The Seabreeze Parking Garage

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Abstract

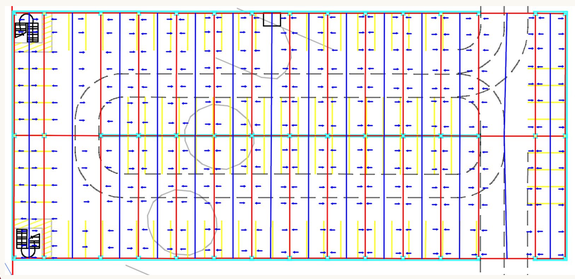
The Seabreeze Parking Garage project, located at the corner of Thomas Drive and Patronis Drive in Panama City, Florida will support the adjacent Seabreeze Hotel. The design consist of a 2-story, 164+ vehicle parking garage on the existing 7-acre site. The design will utilize the site's natural slope towards an existing outfall. 2ft deep pond area to accommodate runoff for both the garage and hotel.

Introduction

The project focuses on developing a hotel with 140 rooms and a multi-level parking structure providing 164+ spaces. The site is located in a commercial area with high vehicular and pedestrian activity, necessitating efficient design solutions for parking, drainage, and traffic management. This study evaluates existing site conditions and applies engineering methodologies to create a sustainable and efficient development plan.

Features

- 2 story parking garage with 164+ parking spaces and 2-way traffic throughout.
- Single ramp with parking spaces
- 3 pond areas connected with RCP and MES, with single weir discharging to existing adjacent outfall
- 2-way traffic flow throughout parking structure
- "Double Tee" beams supporting up to 128 psf
- 32x32 prestressed columns with 3,966 kips capacity
- Pile foundation with ultimate bearing capacity of 1717.6 kips.



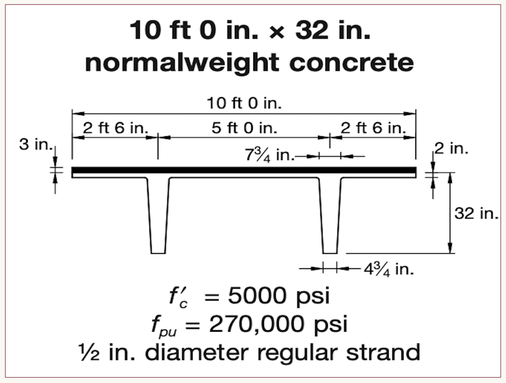
Methods

- Site Investigation & Data Collection
  - Site visits assessing existing conditions
  - Collecting soil samples for laboratory testing
- Geotechnical Analysis
  - Performed soil classification and load bearing test
  - Designed shallow and deep foundation options
- Structural Design
  - Developed engineering drawings for columns, ramps and load bearing elements
  - Utilized industry standards for stability and distribution
- Drainage and Environmental Considerations
  - Applied stormwater management techniques to mitigate runoff
    - Designed retention pond and implemented green infrastructure strategies
  - Traffic Engineering
    - Assessed parking structure layout, vehicle flow and pavement design
    - Incorporated signage and lane markings for optimal efficiency

Results

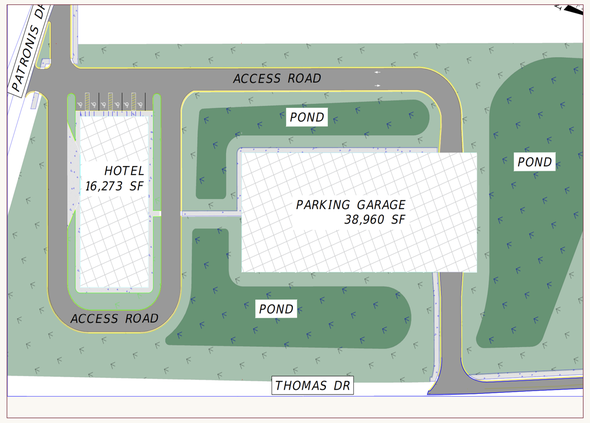
The following are the results and designs we have developed for this proposal:

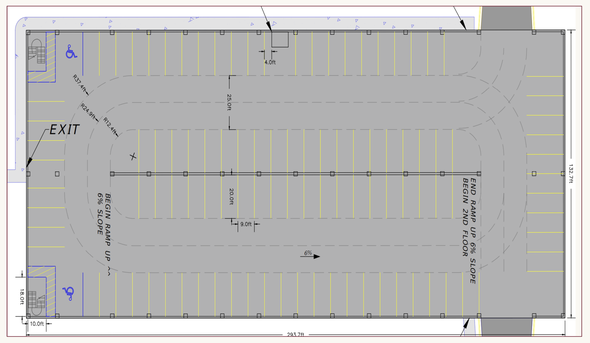
- Geotechnical Findings: Laboratory tests confirmed the soil suitability for the proposed foundation system, recommending a pile group with a bearing capacity of 1717.6 kips.
- Structural Analysis: Calculations verified the structural integrity of the parking garage meeting safety and performance criteria.
- Drainage Design: A stormwater management system was developed, including 3 retention ponds with a total volume of 121,159 cubic feet.
- Traffic Engineering Outcomes: The parking facility was designed to accommodate anticipated vehicle loads, optimized circulation patterns and ADA-compliant spaces.



Discussion

This preliminary engineering report provides a foundation for further design and development of the proposed hotel and parking facility. Our interdisciplinary approach ensures compliance with local zoning codes, sustainability, and functional efficiency. Future work includes finalizing detailed engineering plans and addressing regulatory approvals.





References

Bay County Land Development Regulations
I2023 Florida Building Code, 8th Edition
FDOT Drainage Criteria

Coastal Development Inc.

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