Reuben Clarson CONSULTING

February 28, 2020

Hoyt Koon
Capri Isle Garden Apts.
280 126th Ave E
Treasure Island, FL 33706
Email: koonfarm@gmail.com

Re: Seawall Inspection Report for Capri Isle Garden Apts
280 126th Ave E, Treasure Island, FL 33706

Dear Mr. Koon,

This letter provides a summary of the field inspection performed on February 14, 2020 of the residential seawall located at the above referenced address. The wall was previously inspected by Reuben Clarson in May 2014. The following is a summary of findings and recommendations.

Existing Conditions/Construction

- 388 LF +/- of Seawall
- Cast-In-Place Concrete Cap (9.5" x 20")
- Pre-Cast Concrete Panels
- Seawall Exposed Height = 92 inches

Approximately 388 linear feet (LF) of reinforced concrete seawall consisting of 3 ft wide x 12± ft long slabs with a 9.5" high x 20" wide concrete cap and uncoated original tiebacks. The exposed height from the top of the cap to the berm (mudline) is approximately 7.66 ft.

Large rip-rap rock has been placed on the berm along the frontage except for the last 106 LF along the north end of the property where very minor riprap has been placed. The rip-rap aides in structural support of the seawall and adds wave attenuation. PVC wellpoint drains have been installed in every other slab joint 4" above the top of the stress beam as recommended in the 2014 inspection.

At some point a stress beam was added to the seawall for additional support, especially in the area of the dock entrance where the wall appears to have shifted the most. Overall, the stress beam is in fair condition. A gap has developed in some areas between the vertical wall and the stress beam allowing for saltwater to react more readily to ends of tieback rods within the stress beam. The stress beam has developed horizontal cracking on the top and front face in some areas. The original tiebacks are small and rusting, so the secondary tiebacks, stress beam and riprap are the main elements holding the wall in place.

The longitudinal cap cracks as well as the deep transverse cracks have been repaired with epoxy.

The secondary anchors were chipped, wire brushed and recoated with tar. They are due again for another round of being chipped wire brushed and recoated with tar.

Most seawall slabs were found to be in good condition. The rebar is exposed in areas and horizontal cracking was observed under most of the beveled edge of the seawall cap. Structural defects (horizontal/vertical cracking) that were observed in the seawall cap will need to be cleaned and epoxy sealed depending on the severity. In areas with chronic sediment loss, all slab joints will need to be cleaned and grouted from under the cap to six inches below the mudline.

The following is a summary of observations at measured stations starting at 0+00 which is the east end of the subject property to the west end of the property.

FROM STA.	TO STA.	CAP SIZE (H X W)	VERTICAL WALL	EX. HT.	COMMENT
0+05	0+05	9.5” X 20”	Concrete	92”	Sediment loss behind the cap with previous epoxy repairs to top cracking in cap.
0+05	0+10	9.5” X 20”	Concrete		Facial cracking in cap
0+07	0+89	9.5” X 20”	Concrete		Horizontal cracking in stress beam face
0+10	0+10	9.5” X 20”	Concrete		Sediment loss behind cap with previous epoxy repairs to cracking in top of cap.
0+17	0+17	9.5” X 20”	Concrete		Exposed rebar in face of stress beam
0+26	0+26	9.5” X 20”	Concrete		Top cracking in cap
0+67	0+67	9.5” X 20”	Concrete		Expansion joint, wall moved forward at expansion joint (68” from rip rap to top of cap)
0+67	0+89	9.5” X 20”	Concrete		Top cracking in cap, secondary anchor needs additional tar coating.
1+03	1+03	9.5” X 20”	Concrete		Sediment loss behind the cap with previous epoxy repairs to top cracking in cap. Exposed rebar under most of beveled edge of cap.
1+09	1+09	9.5” X 20”	Concrete		Expansion joint location
1+28	1+37	9.5” X 20”	Concrete		Previous cap repair
1+42	1+50	9.5” X 20”	Concrete		Previous cap repair
1+50	1+50	9.5” X 20”	Concrete		Expansion joint location
1+87	1+87	9.5” X 20”	Concrete		Expansion joint location
2+06	2+12	9.5” X 20”	Concrete		Dock area
2+31	2+31	9.5” X 20”	Concrete		Expansion joint, start of cracking in front face of stress beam.
2+32	2+52	9.5” X 20”	Concrete		Cracking in top of cap.
2+69	2+69	9.5” X 20”	Concrete		Expansion joint location.
2+71	2+71	9.5” X 20”	Concrete		Pile support in stress beam
2+73	2+77	9.5” X 20”	Concrete		Cracking in the top of stress beam
2+88	2+88	9.5” X 20”	Concrete		Rock ends

3+09	3+09	14" X 21"	Concrete		Expansion joint location and start of replaced cap
3+11	3+11	14" X 21"	Concrete		Sediment loss area
3+88	3+88	14" X 21"	Concrete		End of wall

RECOMMENDATIONS

It should be noted that the typical useful life of a seawall on saltwater is approximately 50± years. Additional support and maintenance projects have extended the useful life of the subject seawall. The useful life of a stress beam is approximately 20± years. The stress beam therefore may be the limiting factor in the remaining life of the seawall. Once a significant gap develops between the vertical wall and the horizontal stress beam, the support capacity of the stress beam is diminished. Even with continued repairs and maintenance, based on the existing condition and age of the seawall, we recommend planning for replacement of the existing seawall system in approximately 5-7± years.

Recommended specifications for a new seawall would include construction of a new vinyl corrugated seawall system constructed within 12" of the face of the stress beam with a new concrete cap and 1" diameter HDG PVC encased tieback rods to MR-SR manta ray anchors or deadmen. Well point drains should be installed through both walls at 6' on center and 5" above the barnacle line to relieve the hydrostatic pressure or aid in removing water from behind the wall. The existing wall would remain. Concrete filler would be applied between the two walls. The ballpark cost for this portion of wall in today's prices is approximately $155,000 with a useful life expectancy of 50 ± years.

We also recommend continued monitoring (inspections every 2-3 year) for structural defects and/or movement in the seawall slabs and a potential gap between stress beam and vertical to see when the new seawall will be necessary.

For the short term, based on the age and condition of the existing seawall system, with above observations we recommend the following maintenance and repair items to be completed within the next year:

1. Clean and seal all cracking in the seawall cap, vertical slabs and stress beam with epoxy or hydraulic cement.
2. All voids behind the seawall should be filled with crushed shell or pea gravel as needed (perhaps more than once) to fill in the existing voids behind the seawall, allowing for drainage, but aid in trapping the sand particles.
3. The gap between the stress beam and vertical wall should be cleaned and sealed with hydraulic cement (175 linear feet)
4. All the secondary anchors, washers and nuts need to be chipped, wire brushed and liberally tarred.
5. Gap between stress beam and vertical wall should be monitored for potential future movement of wall.

The above work should be able to be completed for a ballpark cost of:

1. Clean & Seal Cracking…….....$3,500
2. Fill Voids……$300
3. Stress Beam Gap Repair, (175) x $8……..…….$1,500
4. Chip, Wirebrush & Retar Sec Anchors……..$1,000

$6,300 say $6,500±

If you should have any questions or comments, please do not hesitate to contact me. We appreciate the opportunity to provide this report.

Sincerely,

REUBEN CLARSON CONSULTING, INC.

John B. Adams, Jr., PE
FL Professional Engineer No. 53963

Reuben Clarson, PE
FL Professional Engineer No. 16313

Photo #1- View of the Face and Beveled Edge of the Seawall Cap.

Photo #2 - View of Wellpoint Drain and Secondary Anchor.

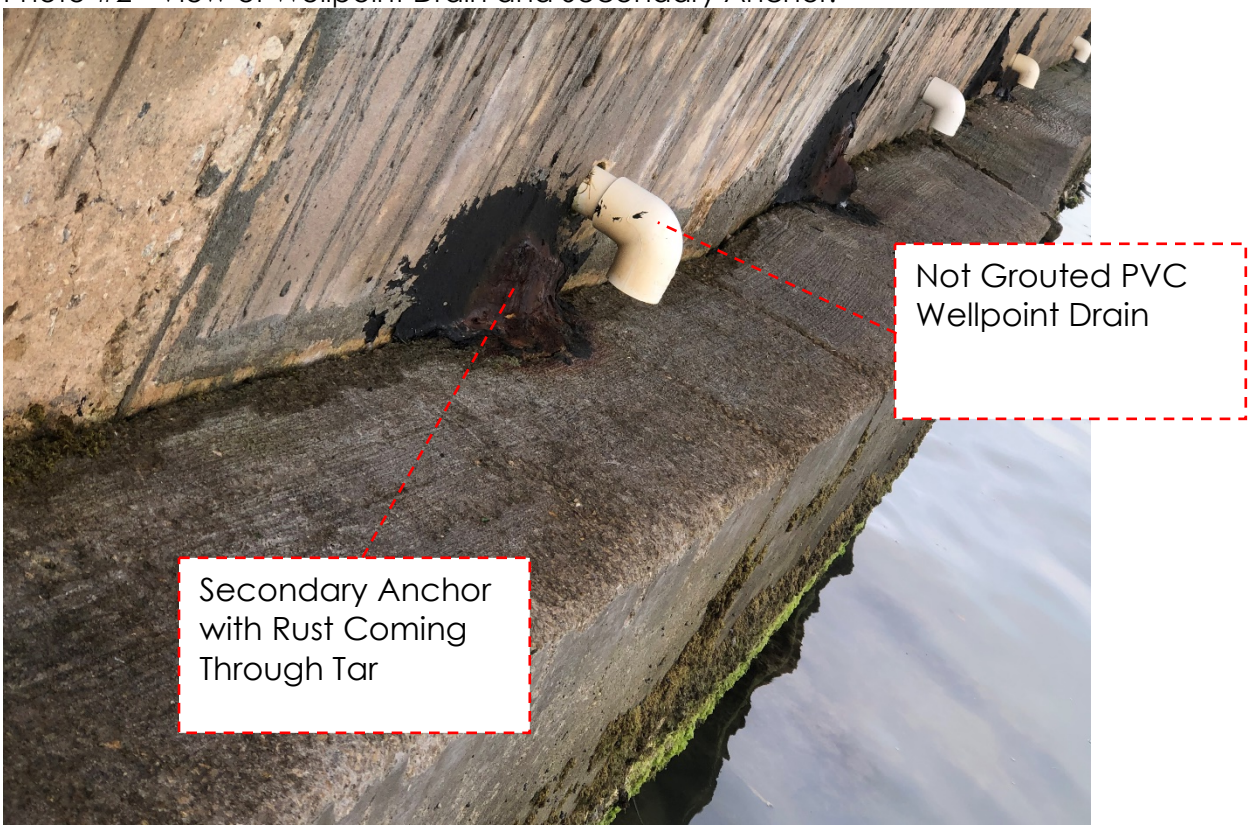

Photo #3- View of East Side of Property.

Photo #4- View of Wellpoint Drain and Secondary Anchor.

Photo #5 – View of Top of Stress Beam and Face of Cap.

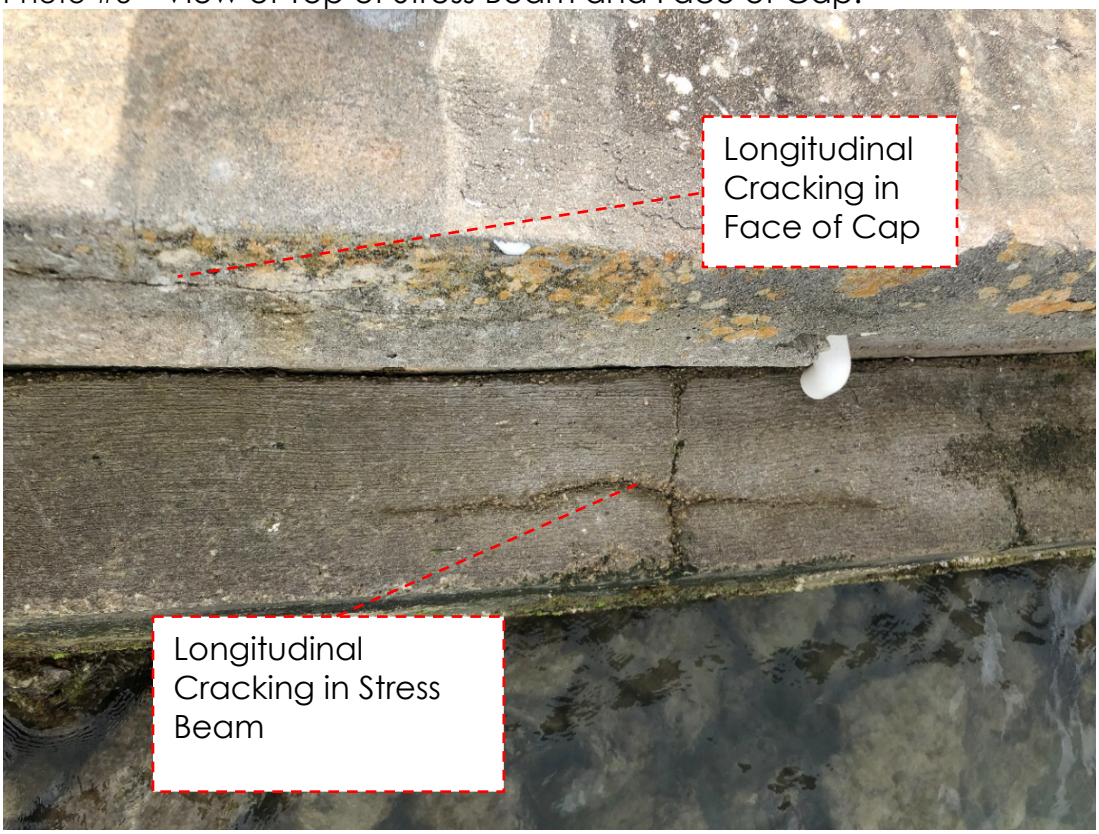

Photo #6 – View of Face of Stress Beam.

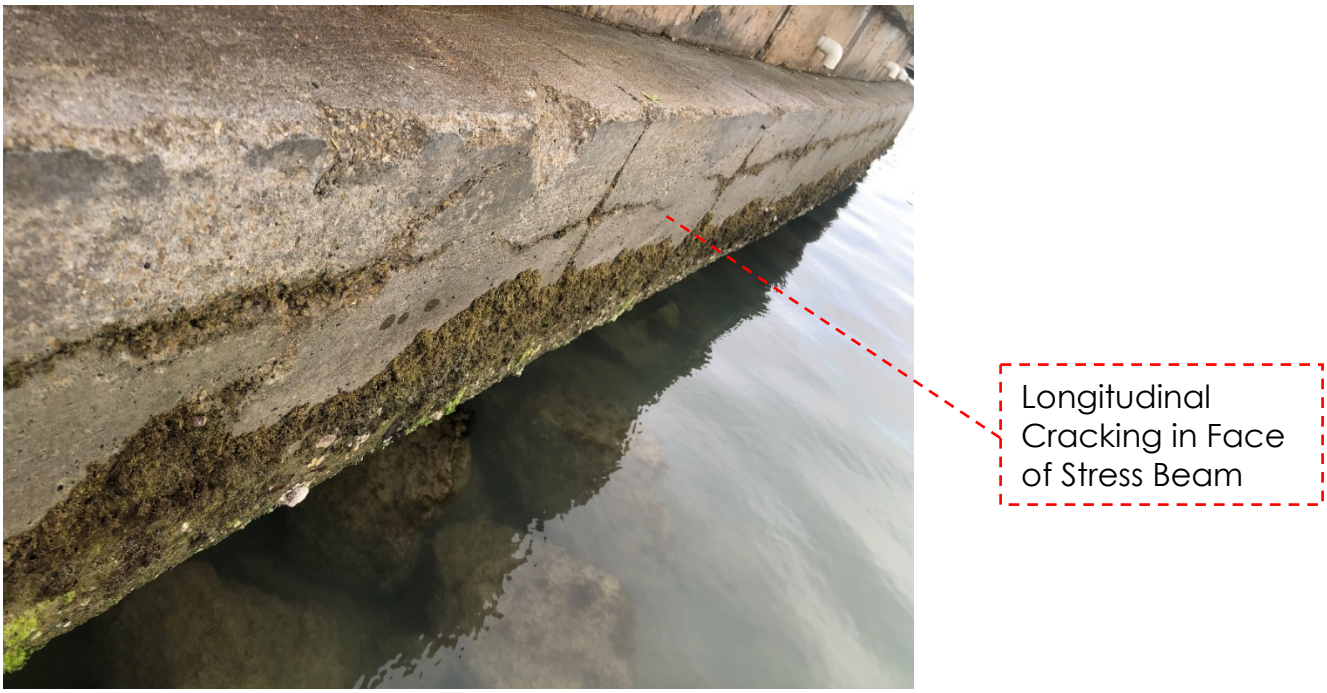

Photo #7 – View of Top of Cap.