

**3333 GARDEN AVENUE WATERFRONT IMPROVEMENTS PROJECT
3333 GARDEN AVENUE**

CITY OF MIAMI BEACH

ENVIRONMENTAL & STRUCTURAL IMPACT REVIEW

OCTOBER 2021

The 3333 Garden Avenue Waterfront Improvements Project proposes waterfront improvements along the property's riparian shoreline. The site is located on a canal, south of Lake Surprise in the City of Miami Beach, and is tidally connected to the larger Biscayne Bay ("Project"). Along the shoreline fronting the canal, the existing concrete seawall was previously constructed waterward of the 3333 property line, and is currently built, and encroaching upon, City-owned submerged lands/property. The primary focus of this summary is to evaluate the potential for environmental and structural impacts to the canal, and the neighboring two adjacent properties, if the City of Miami Beach were to require complete removal, excavation, and relocation of the existing seawall back to the property line at the site.

Currently, the Project proposes the following activities to safely provide access to the shoreline, and to meet City requirements for seawall improvements (height and strength):

1. Replacement of the existing seawall by the installation of a new concrete seawall panel, concrete batter piles, concrete king piles, and the forming and pouring of a new concrete seawall cap that does not require complete removal of the existing seawall.
2. Installation of a new wood dock with (4) new mooring piles.

The focus of this summary is primarily on the proposed seawall improvements.

Environmental Impact – The canal south of Lake Surprise is located in close proximity, and is tidally connected to, Biscayne Bay / Biscayne Bay Aquatic Preserve. Given its proximity, it is not unusual for seagrass communities to grow within the Lake Surprise water environment. These seagrass communities primarily consist of *Halophila decipiens* (Paddle Grass) and *Halodule wrightii* (Shoal Grass), among other types. Typically found in similar water environments such as Lake Surprise would also be macroalgae, sponges, and limited coral coverage. Removal of the existing seawall would compromise these marine resource communities, both directly and indirectly.

If the City of Miami Beach were to require removal of the existing concrete seawall at the property, excavation of the soil/spoil material back to the property line, and re-installation of a new seawall, most of the marine resources within a 15-30 foot footprint of the construction work would be lost due to direct impact from seawall removal activities (e.g. excavation and heavy demolition work, disturbance of submerged lands, poor water quality, smothering). There is a high likelihood of further habitat loss and water quality degradation from secondary, indirect impacts by shading and loss of sunlight from turbid water generated during excavation to remove the spoil behind the existing seawall. This

turbid water is notoriously difficult to control and would impact a larger area within the canal fronting the property as well as Lake Surprise.

As a result of these potential direct and indirect impacts to marine resources, complete seawall removal and relocation is not recommended. Typical practice for seawall replacement work is installation of new seawalls immediately waterward of existing.

Structural Impact – In addition to marine resource impacts, there is the significant potential for structural damage to neighboring seawalls resulting from complete demolition of the existing seawall at the Project site. Currently, on both sides of the property, the existing seawalls abut each other. If there was going to be complete removal, the adjacent seawalls would need to be monitored for cracking and destabilizing movement from 3333 seawall demolition. The resulting cracks and impacts to the neighboring properties would likely require significant repairs, if not replacement of segments of each, to avoid future failure.

Removal of the existing 3333 seawall and relocation landward would also result in a significant gap between property shorelines. This gap would require perpendicular seawall connections to shore up and seal the edges, resulting in additional costs associated with the original seawall removal project.

Conclusions

Based upon the above findings, Ocean Consulting recommends a seawall replacement project that does not require complete seawall removal, excavation, and placement landward. Marine resources and water quality will be protected, and the structural integrity of neighboring seawalls will be maintained.