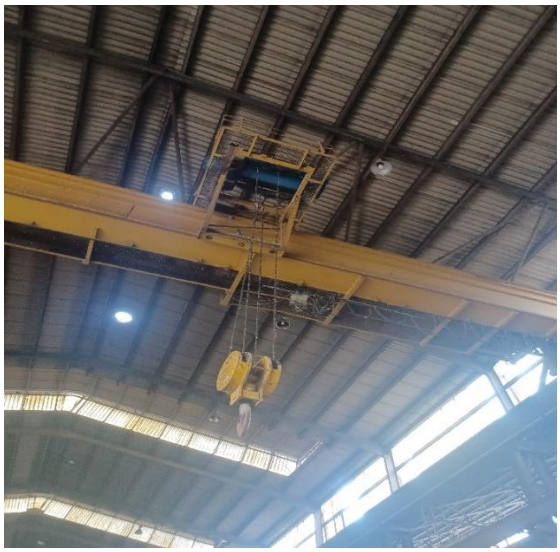
2.2.3. Low Voltage Distribution Boards

There are various sub distribution boards that supply the warehouse electromechanical equipment such as overhead cranes, industrial plugs and the administration building.

Findings	Resolutions:
• All low voltage distribution boards have accumulated dust and are in a bad condition. • Some low voltage supply cables to distribution boards have been cut. • Some distribution boards circuit breakers have been removed or stolen.	• Some distribution boards require full replacement. • New distribution boards with circuit breakers and supply cables required. • Main distribution panel to be designed and rated according to the new tenant's operations electrical requirements.

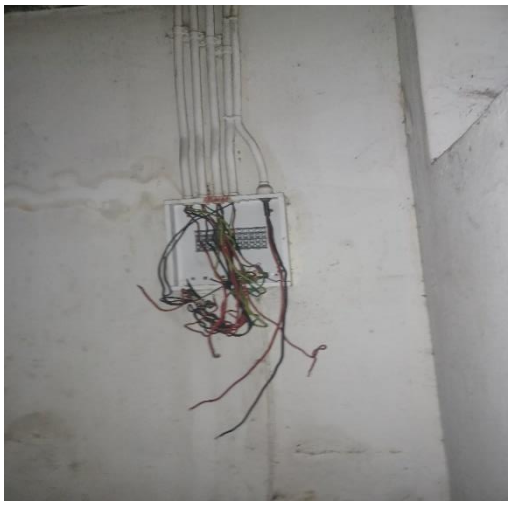
2.2.4. Warehouse electromechanical equipment

Findings	Resolutions:
• There are 2 x overhead cranes that were used hoist heavy loads, the rating of these cranes could not be identified. They both have accumulated dust as they have not been operated for a long period. • There are 24 high-bay lights that were used for lighting the warehouse, these have also accumulated dust as no maintained have been done on them in the last 18 months. • Industrial plugs supply cables have been cut and they are currently in a bad condition.	• Overhead cranes to be inspected by the Heavy machinery Inspector ascertain their condition provide the recommendation. • Industrial plugs require full replacement • High-bay lights could not be switched on as the site has no power, they can be removed an used elsewhere.



2.2.5. Administration building electromechanical equipment

Findings	Resolutions:
• The building consists of very old split units air-conditioning system, most of the aircon unit have been stripped and even the ones that still existing are badly corroded. • The main building 3 phase distribution boards has been stripped out. • 80% of interior light fittings (fluorescent) have been stripped out and the ceiling is vandalized. • Exterior lights are all still intact but not operational. • Power skirting in some offices is removed	• All electromechanical in the admin building require full replacement. • New electrical lights and power design to be done as per the new tenant operational requirements.



3. Refurbishment Estimate

3.1. Assumptions

The items listed below are based on high level estimates. The concrete flooring in the warehouse in certain places consists of various trenches and deep openings which are filled with contaminated water. These openings are not indicated on the drawings and therefore, the quantities and estimates indicated below are based on visible inspections.

STRUCTURAL ESTIMATE			
ITEM NO	**DESCRIPTION**	**AMOUNT**	
1	Clear and remove rubble	R	3,936.28
2	Clear and cut vegetation	R	126,858.60
3	Removal and disposal asbestos sheeting	R	12,939,872.94
4	Supply and install IBR sheeting for roof cladding	R	2,450,000.00
5	Supply and install IBR sheeting for side wall cladding	R	2,450,000.00
6	Supply and install PVC rainwater gutters and downpipes	R	4,740.30
7	Supply and Install Ceiling boards	R	1,095,444.00
8	Supply and Apply crack filler for brick wall	R	420.00
9	Supply and Apply Paint interior Walls	R	340,200.00
10	Supply and Install window panes	R	110,000.00
11	Supply and Install timber doors	R	22,070.00
12	Supply and install roller doors	R	41,595.00
13	Supply and Install Toilets, Cistern, Sink and all neccesary plumbing accessories	R	72,212.00
14	Supply and install sand fill for the holes in the warehouse	R	7,000,000.00
15	Supply and install 35 Mpa Concrete to fill the holes on the warehouse floor	R	1,120,000.00
16	Supply and install REF 359	R	20,000.00
17	Supply and Apply warehouse floor coating	R	7,875,000.00
Total Estimate		**R 35,672,349.13**	

ELECTRICAL ESTIMATE			
ITEM NO	**DESCRIPTION**	**AMOUNT**	
1	eThekwini Connection fee @11 KV	R	413,509.00
2	Cost per KVA @1 MVA	R	268,000.00
3	MV cables (185mm2)	R	349,400.00
4	Transformers @1MVA	R	4,000,000.00
5	Standby generator (300KVA)	R	562,000.00
6	Building electrical services (EL&P) (material only)	R	10,500,000.00
7	Airconditioning system 12000 BTU	R	136,000.00
8	Make Provision for Overhead crane 500KG	R	500,000.00
9	**Subtotal**	R	16,728,909.00
10	Preliminary and General @20%	R	3,345,781.80
11	Contingency @20%	R	3,345,781.80
Total Estimate		**R**	**23,420,472.60**

DESCRIPTION	AMOUNT
REFURBISHMENT	
Building Refurshments	R 35,672,349.13
Electrical Work	R 23,420,472.60
TOTAL SUMMARY	**R 59,092,821.73**

4. Recommendations

All infrastructure on this site is aged and it is evident that the buildings and warehouses that are constructed do not comply with the regulatory health and safety standards. Both warehouses, and the admin and the staff building require a complete refurbishment in order to be utilised.

The high level estimate to structurally refurbish the buildings and warehouses are approximately R 35 672 349.13. All electrical components require to be stripped and completely be refurbished. The high level estimate to refurbish the electrical components in the buildings and warehouses are approximately R 23 420 472.60.

The total refurbishment for the Zungu Elgin site is estimated at R 59 092 821.73.