CONDITION ASSESSMENT REPORT FOR THE (former) CORAL REEF CHARTERS AT BAYHEAD PARK

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1 EXECUTIVE SUMMARY

The Bayhead area within the Port of Durban is a multifaceted region, encompassing storage container yards, ship repair facilities, and various supporting services. This technical report is dedicated to presenting the results of a condition assessment carried out on the Ex-Coral Reef Charters warehouse in Bayhead on October 26, 2023.

Condition assessments play a pivotal role in confirming the compliance of structures with relevant building codes, particularly concerning their structural soundness and electrical systems. These evaluations seek to pinpoint potential structural issues arising from inadequate maintenance practices and other uncontrollable factors. Structural integrity ensures that a building functions optimally, withstands various loads (including its own weight), remains stable, and continues to serve its intended purpose without significant deformation, brittle fractures, or collapse.

Regular inspections and maintenance are imperative to maintain a structure's optimal functionality. Neglecting these activities can lead to structural failure.

It's worth noting that this physical inspection was executed without access to as-built drawings. Therefore, all estimates and inspections relied exclusively on visual observations. The site comprises two warehouses connected to a building, which appears to have been vacant for an extended period, hence the infrastructure has dilapidated. Figure 1-1 shows the aerial view of the site.

Figure 1-1: Locality.

Property Details:

Name:	**EX-CORAL REEF CHARTERS**
Description:	Lease L46024 of Erf 12355 - Durban
Address:	Grunter Gully, Bayhead Precinct, Durban, 4001
Purpose:	Commercial / Industrial
Size:	1 006 m^2

2 INTRODUCTION

2.1 Purpose

The aim of this report is to present the outcomes of a condition assessment that took place on October 26, 2023, at the former Coral Reef Charters property within the Bayhead Precinct. The primary goal of this assessment was to appraise the physical state of the existing infrastructure, electrical systems, including air conditioning, and the electrical connection supplied by the Municipality. It's worth noting that this assessment was limited to a visual inspection of the structural aspects of the buildings on the property.

The objective of sharing the findings in this report is to offer guidance to the Transnet (NPA) Property Department regarding potential strategies for the property. These strategies could involve choices such as demolishing the building, renovating it, or repurposing it for alternative uses.

2.2 Scope of Investigation

The assessment primarily centered on the structural components of the buildings, encompassing the examination of electrical installations as well. The civil engineering team was tasked with determining the structural integrity and suitability of the structure for its intended purpose. The main structural elements inspected consist of the following:

- Walls
- Structural Steel Frames
- Floors
- Roof
- Staircase, etc.

The team was also looking for any visible sign of defects caused by natural and unnatural events such as:

- Natural disasters like lightning, hail and storm, flood, and volcanic eruption.

- Vandalism
- Fire

The electrical engineering team had to establish the condition of all electrical installations including air-conditioning units.

3 CONDITION ASSESSMENT FINDINGS

This section comprises of the findings from the visual inspection conducted on the 26th of October 2023. It gives the structural description of the building, detailed assessment of defects and deterioration, and the survey of exposure to aggressive environment. The conclusion and recommendations provided include engineering views, assessment, and judgement; of which such conclusions and recommendations could be different, depending on the professional engineer assigned to undertake the inspections at that time.

The buildings were evaluated and rated using the TNPA Asset Maintenance Principles and Procedures (AMPP) shown in Table 3-1.

Table 3-1: AMPP Rating Guide.

CONDITION				
Poor	<40%	Not safe for use	Major upgrades required	Decision required on future of asset
Satisfactory	40-50%	Safe	Some urgent work required	Use of current and planned budget
Good	60-79%	Safe	Moderate ongoing maintenance required	Plan for next cycle
Very Good	80-89%	Safe	Minor maintenance required	Plan for next cycle
Excellent	90-100%	Safe	No maintenance required	No budget needed

3.1 Layout of the Property

Figure 3-1: Site layout (2 Grunter Gully Street).

The property comprises of three structures, namely, two warehouses and a building as shown in Figure 3-1. An exterior inspection of the warehouses was conducted since the team had no access inside the warehouses and building.

3.2 Warehouses

The warehouses are the largest structures within the property. The walls consist of steel cladding, and brick/masonry work. The internal steel members seem to have been exposed to the sodium chloride particles in the atmosphere which have resulted in the corrosion. The marine environment increases corrosion in steel structures as it is known for high levels of humidity and high salt content in water particles.

- The steel roller door at Warehouse 1 has corroded on the top. On the left of the roller door, the IBR sheeting is broken, as shown in Figure 3-2.
- The steel frame of the entry door is corroded and there are cracks on the concrete, adjacent to the door.
- There are cameras and light fittings that are not connected.

Figure 3-2: Exterior of Warehouse 1.

- There are broken IBR sheeting panels as shown in Figure 3-3.
- The IBR sheeting and steel sections are corroded at certain places.
- There are cameras and light fittings that are not connected.
- The plaster on the brickwork has peeled off at certain sections.

Figure 3-3: Exterior of Warehouse 2.

- The interior of Warehouse 2 was captured by the opening created by the broken IBR sheeting panels.
- As shown in Figure 3-4, the brickwork on the building is in good condition.
- The steel sections are corroded at certain sections.

Figure 3-4: Interior of Warehouse 2.

- The brick/masonry work has broken off, hence exposing the concrete column.
- There are longitudinal cracks on the concrete column, probably due to impact that caused the brick/masonry to break off.
- The IBR sheeting has broken off and is exposed as shown in Figure 3-5.

Figure 3-5: Broken brickwork/masonry at Warehouse 2.

4 ELECTRICAL ENGINEERING WORKS

The condition of the electrical installation could not be conducted fully because the warehouse was locked and neither the Security Department nor TNPA property knows the whereabouts of the keys. However, this facility is powered by eThekwini Municipality.

5 LIMITATIONS

This was strictly a visual examination of the building's structure, without the performance of any load calculations or design verifications. One major constraint was that the warehouses and buildings that were locked, therefore visual inspections were conducted on the exterior. The limitations encountered during the assessment included the challenging task of inspecting elevated roof areas and the absence of as-built drawings necessary to evaluate the initial building design.

6 CONCLUSION

The general condition of the property is satisfactory. The warehouses require refurbishment. There were some metal and other objects identified on the property, which needs to be scrapped as it is no longer in fit for purpose.

The structural steel members of the portal frame warehouse have no significant damage, however there are signs of prolonged exposure to the elements, hence the residual strength of the structural members must be assessed. The key elements of the structure (walls, roof, foundation) require a further assessment by a Professional Engineer to establish the residual strength of the steel members.

7 RECOMMENDATIONS

a) Repairs to the cracks in the masonry walls.
b) Repairs to the spalled reinforced concrete.
c) The corroded and missing steel cladding in the warehouse must be replaced.

d) Refurbish the brick wall, floors and roller and entry doors for the warehouses.
e) Steel members (purlins, sag bars, girders, column, etc.) to be further assessed to establish residual strength of members, however there were no major visible defects observed during the investigation, just minor corrosion.
f) Mild to moderately corroded steel sections to be de-rusted prior to applying a corrosion protective coating.
g) The general drainage system on the property was not identified, hence the scope for refurbishing the property must include the establishment of a comprehensive drainage system.
h) Structural assessment of the foundation of the buildings must be conducted by a Professional Service Provider.