NONPOINT SOURCE PLANNING GRANT

NEW YORK STATE | Department of Environmental Conservation

Coastal Storm and Erosion Risk Management Engineering Design Report Outline

Engineering design reports conceptual design report for qualifying projects for coastal storm risk management or coastal erosion management projects. Non-structural and nature-based measures are preferred to hard structural measures and will be given priority over hard structural measures. Hard structure measures should only be proposed in situations where an alternative analysis demonstrates that non-structural or nature-based features will not provide adequate risk reduction for a given location.

Required Elements

I. **Cover Page** (project title, owner, prepared by, professional's stamp, and date)

II. **Executive Summary**: Provide an overview of the project's purpose (i.e., what will be accomplished by implementing this proposed project?)

III. **Projective Objectives:** Describe goals and objectives for the proposed coastal storm risk management or coastal erosion management projects project. Please include the overall anticipated benefits that this proposed project will have on the community and how it will be effective at making the community more resilient to further extreme weather events brought about by climate change Indicate if this is a stand-alone coastal storm risk management or coastal erosion management project or if it is part of a larger mitigation initiative.

IV. **Existing Conditions:** Include a detailed description of the current site conditions where the proposed project is located. Please include the following: (1) a project background description and history of the site, along with coastal erosion extent in the immediate and surrounding area; (2) a summary of the number and types of structures impacted; and (4) a summary of coastal erosion damages within the immediate and surrounding area.

V. **Existing Conditions Graphic:** A site plan or diagram of the existing project site is required. It must include:

   a. Engineer / Landscape Architect name; date and project title

   b. North arrow / legend

   c. Graphical scale (1 "= 10', 20', 30', 40', 50', 60' or 100')

   d. Natural features located on site including wetlands, streams, steep slopes, and floodplains

   e. Site features including streets, buildings, and/or other infrastructure

   f. Site topography

   g. Project location map / address (including nearest cross street)

   h. Stormwater flowpath (also consider adjacent sites)

   i. Nearest receiving waterbody

   j. Location relative to the 100-year floodplain

k. Other site considerations (hotspots, brownfield remediation or other potential design issues at the site)

l. Location of any available boring logs, infiltration tests, or other subsurface investigations.

VI. Project Description: Provide a narrative that explains the proposed project and provides justification for the recommended coastal storm and erosion risk management project and why this project is being proposed. Please describe how this proposed project will mitigate coastal erosion and what specific area(s) will be benefitted as a result of implementing the proposed project. If this proposed project has been specifically identified and evaluated within another other type of study, please include all relevant project information. Any proposed hard structural measures must still incorporate nature-based features to the greatest extent possible. Projects proposing offshore structures such as groins, breakwaters or jetties must not adversely affect littoral drift and downdrift areas. Modeling must be conducted for offshore structures and demonstrate that sediment movement will still be maintained in and around the offshore structure(s)

VII. Risk Evaluation: Each Project must include an evaluation of the level of risk reduction that is necessary for the project area, and an alternative analysis to identify a plan that will provide the necessary risk reduction while preventing or minimizing negative impacts to natural systems and the environment. At a minimum, the alternatives below should be considered and evaluated:

- No-action alternative: Describe the outcomes if the proposed project is not undertaken
- Non-structural measures: Evaluate at least one alternative that adjusts the land use, footprint, and/or site design to avoid or minimize risks to public or private property and conserves natural features and processes that reduce risk over the project lifespan Applicants should consider options such as moving structures away from the shoreline to reduce their risk from flooding and erosion, reducing or adjusting the structure footprint, elevating structures, and incorporating a vegetated buffer between land use and natural features
- Nature-based features: If a non-structural solution is not feasible, evaluate at least one alternative that restores natural features or processes to the project site or uses nature-based features that mimic natural features and processes Applicants should consider options such as living shorelines, beach/dune nourishment, and bluff/bank re-grading with vegetative plantings.
- Hard structural measures: If none of the above alternatives are feasible, evaluate at least one hard structural alternative. These alternatives include things like groins, breakwaters, and revetments.

VIII. Alternatives Analysis with cost estimates: include any alternatives project(s) that were evaluated. Any proposed hard structural measures, such as seawalls, revetments, and breakwaters, must include a cost benefit analysis that demonstrates the public benefits clearly outweigh the long-term adverse effects to the natural systems and environment.

IX. **Anticipated Regulatory Approval and Permits** (list all that will apply, e.g. NYSDEC, CEHA, etc.). For projects requiring a permit, engineering designs must meet the minimum Coastal Erosion Management (CEHA) permit requirements, Tidal/Freshwater Wetlands requirements, Protection of Waters permit requirements, NY's Coastal Consistency requirements, or other State or Federal permit requirements, as applicable.

X. **Conceptual Site Plan:** A site plan or diagram of the project's conceptual design is required. It must include:

a. Engineer / Landscape Architect name; date and project title

b. North arrow / legend

c. Graphical scale (1 "= 10', 20', 30', 40', 50', 60' or 100')

d. Location map

e. Natural and site features (wetlands, nearest waterbody, floodplains, steep slopes, streets, buildings, other infrastructure etc.)

f. Proposed floodplain creation/restoration/reconnection project location

h. Site grading (proposed conditions)

i. Other design considerations

XI. **Floodway Encroachment Analysis**: Projects within a regulatory floodway require a hydrological & hydraulic (H&H) analysis conducted by a professional engineer to demonstrate no-rise (0.00 feet) in the base flood elevation, as required under the National Flood Insurance Program. Guidance can be found at https://www.dec.ny.gov/lands/24281.html

XII. **Site Photographs:** Photographs that are representative of existing site conditions.