HUDSON ENGINEERING & CONSULTING, P.C.


# COASTAL AREA MANAGEMENT REVIEW & ANALYSIS
## Proposed Pool & Patio Area
## 43 Contentment Island Road
## Town of Darien, Connecticut

**July 13, 2020**

**Introduction:**

This report assesses the potential environmental and coastal area management impacts during and after the construction of a proposed pool, patio terrace, and associated stormwater management, located at 43 Contentment Island Road, Darien, Connecticut.

The property is an approximately 1.22-acre lot in the R-1 zoning district, and consists of a 4,680-square foot footprint single family residence and associated walkways and patio terraces located along the western side of the site with driveway access from Contentment Island Road to the front of the residence. An existing patio exists to the rear of the residence, with the remainder of the site consisting of lawn and landscaping. A ±25-foot wide portion of the property extends to the east and provides access to the Long Island Sound. High ledge rock and rock outcroppings also exist throughout the site. Aside from the 25-foot access to the Long Island Sound, the entire site is surrounded by other single-family dwellings.

The project site is located immediately adjacent to both the Long Island Sound to the rear of the property, and across the street from Scott's Cove, located on the western side of Contentment Island Road, both of which are tidally influenced water bodies. The majority of the site is currently located within the AE (13) and AE (15) FEMA Flood Zones, with a small portion immediately adjacent to the Long Island Sound located within the VE (15) Flood Zone. Since all work is being proposed within the AE (13) and AE (15) zones, all pool equipment will be installed above elevation 15. All equipment and pool coverings will also be mounted as such to prevent any equipment from shifting or floating away during any potential flooding events. The proposed site improvements are approximately 414-feet away from the existing shoreline. No work is being proposed within 100-feet of the high-water line.

The proposed site includes the construction of a new pool and patio area located immediately adjacent to the rear of the existing residence. The proposed site modifications result in a 1,500-square foot increase in impervious area. The stormwater runoff from all new impervious areas is to be captured via a series of channel drains and

curtain drains and is conveyed to a proposed rain garden located along the southern side of the site improvements, adjacent to the proposed pool equipment pad. The proposed rain garden has been sized to treat the entire water quality volume (WQv) from the tributary area, as well as safely bypass the runoff for all storm events of greater intensity, up to and including the 50-year storm. The proposed stormwater analysis is further described in the Stormwater Management Report & Drainage Analysis, all prepared by Hudson Engineering & Consulting, P.C.

**Identification of Applicable Coastal Resources and Coastal Resource Policies:**

The following is a list of all Coastal Resources outlined in CGS Section 22a-93 and their applicability to the project site:

| Coastal Resource | Location of Resource | | | |
|---|---|---|---|---|
| | On-Site | Adjacent | Off-site but within influence of project | Not Applicable |
| General Coastal Resources | X | X | | |
| Beaches & Dunes | | | | X |
| Bluffs & Escarpments | | | | X |
| Coastal Hazard Area | X | X | | |
| Coastal Waters, Estuarine Embayments, Nearshore Waters, Offshore Waters | X | X | | |
| Developed Shorefront | | | | X |
| Freshwater Wetlands and Watercourses | | | | X |
| Intertidal Flats | | | | X |
| Islands | | | | X |
| Rocky Shorefront | X | X | | |
| Shellfish Concentration Areas | | | | X |
| Shorelands | | | | X |

| | | | | |
|---|---|---|---|---|
| **Tidal Wetlands** | | | | **X** |

The following are the location and conditions of the coastal resources located on-site:

- Coastal Hazard Area: As previously mentioned, the majority of the site is currently located within the AE (13) and AE (15) FEMA Flood Zones, with a small portion immediately adjacent to the Long Island Sound located within the VE (15) Flood Zone. All pool equipment will be installed on a proposed elevated pad at elevation 15.21 and will be mounted to prevent floating and shifting during any potential flooding events.

- Coastal Waters: As previously mentioned, a ±25-foot wide portion of the property extends to the east and provides direct access to the Long Island Sound. The proposed work avoids impact to the Coastal Waters, as the proposed site improvements are to be located a distance of approximately 414-feet from the high-water line.

- Rocky Shorefront: The existing shoreline along the Long Island Sound consists entirely of bedrock, boulders, and cobbles. The proposed work avoids impact to the Rocky Shorefront, as the proposed site improvements are to be located a distance of approximately 414-feet from the high-water line.

**Coastal Use Policies:**

The following are all Coastal Use Policies as outlined in CGS Section 22a-92 applicable to the proposed project:

| Coastal Use Policy | Applicable | Not Applicable |
|---|---|---|
| **General Coastal Resources** | **X** | |
| **Water-Dependent Uses** | | **X** |
| **Ports and Harbors** | | **X** |
| **Coastal Structures and Filling** | | **X** |
| **Dredging and Navigation** | | **X** |
| **Boating** | | **X** |

| | | |
|---|---|---|
| **Fisheries** | | **X** |
| **Coastal Recreation and Access** | | **X** |
| **Sewer and Water Lines** | | **X** |
| **Fuel, Chemicals and Hazardous Materials** | | **X** |
| **Transportation** | | **X** |
| **Solid Waste** | | **X** |
| **Dams, Dikes and Resoervoirs** | | **X** |
| **Cultural Resources** | | **X** |
| **Open Space and Agricultural Lands** | | **X** |

The proposed project is consistent with the coastal use and activity policy standards as follows:

- General Development: The proposed site improvements are proposed in a manner consistent with the capability of the land and water resources to support development, preservation and use without significantly disrupting the natural environment.

- Water Dependent Uses: Since this section of the Coastal Use Policies deals specifically with land uses requiring waterfront sites (boat basins, fishing) and/or provisions for public access, this coastal use is not considered applicable for the existing single-family residential property.

## Potential Adverse Impacts on Coastal Resources:

The following are all potential adverse impacts on coastal resources as outlined in CGS Section 22a-93 (15) applicable to the proposed project:

| Potential Adverse Impact | Applicable | Not Applicable |
|---|---|---|
| Degrading water quality through the significant introduction into either coastal waters or groundwater supplies of suspended solids, nutrients, toxics, heavy metals or pathogens, or through the significant alteration of temperature, pH, dissolved oxygen or salinity | | X |
| Degrading existing circulation patterns of coastal waters through the significant alteration of patterns of tidal exchange or flushing rates, freshwater input, or existing basin characteristics and channel contours | | X |
| Degrading natural erosion patterns through the significant alteration of littoral transport of sediments in terms of deposition or source reduction | | X |
| Degrading natural or existing drainage patterns through the significant alteration of groundwater flow and recharge and volume of runoff | | X |
| Increasing the hazard of coastal flooding through significant alteration of shoreline configurations or bathymetry, particularly within high velocity flood zones | | X |
| Degrading visual quality through significant alteration of the natural features of vistas and view points | | X |
| Degrading or destroying essential wildlife, finfish or shellfish habitat through significant alteration of the composition, migration patterns, distribution, breeding or other population characteristics of the natural species or significant alteration of the natural components of the habitat | | X |
| Degrading tidal wetlands, beaches and dunes, rocky shorefronts, and bluffs and escarpments through significant alteration of their natural characteristics or function | | X |

All work associated with this project is to occur in areas that are currently part of the constructed landscape in the rear yard of the existing residence. With the implementation and maintenance of all erosion and sediment control measures within the vicinity of the proposed site improvements it is not anticipated that there will be any short-term impacts to the existing coastal resources during construction.

Upon completion of construction, a proposed rain garden (bioretention area) will provide treatment for the entire water quality volume (WQv) and first flush from the tributary area prior to discharging overland towards the existing infrastructure within Contentment Island Road, and subsequently the Long Island Sound.

As previously mentioned, the majority of the site is currently located within the AE (13) and AE (15) FEMA Flood Zones, with a small portion immediately adjacent to the Long Island Sound located within the VE (15) Flood Zone. All pool equipment will be installed on a proposed elevated pad at elevation 15.21 and will be mounted to prevent floating and shifting during any potential flooding events.

All work associated with the construction of the pool and patio areas are to be located a distance of approximately 414-feet from the high-water line at the Long Island Sound. No work is being proposed within 100-feet of the high-water line.

**Mitigation of Potential Adverse Impacts:**

As previously mentioned, erosion and sediment control measures will be installed within the vicinity of the limits of work and will be maintained throughout the duration of construction activities. All erosion and sediment control measures will remain in place until the site is fully stabilized.

Additionally, a proposed rain garden (bioretention area) will provide treatment for the entire water quality volume (WQv) and first flush from the tributary area prior to discharging overland towards the existing infrastructure within Contentment Island Road, and subsequently the Long Island Sound. The proposed rain garden provides an effective means for reducing runoff volume and recharging groundwater and will be extremely effective in removing pollutants from the stormwater runoff.

**Conclusion:**

The construction of the proposed pool and patio area is considered consistent with all requirements outlined above and will not adversely affect the coastal resources on or immediately adjacent to the subject property.