

Borough of Wildwood Crest
Cape May County, New Jersey



Bulkhead & Beach Outfall Evaluation

November 2017

Prepared by:

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A handwritten signature in blue ink that reads 'Marc A. DeBlasio'. The signature is written in a cursive style and is positioned above a horizontal line.

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Introduction

DeBlasio & Associates was retained to complete a structural inspection and evaluation of the Borough's bulkheads (beach and bayside) and Beach Outfalls. The scope of this report includes 18 bayside bulkheads, 23 beach bulkheads, and six (6) beach outfall structures.

All structures were field-inspected by a licensed Professional Engineer. Each structure was evaluated and classified as to its structural integrity, as well as its overall condition. The scope of the inspection activities focused on the structural members of the bulkheads and outfalls. Other non-structural deficiencies were noted, but were not considered in the overall condition rating of the structure. Additionally, the costs of improvements related to non-structural issues were not considered in the Engineer's Estimate of Cost included in Appendix A.

For bulkhead structures, the primary inspection focus was on the condition of the following members: exposed faces of sheeting, walers, metal hardware, tie-backs, and outlet structures (on bayside structures only). For the beach outfall structures, the primary inspection focus was on the timber pile bents supporting the outfall pipes and the outfall pipes themselves.

Based on the above, each structure was rated in one of the following conditions:

Rating	Description
Very Good	The structure is in overall very good condition with few or no notable defects found during the field inspection. Structures in this category tend to be newer or recently reconstructed / improved.
Good	The structures is in good condition with some defects noted during the field inspection. The defects noted can be categorized as minor, with little or no effect on the overall integrity of the structure.
Satisfactory	The structure is in satisfactory condition with many defects noted during the field inspection. The defects noted can be categorized as minor, with little or no effect on the overall integrity of the structure. However, the defects noted warrant attention and/or maintenance to avert potential issues.
Poor	The structure is in poor condition with numerous defects noted during the field inspection. While the defects noted may not pose an immediate risk to the integrity of the structure, however, repairs to correct the defects should be considered a priority.
Critical	The structure is in critical condition and poses a immediate threat to public safety and potential damage to private and/or public property. Necessary repairs should be considered an emergency and completed as quickly as possible.

Section A

Bulkhead Evaluation

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Location: Cresse Avenue (Bay)

Condition: Very Good

Material: Vinyl

Outfall(s): Yes
Check Valve(s): No



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is very good.

There are medium cracks in the concrete kneewall above the sheeting.

The existing sidewalk does not contain an ADA-compliant access ramp.

There are two (2) existing stormwater outfalls protruding through the face of the bulkhead. Neither of the existing outfalls are fitted with check valves to prevent the backflow of saltwater into the stormwater system.

- 1. Medium cracks in the concrete kneewall above the sheeting.



Location: Morning Glory Avenue (Bay)

Condition: Very Good

Material: Vinyl

Outfall(s): Yes
Check Valve(s): No



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is very good.

There is an existing low point on the north side of the road near the end of the street. Based on the accumulated sediment at the time of inspection, there is poor runoff of stormwater in this area.

The existing sidewalk does not contain an ADA-compliant access ramp.

There are two (2) existing stormwater outfalls protruding through the face of the bulkhead. Neither of the existing outfalls are fitted with check valves to prevent the backflow of saltwater into the stormwater system.

1. Accumulated sediment on the north side of the street and gutter.



Location: Buttercup Avenue (Bay)

Condition: Very Good

Material: Vinyl

Outfall(s): Yes
Check Valve(s): No



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is very good.

No notable defects were found during our inspection of the street side.

There is an existing stormwater outfalls protruding through the face of the bulkhead. The existing outfall is not fitted with a check valve to prevent the backflow of saltwater into the stormwater system.

The overall condition of the existing timber walers is satisfactory. There are fine to medium checks and splits in the walers, which is typical of timber members used in this type of application.

Location: Lavender Avenue (Bay)

Condition: Very Good

Material: Vinyl

Outfall(s): Yes
Check Valve(s): No



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is very good.

The bolts connecting the safety railing to the concrete kneewall have not been cut flush with the installed nuts presenting a snag or cutting hazard.

The existing sidewalk does not contain an ADA-compliant access ramp.

There is an existing stormwater outfalls protruding through the face of the bulkhead. The existing outfall is not fitted with a check valve to prevent the backflow of saltwater into the stormwater system.

The overall condition of the existing timber walers is satisfactory. There are fine to medium checks and splits in the walers, which is typical of timber members used in this type of application.

1. The bolts connecting the railing to the kneewall have not been cut flush.



Location: Heather Avenue (Ocean)

Condition: Very Good

Material: Vinyl

Outfall(s): Yes
Check Valve(s): No



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is very good. There are a few fine cracks in the top of the concrete kneewall.

The bolts connecting the safety railing to the concrete kneewall have not been cut flush with the installed nuts presenting a snag or cutting hazard.

The existing sidewalk does not contain an ADA-compliant access ramp.

There is an existing stormwater outfalls protruding through the face of the bulkhead. The existing outfall is not fitted with a check valve to prevent the backflow of saltwater into the stormwater system.

The overall condition of the existing timber walers is satisfactory. There are fine to medium checks and splits in the walers, which is typical of timber members used in this type of application.

1. The bolts connecting the railing to the kneewall have not been cut flush.



2. Fine crack in the top of the concrete kneewall



Location: Crocus Avenue (Bay)

Condition: Very Good

Material: Vinyl

Outfall(s): Yes
Check Valve(s): No



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is very good.

The existing sidewalk does not contain an ADA-compliant access ramp.

There is an existing stormwater outfalls protruding through the face of the bulkhead. The existing outfall is not fitted with a check valve to prevent the backflow of saltwater into the stormwater system.

The overall condition of the existing timber walers is satisfactory. There are fine to medium checks and splits in the walers, which is typical of timber members used in this type of application.

Location: Aster Avenue (Bay)

Condition: Good

Material: Vinyl

Outfall(s): Yes
Check Valve(s): No



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good.

There are fine cracks in the top of the concrete kneewall above the sheeting.

The existing sidewalk does not contain an ADA-compliant access ramp.

There is an existing stormwater outfalls protruding through the face of the bulkhead. The existing outfall is not fitted with a check valve to prevent the backflow of saltwater into the stormwater system.

The overall condition of the existing timber walers is satisfactory. There are fine to medium checks and splits in the walers, which is typical of timber members used in this type of application.

- 1. Fine crack in the top of the concrete kneewall



- 2. Existing outfall without check valve.



Location: Cardinal Avenue (Bay)

Condition: Good

Material: Vinyl / Timber

Outfall(s): No
Check Valve(s): N/A



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good.

New vinyl sheeting was installed to the waterward side of the old timber bulkhead. The overall condition of the vinyl face is good. The condition of the rear timber face is satisfactory, with several areas having previously been patched/repaired.

There is a large accumulation of debris and sediment against the rear face of the bulkhead, indicating that there is poor drainage of the street end.

The existing sidewalk does not contain an ADA-compliant access ramp.

The overall condition of the existing timber walers is satisfactory. There are fine to medium checks and splits in the walers, which is typical of timber members used in this type of application.

1. Previously repaired areas on the rear face of the timber bulkhead.



2. Accumulated sediment & debris against the rear timber face of the bulkhead.



Location: Sweetbriar Avenue (Bay)

Condition: Good

Material: Vinyl

Outfall(s): Yes
Check Valve(s): Yes



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good.

New vinyl sheeting was installed to the waterward side of the old timber bulkhead. The overall condition of the vinyl face is good. The condition of the rear timber face is satisfactory.

The overall condition of the existing timber walers is satisfactory. There are fine to medium checks and splits in the walers, which is typical of timber members used in this type of application.

Location: Wisteria Avenue (Bay)

Condition: Good

Material: Vinyl / Timber

Outfall(s): No
Check Valve(s): N/A



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good.

New vinyl sheeting was installed to the waterward side of the old timber bulkhead. The overall condition of the vinyl face is good. The condition of the rear timber face is satisfactory.

The overall condition of the existing timber walers is satisfactory. There are fine to medium checks and splits in the walers, which is typical of timber members used in this type of application.

Location: Columbine Avenue (Bay)

Condition: Good

Material: Vinyl / Timber

Outfall(s): Yes
Check Valve(s): Yes



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good.

New vinyl sheeting was installed to the waterward side of the old timber bulkhead. The overall condition of the vinyl face is good. The condition of the rear timber face is satisfactory, with several areas having previously been patched/repared. There is also a medium-sized area of deterioration. There are numerous medium checks and splits in the timber rear face.

The overall condition of the existing timber walers is satisfactory. There are fine to medium checks and splits in the walers, which is typical of timber members used in this type of application.

The existing check valve is clogged with debris.

1. Previously repaired area near the north curbline.



2. Medium area of deterioration in the rear face.



3. Numerous checks and splits in the rear timber face.



Location: Rosemary Avenue (Bay)

Condition: Good

Material: Vinyl

Outfall(s): No
Check Valve(s): N/A



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good.

The overall condition of the existing timber walers is satisfactory. There are fine to medium checks and splits in the walers, which is typical of timber members used in this type of application.

Location: Forget-Me-Not Avenue (Bay)

Condition: Good

Material: Vinyl

Outfall(s): Yes
Check Valve(s): No



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good.

There is an existing stormwater outfall protruding through the face of the bulkhead. The existing outfall is not fitted with a check valve to prevent the backflow of saltwater into the stormwater system.

The overall condition of the existing timber walers is satisfactory. There are fine to medium checks and splits in the walers, which is typical of timber members used in this type of application.

1. Existing outfall without check valve to prevent backflow into the stormwater system.



Location: Fern Avenue (Bay)

Condition: Good

Material: Vinyl / Timber

Outfall(s): Yes
Check Valve(s): No



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good.

New vinyl sheeting was installed to the waterward side of the old timber bulkhead. The overall condition of the vinyl face is good. The condition of the rear timber face is satisfactory, with several areas having previously been patched/repaired.

There is an existing stormwater outfall protruding through the face of the bulkhead. The existing outfall is not fitted with a check valve to prevent the backflow of saltwater into the stormwater system.

The overall condition of the existing timber walers is satisfactory. There are fine to medium checks and splits in the walers, which is typical of timber members used in this type of application.

1. Previously repaired areas in the rear timber face of the interior bulkhead.



2. Existing outfall without check valve to prevent backflow into the stormwater system.



Location: Palm Avenue (Bay)

Condition: Good

Material: Vinyl

Outfall(s): Yes
Check Valve(s): Yes



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good.

There is an existing stormwater outfall protruding through the face of the bulkhead. The existing outfall is not fitted with a check valve to prevent the backflow of saltwater into the stormwater system.

There is an existing stormwater outfall protruding through the face of the bulkhead. The existing outfall is not fitted with a check valve to prevent the backflow of saltwater into the stormwater system.

The overall condition of the existing timber walers is satisfactory. There are fine to medium checks and splits in the walers, which is typical of timber members used in this type of application.

1. Repaired area in the rear face of the timber section of the bulkhead.



Location: Lotus Avenue (Bay)

Condition: Good

Material: Vinyl

Outfall(s): Yes
Check Valve(s): Yes



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good.

There is an existing stormwater outfall protruding through the face of the bulkhead, which is fitted with a check valve to prevent the backflow of saltwater into the stormwater system.

The overall condition of the existing timber walers is satisfactory. There are fine to medium checks and splits in the walers, which is typical of timber members used in this type of application.

1. Previously repaired area in the rear face of the timber portion of the bulkhead.



2. Existing check valve clogged with debris.



Location: Myrtle Avenue (Bay)

Condition: Good

Material: Vinyl

Outfall(s): Yes
Check Valve(s): Yes



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good.

There is an existing stormwater outfall protruding through the face of the bulkhead. The existing outfall is equipped with a check valve to prevent the backflow of saltwater into the stormwater system.

The overall condition of the existing timber walers is satisfactory. There are fine to medium checks and splits in the walers, which is typical of timber members used in this type of application.

1. Existing check valve on stormwater outfall.



Location: Primrose Avenue (Bay)

Condition: Good

Material: Vinyl

Outfall(s): Yes
Check Valve(s): Yes



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good.

There is an existing stormwater outfall protruding through the face of the bulkhead. The existing outfall is equipped with a check valve to prevent the backflow of saltwater into the stormwater system.

The overall condition of the existing timber walers is satisfactory. There are fine to medium checks and splits in the walers, which is typical of timber members used in this type of application.

- 1. Overall view of existing timber walers.



- 2. Existing check valve.



Location: Rambler Avenue (Ocean)

Condition: Satisfactory

Material: Vinyl



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is satisfactory. There is approximately 24-inches of sheeting exposed on the beach side. There is heavy vegetation present along the face of the sheeting. The existing timber safety railing is in satisfactory condition with some medium checks and splits in most of the posts.

There are medium to wide cracks in the existing sidewalk at the street end. There is also evidence of settlement at each end of the existing sidewalk creating a tripping hazard.

The existing sidewalk does not contain an ADA-compliant access ramp.

There is a medium-sized hole in the vinyl sheeting on the north side. There are no visible signs of backfill material migrating through the hole, but a void is clearly visible behind the sheet.

- 1. Medium-wide transverse crack along existing sidewalk.



- 2. Medium splits and checks in timber posts of safety railing.



<p>3. Settlement of the approach sidewalk.</p>	 A photograph showing a concrete sidewalk with a significant settlement. The concrete is cracked and uneven, with a dark, possibly wet or shadowed area where the concrete has sunk. A black plastic chair is visible in the background on the higher part of the sidewalk.
<p>4. Settlement of the approach sidewalk.</p>	 A photograph showing a concrete sidewalk with a significant settlement. The concrete is uneven and cracked. There is a noticeable gap between the sidewalk and the curb, and some debris is visible in the gap.
<p>5. Hole in the vinyl sheet of the bulkhead. No visible signs of backfill material migrating through the sheet, but a void is clearly visible behind the sheet.</p>	 A photograph showing a bulkhead with a hole in the vinyl sheet. The hole is located near the bottom of the sheet. A void is visible behind the sheet, and there is some debris on the ground in front of the bulkhead.

Location: Orchid Avenue (Ocean)

Condition: Good

Material: Vinyl



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good. There is approximately 12-inches of sheeting exposed on the beach side. There is heavy vegetation present along the face of the sheeting. The existing timber safety railing is in satisfactory condition with some medium checks and splits in most of the posts.

There are medium to wide cracks in the existing sidewalk at the street end. There is also evidence of settlement at each end of the existing sidewalk creating a tripping hazard.

The existing sidewalk does not contain an ADA-compliant access ramp.

1. Non-compliant curb ramp.



2. Missing spindles in the safety railing.



3. Settlement at the approach sidewalk.



Location: Stockton Avenue (Ocean)

Condition: Good

Material: Vinyl



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good. There is approximately 12-inches of sheeting exposed on the beach side. There is heavy vegetation present along the face of the sheeting. The existing timber safety railing is in satisfactory condition with some medium checks and splits in most of the posts.

There are medium to wide cracks in the existing sidewalk at the street end. There is also evidence of settlement at each end of the existing sidewalk creating a tripping hazard.

The existing sidewalk does not contain an ADA-compliant access ramp.

- 1. Non-compliant curb ramp.



- 2. Medium splits and checks in timber posts of safety railing.



Location: Stanton Avenue (Ocean)

Condition: Good

Material: Vinyl



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good. There is approximately 12-inches of sheeting exposed on the beach side. There is heavy vegetation present along the face of the sheeting. The existing timber safety railing is in satisfactory condition with some medium checks and splits in most of the posts.

There are medium to wide cracks in the existing sidewalk at the street end. There is also evidence of settlement at each end of the existing sidewalk creating a tripping hazard.

The existing sidewalk does not contain an ADA-compliant access ramp.

- 1. No curb ramp at street end.



- 2. Excessive height curb at approach sidewalk.



Location: Farragut Avenue (Ocean)

Condition: Good

Material: Vinyl



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good. There is approximately 12-inches of sheeting exposed on the beach side. There is heavy vegetation present along the face of the sheeting. The existing timber safety railing is in satisfactory condition with some medium checks and splits in most of the posts.

There are medium to wide cracks in the existing sidewalk at the street end. There is also evidence of settlement at each end of the existing sidewalk creating a tripping hazard.

The existing sidewalk does not contain an ADA-compliant access ramp.

1. Non-compliant curb ramp at street end.



Location: Atlanta Avenue (Ocean)

Condition: Good

Material: Vinyl



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good. There is approximately 12 to 18-inches of sheeting exposed on the beach side. There is heavy vegetation present along the face of the sheeting. The existing timber safety railing is in satisfactory condition with some medium checks and splits in most of the posts.

The existing sidewalk does not contain an ADA-compliant access ramp.

Location: Nashville Avenue (Ocean)

Condition: Good

Material: Vinyl



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good. There is approximately 12-inches of sheeting exposed on the beach side. There is heavy vegetation present along the face of the sheeting. The existing timber safety railing is in satisfactory condition with some medium checks and splits in most of the posts.

There are medium to wide cracks in the existing sidewalk at the street end. There is also evidence of settlement at each end of the existing sidewalk creating a tripping hazard.

The existing sidewalk does not contain an ADA-compliant access ramp.

1. Non-compliant curb ramp at street end.



Location: Louisville Avenue (Ocean)

Condition: Good

Material: Vinyl



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good. There is approximately 12-inches of sheeting exposed on the beach side. There is heavy vegetation present along the face of the sheeting. The existing timber safety railing is in satisfactory condition with some medium checks and splits in most of the posts.

There are medium to wide cracks in the existing sidewalk at the street end. There is also evidence of settlement at each end of the existing sidewalk creating a tripping hazard.

The existing sidewalk does not contain an ADA-compliant access ramp.

- 1. Non-compliant curb ramp at street end.



- 2. Excessive height curb at approach sidewalk.



3. Missing spindles in safety railing.



Location: Miami Avenue (Ocean)

Condition: Good

Material: Vinyl



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good. There is approximately 12-inches of sheeting exposed on the beach side. There is heavy vegetation present along the face of the sheeting. The existing timber safety railing is in satisfactory condition with some medium checks and splits in most of the posts.

There are medium to wide cracks in the existing sidewalk at the street end. There is also evidence of settlement at each end of the existing sidewalk creating a tripping hazard.

The existing sidewalk does not contain an ADA-compliant access ramp.

- 1. Large spall in the concrete slab above the bulkhead face.



- 2. Excessive height curb at approach sidewalk.



Location: Monterey Avenue (Ocean)

Condition: Good

Material: Vinyl



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good. There is up to 18-inches of sheeting exposed on the beach side. The existing timber safety railing is in satisfactory condition.

There are a few medium to wide cracks in the existing sidewalk at the street end.

The existing access ramp is ADA-compliant, but does not contain a detectable warning surface.

- 1. Medium-wide transverse crack along existing sidewalk.



- 2. No detectable warning surface on existing ADA-compliant ramp.



Location: St. Paul Avenue (Ocean)

Condition: Good

Material: Vinyl



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good. There is up to 18-inches of sheeting exposed on the beach side. The existing timber safety railing is in good condition. However, there is one missing spindle on the north side on the beach entrance.

There are medium cracks in the existing sidewalk at the street end. The existing curb on each side of the sidewalk is excessively high and presents a potential tripping hazard.

The existing sidewalk does not contain an ADA-compliant access ramp.

- 1. Medium-wide transverse crack along existing sidewalk.



- 2. More transverse cracking in existing sidewalk



3. Missing and broken spindles on north side of safety railing



4. No ADA-complaint ramp in existing sidewalk



Location: Toledo Avenue (Ocean)

Condition: Good

Material: Vinyl



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good. There is approximately 12-inches of sheeting exposed on the beach side. There is heavy vegetation present along the face of the sheeting. The existing timber safety railing is in satisfactory condition with some medium checks and splits in most of the posts.

There are medium to wide cracks in the existing sidewalk at the street end. There is also evidence of settlement at each end of the existing sidewalk creating a tripping hazard.

The existing sidewalk does not contain an ADA-compliant access ramp.

- 1. Medium-wide transverse crack along existing sidewalk.



- 2. Excessive height curb at approach sidewalk.



3. Excessive height curb at approach sidewalk.



Location: Denver Avenue (Ocean)

Condition: Good

Material: Vinyl



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good. There is approximately 12-inches of sheeting exposed on the beach side. There is heavy vegetation present along the face of the sheeting. The existing timber safety railing is in satisfactory condition with some medium checks and splits in most of the posts.

There are medium to wide cracks in the existing sidewalk at the street end. There is also evidence of settlement at each end of the existing sidewalk creating a tripping hazard.

The existing sidewalk does not contain an ADA-compliant access ramp.

- 1. Medium-wide transverse crack along existing sidewalk.



- 2. Broken post in safety railing.



3. Medium splits and checks in timber posts of safety railing.



Location: Syracuse Avenue (Ocean)

Condition: Good

Material: Vinyl



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good. There is approximately 12-inches of sheeting exposed on the beach side. There is heavy vegetation present along the face of the sheeting. The existing timber safety railing is in satisfactory condition with some medium checks and splits in most of the posts.

There are medium to wide cracks in the existing sidewalk at the street end. There is also evidence of settlement at each end of the existing sidewalk creating a tripping hazard.

The existing sidewalk does not contain an ADA-compliant access ramp.

- 1. Wide transverse crack along existing sidewalk.



- 2. Missing spindles in safety railing.



3. Non-compliant curb ramp at street end.



4. Excessive height curb at approach sidewalk.



Location: Preston Avenue (Ocean)

Condition: Good

Material: Vinyl



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good. There is approximately 12-inches of sheeting exposed on the beach side. There is heavy vegetation present along the face of the sheeting. The existing timber safety railing is in satisfactory condition with some medium checks and splits in most of the posts.

There are medium to wide cracks in the existing sidewalk at the street end. There is also evidence of settlement at each end of the existing sidewalk creating a tripping hazard.

The existing sidewalk does not contain an ADA-compliant access ramp.

- 1. Wide transverse crack along existing sidewalk.



2. Non-compliant curb ramp at street end.



3. Excessive height curb at approach sidewalk.



Location: Hollywood Avenue (Ocean)

Condition: Good

Material: Vinyl



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good. There is approximately 12-inches of sheeting exposed on the beach side. There is heavy vegetation present along the face of the sheeting. The existing timber safety railing is in satisfactory condition with some medium checks and splits in most of the posts.

There are medium to wide cracks in the existing sidewalk at the street end. There is also evidence of settlement at each end of the existing sidewalk creating a tripping hazard.

The existing sidewalk does not contain an ADA-compliant access ramp.

1. Medium-wide transverse crack along existing sidewalk.



Location: Topeka Avenue (Ocean)

Condition: Good

Material: Vinyl



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good. There is approximately 12-inches of sheeting exposed on the beach side. There is heavy vegetation present along the face of the sheeting. The existing timber safety railing is in satisfactory condition with some medium checks and splits in most of the posts.

There are medium to wide cracks in the existing sidewalk at the street end. There is also evidence of settlement at each end of the existing sidewalk creating a tripping hazard.

The existing sidewalk does not contain an ADA-compliant access ramp.

1. Missing spindles in safety railing.



Location: Pittsburgh Avenue (Ocean)

Condition: Good

Material: Vinyl



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good. There is approximately 12-inches of sheeting exposed on the beach side. There is heavy vegetation present along the face of the sheeting. The existing timber safety railing is in satisfactory condition with some medium checks and splits in most of the posts.

Location: Charleston Avenue (Ocean)

Condition: Satisfactory

Material: Vinyl



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is satisfactory. There is approximately 12-inches of sheeting exposed on the beach side. There is heavy vegetation present along the face of the sheeting. The existing timber safety railing is in satisfactory condition with some medium checks and splits in most of the posts.

There are medium to wide cracks in the existing sidewalk at the street end. There is also evidence of settlement at each end of the existing sidewalk creating a tripping hazard.

The existing sidewalk does not contain an ADA-compliant access ramp.

One of the vinyl sheets on the north side is split and broken. Backfill material has started to migrate through the hole, creating a void behind the sheet.

- 1. Medium-wide transverse crack along existing sidewalk.



- 2. No curb ramp present at street end.



3. Missing spindles in safety railing.



4. Broken vinyl sheet in the face of the bulkhead. Backfill material has started to migrate through the hole, likely creating a void behind the sheet.



Location: St. Louis Avenue (Ocean)

Condition: Good

Material: Vinyl



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good. There is approximately 12 to 18-inches of sheeting exposed on the beach side. There is heavy vegetation present along the face of the sheeting. The existing timber safety railing is in satisfactory condition with some medium checks and splits in most of the posts.

There are medium to wide cracks in the existing sidewalk at the street end. There is also evidence of settlement at each end of the existing sidewalk creating a tripping hazard.

The existing sidewalk does not contain an ADA-compliant access ramp.

- 1. Medium-wide transverse crack along existing sidewalk.



- 2. Broken and missing spindles in the safety railing.



Location: Trenton Avenue (Ocean)

Condition: Good

Material: Vinyl



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good. There is between 12 and 18-inches of sheeting exposed on the beach side. The existing timber safety railing is in satisfactory condition with some recently replaced sections.

There are medium to wide cracks in the existing sidewalk at the street end. There is also evidence of settlement at each end of the existing sidewalk creating a tripping hazard. There is also a crack in the slab behind the safety railing on the north side.

The existing sidewalk does not contain an ADA-compliant access ramp. Additionally, the existing curb on either side of the beach access is excessively high and presents a potential tripping hazard.

- 1. Medium-wide transverse crack along existing sidewalk.



- 2. Excessive height curb on the south side of the beach access.



3. Crack in the sidewalk slab behind the safety railing on the north side.



4. Recently replaced section on safety railing on the south side of the beach access.



Location: Newark Avenue (Ocean)

Condition: Good

Material: Vinyl



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good. There is between 18 to 24-inches of sheeting exposed on the beach side. The existing timber safety railing is in overall good condition with some sections having been recently replaced.

There are medium to wide cracks in the existing sidewalk at the street end. There is also evidence of settlement at each end of the existing sidewalk creating a tripping hazard.

The existing sidewalk does not contain an ADA-compliant access ramp.

- 1. Recently replaced section of the safety railing.



- 2. Fine crack in the street end sidewalk



<p>3. Medium crack in the street end sidewalk</p>	
<p>4. Medium split in the timber waler</p>	

Location: Jefferson Avenue (Ocean)

Condition: Good

Material: Vinyl



Looking west



Looking east

Inspection Notes

The overall condition of this vinyl bulkhead is good. There is approximately 12-inches of sheeting exposed on the beach side. There is heavy vegetation present along the face of the sheeting. The existing timber safety railing is in satisfactory condition with some medium checks and splits in most of the posts.

There are medium to wide cracks in the existing sidewalk at the street end. There is also evidence of settlement at each end of the existing sidewalk creating a tripping hazard.

The existing sidewalk does not contain an ADA-compliant access ramp.

- 1. Medium-wide transverse crack along existing sidewalk.



- 2. Medium splits and checks in timber posts of safety railing.



3. Settlement of the adjacent sidewalk on the south side of the street.



4. Uneven transition between sidewalks on the north side of the street.



Section B

Beach Outfall Evaluation

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Location: Heather Avenue (Beach Outfall)

Condition: Satisfactory

Material: Timber / Ductile Iron



Looking east



Looking west

Inspection Notes

The overall condition of this outfall structure is satisfactory.

The timber pile bents providing support to the outfall pipe are in satisfactory condition, with only typical defects noted, including moderate marine growth.

The existing ductile iron outfall pipe is in good condition. All of the joints appear to be tight and free of defects.

Location: Fern Avenue (Beach Outfall)

Condition: Satisfactory

Material: Timber / Ductile Iron



Looking east



Looking west

Inspection Notes

The overall condition of this outfall structure is satisfactory.

The timber pile bents providing support to the outfall pipe are in satisfactory condition, with only typical defects noted, including moderate marine growth.

The existing ductile iron outfall pipe is in good condition. All of the joints appear to be tight and free of defects.

Location: Atlanta Avenue (Beach Outfall)

Condition: Satisfactory

Material: Timber/Ductile Iron



Looking east



Looking west

Inspection Notes

The overall condition of this outfall structure is satisfactory.

The timber pile bents providing support to the outfall pipe are in satisfactory condition, with only typical defects noted, including moderate marine growth.

The existing ductile iron outfall pipe is in good condition. All of the joints appear to be tight and free of defects.

Location: Miami Avenue (Beach Outfall)

Condition: Satisfactory

Material: Timber / Ductile Iron



Looking east



Looking west

Inspection Notes

The overall condition of this outfall structure is satisfactory.

The timber pile bents providing support to the outfall pipe are in satisfactory condition, with only typical defects noted, including moderate marine growth.

The existing ductile iron outfall pipe is in good condition. All of the joints appear to be tight and free of defects.

Location: Hollywood Avenue (Beach Outfall)

Condition: Satisfactory

Material: Timber / Ductile Iron



Looking east



Looking west

Inspection Notes

The overall condition of this outfall structure is good.

The timber pile bents providing support to the outfall pipe are in satisfactory condition, with mostly typical defects noted. One of the vertical support members is broken as shown below.

The existing ductile iron outfall pipe is in good condition. All of the joints appear to be tight and free of defects.

1. Broken support member at one of the timber pile bents.



Location: Washington Avenue (Beach Outfall)

Condition: Satisfactory

Material: Timber / Ductile Iron



Looking east



Looking west

Inspection Notes

The overall condition of this outfall structure is good. This outfall was in poor condition until an emergency repair was completed in October 2017 by R.A. Walters, Inc. That emergency repair consisted of replacing several metal bolts connecting the timber pile bents that had rusted out.

The timber pile bents providing support to the outfall pipe are in satisfactory condition, with only typical defects noted, including moderate marine growth.

The existing ductile iron outfall pipe is in good condition. All of the joints appear to be tight and free of defects.