



TETRA TECH

C-NAVY-01-08-2595W

January 25, 2008

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Subject            Response to Comments,  
Revised 30% Design Report, Replacement Stone Revetment, Site 09  
Naval Station Newport, Newport, Rhode Island

Dear Mr. Lim and Mr Kulpa

On behalf of Mr James Colter, I am providing to you the responses to your comments to the Revised 30% Design Report for the Replacement Stone Revetment at the Old Fire Fighting Training Area (OFFTA) (Site 09) at Naval Station Newport, in Newport Rhode Island Your comments were dated 10/30/07, and 10/25/07, respectively

The responses were prepared based on our discussions held at the RPMs meeting 11/14/07 (reference meeting notes provided under Tetra Tech cover letter dated 1/15/08) Based on these responses the 90% design will be developed and submitted for your review.

If you have any questions, please do not hesitate to contact me at (610) 595-0567

Very truly yours,

A handwritten signature in black ink, appearing to read 'Stephen S. Parker'.

Stephen S. Parker, LSP  
Project Manager

SSP/rac

Enclosures

- c J Colter, NAVFAC (2, w/encl )
- K Finkelstein, NOAA (1, w/encl )
- C Mueller, NAVSTA (2, w/encl )
- P Loht, Gannett Fleming (2, w/encl )
- S Parker TtNUS (w/encl )
- File G00632-3 1 (w/enc )

**ATTACHMENT A  
RESPONSES TO COMMENTS FROM USEPA  
ON THE REVISED 30% DESIGN:  
REPLACEMENT STONE REVETMENT, SITE 9, NAVSTA NEWPORT RI  
Comments Dated 10/30/07**

1. p 3-3, §3.2.1: *The text in the partial paragraph at the top of the page states that the limits of the eelgrass will be determined at the time of excavation. EPA recommends that the limits of the eelgrass beds be confirmed with better accuracy prior to completion of the final design. Because the accuracy of the prior survey was plus or minus 15 feet, the Navy may find that the remedial work cannot be completed as designed if the eelgrass beds are 15 feet or more closer to shore than expected. Furthermore, the prior eelgrass survey is more than six years old.*
- Response: Landward limits of the eelgrass were resurveyed in December 2007, and this line will be incorporated into the 90% design. It is noted that in accordance with Rhode Island CRMC policy, eelgrass limits must be surveyed in August (at peak growth period) for final design documents. Therefore the survey will be redone in August 2008 and again just prior to construction.
2. p. 3-7, §3.2.6: *The text in the first sentence states that the portable dam (or equal) will be placed within the limits of the excavation; however, it appears that it will have to be placed around the perimeter of the excavation, allowing sufficient distance from the excavation edge to avoid collapsing the excavation. Also, placement within the limits of excavation is not consistent with Figure 3-1, which shows the portable dam outside the limits of excavation. Please edit the text as appropriate for the subsequent submittal.*
- Response: Comment noted, this will be clarified.
3. p. 3-9, §3.3: *Please also describe what pre-construction surveying will be performed specific to the construction of the revetment. This will be required to re-establish the pre-existing coastal beach. It is not apparent that the 2005 survey by Louis Federici and Associates provided the necessary information.*
- Response: A coastal resource survey was conducted in December 2007 to identify protected coastal features. This information will be incorporated into the 90% design.
4. Table 2-2: *Please correct the typo in the table title by changing "STROM WATER" to "STORM WATER".*
- Response: Comment noted. This will be corrected.
5. Attachment A: *Drawing T-2:  
Please edit Note #8 to require the contractor to "... stake and survey...." all areas to be excavated.*
- Response: Comment noted, this will be added.
6. Attachment A: *Drawing C-1:  
a) Please edit Note #2 to clarify that the waterward limit of coastal beach is defined by NOAA's mean low water elevation (which differs from the Naval Station mean low water elevation.)  
b) It is noted that the distance from the waterward limit of excavation and the eelgrass beds is as little as 40 feet halfway between section A-A' and B-B', which*

would put the portable dam membrane at the edge of the eelgrass beds at that point. Note also that the boundary of the eelgrass beds was previously surveyed with an accuracy of plus or minus 15 feet, which could mean that there is not nearly enough distance available to execute the remediation as planned. Confirmation of the boundaries of the eelgrass beds with a high degree of accuracy will be required prior to the initiation of any remedial activities.

Response: Comments noted, these items will be clarified in the 90% design. Note the response to comment 1 above.

7. Attachment A: Drawing C-3:

a) Sections A-A' and B-B' show design waterward excavation side slopes of 1:1. It is not clear that 1:1 side slopes will be stable in this environment. If not it is presumed that the planned 10-foot distance between the portable dam and the waterward edge of the excavation would be reduced to accommodate the stable slope requirements and that the dam would not be moved closer to the eelgrass beds. It is expected that an evaluation of slope stability will be made as part of future design submittals. This might require collection of some field data prior to completion of the final design.

Response: Comment noted. Additional geotechnical evaluations will be conducted in order to confirm slope stability.

b) In addition to the existing reference to Drawing T-2, please supplement this figure with a graphical datum conversion legend that includes at a minimum NGVD 1929, NOAA mean low water, and the project datum (Naval Station mean low water). Without that the sections may be confusing because of the use of Naval Station MLW (ordinate axis) and a different undesignated mean low water elevation. (Drawing T-2 does not address that.)

Response: A graphic conversion will be provided on the drawings as needed. Elevations will be corrected to one datum as needed.

c) Regarding "Section B – B'" please note that the post-excavation limit of coastal beach is not correct as shown in this figure. Please correct.

Response: Comment noted. Please refer to the response to comment 3, above.

8. Attachment C: Shore Stabilization Calculation:

On page 2 of 17, in Steps 1&2, reference is made to a 13 foot 100-year flood elevation which is said to be 3 feet higher than the surveyed top of slope. Please note that these elevations are not based on the same datum. The referenced flood elevation is NGVD 1929 and the surveyed slope is based on Naval Station mean low water. Please correct the elevations here and throughout the design to correctly reference the elevation datum or use the project datum elevations.

Response: Comment noted. The vertical datums will be converted as needed for the 90% design.

On page 4 of 17 the nominal diameter of the  $W_{50}$  rip rap is calculated and the thickness of the rip rap layer is determined. However, the gradation guidelines in EM 1110-2-1614, paragraph 2-17, which the subject document says will be used for design, dictate a greater rip rap thickness than calculated in Appendix C. Note that the guidelines indicate that the formula used in Step 4 of Appendix C should be a calculation of  $W_{50min}$ . The guidelines also require that  $W_{100min}$  be at least as large as

twice  $W_{50min}$ . Finally the guidelines require that the rip rap thickness be at least 25% greater than the nominal diameter of the largest stone. If  $W_{100min}$  were the largest stone, the minimum rip rap thickness would be at least 2.25 times  $W_{50min}$ , or 3.78 feet minimum on the west side and 1.6 on the east side. The required rip rap thickness cannot be smaller than these values and is expected to be greater than these values. Therefore, the minimum rip rap thickness will be dependent on the size of  $W_{100}$ , as determined by the rip rap gradation specification. Finally, the choice of placement method will also impact the design size of the rip rap stones. Larger stones are recommended if a dump and spread placement method is used as compared to a hand placement method because of the potential for segregation and breakage of the rip rap if not hand placed (see EM 1110-2-1601). (It is noted that the design text states that stones will be placed with a maximum specified drop distance.) Please edit the next revision of the rip rap design to address this comment

Response:

It is agreed that the reference material indicates that the minimum riprap layer thickness should be the larger of 1.25 times the largest stone nominal diameter in the gradation or 2.0 times the nominal diameter of the  $W_{50min}$  stone. Also it is agreed that the minimum largest size stone in the gradation  $W_{100min}$  is two times the  $W_{50min}$ . However, the  $W_{50}$  and  $W_{100min}$  indicate the average stone weight ( $W_{50}$ ) and the minimum weight of the largest stone ( $W_{100min}$ ), these weights must be converted to nominal diameters prior to calculating the required riprap revetment thickness. The nominal diameter is calculated by dividing the stone weight by the stones unit weight and taking the cube root of this quotient. Because the nominal diameters are calculated by taking the cube root of the stone weight and stone unit weight quotient, the nominal diameter of the  $W_{100}$  stone is not 2 times the nominal diameter of the  $W_{50}$  stone. For example if you have a  $W_{50}$  stone that weighs 779 lbs, the  $W_{100min}$  stone weighs 1558 lbs (2 times the  $W_{50}$  stone), using a specific weight (unit weight) of stone equal to 165 lbs per cubic foot the nominal diameter of the  $W_{50}$  stone equals 1.68 feet and the nominal diameter of the  $W_{100min}$  stone equals 2.11 feet. This means 2 times the nominal diameter of the  $W_{50}$  stone equals 3.36 feet and 1.25 times the nominal diameter of the  $W_{100min}$  stone equals 2.64 feet (not 3.78 feet). Also it should be noted that the largest stone  $W_{100max}$  is 4 times the  $W_{50min}$ , or 3116 lbs in our example. This equates to a diameter of 2.66 feet and a minimum layer thickness of 3.32 feet. Therefore, the riprap layer thicknesses in the 30% design will not need to be changed; however, the requirement of 1.25 times the largest stone in the gradation will be added and checked for all scenarios in the calculations.

In addition to this edit, the calculation will also be updated to incorporate the gradation requirements for the riprap revetment stone that will be included in the project specifications.

The riprap placement method as it is related to gradation will be discussed in the calculation.

*On page 6 of 17 in the last paragraph on the page, the text states that the referenced text indicates that the average stone weight would be a more conservative stone size (apparently as compared to the minimum stone weight). It is not apparent that the referenced text states that. Actually, the minimum stone weight would be more conservative. Please correct or clarify the intent.*

Response:

The text of the referenced calculation will be revised to reflect the intent of paragraph 2-19.b of the supporting material. This paragraph indicates that toe protection stone should be based on minimum stone weight and average stone weight for purposes of developing a sufficient stone gradation. Therefore, Step 10 of the calculation will be updated to identify the minimum stone weight for the riprap revetment toe. This minimum stone weight will be converted to a nominal diameter and used for the stone

gradation requirements to be provided in the specification that will be submitted with the next version of the design.

*On page 7 of 17 in the last paragraph of Step 10, the text states that toe protection configuration III from Reference 1 will be used. Configuration III requires that the length of the toe be twice the height of the toe (as acknowledged in the previous paragraph of Step 10). However, it does not appear from review of the cross-sections in Appendix A Sheet C-3 that the required configuration has been achieved. The length of the toe would apparently need to be increased to satisfy the requirements of configuration III. Please review and correct the cross-sections.*

Response: The cross sections will be reviewed and revised per the new information developed and submitted in the 90 percent design document.

*On page 8 of 17 under Retention Criteria, an incorrect reference (ref. 5) is cited twice in the first sentence. Please correct to cite the appropriate reference.*

*In the next revetment design submittal, please provide the following supporting information:*

- a) Slope stability calculations considering the use of geotextile for the range of revetment configurations selected and the updated revetment design.*
- b) Bearing capacity calculations for the soil supporting the revetment.*
- c) Settlement calculations for the revetment.*
- d) Supporting geotechnical data for the calculations.*

Response: Comments are noted. This information will be provided as appropriate.

ATTACHMENT B  
RESPONSES TO COMMENTS FROM RIDEM  
ON THE REVISED 30% DESIGN:  
REPLACEMENT STONE REVETMENT, SITE 9, NAVSTA NEWPORT RI  
Comments Dated October 25, 2007

**General Comment:**

*The design document proposes installing a Portadam system to facilitate the installation of the stone revetment. It appears that extending the area of excavation at certain locations will allow for the removal of contaminated sediments under dry conditions thus avoiding the need for future removal actions and greatly reducing the time and the cost of the project. The Office of Waste Management recommends that the Navy take advantage of this opportunity, as it will avoid the need for additional investigations and feasibility studies under the CERCLA process and allow this portion of the site to come into compliance with regulations.*

Response: As discussed, and as shown in the design documents, large quantities of shoreline soils or sediment will be removed for the installation of the replacement stone revetment. Additional sediment remediation under CERCLA will be addressed according to decisions made after the FS for the site is finalized.

**1. Section 2.5, Permit Conditions  
Page 2-13, 2<sup>nd</sup> Paragraph, last sentence**

*Please change RIDEN to RIDEM.*

Response: Comment noted, this correction will be made.

**2. Section 3.2.2 Excavation Requirements  
Page 3-4**

*The proposal calls for the installation of a stone revetment along an area of contaminated shoreline and embankment. Installation of the revetment in this area will not allow for subsequent remedial actions. Therefore, all soils above the Rhode Island Site Remediation Residential Direct Exposure Standards and contaminated sediments at and in the vicinity of the revetment must be removed prior to the installation of the revetment. In regards to the soils/sediments in the vicinity of the revetment the extent of the soils/sediments to be removed must be of sufficient width and depth, such that any subsequent removal action can occur without compromising the revetment and/or require the installation of sheet piling or other techniques to protect the revetment.*

Response: Concerns regarding the revetment and future remedial actions should be resolved after review of the Revised FS for the OFFTA site, currently in review as a draft document. The revetment construction can be implemented with consideration of any other remedial effort determined to be appropriate for the site.

**3. Section 3.2.3, Shoreline Stabilization Riprap Placement  
Page 3-4**

*The design notes that a geotextile will be placed beneath the revetment. As the report is a public document please include a statement describing the function of the geotextile.*

Response The comment is noted, and the function of the geotextile will be provided in the 90% design document

**4. Section 3.2.3, Shoreline Stabilization Riprap Placement  
Page 3-4**

*The square footage of the geotextile proposed for the site appears to exceed the square footage needed to be placed under the revetment. Please recheck the calculations.*

Response: The square footage of the geotextile includes overlaps and folds not evident on a plan view map. As part of the 90 percent design the quantities of geotextile will be recalculated and a detail on geotextile placement will be provided.

**5. Section 3.2.4 Coastal Beach Restoration  
Page 3-6, Paragraph 3**

*"The western portion is additionally protected by a concrete jersey barrier with rip rap placed on both sides."*

*Please be advised that the jersey barriers were installed to address possible contaminated soil migration when soil was staged in this area during the recent removal action associated with the mounds on the site. Initially they were to be removed once this phase of the remedial action was completed, however they were left in place as they could serve a similar role when the rest of the site was to be excavated. Therefore, please remove the above statement from the document.*

Response: The comment is noted, but the statement is correct as written. The jersey barriers were placed as a temporary measure for shoreline protection.

**6. Section 3.2.4 Coastal Beach Restoration  
Page 3-6**

*This section of the document and Figure C-1 states that the coastal beach does not extend along the full length of the site (it terminates at a point along the western end of the site). A review of aerial photographs reveals that the beach extends to a point located west of that shown in Figure C-1. This discrepancy may be due to the fact that the original revetment has been compromised and has fallen onto the beach. Please revise the figure to depict the coastal beach extending west of that delineated.*

Response: A coastal resource survey was conducted in December 2007 to identify protected coastal features, and to discern between beach and manmade features. This information will be incorporated into the 90% design.

**7. Section 3.2.6, Dewatering Requirements  
Page 3-6**

*This section of the report notes that sediment filters will be employed during the dewatering process. As the sediments/soil in this area is contaminated please include a statement concerning the effectiveness of the proposed filtering system.*

Response: The purpose of the filtration system will be to remove sediment from water that is removed from excavations. The performance criteria for the filtration of water pumped from the excavation will be addressed in the 90% design documents. It should be noted that water pumped from the surface prior to excavation (i.e., water trapped behind the installed portable dam structure) will be pump over the portable dam structure directly to the bay without filtration. Filtration will not begin until excavation begins.

8. **Section 3.3, Sequence of Construction**  
**Page 3-9**

*The work plan notes that a Portadam will be installed during the installation of the stone revetment. A review of the proposed limits of excavation identified in the 30% Design report and the extent of sediment contamination exceeding PRGs identified in the Feasibility Study reveals that extending the excavation at certain locations, beyond that outlined in the 30% Design Report, but still within the working limits of the Portadam system will allow for the removal of the contaminated sediments exceeding PRGs. Specifically, along the central portion of the site it appears that the excavation will have to be extended approximately ten feet to the south, except for two isolated areas where the excavation will need to be extended further, along the eastern end of the site it does not appear that the excavation will have to be extended. Addressing the contaminated sediments now will avoid the need to install a haul road as identified in the Feasibility Study, and allow for the removal of contaminated sediments under dry conditions. This will greatly reduced both the time and cost of the removal action and allow for this portion of the site to be addressed. Please revise the work plan to include removal of these sediments.*

Response: Through this and other remedial projects at the site, the Navy is balancing preservation of eelgrass habitat, remediation of contaminated sediments, and prevention of shoreline erosion. The observations stated in the comment all require discussion prior to implementation. Remediation of sediments beyond the excavation required for the revetment will be addressed in the decision documents after finalization of the FS for the site.

9. **Section 3.3, Sequence of Construction**  
**Page 3-9**

*The proposed excavation to install the revetment will extend into the water table. Contaminated groundwater, including free product exist at the site. It is recommended that the Navy employ crush stone in the backfill in the water table and the smear zone along with PVC stand pipes. This will allow for, if needed, removal of contaminated groundwater and/or injection of oxygen or oxidants to avoid contamination of the revetment and the newly installed clean beach sand.*

Response: This was discussed at the meeting held 11/14/07. It was determined at that time that passive recovery wells could not be installed within the revetment trench. It was suggested that the soil removal currently under way at the site be completed with passive recovery wells as planned, and determine if NAPL collects within them. Upon evaluating the results of the remediation and the installation of the shoreline stabilization structure, if necessary, recovery wells can be installed along the landward edge of the revetment structure.

10. **Figure C-3**

*A solid line is used in this figure to depict the existing grade and the final grade. This does not allow one to distinguish between the two and ascertain whether regulatory requirements are being met.*

Response: Comment noted, lines will be made distinct to augment review.

11. **Figure C-3**

*The toe trench of the revetment extends into the beach area. At McAllister Point Landfill a gravity wall was installed which did not extend into the beach area. Please explain why the toe trench of the OFFTA revetment extends into the beach area, while the gravity wall for McAllister did not.*

Response. The gravity wall installed at McAllister was installed into the intertidal area on the west side of the site, which is similar to this approach.

**12. Figure C-3**

*As currently designed in a number of the cross sections the toe trench is not covered with two feet of beach material over its entire length. Assuming that the toe trench is employed at the site, please be advised that all portions of the toe trench must be covered with a minimum of two feet of beach material.*

Response. The detailed grading that will be provided in the 90% design submission will ensure that a minimum of 2 feet of beach material will be restored on top of the constructed revetment structure within the limits of the delineated coastal beach. Beyond the limits of the coastal beach the thickness of material placed on top of the revetment may vary from the 2 foot requirement for coastal beaches.