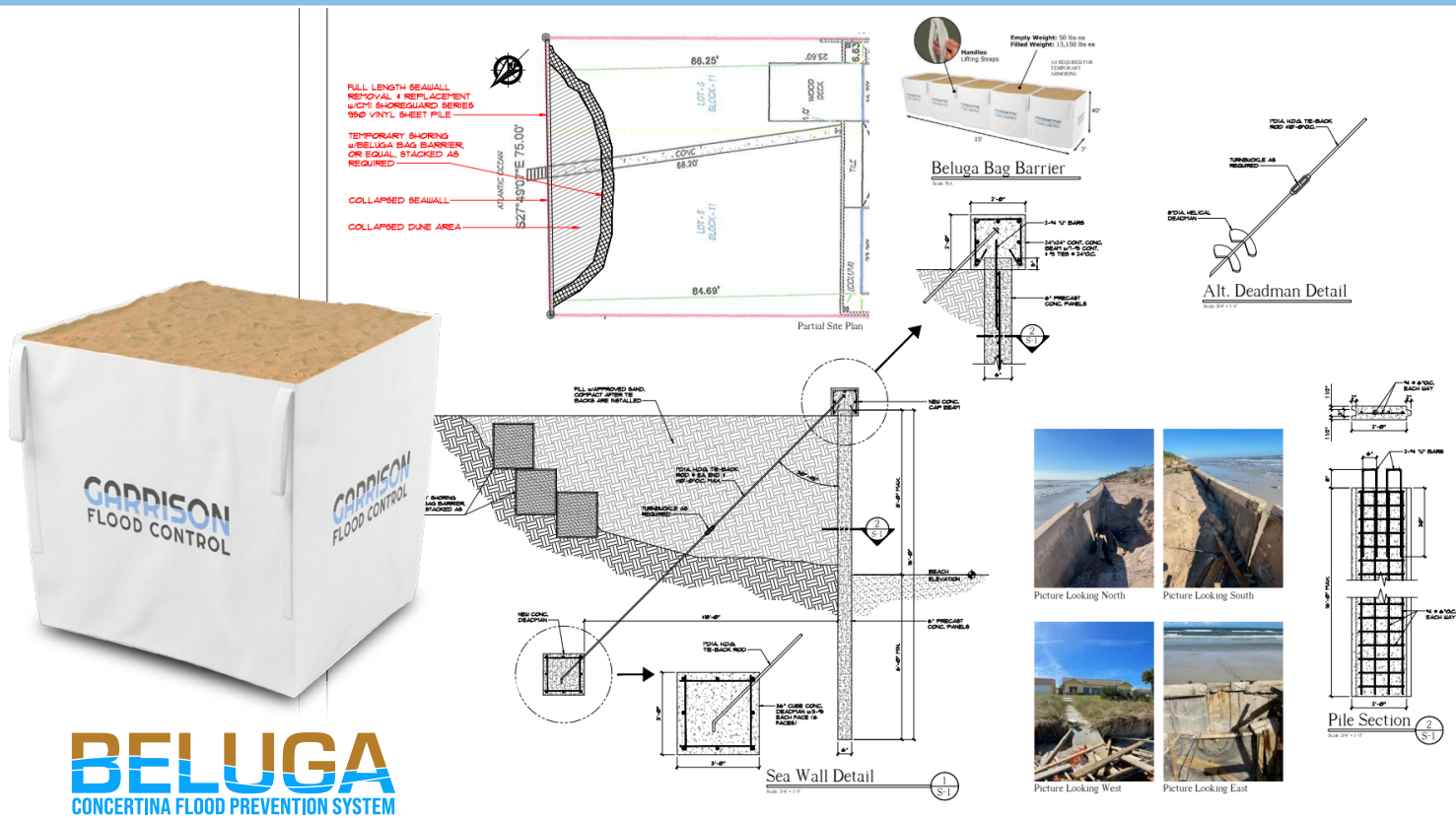


Beluga™ Bags Daytona Beach, Florida



The Client:

A local contractor engaged in shorefront restoration and reconstruction, hired by Daytona Beach Florida homeowners to protect their high-value homes from complete loss.

The Challenge:

Areas of Daytona Beach, Florida were heavily impacted by Hurricane Ian. The aftermath of wind and flood damage resulted in severe shoreline erosion. This level of erosion posed a serious threat to multi-million dollar homes and condos along the shore. With incoming king tides, wave action and continued erosion expected these homes faced severe consequences. In fact, several homes did fall into the ocean as a result of coastal erosion and there was concern that others would follow.

Goals:

Our goal was to provide the client with an economical and easy to deploy flood protection solution for the shoreline, one that could stand up against incoming king tides and wave action and minimize further erosion. While stemming further erosion of the shoreline, the goal was also to protection of homes while the beach is reconstructed back to its original location.

Solution:

Deployment of 425 Beluga™ Bags stacked as many as 3 layers high, up to 10ft of flood protection, to achieve adequate protection along the affected area of the shoreline.

Summary:

In 2022, Hurricane Ian hit the United States as a Category 4 major storm. Hurricane Ian resulted in over \$50 billion in damages and created a significant aftermath requiring a plan of immediate protection and restoration. Most notably in Daytona Beach, Florida shorelines experienced severe coastal erosion that required immediate attention.

According to expert Geologist, Randall Parkinson, "The geometry of our shorelines is now subject to physical factors that it wasn't

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previously.” It is becoming more apparent that the effects of climate change and increase of severe storms lead to more significant coastal erosion. In this case, multiple multi-million dollar residences faced a looming threat that could erase the foundation of their homes.

Homeowners residing on the shorefront consulted a private contractor to implement durable flood protection along the affected area. The private contractor reached out to Garrison for a consultation about the best possible solutions to deploy in order to protect these shorefront homes. Garrison advised use of the Beluga™ Bag Barrier system as the optimal course of action. Beluga™ Bags are a sand filled big bag system designed for heavy duty protection. Beluga™ Bags ship flat and come in either single bags or 5 chambered oversized bags that fill with sand or other aggregate material to create a sturdy barrier. With a protection height up to 40in high unstacked, Beluga™ Bags are able to cover significant heights of protection and can be stacked on top of one another to create a substantial flood wall.

In order to protect homes along the shorefront, while restoration and reconstruction of the area occurred, 425 Beluga™ Bags were deployed spanning the length of 5 high value beachfront homes, resulting in over 1000ft of protection. In some areas, the Beluga™ Bags were stacked 4-5 layers high to create the most optimal height of protection against incoming King tides. While reconstruction is still underway in the Daytona Beach area, the Beluga™ Bags remain in place ready to protect shorefront properties. It is likely that bags will remain in place even as the shorefront is rebuilt and extended back to its original location, providing continual internal support.

Takeaways:

- Single Beluga™ Bags (BG1) are 3ft Long, 3ft Wide and 40in High
- 5-Compartment Beluga™ Bags (BG5) are 15ft Long, 3ft Wide and 40in High
- Zero wasted space allows for half the amount of sand required for sandbags
- Deployment is made easy with a relatively small crew
- Stackability helps to create significant protection against rising flood threats



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