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NAVFAC PTS-H30 (September 2022)
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Preparing Activity: NAVFAC SUPERSEDING PTS-H30 (December 2018)

PERFORMANCE TECHNICAL SPECIFICATION
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SECTION H30

COASTAL PROTECTION
09/22

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NOTE: This section is intended to be used as a guide and contains requirements that are common to many different types of facilities; however, not all requirements and equipment items will be applicable to all projects. In addition, there may be special requirements for a particular project that are not addressed at all. The RFP preparer may have to incorporate additional information to address these special requirements in this PTS and corresponding Part 3 ESR. If the RFP preparer chooses to delete elements that are not required for the project, do not change the remaining Uniformat paragraph designations (example - A102001). Uniformat designations are unique to the products they are assigned to. However, the subparagraph numerical extensions (example - 1.2 or a,b,c) of the Uniformat designations may change if subparagraphs are deleted.

This guide specification is formatted utilizing Uniformat II, an industry recognized standard, ASTM E 1557. When the RFP preparer chooses to add a paragraph that does not apply to an existing building element already included in the specification, refer to the Uniformat/WBS located on the NAVFAC Design-Build Website for a listing of Uniformat II designations and definitions.

NOTE: The RFP preparer may view or hide the criteria notes in this PTS section by modifying the WORD preferences for "Hidden text". To view the criteria notes, choose "File" then "Option". Click "Display" then check the "Hidden text" box under "Always show these formatting marks on the screen". In the same section, check the box for "Print hidden text" under "Printing options" to print the criteria notes.
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NOTE: The Table of Contents is intended for navigation purposes only for the RFP writer and should not show up in the printed document.

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**H30 GENERAL**

RFP Part 3 including the Engineering System Requirements (ESR) provide project specific requirements. The RFP Part 4, Performance Technical Sections (PTS) provide generalized technical requirements that apply to multiple facility types and include more requirements than are applicable to any one project. Therefore, only the RFP Part 4 requirements that apply to the project and further define the RFP Part 3 project specific requirements are required.

 **H30 1.1 NARRATIVE**

Use this Section in conjunction with all parts of the Design Build (D/B) Request for Proposal (RFP) to determine the full requirements of this solicitation.

This Section covers the design and construction requirements for the coastal protection, described in ESR H30, Coastal Protection, of Part 3 and as identified on the RFP drawings provided in Part 6.

 **H30 1.2 COASTAL PROTECTION DESIGN GUIDANCE**

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NOTE: This Performance Technical Specification (PTS) has been developed to utilize certain UFGS sections for prescriptive requirements. However, there may be rare occasions when additional prescriptive specifications may be identified by the Engineering Systems Requirements (ESR) to be edited by the Contractor’s Designer of Record. If other UFGS sections or standards are to be referenced in this PTS section, list those not covered by the UMRL in the following two paragraphs.

If the product or system is new and not covered in the PTS, provide a new paragraph and heading. If the product or system is presently covered in the PTS but is being changed by the reference to the UFGS, edit the PTS paragraphs to eliminate redundancy or conflicts. In either case, identify the UFGS section in the products and materials (UNIFORMAT II/WBS level 4) text of the PTS as follows:

"Uniformat II/WBS Number – Paragraph Number Paragraph Heading
The Designer of Record must utilize UFGS Section Number, "Section Title" for the project specification, and submit the edited specification section as a part of the design submittal for the project."
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Provide the design and installation in accordance with the following references. This Performance Technical Specification (PTS) adds clarification to the fundamental requirements contained in the following Government Standards. The general requirements of this PTS Section are located in PTS Section Z10, *General Performance Technical Specification*.

 **H30 1.2.1 Government Standards**

UNIFIED FACILITIES CRITERIA (UFC)

UFC 3-220-01, *Geotechnical Engineering*

UFC 4-150-06, *Military Harbors and Coastal Facilities*

US ARMY CORPS OF ENGINEERS (COE)

COE EM 1110-2-1100, *Coastal Engineering Manual*

COE EM 385-1-1, *Safety and Health Requirements Manual*

UNIFIED FACILITIES GUIDE SPECIFICATIONS (UFGS)

UFGS Section 03 31 29, *Marine Concrete with Service Life Modeling*

UFGS Section 31 23 00.00 20, *Excavation and Fill*

 **H30 1.2.2 General Requirements**

 **H30 1.2.2.1 Subsurface Soils Information and Geotechnical Data**

Any information presented in Part 6 of this RFP with regard to soil sampling and laboratory testing is for the Contractor’s information only and is not guaranteed to fully represent all subsurface conditions. Contractor must perform, at his expense, such subsurface exploration, investigation, testing, and analysis as his Designer of Record deems necessary for the design and construction of the coastal protection system. Contractor must assemble all boring logs and present them in the design plans.

 **H30 1.2.2.2 Stone**

Quality of Stone used in Coastal Protection system must conform to the specified requirements when tested as specified in this Section. Perform a visual examination of the quarry, including examination of the blast samples, suitable tests and service records to determine the acceptability of the stone. To ensure the required stone quality, perform petrographic analysis and X-ray diffraction analysis conforming to ASTM C 295, as well as specific gravity, absorption, durability and wetting and drying tests as follows:

|  |  |  |
| --- | --- | --- |
| TEST | TEST METHOD | REQUIREMENT |
| Apparent Specific Gravity | ASTM C 127 | 2.55 min. |
| Absorption | ASTM C 127 | 2.0% max. |
| Durability | ASTM C 535 | 50% max. after 1000 revs. |
| Sulfate Soundness | ASTM D 5240 | 10% max. after 5 cycles(magnesium sulphate) |

The size and quantity of test specimens used for the tests listed above must conform to the requirements of ASTM D 4992.

Contractor may be required to provide representative samples of the proposed stone materials from each stone source. The samples must consist of sufficient individual pieces to allow reviewing of stone quality and gradation. Sample cannot be less than 110 pounds (50 kg).

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 NOTE: Specify the following for projects in Guam or where similar requirement is applicable.
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Stone that comes from off-island sources must be thoroughly washed and disinfected at the source in accordance with the provisions of Territory of Guam, Executive Order No. 91-16, Relative to the Importation of Sand and Other Quarried Materials. Stone must also be suitable for Ocean Dumping Permit Evaluations.

 **H30 1.2.2.3 Permit and Environmental Control**

Coastal protection work must meet the permit and environmental control requirements of Part 2 Section 01 57 19, *Temporary Environmental Controls*. Do not commence in-water construction until the required United States Army Corps of Engineers (USACOE) permits are obtained. Construction must meet the conditions stipulated in the USACOE permits.

 **H30 1.3 QUALITY ASSURANCE**

Submit qualifications, certifications, and Test Plans indicated herein 45 calendar days prior to the expected date of execution. Notify the Contracting Officer 14 calendar days prior to all testing. Submit test results within 7 calendar days of completion of testing.

The Designer of Record is responsible for approving the submittals listed below.

 **H30 1.3.1 Earthwork**

Perform field quality control required in UFGS Section 31 23 00.00 20, *Excavation and Fill*.

 **H30 1.3.2 Stone Quality**

Submit all tests specified in the "Stone" paragraph in this PTS Section for review prior to loading stone for transport. Stone is not to be shipped until the quality of the stone has been certified.

Stone which does not conform in specific gravity, structure, and other characteristics, or that has substances on or within the stone that would make it unsuitable for ocean placement as described in the "Stone" paragraph in this PTS Section, will be rejected. The presence of unsatisfactory stone or objectionable foreign material in any load of stone delivered for use in the work will be deemed sufficient reason for rejection of the whole load. Any such load must be immediately removed from the work, at Contractor’s expense.

Prior to placement, all stone must be subject to acceptance by the Contracting Officer. Acceptance of any stone does not constitute acceptance of all rock from a source. All accepted stone must be of the same lithology as the original stone from which test results or service records were taken as a basis for approval of the source.

 **H30 1.4 DESIGN SUBMITTALS**

Submit design submittals in accordance with PTS Section Z10, *General Performance Technical Specification*, Part 2 Section 01 33 10.05 20, *Design Submittal Procedures*, FC 1-300-09N, *Navy and Marine Corps Design Procedures*, UFC 3-201-01, *Civil Engineering*, and UFC 4-150-06, *Military Harbors and Coastal Facilities*.

Additional design submittals for coastal protection facility construction are as follows:

Concept Design Submittal:

Concept wave and slope protection layout plans

Concept design report to describe the system and justification of the selections. The report also must include a detailed description including sketches of all proposed in-water constructions adequate for the USACOE permit application

Design Development Submittal:

Preliminary wave and slope protection plans with locations and limits of facilities and type of construction finalized

Preliminary wave and slope protection details

Preliminary geotechnical report(s)

Design methodology and calculations for wave and slope protection

100 Percent and Final Design Submittal:

Final plans, sections, details and calculations

Final geotechnical report(s)

 **H30 1.5 CONSTRUCTION SUBMITTALS**

The general requirements of this PTS Section are located in PTS Section Z10, *General Performance Technical Specification*. Submit construction submittals in accordance with Part 2 Section 01 33 00.05 20, *Construction Submittal Procedures*.

**H3010 WAVE PROTECTION**

Provide wave protection at locations identified on RFP drawings provided in Part 6 and as required based on the Contractor's design.

 **H3010 1.1 DESIGN REQUIREMENTS**

Oceanographic design parameters to be used to generate the design wave forces are as described in ESR H30, *Coastal Protection*, of Part 3. These criteria must be considered minimum requirements. Design waterfront improvements based on thorough engineering analysis using all relevant criteria that could affect the integrity and performance of the constructed waterfront improvements.

Design wave protection armors in accordance with the guidance of UFC 4-150-06 and COE EM 1110-2-1100 and to provide for sufficient hydraulic stability.

**H301001 WAVE PROTECTION ARMORS**

Wave protection armors must consist of natural stone or precast concrete units. Concrete used must meet the requirements of UFGS Section 03 31 29, *Marine Concrete with Service Life Modeling* .

Stone must meet the quality requirements described in the "Stone Quality" paragraph in this PTS Section.

Minimum size of stone used as armor or rip rap for wave protection must be as specified in "Wave Protection" paragraph in ESR H30, *Coastal Protection*, of Part 3.

**H301002 BREAKWATERS**

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NOTE: If project includes breakwater, provide performance requirements of the breakwater.
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Not used.

**H3020 SLOPE PROTECTION**

Provide slope protection identified on RFP drawings provided in Part 6 and as required based on the Contractor's design.

 **H3020 1.1 DESIGN REQUIREMENTS**

Provide slope protection to retain and protect existing or new embankment along the waterfront. It can either be revetments (dikes) constructed of rock, granular fill or combination of rock and granular fill with wave protection or wave protection over existing embankment. Design of the slope protection must consider liquefaction potential of the site. Guidance on seismic performance requirements of dikes in high seismic areas can be found in the Criteria Section of NFESC Technical Report TR-3103-SHR, *Seismic Criteria for California Marina Oil Terminals*(referenced from UFC 4-152-01.

Design slope protection in accordance with the guidance of UFC 4-150-06, UFC 3-220-01 and COE EM 1110-2-1100.

**H302001 ROCK REVETMENTS**

Stone must be quarry stone, angular in shape, with its largest dimension not in excess of 3 times its least dimension, and able to form a stable protection structure meeting all requirements of this RFP. Stone must be sound, durable, hard, resistant to abrasion and free of laminations, weak cleavage planes, and the undesirable effects of weathering. Stone must be of such character that it will not disintegrate from the action of air, water, or the conditions to be met in handling and placing. All material must be clean and free from deleterious impurities, including alkali, earth, clay, refuse and adherent coatings.

Stone must meet the quality requirements described in the "Stone Quality" paragraph in this PTS Section.

**H302002 GRANULAR FILL REVETMENTS**

Not used.

**H302003 COMBINED RCOK AND GRANULAR FILL REVETMENTS**

Not used.

-- End of Section --