DOCK PYLON
EVALUATION REPORT

Comprehensive Material Assessment & Preservation Analysis

CLIENT INFORMATION	
Name	**: (Redacted – Sample Document)**
Address	**: (Redacted – Sample Document)**
Email	**: (Redacted – Sample Document)**
Phone	**: (Redacted – Sample Document)**
Evaluation Date	06/02/2026
Evaluator	Ed R.

SAMPLE REPORT FROM A REAL-EVALUATION

THIS BRAND-NEW DOCK WAS BUILT ON EXISTING PYLONS

LOOK AT PYLON B4 ON PAGE 21
THESE ARE ACTUAL PHOTOS

YOU BE THE JUDGE

Personal identifying information has been redacted. Your actual report will include your name, property address, and contact details. All measurement data, pylon photography, and technical findings shown are from a real evaluation.

EXECUTIVE SUMMARY

Overview A comprehensive pylon evaluation was conducted on 19 steel dock pylons at this property on Smith Mountain Lake. Pylons were assessed using physical measurement and thickness gauging at the splash zone, the zone of highest corrosion activity on freshwater steel pylons. Observations range from minimal surface scaling to extreme material depletion with visible connection hardware deterioration.

Summary of Findings

Priority	Status	Pylons	Count
🔴 Immediate	Reconstruction Required (36%–62% loss)	A4, A5, B4, B5, C5	5
🟠 Urgent	Reinforcement Plating Required (36% loss)	C4	1
🟡 Proactive	Encapsulation Window (12%–16% loss)	B2, B3, C2, C3	4
🟢 Monitor	Preventative Maintenance (5%–9% loss)	B1, C1, D1, D2, D3, D5, E1, E2, E3	9

Bottom Line Five pylons — A4, A5, B4, B5, and C5 — support primary dock girder connections and exhibit material loss so extensive that standard reinforcement plating cannot be anchored. Field observations on three of these five pylons revealed upper connection zones with 90–100% flange depletion, leaving single compromised fasteners as the only observed connection point between the girder and the pylon. Based on field observations, remediation of these five pylons is recommended as an immediate priority rather than a deferred maintenance item.

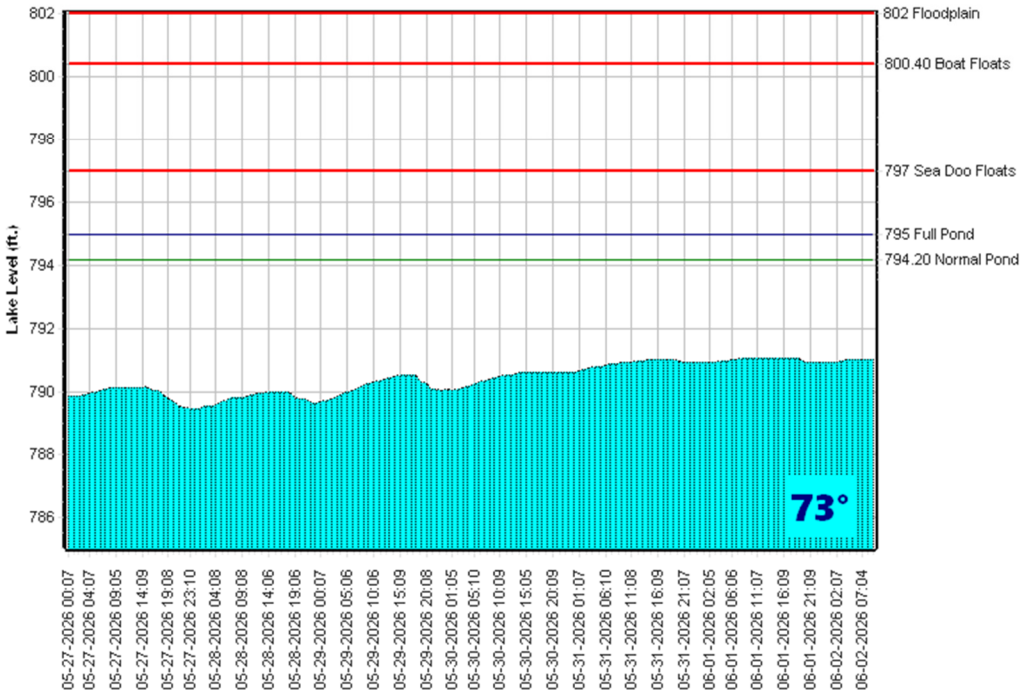
Important Note All material loss percentages represent conservative baseline figures taken without mechanical descaling. Actual material loss on the most degraded pylons may be higher. This report reflects field observations only and does not constitute a structural engineering assessment or certification. For determinations regarding load capacity or safety certification, consultation with a licensed structural engineer is recommended.

SECTION 1 — SITE PHOTOS (BLURRED ON PURPOSE)

SECTION 2 — EVALUATION WATER LEVEL

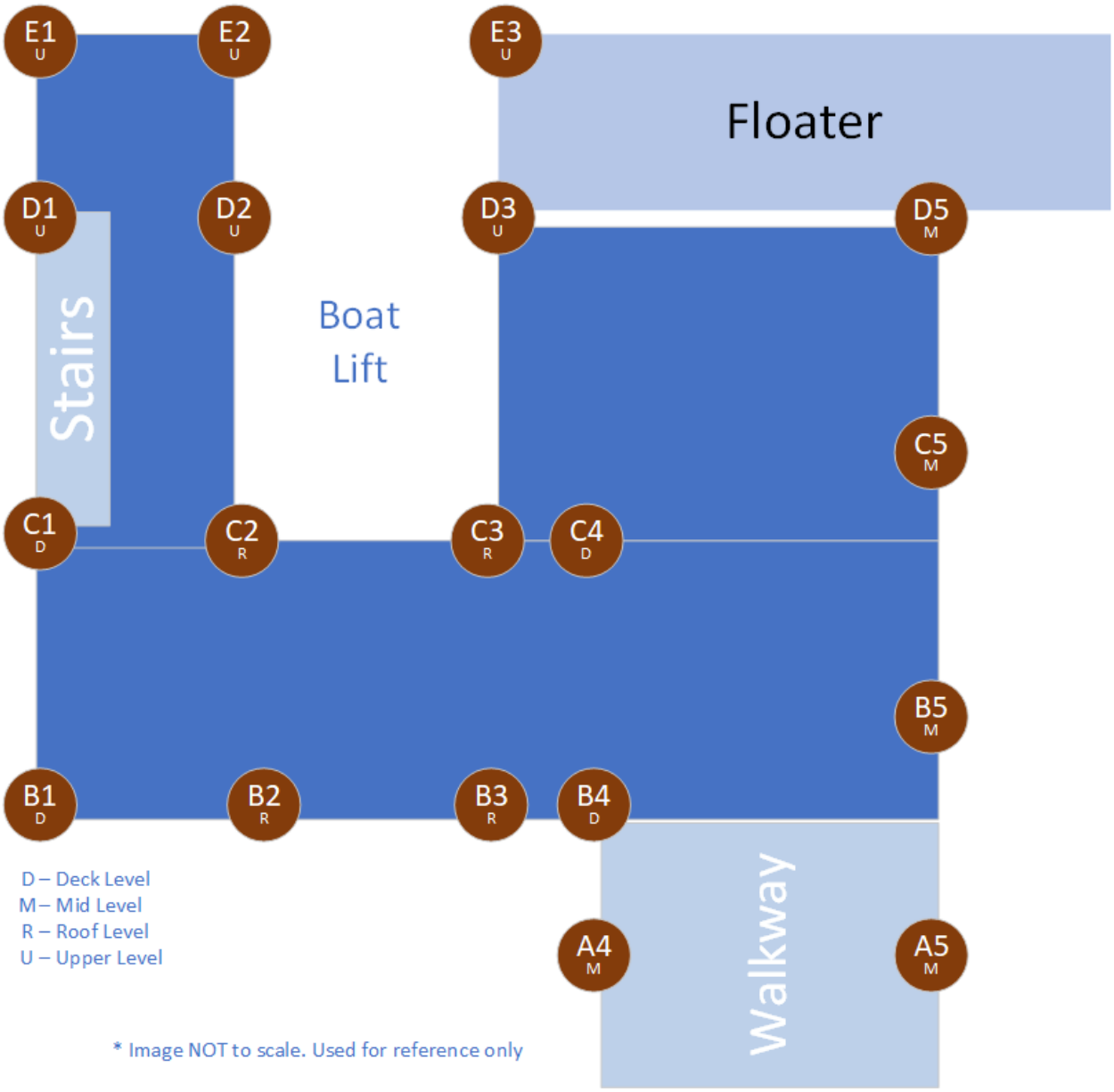
Smith Mountain Lake Level

Effective 06/02/2026 at 09:05
Current level is 791.04 feet and steady.



SECTION 3 — PYLON MAP

Approximate Pylon Location



SECTION 4 — QUICK VIEW MEASUREMENT GRID

Lake Side

	1	2	3	4	5
E	.359 .328 9%	.360 .332 8%	.357 .330 8%	⊗	⊗
D	.355 .336 5%	.342 .317 7%	.345 .316 9%	⊗	.357 .328 8%
C	.356 .329 8%	.343 .287 16%	.339 .287 15%	.344 .220 36%	.395 .253 36%
B	.354 .321 9%	.343 .301 12%	.336 .294 13%	.407 .236 42%	.378 .207 45%
A	⊗	⊗	⊗	.385 .148 62%	.353 .173 51%

Shoreline

SECTION 5 — INDIVIDUAL PYLON EVALUATIONS

CORROSION SEVERITY & ACTION THRESHOLD GUIDE		
Metal Loss	**Status**	**Required Action**
0–10%	Light to moderate corrosion	Preventative maintenance & monitoring
11–15%	Progressed surface corrosion	Heavy scaling / rust treatment
16–25%	Accelerated section thinning	Seal immediately — arrest decay
26–50%	Advanced section thinning	Reinforcement plating required
50%+	Extreme material loss	Reconstruction or replacement

PYLON A4

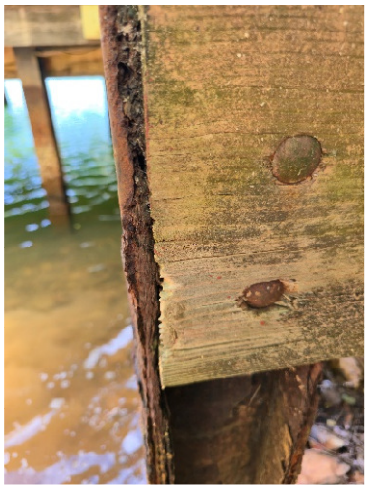
Metal Loss: 62% | Extreme Material Loss (Reconstruction Required)

Measurement Readings

MEASUREMENT	LEFT FLANGE	RIGHT FLANGE
Original Thickness	.381"	.389"
Neck / Splash Zone	.164"	.132"
Material Loss	**62% — Extreme Material Loss (Reconstruction Required)**	

RECOMMENDED ACTION	Component reconstruction or replacement required

Field Documentation Photos



Field Notes

> **⚠ CRITICAL CONDITION NOTE**
>
> This pylon exhibits a documented 62% material loss. This represents a conservative baseline metric, as comprehensive mechanical descaling would be required to establish the full extent of the degradation, likely yielding a higher percentage. This component is one of two pylons supporting the main walkway girder. Because the localized material loss is so extensive, standard 24-inch heavy-duty reinforcement plates cannot be utilized, as there is insufficient remaining material on the upper portion of the pylon to securely anchor the hardware. Consequently, remediation via component replacement or reconstruction is recommended. Addressing this asset condition is critical to preventing total material depletion.

During reconstruction, it is recommended to install a web plate and replace the existing girder connection hardware. Following the completion of the reconstruction process, the entire pylon should receive a minimum of two coats of marine epoxy to encapsulate the component and mitigate subsequent atmospheric or water-line oxidation. Additionally, sacrificial anodes should be installed to provide ongoing galvanic protection for the newly reconstructed components.

PYLON A5

Metal Loss: 51% | Extreme Material Loss (Reconstruction Required)

Measurement Readings

MEASUREMENT	LEFT FLANGE	RIGHT FLANGE
Original Thickness	.349"	.357"
Neck / Splash Zone	.174"	.172"
Material Loss	**51% — Extreme Material Loss (Reconstruction Required)**	

RECOMMENDED ACTION	Component reconstruction or replacement required

Field Documentation Photos

Field Notes

> ⚠ **CRITICAL CONDITION NOTE**
>
> This pylon exhibits a documented 51% material loss. As this component pairs with the previously detailed pylon supporting the main walkway girder and shares a matching installation timeline, it exhibits a similar degradation pattern. Consequently, identical remediation protocols—including component replacement or reconstruction, hardware updates, web plate installation, marine epoxy encapsulation, and sacrificial anode implementation—are recommended for this asset.

PYLON B1
Metal Loss: 9% | Progressed Surface Corrosion (Heavy Scaling/Rust)

Measurement Readings

MEASUREMENT	LEFT FLANGE	RIGHT FLANGE
Original Thickness	.354"	.354"
Neck / Splash Zone	.307"	.335"
Material Loss	**9% — Progressed Surface Corrosion (Heavy Scaling/Rust)**	

RECOMMENDED ACTION	Proactive surface remediation & protective coatings

Field Documentation Photos

Field Notes

Severe, yet superficial, metal scaling is evident across the entire pylon, extending from the water line to the underside of the dock. While the overall average material loss remains low, localized measurements vary between the two flanges: one flange exhibits a 5% loss, while the opposing flange shows a 13% loss. Although the current average metric is within manageable parameters, it is critical to note that the localized degradation on the heavily affected flange is approaching the threshold of accelerated material thinning.

PYLON B2

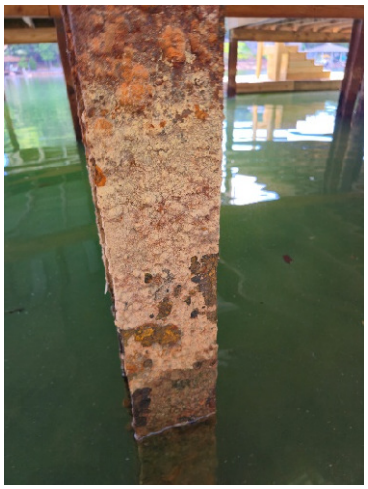
Metal Loss: 12% | Progressed Surface Corrosion (Heavy Scaling/Rust)

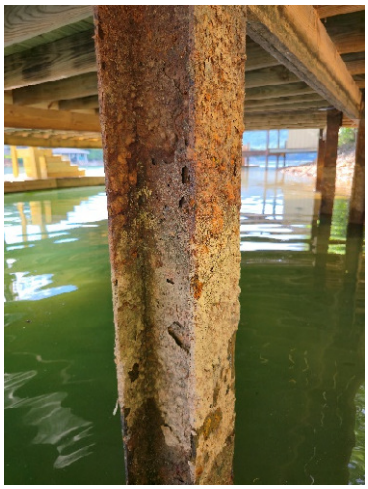
Measurement Readings

MEASUREMENT	LEFT FLANGE	RIGHT FLANGE
Original Thickness	.354"	.333"
Neck / Splash Zone	.302"	.301"
Material Loss	**12% — Progressed Surface Corrosion (Heavy Scaling/Rust)**	

RECOMMENDED ACTION	Proactive surface remediation & protective coatings

Field Documentation Photos





Field Notes

Severe, yet superficial, metal scaling is evident across the entire pylon, extending from the water line to the underside of the dock. While the overall average material loss remains low, localized measurements vary between the two flanges: one flange exhibits a 10% loss, while the opposing flange shows a 15% loss. Although the current average metric is within manageable parameters, it is critical to note that the localized degradation on the heavily affected flange is at the threshold of accelerated material thinning.

PYLON B3
Metal Loss: 13% | Progressed Surface Corrosion (Heavy Scaling/Rust)

Measurement Readings

MEASUREMENT	LEFT FLANGE	RIGHT FLANGE
Original Thickness	.339"	.333"
Neck / Splash Zone	.296"	.292"
Material Loss	**13% — Progressed Surface Corrosion (Heavy Scaling/Rust)**	

RECOMMENDED ACTION	Proactive surface remediation & protective coatings

Field Documentation Photos

Field Notes

Severe, yet superficial, metal scaling is evident across the entire pylon, extending from the water line to the underside of the dock. While the overall average material loss currently remains low, at 13% it is approaching the threshold of accelerated material thinning.

PYLON B4
Metal Loss: 42% | Advanced Section Thinning (Plating Needed)

Measurement Readings

MEASUREMENT	LEFT FLANGE	RIGHT FLANGE
Original Thickness	.408"	.407"
Neck / Splash Zone	.262"	.210"
Material Loss	**42% — Advanced Section Thinning (Plating Needed)**	

RECOMMENDED ACTION	Reinforcement plating needed. Reconstruction recommended

Field Documentation Photos

Field Notes

This pylon exhibits a documented 42% material loss. This represents a conservative baseline metric, as comprehensive mechanical descaling would be required to establish the full extent of the degradation, likely yielding a higher percentage. This component is one of two pylons supporting one of the main dock girders. Because the localized material loss is so extensive,

standard 24-inch heavy-duty reinforcement plates cannot be utilized, as there is insufficient remaining material on the upper portion of the pylon to securely anchor the hardware. Consequently, remediation via component replacement or reconstruction is recommended. Addressing this asset condition is critical to preventing total material depletion.

> ⚠ **CRITICAL CONDITION NOTE**
>
> Visual documentation of the upper pylon connection reveals a severe localized depletion of the mounting hardware attaching the main girder. The connection relies entirely on a single compromised flange, with zero remaining attachment infrastructure on the opposing flange. Furthermore, only one securing bolt remains intact to anchor the girder to the pylon; visual evaluation indicates this remaining fastener has suffered greater than 50% cross-sectional material loss.
>
> In this specific scenario, standard overall material loss percentages do not accurately reflect the severity of the asset condition, as the upper termination zone of the pylon exhibits approximately 90% total material depletion. Immediate remediation via component replacement or reconstruction is recommended to address this localized connection failure point.

During reconstruction, it is recommended to install a web plate and replace the existing girder connection hardware. Following the completion of the reconstruction process, the entire pylon should receive a minimum of two coats of marine epoxy to encapsulate the component and mitigate subsequent atmospheric or water-line oxidation. Additionally, sacrificial anodes should be installed to provide ongoing galvanic protection for the newly reconstructed components.

PYLON B5
Metal Loss: 45% | Advanced Section Thinning (Plating Needed)

Measurement Readings

MEASUREMENT	LEFT FLANGE	RIGHT FLANGE
Original Thickness	.384"	.373"
Neck / Splash Zone	.191"	.224"
Material Loss	**45% — Advanced Section Thinning (Plating Needed)**	

RECOMMENDED ACTION	Reinforcement plating needed. Reconstruction recommended

Field Documentation Photos






Field Notes

This pylon exhibits a documented 45% material loss. Measurement was made without scraping for safety purposes and to minimize any disruption to this fragile asset. This represents a conservative baseline metric, as comprehensive mechanical descaling would be required to establish the full extent of the degradation, likely yielding a higher percentage. This component

is one of two pylons supporting one of the main dock girders. Because the localized material loss is so extensive, standard 24-inch heavy-duty reinforcement plates cannot be utilized, as there is insufficient remaining material on the upper portion of the pylon to securely anchor the hardware. Consequently, remediation via component replacement or reconstruction is recommended. Addressing this asset condition is critical to preventing total material depletion.

> ⚠ **CRITICAL CONDITION NOTE**
>
> Visual documentation of the upper pylon zone reveals a complete absence of flange support infrastructure. The interface relies entirely on two existing fasteners attached to the heavily degraded pylon. Of these two fasteners, one appears entirely encapsulated by corrosion within the girder and beam interface. Physical deformation of the upper fastener, which is visibly bent downward, indicates it is independently supporting the physical connection.
>
> In this specific scenario, standard overall material loss percentages do not accurately reflect the severity of the asset condition, as the upper termination zone of the pylon exhibits 100% total material depletion of the original supporting flange structure. Immediate remediation via component replacement or reconstruction is recommended to address this localized connection failure point.

During reconstruction, it is recommended to install a web plate and replace the existing girder connection hardware. Following the completion of the reconstruction process, the entire pylon should receive a minimum of two coats of marine epoxy to encapsulate the component and mitigate subsequent atmospheric or water-line oxidation. Additionally, sacrificial anodes should be installed to provide ongoing galvanic protection for the newly reconstructed components.

PYLON C1
Metal Loss: 8% | Surface Corrosion (Heavy Scaling/Rust)

Measurement Readings

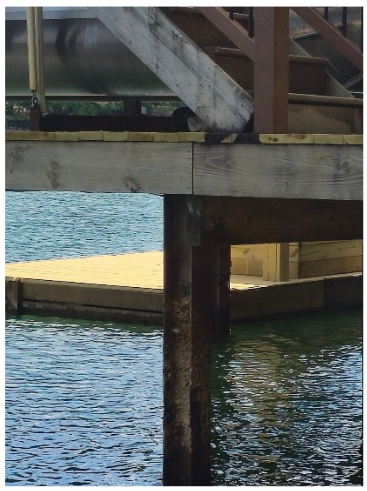
MEASUREMENT	LEFT FLANGE	RIGHT FLANGE
Original Thickness	.345"	.368"
Neck / Splash Zone	.310"	.348"
Material Loss	**8% — Surface Corrosion (Heavy Scaling/Rust)**	

RECOMMENDED ACTION	Proactive surface remediation & protective coatings

Field Documentation Photos





Field Notes

Severe, yet superficial, metal scaling is evident across the entire pylon, extending from the water line to the underside of the dock. While the overall average material loss remains low, localized measurements vary between the two flanges: one flange exhibits a 5% loss, while the opposing flange shows a 10% loss. Although the current average metric is within manageable

parameters, it is critical to note that the localized degradation on the heavily affected flange represents twice the material loss of the opposing flange.

PYLON C2
Metal Loss: 16% | Accelerated Section Thinning (Severe Scaling)

Measurement Readings

MEASUREMENT	LEFT FLANGE	RIGHT FLANGE
Original Thickness	.334"	.352"
Neck / Splash Zone	.287"	.287"
Material Loss	**16% — Accelerated Section Thinning**	

RECOMMENDED ACTION	Proactive surface remediation & protective coatings

Field Documentation Photos






Field Notes

Although localized profile narrowing (necking) is the primary observation, active rust scaling is present across the entire pylon surface, extending continuously from the water line to the underside of the dock structure. Measuring at approximately 16% material loss within the splash zone, this component has progressed beyond baseline environmental weathering.

Implementation of encapsulation protocols at this stage is recommended to arrest ongoing oxidation and mitigate subsequent material loss that would necessitate the future use of heavy-duty steel reinforcement plates.

PYLON C3

Metal Loss: 15% | Progressed Surface Corrosion (Heavy Scaling/Rust)

Measurement Readings

MEASUREMENT	LEFT FLANGE	RIGHT FLANGE
Original Thickness	.350"	.328"
Neck / Splash Zone	.277"	.297"
Material Loss	**15% — Progressed Surface Corrosion (Heavy Scaling/Rust)**	

RECOMMENDED ACTION	Proactive surface remediation & protective coatings

Field Documentation Photos

Field Notes

Severe, yet superficial, metal scaling is evident across the entire pylon, extending from the water line to the underside of the dock. While the overall average material loss currently remains low, at 15% it is approaching the threshold of accelerated material thinning

PYLON C4
Metal Loss: 36% | Advanced Section Thinning (Plating Needed)

Measurement Readings

MEASUREMENT	LEFT FLANGE	RIGHT FLANGE
Original Thickness	.342"	.347"
Neck / Splash Zone	.210"	.231"
Material Loss	**36% — Advanced Section Thinning (Plating Needed)**	

RECOMMENDED ACTION	Reinforcement plating — reconstruction recommended

Field Documentation Photos






Field Notes

This pylon measures at 36% metal loss, indicating advanced section thinning. Based on these measurements, we recommend the installation of heavy-duty reinforcement plating. Mechanical descaling is required to fully determine the exact condition of the underlying steel.

At this tier of material degradation, the application of reinforcement plates is recommended as a standard preventative measure.

PYLON C5
Metal Loss: 36% | Advanced Section Thinning (Plating Needed)

Measurement Readings

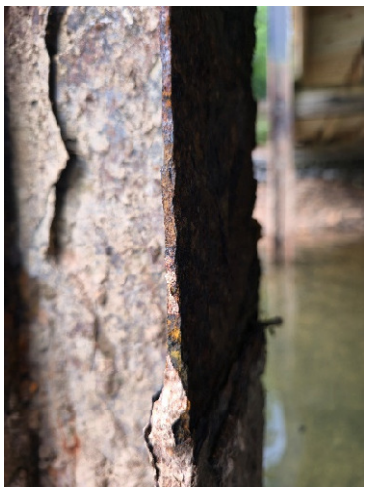
MEASUREMENT	LEFT FLANGE	RIGHT FLANGE
Original Thickness	.393"	.397"
Neck / Splash Zone	.226"	.280"
Material Loss	**36% — Advanced Section Thinning (Plating Needed)**	

RECOMMENDED ACTION	Reinforcement plating — reconstruction recommended

Field Documentation Photos








Field Notes

This pylon exhibits a documented 36% material loss. Measurement was made without scraping for safety purposes and to minimize any disruption to this fragile asset. This represents a conservative baseline metric, as comprehensive mechanical descaling would be required to establish the full extent of the degradation, likely yielding a higher percentage. This component

is a primary support for one of the main dock girders. Because the localized material loss is so extensive, standard 24-inch heavy-duty reinforcement plates cannot be utilized, as there is insufficient remaining material on the upper portion of the pylon to securely anchor the hardware. Consequently, remediation via component replacement or reconstruction is recommended. Addressing this asset condition is critical to preventing total material depletion.

> ⚠ **CRITICAL CONDITION NOTE**
>
> Visual documentation of the upper pylon zone reveals a complete absence of flange support infrastructure. The interface relies entirely on two existing fasteners attached to the heavily degraded pylon. Of these two fasteners, one appears entirely encapsulated by corrosion within the girder and beam interface, this leaves the single upper fastener to independently support the physical connection.
>
> In this specific scenario, standard overall material loss percentages do not accurately reflect the severity of the asset condition, as the upper termination zone of the pylon exhibits 100% total material depletion of the original supporting flange structure. Immediate remediation via component replacement or reconstruction is recommended to address this localized connection failure point.

During reconstruction, it is recommended to install a web plate and replace the existing girder connection hardware. Following the completion of the reconstruction process, the entire pylon should receive a minimum of two coats of marine epoxy to encapsulate the component and mitigate subsequent atmospheric or water-line oxidation. Additionally, sacrificial anodes should be installed to provide ongoing galvanic protection for the newly reconstructed components.

PYLON D1
Metal Loss: 5% | Surface Corrosion (Heavy Scaling/Rust)

Measurement Readings

MEASUREMENT	LEFT FLANGE	RIGHT FLANGE
Original Thickness	.351"	.359"
Neck / Splash Zone	.331"	.341"
Material Loss	**5% — Surface Corrosion (Heavy Scaling/Rust)**	

RECOMMENDED ACTION	Proactive surface remediation & protective coatings

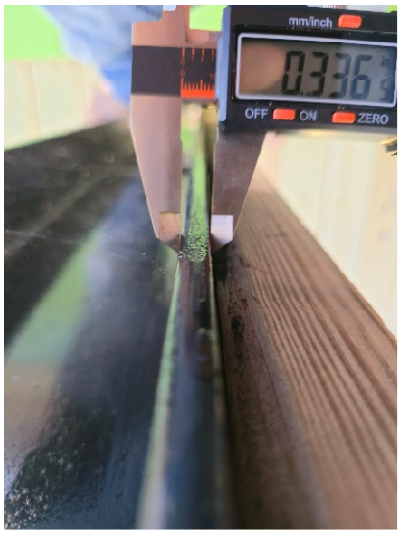
Field Documentation Photos

Field Notes

Although the surface scaling appears heavy, measurements confirm metal loss is minimal. Active rust scaling is present across the entire pylon surface, extending continuously from the water line to the underside of the dock structure. Because this component serves as a direct foundational path for an active, multi-level upper deck assembly, maintaining its original steel thickness profile is a high priority. Consequently, proactive surface remediation and protective coatings are recommended at this stage to preserve the material profile and mitigate long-term oxidation under these operational conditions.

PYLON D2
Metal Loss: 7% | Surface Corrosion (Heavy Scaling/Rust)

Measurement Readings



MEASUREMENT	LEFT FLANGE	RIGHT FLANGE
Original Thickness	.336"	.349"
Neck / Splash Zone	.314"	.321"
Material Loss	**7% — Surface Corrosion (Heavy Scaling/Rust)**	

RECOMMENDED ACTION	Proactive surface remediation & protective coatings

Field Documentation Photos

Field Notes

Although the surface scaling appears heavy, measurements confirm metal loss is minimal. Active rust scaling is present across the entire pylon surface, extending continuously from the water line to the underside of the dock structure. Because this component serves as a direct foundational path for an active, multi-level upper deck assembly, maintaining its original steel thickness profile is a high priority. Consequently, proactive surface remediation and protective coatings are recommended at this stage to preserve the material profile and mitigate long-term oxidation under these operational conditions.

PYLON D3
Metal Loss: 9% | Surface Corrosion (Heavy Scaling/Rust)

Measurement Readings

MEASUREMENT	LEFT FLANGE	RIGHT FLANGE
Original Thickness	.335"	.356"
Neck / Splash Zone	.307"	.325"
Material Loss	**9% — Surface Corrosion (Heavy Scaling/Rust)**	

RECOMMENDED ACTION	Proactive surface remediation & protective coatings

Field Documentation Photos

Field Notes

Although the surface scaling appears heavy, measurements confirm that overall material loss remains minimal. Active rust scaling is present across the entire pylon surface, extending continuously from the water line to the underside of the dock structure. Because this component serves as a direct foundational path for an active, multi-level upper deck assembly, maintaining its original steel thickness profile is a high priority. Consequently, proactive surface remediation and protective coatings are recommended at this stage to preserve the material profile and mitigate long-term oxidation under these operational conditions. This component also supports one of the two guide poles for the floating dock. The guide pole exhibits surface oxidation; it is recommended to mechanically descale this hardware and apply a marine epoxy coating as a preventative maintenance measure.

PYLON D5
Metal Loss: 8% | Surface Corrosion (Heavy Scaling/Rust)

Measurement Readings

MEASUREMENT	LEFT FLANGE	RIGHT FLANGE
Original Thickness	.361"	.354"
Neck / Splash Zone	.333"	.324"
Material Loss	**8% — Surface Corrosion (Heavy Scaling/Rust)**	

RECOMMENDED ACTION	Proactive surface remediation & protective coatings — remove timber board

Field Documentation Photos

Field Notes

Although the surface scaling appears heavy, measurements confirm that overall material loss remains minimal. Active rust scaling is present across the entire pylon surface, extending continuously from the water line to the underside of the dock structure. This component supports one of the two guide poles for the floating dock. The guide pole exhibits surface oxidation; it is recommended to mechanically descale this hardware and apply a marine epoxy coating as a preventative maintenance measure.

Additionally, a wooden board is currently mounted lengthwise along the exterior of this pylon, seemingly installed to mitigate impact from the floating dock assembly during wave action. The timber board creates a moisture trap accelerating localized oxidation. Permanent removal of the timber board is recommended prior to epoxy encapsulation to preserve the underlying steel profile.

To maintain impact mitigation without creating a destructive moisture trap against the steel, alternative non-porous materials or standalone marine bumper options that do not bond directly to the pylon surface should be explored to ensure long-term material stability.

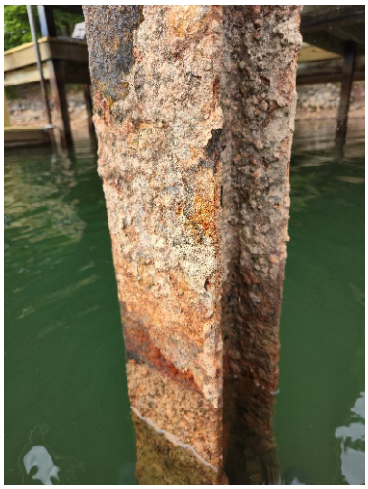
PYLON E1
Metal Loss: 9% | Surface Corrosion (Heavy Scaling/Rust)

Measurement Readings

MEASUREMENT	LEFT FLANGE	RIGHT FLANGE
Original Thickness	.369"	.350"
Neck / Splash Zone	.339"	.318"
Material Loss	**9% — Surface Corrosion (Heavy Scaling/Rust)**	

RECOMMENDED ACTION	Proactive surface remediation & protective coatings

Field Documentation Photos



Field Notes

Although the surface scaling appears heavy, measurements confirm that overall material loss remains minimal. Active rust scaling is present across the entire pylon surface, extending continuously from the water line to the underside of the dock structure. Because this component serves as a direct foundational path for an active, multi-level upper deck assembly, maintaining its original steel thickness profile is a high priority. Consequently, proactive surface remediation and protective coatings are recommended at this stage to preserve the material profile and mitigate long-term oxidation under these operational conditions.

PYLON E2
Metal Loss: 8% | Surface Corrosion (Heavy Scaling/Rust)

Measurement Readings

MEASUREMENT	LEFT FLANGE	RIGHT FLANGE
Original Thickness	.354"	.366"
Neck / Splash Zone	.326"	.338"
Material Loss	**8% — Surface Corrosion (Heavy Scaling/Rust)**	

RECOMMENDED ACTION	Proactive surface remediation & protective coatings

Field Documentation Photos

Field Notes

Although the surface scaling appears heavy, measurements confirm that overall material loss remains minimal. Active rust scaling is present across the entire pylon surface, extending continuously from the water line to the underside of the dock structure. Because this component serves as a direct foundational path for an active, multi-level upper deck assembly, maintaining its original steel thickness profile is a high priority. Consequently, proactive surface remediation and protective coatings are recommended at this stage to preserve the material profile and mitigate long-term oxidation under these operational conditions.

PYLON E3
Metal Loss: 8% | Surface Corrosion (Heavy Scaling/Rust)

Measurement Readings

MEASUREMENT	LEFT FLANGE	RIGHT FLANGE
Original Thickness	.362"	.353"
Neck / Splash Zone	.322"	.338"
Material Loss	**8% — Surface Corrosion (Heavy Scaling/Rust)**	

RECOMMENDED ACTION	Proactive surface remediation & protective coatings

Field Documentation Photos

Field Notes

Although the surface scaling appears heavy, measurements confirm that overall material loss remains minimal, with active rust scaling limited primarily to the necking zone on the pylon. Localized measurements vary between the two flanges: one flange exhibits a 4% loss, while the opposing flange shows an 11% loss. Although the current average metric is within manageable parameters, the localized degradation on the heavily affected flange represents over twice the material loss of the opposing flange.

Because this component serves as a direct foundational path for an active, multi-level upper deck assembly, maintaining its original steel thickness profile is a high priority. Consequently, proactive surface remediation and protective coatings are recommended at this stage to preserve the material profile and mitigate long-term oxidation under these operational conditions.

SECTION 6 — RISK ASSESSMENT & RECOMMENDATIONS

Critical Findings & High-Corrosion Zones

This comprehensive pylon evaluation reveals that the dock pylons inspected have experienced highly localized material depletion that warrants immediate, tiered preservation protocols. Pylons A4, A5, B4, B5, and C5 exhibit severe to extreme localized material wasting, with documented material losses ranging from 36% to 62%. These assets serve as primary support paths for main dock walkway girders and upper deck assemblies. Because the localized degradation in the upper termination zones has resulted in severe mounting hardware depletion and a complete absence of flange support infrastructure, standard 24-inch heavy-duty reinforcement plates cannot be securely anchored.

IMMEDIATE — Reconstruction Required (36%–62% Loss)
Pylons A4 (62%), A5 (51%), B4 (42%), B5 (45%), and C5 (36%) have exceeded standard reinforcement parameters due to extensive material depletion on the upper portions. Remediation via component replacement or reconstruction is recommended. This process should include web plate installations, girder connection hardware replacement, a minimum of two coats of marine epoxy encapsulation, and sacrificial anode implementation.

URGENT — Reinforcement Plating Required (26%–50% Loss)
Pylon C4 (36%) has crossed into the advanced section thinning phase. Standard installation of heavy-duty reinforcement plates is required as a preventative measure to arrest thinning at this primary support zone. Reconstruction is recommended.

PROACTIVE — Encapsulation Window (11%–25% Loss)
Pylons B2 (12%), B3 (13%), C2 (16%), and C3 (15%) show accelerated thinning approaching critical thresholds. Implementing mechanical descaling and applying defensive marine epoxy encapsulation at this stage is recommended to arrest ongoing oxidation.

MONITOR — Preventative Maintenance (0%–10% Loss)
Pylons B1, C1, D1, D2, D3, D5, E1, E2, and E3 exhibit low overall average material loss but display severe superficial metal scaling. Proactive surface remediation and protective coatings are recommended, especially for upper deck support columns.

Preservation & Remediation Solutions

Mechanical Descaling & Heavy-Duty Plating
Specialized tools remove oxidized layers to expose clean base metal. For pylons past the plating threshold, 3/8" thick, 24" steel reinforcement plates are custom-fitted past the degradation zone on both flanges, anchored with a high-strength 4-bolt configuration at both the top and bottom.

Dual-Layer Marine Epoxy Encapsulation
Two comprehensive coats of high-performance marine epoxy are applied to bare steel, establishing a moisture-and-oxygen barrier. The epoxy maintains flexibility after curing and is highly abrasion-resistant against watercraft wake impacts and shoreline wear.

Marine Topcoat Sealant
Two coats of specialized marine polyurethane seal the epoxy above the waterline, protecting against UV degradation and ensuring long-term material stability.

Sacrificial Anode Installation
Anodes installed below the low-water line provide continuous cathodic protection, intentionally corroding in place of your steel pylons to mitigate electrochemical deterioration.

Component Reconstruction & Through-Bolt Reinforcement
For assets exhibiting extreme localized material loss, custom heavy-gauge steel plates are positioned along exterior profiles and secured with high-strength structural fasteners driven completely through the assembly. Heavy-wall mechanical sleeves prevent distortion. The entire assembly is then encapsulated in dual-layer marine epoxy with sacrificial anodes installed.

NOTICE, DISCLAIMER & COPYRIGHT

Scope of Assessment & Limitations

This assessment is based strictly on surface observations and localized physical thickness measurements available under field conditions on the date of evaluation. This evaluation does not constitute a formal structural engineering certification, architectural analysis, or geotechnical endorsement. Findings and recommendations are for maintenance and material preservation planning purposes only.

Authorized Use & Third-Party Reliance

This report is intended solely for the designated client to evaluate localized maintenance priorities for their independent asset management. This document is non-transferable. Reliance on this report by any third party is strictly prohibited and at that party's sole risk.

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