

DOCUMENTATION CONTROL PAGE

PORT OF DURBAN

CONSOLIDATED CONDITION ASSESSMENT

VESSEL IMPACT DAMAGE: BERTH C QUAY

Document Control

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1. Introduction

A vessel impact incident occurred at Berth C, Port of Durban, on 31 August 2026, resulting in visible damage to the quay wall and associated berthing infrastructure between Bollards 45 and 46. Berth C is located within the Port of Durban, Point Precinct and forms part of the port's berthing infrastructure. The location of the affected berth is shown in Figure 1.

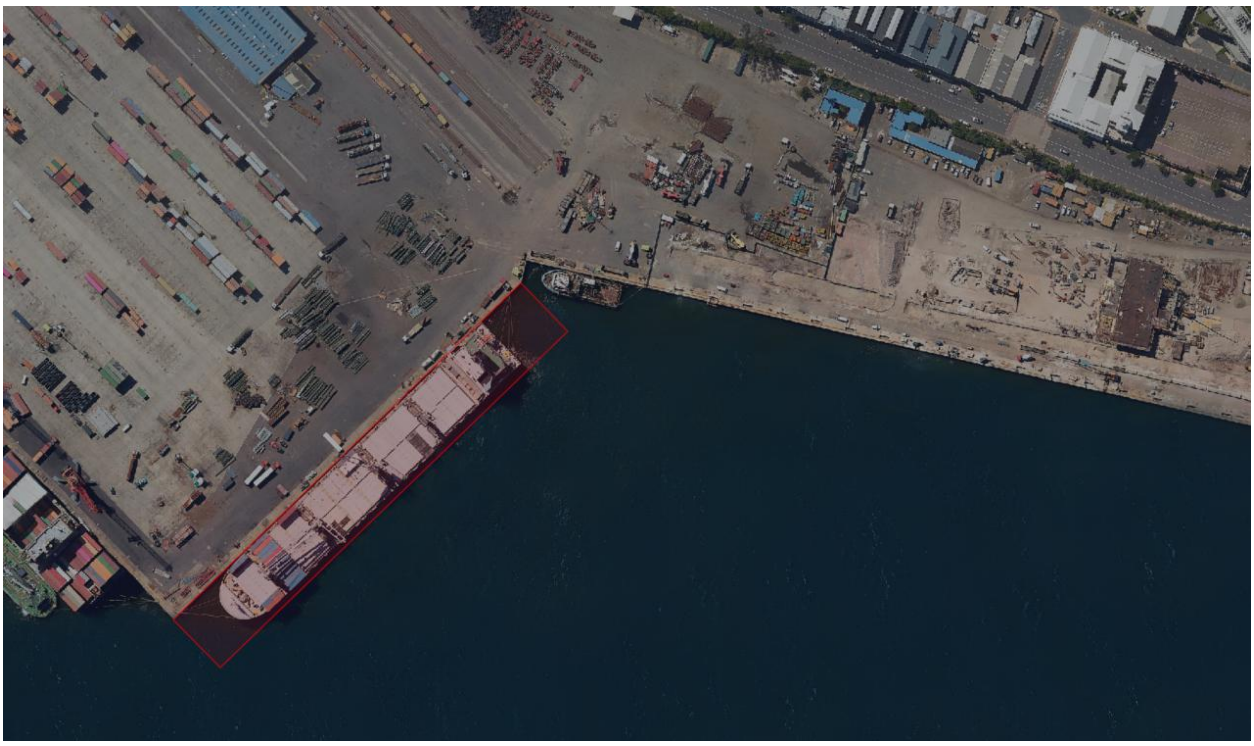


Figure 1: Aerial location of C-Berth, Port of Durban (Source: Google Earth)

Following the incident, TNPA Infrastructure personnel undertook a landside visual assessment of the affected area. The assessment identified damage to the concrete coping, fender and chain assembly, wharf ladder, stainless-steel fittings and adjacent quay apron. Due to the extent of visible damage and the inability to assess the quay wall below water level from landside, an underwater inspection of the C Berth quay wall was subsequently undertaken by the appointed diving contractor on 01 September 2026 and a subsequent underwater inspection was undertaken by the diving contractor on 02 September 2026 to inspect the damage to M.V Hawk.

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This report consolidates the available landside and underwater inspection information to provide an overall record of the observed damage and identify the required follow up actions.

2. Purpose

The purpose of this report is to consolidate the findings of the landside visual assessment undertaken by TNPA Infrastructure personnel together with the subsequent underwater inspections undertaken by the appointed diving contractor. The report is intended to document the currently known extent of damage associated with the incident, identify engineering considerations arising from the available information, and provide recommendations for further assessment and remedial action.

3. Methodology

3.1. Landside Assessment

A visual inspection of the accessible landside components within the affected section between Bollards 45 and 46 was undertaken by TNPA Infrastructure personnel.

- Concrete quay coping
- Fender unit and associated chain/shackle assembly
- Bollards 45 and 46
- Wharf ladder and associated fittings
- Adjacent quay apron/pavement

The landside assessment was visual in nature and did not include intrusive investigations, non-destructive testing or assessment of areas below the waterline.

3.2. Underwater Inspections

Following the landside assessment, the appointed diving contractor undertook an underwater visual inspection of the C-Berth quay wall between Bollards 45 and 46 on 01 September 2026. The inspection covered the submerged quay wall face from approximately seabed level upwards towards the surface.

A further underwater inspection was undertaken on M.V. HAWK S on 02 September 2026. This inspection concentrated on the damaged bow and accessible hull and side-shell areas. Underwater

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visibility during the vessel inspection was reported to be less than 0.5 m and therefore limited the extent of visual assessment.

4. Scope of Work

The consolidated assessment covers the following:

- Landside condition of the C-Berth quay structure between Bollards 45 and 46
- Condition of the damaged concrete coping and adjacent quay apron
- Condition of the fender, chain/shackle assembly, wharf ladder and associated fittings
- Findings reported from the underwater inspection of the C-Berth quay wall
- Findings reported from the underwater inspection of M.V. HAWK S
- Engineering considerations arising from the combined inspection information
- Recommendations for further investigation, making safe and permanent remedial works

5. Assessment Findings

5.1. Landside Inspection Findings

5.1.1. Concrete Coping

The landside inspection identified significant localised impact damage to the concrete coping between Bollards 45 and 46. Concrete within an approximately 3 – 4 m section was observed to be damaged, fractured and locally displaced. Loose concrete and broken material were present along the affected quay edge.

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Figure 2: Affected concrete cope between bollard 45 and 46

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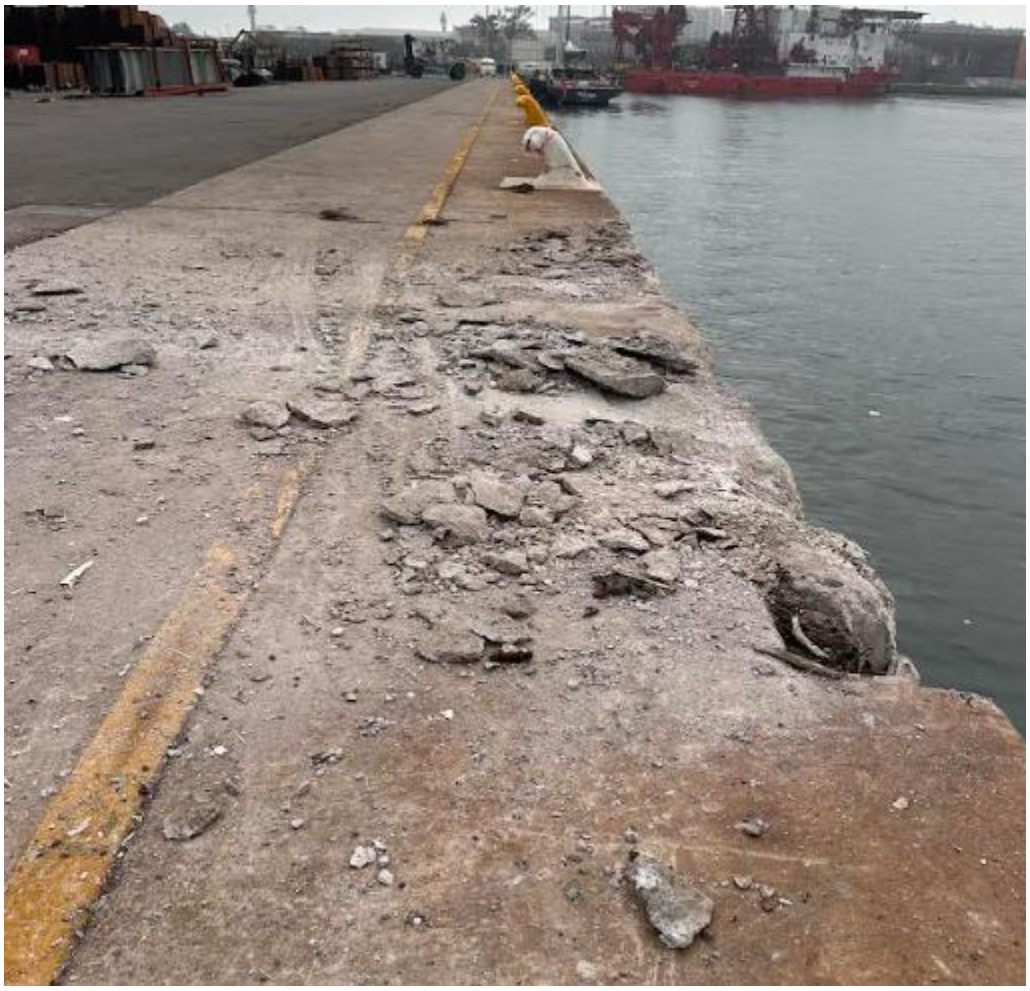


Figure 3: Fractured and displaced concrete

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5.1.2. Fender and Chain Assembly

The fender unit and associated chain/shackle assembly within the affected section were observed to have been displaced as a result of the impact. Components of the assembly were hanging loose and require assessment prior to reinstatement or replacement.



Figure 4: Damaged Fender and Chain assembly

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5.1.3. Wharf Ladder and Associated Fittings

The wharf ladder located within the affected section sustained visible impact damage, including damage to its rungs and/or fixing arrangement. Stainless-steel eyes/fittings within the affected section also displayed visible deformation or damage consistent with the impact.



Figure 5: Damaged wharf ladder and associated fittings

5.1.4. Quay Apron

Surface cracking was observed on the quay apron extending from the vicinity of the damaged coping towards a nearby manhole. The landside visual inspection alone was insufficient to establish whether the cracking is superficial or associated with disturbance below the pavement surface.

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Figure 6: Damage along the joint and the manhole

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5.2. Underwater Inspection Findings

Following the landside inspection, an underwater visual inspection of the C Berth quay wall between Bollards 45 and 46 was undertaken by the appointed diving contractor on 01 September 2026.

The inspection confirmed that the impact damage extends below the waterline and includes loss of concrete cover and exposure of reinforcement. The contractor reported an affected section approximately 5.5 m wide, extending from approximately 10 m to 1.5 m below the water surface, with four horizontal reinforcing bars reported as damaged/cut.

The detailed underwater observations, measurements, photographs and inspection limitations are contained in the contractor's report included as **Appendix A and C.**

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5.2.1. Concrete and Rebar damage

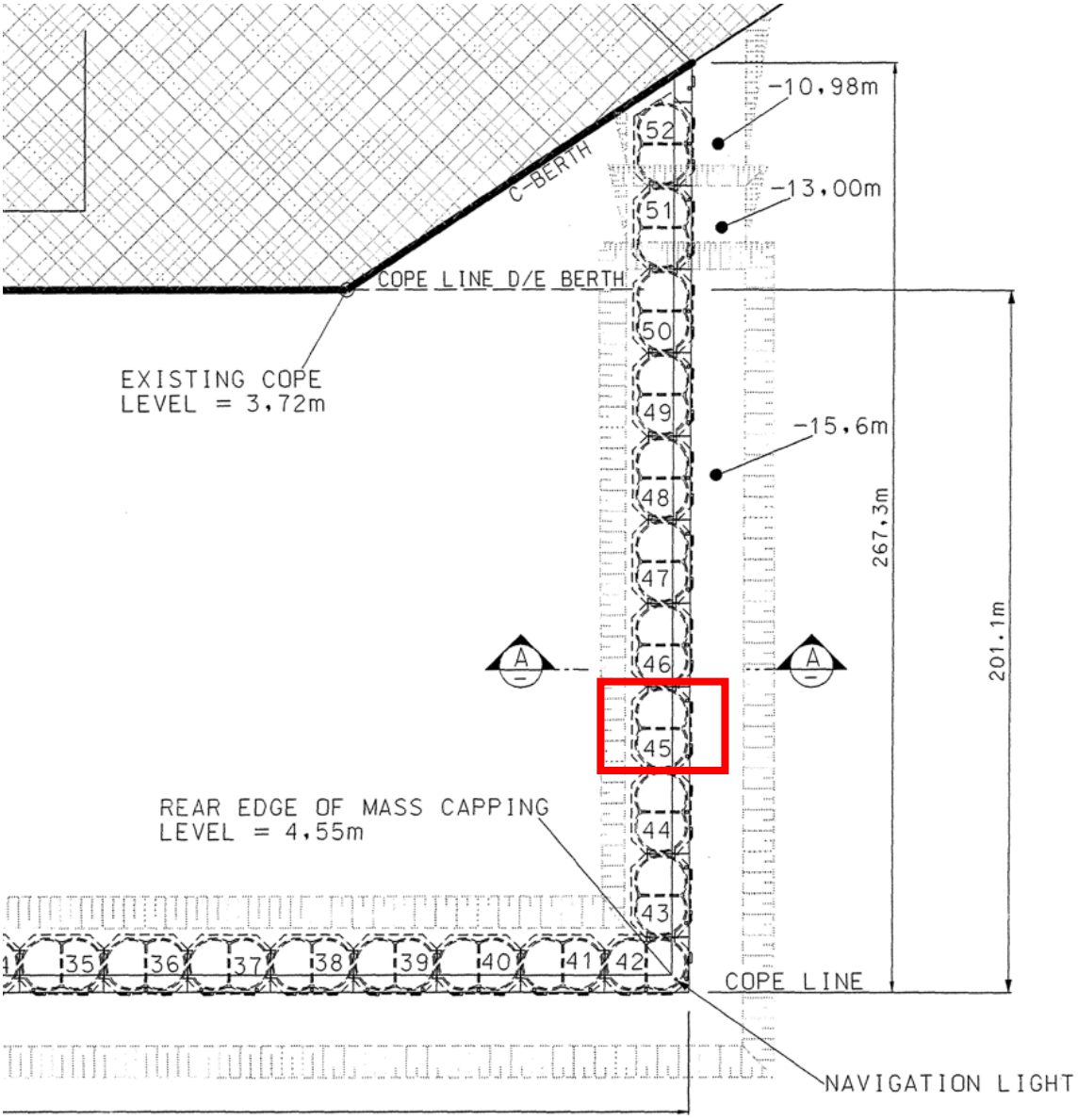


Figure 7: Layout of Berth

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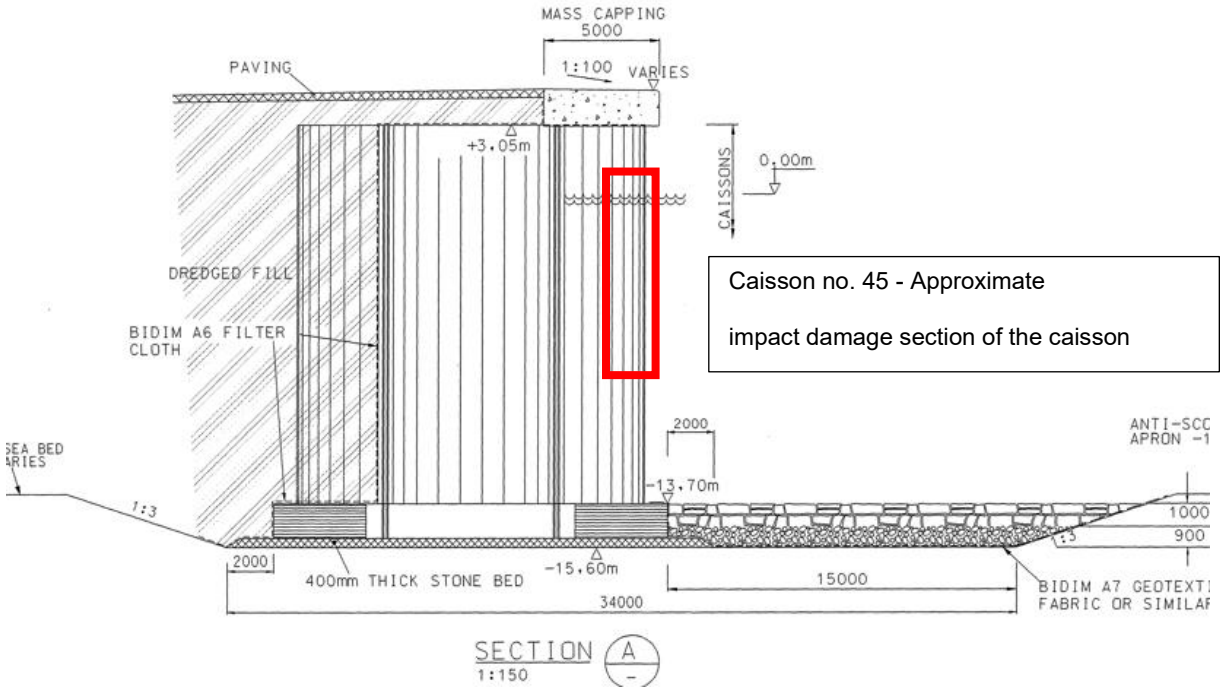


Figure 8: Cross Section of the Quay for Berth C

Figures 7 and 8 show the layout of Berth C and the cross-section of the quay structure, respectively. The approximate location and vertical extent of the reported impact damage have been indicated on the design drawings for reference.

The underwater inspection report indicates that the damaged section extends from approximately 1.5 m below the water surface to a depth of approximately 10 m, over a reported width of approximately 5.5 m. The inspection records loss of concrete cover and exposure of reinforcement, with the depth of concrete cover loss measured at approximately +/- 100 mm as shown on figure 9a.

Further, the relative alignment of Block No. 45 was assessed against the adjacent blocks No. 44 and 46 on the right-hand side when facing the caisson wall, the horizontal alignment appeared general flushed and aligned to the adjacent caisson from the water surface until at 11m depth a progressive inward displacement of caisson 45 was observed. The maximum displacement observed is about 150mm, representing the most pronounced area of joint displacement as shown in figure 9b. The toe

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of the caisson block 45 was not visible, as it was fully buried beneath accumulated sand and silt deposits.

Based on the design drawings, the caisson wall is approximately 400 mm thick with a specified concrete cover of 75 mm. The reported damage is understood to correspond approximately with Caisson No. 45. Figure 10 presents the reinforcement arrangement of the caisson and indicates the approximate affected section.



Figure 9a: Underwater caisson concrete and rebar damage



Figure 9b: Underwater caisson concrete and rebar damage

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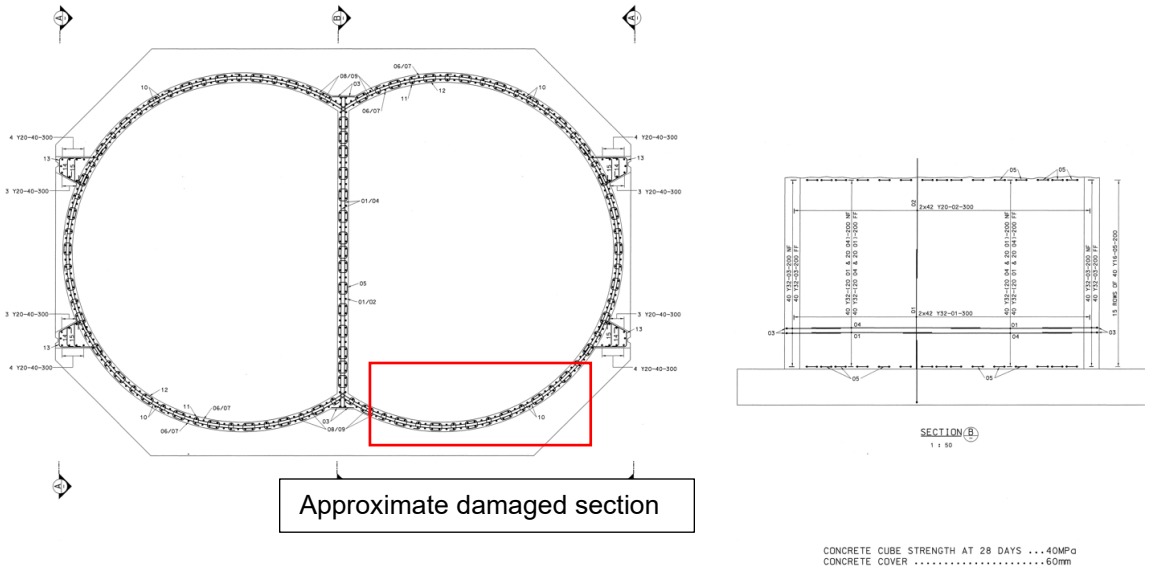


Figure 10: Caisson no. 45 Rebar Details

5.3. Consolidated Engineering Observations

The combined landside and underwater findings indicate that the impact damage extends beyond the visible concrete coping and into the submerged portion of the quay wall.

The slight opening along the isolation joint of the capping beam indicates that it has been displaced, which may extend to the caisson itself. Damage on the fender and ladder fixings is also extensive and will need to be repaired before these elements can be safely used.

Observation made from the underwater video seem to show that damage to concrete extends deeper than 100 mm in certain areas. This is judging by the specified cover of 75 mm and diameter of reinforcement used (Y20's and Y25's) on the face of the caisson. Only 4 horizontal reinforcement bars are noted to have completely severed. However, the footage shows that a lot more bars were bent out of shape and distorted. This indicates that they were also excessively stressed. Loose fragments of

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concrete were also observed on the wall, which potentially mean that there may be structural cracks that extend beyond the observed surface.

The current inspection information confirms localised impact damage; however, it is not sufficient to determine the overall structural significance of the damage or its effect on the capacity of the quay structure. The underwater inspection was visual in nature and did not include destructive testing or structural load assessment.

The damaged/cut reinforcement should also be considered from an operational perspective. Any projecting or sharp reinforcement remaining within the berthing interface may present a risk of contact with or damage to vessels using the berth and should therefore be made safe.

The loss of concrete from the quay wall face may create a potential pathway for migration or loss of material/fines located behind the damaged concrete face. No loss of internal material has been confirmed from the available inspection information, and further investigation would therefore be required before drawing a conclusion in this regard.
Similarly, neither displacement of the overall quay structure nor undermining of the foundation/toe has been confirmed by the available inspection information. The contractor records that structural shifting could not be determined from the underwater visual inspection.
The observed cracking to the quay apron should therefore be considered together with the quay wall damage during the detailed structural assessment to determine whether it is related to local impact disturbance or is an independent surface defect.

6. Recommendations

a. The area around the damaged caisson and at least the 2 adjacent caissons (i.e. caissons 44, 45, 46) should be cordoned off and not subjected to operational loads until repairs have been implemented.
b. Repairs to be done urgently to prevent deterioration of exposed reinforcement and ingress of contaminants into the concrete.
c. Monitor the damaged area for any further concrete loss, movement, cracking or deterioration.

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d. Appointed repair works designer (ideally together with the contractor) to conduct the necessary surveys, scans and tests to determine the extent of damage and the most effective and practical way to do the repairs.

7. Conclusion

The landside and underwater inspections confirm that the vessel impact at C-Berth resulted in damage to both the visible quay infrastructure and the submerged quay wall between Bollards 45 and 46.

Landside damage includes fractured and displaced concrete coping, damage to the fender and chain assembly, wharf ladder and associated fittings, together with cracking observed on the adjacent quay apron.

The subsequent underwater inspection identified a considerably larger submerged area of concrete loss, approximately 5.5 m wide and extending from approximately 10 m to 1.5 m below the surface. The damage has exposed the underlying reinforcement, with four horizontal reinforcing bars reported as damaged/cut and having lost continuity. A significant number of reinforcing bars were also observed bent out of shape and distorted in the damaged area.

The available inspections confirm the presence and extent of localised impact damage but do not, on their own, establish its overall effect on the structural capacity of the quay. However, the observed damage warrants temporary cordoning of the area until repairs are done.

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