

18 SEP 2006

MEMORANDUM FOR NAD RIT (ATTN: Jeff Groska)

SUBJECT: Documentation of Review Findings, Craney Island Eastward Expansion, Final Feasibility Report and Environmental Impact Statement dated April 2006 (revised August 2006).

1. References.

a. CENAD-PSD memorandum for Commander, U.S. Army Corps of Engineers, ATTN: CEMP-NAD (Jeff Groska) dated 31 March 2006, subject: Norfolk Harbor and Channels, Craney Island Eastward Expansion.

b. CENAO-PM-P memorandum for Commander, Headquarters, U.S. Army Corps of Engineers (CEMP-NAD/MR GROSKA) dated 16 February 2006, subject: Final Feasibility Report and EIS, Craney Island Eastern Expansion, Norfolk Harbor and Channels, Hampton Roads, Virginia.

2. Enclosed is the Documentation of Review Findings for the subject final report and EIS. All concerns from policy compliance review of the AFB materials, the draft report and DEIS, and the final report and EIS have been resolved.

3. If there are any questions please contact Mr. C. Lee Ware, P.E. at 202-761-0523.

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ROBYN S. COLOSIMO, P.E.  
Chief, Office of Water Project Review  
Policy and Policy Compliance Division  
Directorate of Civil Works

**DOCUMENTATION OF REVIEW FINDINGS  
FINAL FEASIBILITY REPORT AND FINAL ENVIRONMENTAL IMPACT  
STATEMENT  
NORFOLK HARBOR AND CHANNELS  
HAMPTON ROADS, VIRGINIA  
CRANEY ISLAND EASTWARD EXPANSION  
APRIL 2006 (revised 11 August 2006)**

**PART I. REVIEW OF THE FINAL FEASIBILITY REPORT AND ENVIRONMENTAL IMPACT STATEMENT.** The review of the Final Feasibility Report and Environmental Impact Statement dated January 2006 identified a few new concerns related to Federal interest and cost sharing, the sponsor's letter of intent, and the financing plan. **The resolution of those new issues by provision of errata pages to the report is documented below in Section I.C. All of the concerns resulting from review of the draft interim report and AFB material have also been resolved.** The full documentation on review of the AFB materials and Draft Report and DEIS is included in Part II.

**A. BACKGROUND.**

**1. Project Location.** The project area lies in southeast Virginia at the lower end of Chesapeake Bay. The Hampton Roads harbor serves extensive commercial navigation facilities and is the home of one of the largest military complexes of the U. S. Navy. Numerous Federal channels have been constructed and are being maintained to serve the harbor area.

**2. Existing Federal Projects.** A Federal confined dredged material disposal facility known as Craney Island is the primary disposal site in the harbor and has been in operation since 1957. It currently contains over 225 million cubic yards of material dredged from the harbor and is expected to be completely full in 2025 after existing retaining dikes are raised to the maximum extent possible.

**3. Study Authority.** The Virginia Port Authority helped to obtain a Congressional resolution to investigate the feasibility of immediate expansion of Craney Island eastward to the main ship channel to create an additional new container-handling facility. The Authority owns and operates other public container-handling facilities at Norfolk, Newport News, and Portsmouth.

**4. Problems and Opportunities.** The harbor is currently the eighth largest container port in the U.S. and the third largest on the East Coast. Growth in container traffic is expected to overwhelm planned improvements (both by the Virginia Port Authority and by private sector shipping interests) by 2011.

**5. Plan Formulation.** An array of dredged material disposal alternatives was formulated, including modifications to the existing Craney Island facility, expansion of Craney Island to the east, north, and west, other upland and island sites, ocean and deep hole placement, beneficial use for various purposes, and combined aquatic disposal sites. Most alternatives were screened out early in the plan formulation process due to their inability to achieve the port expansion objective of the study resolution.

**6. Recommended Plan.** The recommended plan is to expand Craney eastward by constructing an 8,500 lineal foot main dike and east- west dikes, including a partition dike dividing the new disposal segment into segments. This provides for confined disposal of approximately 3 years of dredged material capacity and also creates new port lands at an ideal location. The recommended plan is the locally preferred plan (LPP). The draft report indicates the NED plan is a combination of eastward expansion with construction of a berm to strengthen the retaining dikes on the existing fill. The LPP defers construction of the berm by 3 years, reducing net benefits by less than one percent. The report recommends environmental mitigation sites that provide for wetland restoration and conservation, oyster restoration, bird management, and contaminated sediment cleanup.

**7. Construction Costs.** The estimated cost of constructing the recommended eastward expansion of the disposal area, including mitigation features, is \$671,340,000 (Table B-1-9) at October 2005 price levels. In addition, the Virginia Port Authority will finance over \$1 Billion in improvements to create a container terminal facility on the expanded portion of the disposal area.

**8. Operation, Maintenance, Repair, Rehabilitation, and Replacement (OMRR&R) Costs.** The report shows the O&M cost for the eastern expansion (LPP) as about \$65,000 annually. The NED plan for western dike raising in combination with the eastern expansion is shown to have annual O&M costs of about \$1,558,000.

**9. Equivalent Annual Economic Benefits and Costs.** The recommended plan has average annual benefits of \$333.6M, average annual costs of \$75.39M, net benefits of \$258.2M and a benefit-to-cost ratio of 4.4. The plan with the most net remaining benefits has average annual benefits of \$339.8M average annual costs of \$78.77M, net annual benefits of \$261.1M, and a benefit-to-cost ratio of 4.3.

**10. Cost-Sharing.** The Federal share of the cost of constructing the project is shown in the report as about \$12,042,000 based on the least cost disposal option and approximately \$13,810,000 based on participation in the navigation channel, or approximately 3.9% of the \$671M construction cost.

**B. REVIEW HISTORY.** The Alternative Formulation Briefing (AFB) material for the Craney Island Eastern Expansion, consisting of a Plan Formulation Notebook with Appendices and ITR documentation, was submitted to HQ for review on 29 April 2005. The policy compliance review was initiated 4 May 2005 and completed on 16 June 2005, leading to the AFB Conference being held in Norfolk on 21 June 2005. The discussions

and agreements at the AFB Conference resulted in substantial changes in the recommendations and cost sharing. The AFB discussions and direction for proceeding with the study were documented in the Alternative Formulation Briefing Project Guidance Memorandum (AFB-PGM), dated 5 July 2005. To facilitate preparation of the draft report, a Plan Formulation Package was submitted for HQ review in July 2005 and further coordination was held on 15 August 2005. The Draft Feasibility Report and DEIS were submitted for review on 15 September 2005. Draft policy compliance review comments on the Draft Report and DEIS were provided on 1 November 2005 as a basis for further coordination and discussion and were finalized and transmitted to the RIT on 2 December 2005. Responses to review concerns were provided by the district in late December 2005. A video teleconference was held on 17 January 2006 to review the unresolved concerns and discuss the actions needed for preparation of the final report. The final report and EIS were submitted 16 February 2006 along with the PGM compliance memorandum that explained the response to prior review concerns. The Civil Works Review Board was held on 4 April 2006. The final policy review assessment identified a few new concerns and was furnished to the district on 5 May 2006. Compliance responses and revisions to the final report were provided to HQ on 10-11 August 2006. The following section documents the resolution of the new comments on the final report.

**C. RESOLUTION OF NEW POLICY REVIEW CONCERNS BASED ON REVIEW OF THE FINAL FEASIBILITY REPORT AND EIS.** Review of the final report led to the identification of a few new issues on Federal interest, cost sharing, and local cooperation and financing. The comments below, which relate to Federal interest and cost sharing for construction and OMRR&R, have a different focus from the earlier policy review comments on those topics that were resolved. Following each comment is the district's response and a HQ assessment.

**1. OMRR&R Cost Sharing.** The final report includes the costs for OMRR&R related to the navigation access channel to the new port facilities and shows these as expenses as being cost shared 50%/50% based on the project depth of 50 feet. Corps guidance based on WRDA 1986 cost sharing, as amended, indicates that the cost sharing for OMRR&R should be developed based on the requirements for a 45 ft. depth project channel being 100% Federally funded and the increment from 45 to 50 feet being cost shared 50%/50%. This could substantially decrease the non-Federal cost share shown in the report for OMRR&R of the access channel. The district should evaluate the shoaling characteristics for the project access channel and any available historic information on the incremental difference in OMRR&R requirements for channel depths of 45 versus 50 feet elsewhere in the harbor to determine an appropriate allocation of overall costs that should be cost shared 50%/50%. Revisions of the final report could be accomplished using errata pages or an addendum.

**CENAO Response:** The report was revised in items of local cooperation to accurately describe the maintenance cost sharing for the access channels. It has been changed to show that the cost sharing up to and including the depth of 45-feet will be 100 percent Federal. The cost sharing for the increment greater than 45-feet to 50-feet will be cost

shared on a 50/50 basis. The total average annual cost is shown as a “currently estimated” cost since it will not be incurred until 2017 at the earliest. The incremental cost for the greater than 45-foot to 50-foot portion was not separated out.

**HQUSACE Assessment: The concern is resolved** by the response and changes to the text, which notes that the incremental OMRR&R costs are expected to be primarily Federal, since they are associated with dredging channel depths less than 45 feet.

**2. Federal Interest/Cost Sharing.** The Federal cost share in the overall project is shown as 3.9% in the final report based on a Federal interest identified by the channel access, which qualifies as a GNF feature, and the interest in expanded disposal capacity as identified by the present worth of the least cost disposal option (constructing a western berm to strengthen the existing Craney Island dike in 2025 allows for further dike raisings and an additional 14 years of capacity). This cost is then prorated to account for the lesser volume (3 years versus 14 years) of additional capacity created. Although this approach is acceptable, HQ suggests that consideration be given to an alternative technique, which accounts for the beneficial effects on the Government’s least cost disposal plan during the period of analysis. This would evaluate the present worth value of the three-year shift in Federal investments due to the eastern extension, looking at the government’s base plan for disposal during the period of analysis. This may consider the delay in construction of the western berm, a shift in the associated OMRR&R costs including dike raisings, a shift in costs associated with ocean disposal or creating additional capacity when Craney Island is filled after the berm strengthening, changed timing of real estate salvage, changed costs for Federal systems dredging, and elimination of one cycle of ocean channel maintenance following sand borrow for dike construction at the eastern expansion. The district should provide HQ with additional analyses on the above factors to further facilitate determining the level of Federal interest and cost share which should be reflected in the final report once a decision is made. An addendum or errata pages could be used to accomplish the changes.

**CENAO Response:** Several approaches were given consideration in concert with higher authority. The current approach, the prorated approach, was deemed to be most appropriate. Additionally, in concert with high authority, it was deemed that the discounting should not be done to 2006 but rather to 2010. This change has been made, resulting in cost sharing for the disposal capacity of \$12,042,000.

**HQUSACE Assessment: The concern is resolved** by the response and text changes made to the final report on pages 142 and 146.

**3. Navigation Cost Sharing.** Tables 47, 48, and 49 of the final report incorrectly show the cost the additional 10% of non-Federal costs for GNF, which may be paid over time, as increasing the project costs assigned to each depth. In effect, this should be a 10% cost adjustment, which is initially Federal with reimbursement occurring over time applying credit as applicable for LERR costs. The values for the non-Federal costs shown in the tables appear to be the correct cost shares, but the total and Federal cost columns were not adjusted for the –10%, resulting in an increased overall project cost after making the

10% adjustment. The tables should be revised so that the sum of total costs for each depth increment equals the \$25,453,000 cumulative value for the 50-foot project shown in Table 45. It may be helpful to show a subtotal in Tables 47, 48, and 49 above the +/-10% adjustment. The values in summary Tables 50 and 50.a should also be revised accordingly. Note that this adjustment appears to change the percentage of Federal interest shown in Table 50.a and elsewhere in the report from 3.9% to about 3.5%.

**CENAO Response:** Tables 47, 48, and 49 have been corrected to show the “ultimate” cost sharing with the 10 percent of additional funds to be paid by the non-Federal sponsor not included in the Federal cost side. Additionally, summary tables 50 and 51 have been revised, as well as the accompanying text that further discusses the cost sharing.

**HQUSACE Assessment:** The concern is resolved by the text changes noted in the response.

**4. Preliminary Financing Plan and LOI.** The final report includes a letter of intent from the sponsor dated 25 August 2005 and a financial analysis, which are based on a Federal share different from that recommended in the report. Coordination should be undertaken with the sponsor to obtain an updated letter of support, which reflects a cost share consistent with the final report recommendations upon resolution of the above comments on Federal interest, cost sharing, and OMRR&R. The preliminary financing plan and district assessment should be revised accordingly, consistent with Section D-5 of ER 1105-2-100.

**CENAO Response:** The local sponsor has provided an updated letter of intent that also describes how it intends to finance its portion of the cost sharing. Additionally, credit and budget information for the non-Federal sponsor demonstrating its ability to provide funding, is included in the main report on page 147. A detailed financial analysis will be included with the project cooperation agreement.

**HQUSACE Assessment:** The concern is resolved by the text changes noted in the response. The updated letter of intent is in part 2 of Appendix D.

## **PART II. REVIEW OF THE DRAFT REPORT/DEIS AND AFB MATERIALS.**

**A. RESOLUTION OF ISSUES IDENTIFIED DURING REVIEW OF THE DRAFT FEASIBILITY REPORT AND DEIS.** The following section discusses the resolution of concerns identified from review of the draft report. The resolution of policy concerns from review of the AFB material is shown in Section B. Prior editorial comments have been deleted from this documentation package. The original PGM numbering is shown in brackets. **All concerns on the Draft Report have been resolved.**

**1. Mitigation Plan Formulation.** [PGM item 1.a.] HQUSACE has reviewed the proposed project mitigation plan, and has several concerns regarding the mitigation site selection process, the appropriateness of the sediment remediation measures that comprise 66% of the total mitigation costs, and the overall costs of the mitigation plan.

The basis for these policy concerns is found in C-3.B.(12) in ER 1105-2-100.

**Comment 1) Location.** [PGM item 1.a.1)] The geographic scope of the mitigation search area is identified in the EIS (page 14, Appendix B) as the Elizabeth River, the lower James River, and vicinity. With the exception of the proposals at the Ragged Island Wildlife Management Area and Hoffler Creek sites located on the lower James River, all of the proposed mitigation sites are located in the Elizabeth River, with the largest concentration of sites in the South Branch Elizabeth River. Given that all of the compensatory mitigation for the Craney Island expansion will be off-site and out of kind, it is not clear from the report or EIS why the focus of mitigation efforts should be on the South Branch Elizabeth River. On the surface, it seems plausible that lower-cost mitigation sites would be available within this geographic scope. HQUSACE requests that the complete list of mitigation sites developed for the mitigation planning process be included in the report, and that the results of the application of the mitigation screening criteria for these sites be fully described in the report.

**Response:** As presented in Appendix B, the mitigation plan in the Draft EIS is the result of more than three years of dialogue with stakeholder and technical experts from across the community. After much deliberation, sediment clean-up, oyster restoration, and wetlands restoration were identified as the closest in-kind compensatory mitigation to replace the lost ecological function of 580 acres of benthic habitat and the overlying water column. While the geographic scope of the mitigation search area covered the Elizabeth River, the lower James River, and vicinity, this diverse group placed a high priority on developing mitigation projects within the Elizabeth River system. The proposed expansion is located in the mouth of the Elizabeth River and 580 acres of the river's bottom and overlying water column will be lost as a result of construction of the expansion. The Elizabeth River Watershed Action Plan (ERP 1996, 2002), nationally recognized and developed independent of this study, identified sediment clean-up and wetlands restoration as the two highest priorities for this river. During the initial phases of mitigation plan development, more than 100 different locations were evaluated in the initial screening of alternatives that ranged from oyster restoration, riparian buffers, artificial fish reefs, clam sanctuaries, fish passage, sediment clean-up, and submerged aquatic vegetation. A map showing the locations of these alternatives will be included in the report.

The screening criteria used to sort out candidate sites for further analysis from the larger list included:

- In-kind relatedness;
- Location relative to impact site;
- Landscape approach – potential for larger scale ecosystem benefits in conjunction with other potential mitigation sites;
- Connectivity with existing or proposed restoration areas;
- Probability of success in mitigating for injury due to the project; and
- Publicly recognized values of educational opportunities.

The attached table presents the list of potential mitigation sites that were included in the modified Delphi decision making process as a preliminary screening for sites that would be advanced to the cost effectiveness/incremental cost analysis. These 36 sites were culled from the larger list of sites identified on the map mentioned above. The table and its notations indicate that there are limited mitigation opportunities in this heavily industrialized area. Most lands and much of the water bodies are currently in commercial or military use and would not be reasonable candidates as mitigation sites. Shaded cells indicate that site was advanced for further analysis as a potential mitigation site.

**Discussion:** While the geographic scope of the mitigation search area is identified in the Draft EIS as the Elizabeth River, the lower James River, and vicinity, most of the proposed mitigation sites are located in the Elizabeth River, with the largest concentration of sites in the South Branch Elizabeth River. The Final EIS will more clearly explain why the focus of mitigation efforts is in the Elizabeth River and the Southern Branch specifically. A more comprehensive list of mitigation sites developed for the mitigation planning process will be included in the report, and the results of the application of the mitigation screening criteria for these sites will be fully described in the report.

**Action Required:** Revise documents to provide additional information.

**Action Taken:** The Final EIS (Appendix B, pages 2, 11, Tables 2 and 3) more clearly explains why the focus of mitigation efforts is in the Elizabeth River and the Southern Branch specifically. A more comprehensive list of mitigation sites developed for the mitigation planning process is included in the Final EIS, and the results of the application of the mitigation screening criteria for these sites are more fully described in the FEIS (Appendix B, pages 13-24, Table 4).

**HQ Analysis:** The concern is resolved by the additional information provided in the Final EIS.

**Comment 2) Contamination.** [PGM item 1.a.2)] The largest component of the mitigation plan involves the remediation of contaminated sediments from a number of the polluted “hot spots” within the South Branch of the Elizabeth River. These mitigation locations are characterized in the report and EIS as being among the most contaminated sites in the Chesapeake Bay. Most of these sites are known to have elevated levels of polycyclic aromatic hydrocarbons (PAH), three are former creosote treatment sites, and one is thought to contain high levels of polychlorinated biphenyls (PCB) contamination. Given the contaminated nature of these sites, HQUSACE questions whether the remediation of these sites constitutes appropriate mitigation for the loss of the benthic resources at Craney Island. The Craney Island site is not contaminated to any significant degree, although the benthic resources are known to be of low quality for other reasons. While HQUSACE does not question that remediating the contaminated sites would “make the greatest overall contribution to restoring the long-term ecological health of the Elizabeth River” (page 50, EIS, Appendix B), it is

questionable whether this mitigation strategy is appropriate, and represents the most cost-effective way to achieve the mitigation goals.

**Response:** The following sections of EIS, Appendix B, provide narrative on why remediation at the proposed sediment sites constitutes appropriate mitigation for the loss of the benthic resources at Craney Island:

Section 4.1 (page 11) - *PRELIMINARY SCREENING OF POTENTIAL MITIGATION MEASURES: Sediment restoration – provides restored bottom areas (fisheries habitat and invertebrates habitat) in the river and improves water quality; close to “in-kind” compensation for lost bottom area;*

Table 3 (page 15) – When judged by a committee of subject matter experts, including Federal and state regulators typically involved in developing mitigation recommendations, sediment remediation was given an “in-kind relatedness” score of 9.3 (out of a possible 10), the highest of thirteen other mitigation options evaluated. “In-kind relatedness” was defined by the group as “similarity of the mitigation option to the disturbed/impacted habitat type.”

Section 4.1 (page 16) - *Based on recommendations from VIMS, the committee agreed on a “landscape approach,” which considers the spatial relationship of different ecological communities that interact synergistically. Therefore, proposed wetland, oyster reef, and sediment remediation measures that were contiguous or allowed the construction of multiple habitat types were strongly endorsed.*

Section 6.2.1 (page 28) - *The overall mitigation benefit for sediment clean-up was adjusted upward in order to take into account several aspects of this particular mitigation measure and its potential for positive regional impacts, even if done as a stand-alone activity. Appendix B describes how the benefit was enhanced for this particular mitigation measure. By remediating 68 acres of “hot spots,” much larger areas of the river (411 acres) realize increases in general overall health improvement, diversity, and productivity of organisms. It is well known that persistent environmental contamination can have long-term and wide-spread effects that impact a considerable area around the site of the contamination, especially in the aquatic environment. The additional production credited to this particular type of mitigation, therefore, is justified.*

Section 6.2.1 (page 30) - *The Mitigation Subcommittee strongly endorsed sediment clean-up as one of the primary objectives to be considered in the CIDMMA mitigation plan and it is also a key component of a widely-endorsed, and nationally recognized, Elizabeth River Watershed Action Plan (ERP 1996, 2002). The most pronounced effect of contaminated sediment is concentrated in the Southern Branch of the Elizabeth River.*

Does sediment clean-up represent the most cost-effective way to achieve the mitigation goals? The CE/ICA (EIS, Appendix B) clearly demonstrates that sediment clean-up is cost effective. Compared to oyster reef restoration and wetlands restoration (the other two major components of the mitigation plan), sediment clean-up is the most economical

on a cost-per-acre basis when considering that 68 acres of actual sediment clean-up at \$33,230,000 will result in restoration of 411 acres of river bottom (\$81,000/acre). The mitigation approach, a “landscape approach” was used to establish physical connectivity between various mitigation sites and to establish ecological synergy. Application of this approach also maximizes productivity and ensures long-term viability of each of the sites.

**Discussion:** The largest component of the mitigation plan involves the remediation of contaminated sediments from a number of the polluted “hot spots” within the South Branch of the Elizabeth River and HQUSACE questions whether the remediation of these sites constitutes appropriate mitigation for the loss of the benthic resources at Craney Island. The report will provide additional information on why this mitigation strategy is appropriate, and represents the most cost-effective way to achieve the mitigation goals.

**Action Required:** Revise documents to provide additional information.

**Action Taken:** Documents revised to provide additional information (FEIS, Appendix B: Executive Summary, pg. B-3; paragraph 4.1, pgs. B-13-17; Table 4, pgs. B-19-22; Table 5, pg. B-23; paragraph 4.2, pgs. B-25-27; Table 6, pg. B-29).

**HQ Analysis:** The concern is resolved by the text changes noted in the action taken.

**Comment 3) CERCLA Impacts.** [PGM item 1.a.3)] The EIS seems to imply that the mitigation plan is viewed as a type of ecosystem restoration opportunity, similar to that proposed in the un-appropriated Elizabeth River Ecosystem Restoration plan. HQUSACE requests clarification as to whether the proposed work in the mitigation plan would include remediation of CERCLA-regulated substances. HQUSACE also requests more information concerning the CERCLA status of the proposed sediment remediation mitigation sites, and whether any Federal or State agency has identified any potentially responsible parties linked to the CERCLA materials.

**Response:** Clearly, there is a strong correlation between restoration and compensatory mitigation. Compensatory mitigation is intended to restore or replace the lost function and value of the habitat that is impacted or lost as a result of plan implementation. The habitat that is lost as a result of the Craney Island expansion is 580 acres of benthic habitat and the overlying water column. The habitat that is restored by the proposed mitigation plan includes sediment clean-up, wetlands restoration, and oyster restoration, which all provide varying degrees of benthic habitat and water column mitigation. All mitigation involves restoration of one habitat to compensate for the loss of another, hopefully similar, habitat.

The five sediment remediation sites proposed for mitigation in the Southern Branch: Wycoff, Republic, Money Point, Paradise Creek, and Scuffletown Creek are not Superfund sites and no responsible parties have been identified at these locations.

There are three National Priority List (NPL), or Superfund, sites in the Southern Branch of the Elizabeth River, none of which are included as candidate mitigation sites. Superfund and various state programs have targeted isolated problems and several

responsible parties, but they have not addressed most of the contaminated “hot spots” in the river associated with activities that occurred decades and even a century or more ago in the river.

Dredged materials, when managed in accordance with requirements of the VA State Water Control Board or other Virginia agencies with similar authority, are conditionally exempt from the Virginia Solid Waste Management Regulations (9 VAC 20-80-60.E.), and are excluded from the waste barging regulations (9 VAC 20-170-10).

**Discussion:** The District will provide information indicating that the proposed sediment sites are not within the boundaries of a site designated by the EPA or a state for a response action (either a removal action or a remedial action) under CERCLA, nor are they a part of a National Priority List (NPL) site under CERCLA.

In order to address HQUSACE concerns, the feasibility report, EIS, items of local cooperation, and the PCA will reflect a recent agreement between USACE and the non-Federal sponsor that the non-Federal sponsor will assume full responsibility and liability for any work implicating CERCLA-regulated substances. Furthermore, the non-Federal sponsor will indemnify USACE from any future CERCLA litigation and/or associated cleanup costs related to this project.

**Action Required:** Revise documents to provide assurances to limit Corps liability under CERCLA.

**Action Taken:** Documents revised to provide assurances to limit Corps liability under CERCLA (Main Report, pages 113-114, 139; FEIS, Appendix B, paragraph 8.1.1, pgs. B 62-64).

**HQ Analysis:** The concern is resolved by the text changes noted in the action taken.

**Comment 4) Incremental Cost.** [PGM item 1.a.4)] The estimated per-acre costs for two of the proposed mitigation measures (\$250K/acre for wetlands restoration and \$484K/acre for remediation) are considerably higher than other recent mitigation plans reviewed by HQUSACE. These high costs will also likely be a significant issue with OASA(CW) staff. HQUSACE recommends that the District make every effort to reduce the mitigation costs to the extent possible. If cost reductions are not feasible, a full explanation and justification of the selection process for the mitigation plan should be provided to HQUSACE for review and approval prior to the release of the final report and EIS.

**Response:** The proposed mitigation will take place in an urban setting (as will the proposed impacts). Wetland mitigation in these settings is expensive. This is evidenced by Norfolk District’s requirement of an in-lieu fee of \$300,000/acre for regulatory permit actions that require salt-marsh wetland mitigation in the Elizabeth River and vicinity.

Appendix B explains that a cost of \$250,000 was estimated for each acre of wetland

restoration. This cost was based upon the total average implementation cost per acre of the wetland restoration estimated for the Elizabeth River Environmental Restoration (ERER) Feasibility Study (2001) conducted by the Norfolk District. For the ERER study, Feasibility-level design and cost estimates were developed for eight sites located along various reaches of the Elizabeth River. These sites are assumed to be representative of the wetland sites considered for this mitigation plan. The total implementation cost includes costs for PED, construction, and real estate acquisition.

The cost for clean-up of sediments is estimated at \$484,000 per acre. This estimate is based on unit cost estimates from remediation projects evaluated in the USACE ERER Feasibility Study. A sediment remediation cost of \$100 per cubic yard was derived from the intermediate cost of three common sediment remediation practices: direct removal with upland treatment and disposal (\$140), in-situ capping (\$100), and removal with disposal in confined aquatic disposal cells (\$60). As mentioned previously, by remediating 68 acres of “hot spots,” much larger areas of the river (411 acres) realize increases in general overall health improvement, diversity, and productivity of organisms.

Based upon the lack of more detailed information available at this phase of project development, the District does not feel that cost reductions are technically defensible. Cost reductions will be carefully pursued during the advanced engineering and design phase of the project. The explanation and justification of the selection process for the mitigation plan provided in Appendix B will be further developed to provide clarification.

**Discussion:** The estimated per-acre costs for two of the proposed mitigation measures (\$250K/acre for wetlands restoration and \$484K/acre for remediation) are considerably higher than other recent mitigation plans reviewed by HQUSACE. The District will provide an expanded explanation and justification of the selection process for the mitigation plan (and specifically the sediment remediation portion) and associated cost in the final report and EIS. The District will provide information from recently completed studies in the Southern Branch of the Elizabeth River that provide greater confidence in the \$100/cy cost and subsequent \$33.3M cost that was used for the sediment clean-up portion of the project.

**Action Required:** Revise documents to provide additional information.

**Action Taken:** Document revised to provide additional information (FEIS, Appendix B, Table 2, pg. B-12; paragraph 8.1.2, pgs. B-67-68).

**HQ Analysis:** The concern is resolved by the text changes noted in the action taken.

## **2. Economics. [PGM item 1.b.]**

**Comment 1) Discount Rate. [PGM item 1.b.1)]** The draft report uses the FY05 discount rate of 5 3/8% to calculate the equivalent annual benefits and costs and Interest During Construction. The final report will be submitted in FY06 and the appropriate

discount rate of 5 1/8% should be used in accordance with the forthcoming Economic Guidance Memo for FY06.

**Response:** Concur. The FY 06 discount rate of 5-1/8% has been applied.

**Discussion:** None

**Action Required:** The FY 06 discount rate of 5-1/8% will be used in the final report.

**Action Taken:** The FY 06 discount rate of 5-1/8% is used in the final report.

**HQ Analysis:** The concern is resolved by the text changes included throughout the final report.

**Comment 2) Project Costs. [PGM item 1.b.2)]** The main report does not present information on the construction costs of the alternatives. The tables provided in the main report cite only average annual values except for the Executive Summary, which notes the total project cost as \$614M. Summary tables are provided in Appendix B, however, it is not clear from the main report what the project costs are for either the NED plan or recommended Locally Preferred Plan. The final main report should include a cost summary table similar to Table B-1-9, which explains the construction and total investment costs for the alternatives. This is needed so that it is clear that the report has considered all the NED cost elements of the project in accordance with 2-4.k. and D-3 of ER 1105-2-100.

**Response:** Concur. A summary table will be provided showing all NED costs. In addition, the costs are being updated to FY 06 price levels.

**Discussion:** N/A

**Action Required:** The described table will be included in the final main report.

**Action Taken:** There are two tables included in the main report. Table 28 shows the detailed construction costs and investment costs. Table 29 shows the average annual costs. These can be found on pages 92 and 92a respectively.

**HQ Analysis:** The concern is resolved by the tables noted in the action taken.

**Comment 3) Interest During Construction. [PGM item 1.b.3)]** Both the LPP and the NED plan are shown to have IDC costs of \$2.86 M despite the fact that there are significant differences in their construction costs. The Economic Appendix indicates that the IDC was calculated based on a 36-month period for both plans. This does not appear to be appropriate given the timeframe for construction and the period over which PED investments would be made prior to the actual construction. The IDC would be underestimated based on this approach and should be recalculated for the alternatives in accordance with ER 1105-2-100, section D-3.d.(10).

**Response:** Per ER 1105-2-100, section D-3.d(10), compound interests for all costs are up to the period of analysis which begins in 2010. The period of analysis begins in 2010 because this is when benefits begin to be realized. The compounding interests is included beginning with the 2007 construction year thru the 2009 construction year for a total of 36 months.

**Discussion:** The response is adequate. The district explained during prior discussions that the IDC for both plans includes the cost of PED and is the same because it is based on the eastern expansion features. Construction of the western berm strengthening takes place in future years and does not have IDC applied.

**Action Required:** The final report should clarify the basis for the calculation of IDC.

**Action Taken:** The interest during construction is included in Table 28 as a line item for total investment. Additionally, the following text has been added to the main report on page 91:

Interest During Construction. Per ER 1105-2-100, section D-3.d(10), compound interests for all costs are up to the period of analysis which begins in 2010. The period of analysis begins in 2010 because this is when benefits begin to be realized. The compounding interests is included beginning with the 2007 construction year thru the 2009 construction year for a total of 36 months. Because the west dike strengthening is not constructed until 2028, the initial construction costs are the same. Thus the interest during construction for both alternatives will be the same. The following table shows the detailed construction costs and initial investment for each alternative.

**HQ Analysis: The concern is resolved** by the text change noted in the action taken.

**Comment 4) Effects of Borrow. [PGM item 1.b.4)]** Page 83 of the text addresses other project benefits under the With Project Condition related to reduced costs of ocean disposal for the alternatives. Since sand for the dike construction is being borrowed from the areas of the Atlantic Ocean and Thimble Shoal channels it is not clear whether additional benefits might accrue for reduced O&M channel dredging costs or future construction as a result of borrow activities. The report should fully address the NED effects of the alternatives.

**Response:** Additional benefits could be garnered from reduced maintenance in the Atlantic Ocean channel by eliminating one maintenance cycle. These benefits will be quantified and included as other NED benefits in the report. There are no benefits to be garnered in the Thimble Shoals channel.

**Discussion:** The additional benefits will be included in the analysis.

**Action Required:** The additional information as described will be included in the analysis and final main report.

**Action Taken:** The following was added to the main report on pages 87 and 88 and Appendix B.

Additionally, the construction of the eastward expansion provides for navigation benefits in the form of reduced maintenance costs. The borrow areas for the construction material will be in the Atlantic Ocean and Thimble Shoals Channels. While the Thimble Shoals channel will not garner any benefits due to the amount dredged and sedimentation rates, the Atlantic Ocean channel will receive benefits.

The Atlantic Ocean channel is dredged to a depth of 52 feet for navigation purposes. The construction of the eastward expansion will dredge the Atlantic Ocean channel to a depth of 60 feet. Given that the depth is 52 feet at the time of construction and the maintenance cycle is 5 years, then it would be expected that at least 1 maintenance cycle is skipped. The Atlantic Ocean channel dredging to 52 feet will be complete in 2006; thus, the maintenance cycle skipped will be in 2011. The following table shows the cost of the maintenance cycle and the benefits realized. These benefits are garnered by both alternatives, since the eastward expansion is the catalyst.

Table 27. AAEQ NAVIGATION BENEFITS FROM REDUCED MAINTENANCE (1)

<u>Alternative</u>	<u>Cost of construction</u>	<u>AAEQ navigation benefits</u>
Atlantic Ocean Channel Maintenance Avoided	\$1,578,000	\$97,000

(1) Discounted to base year 2010 at 5.125 percent.

**HQ Analysis: The concern is resolved** by the text changes notes in the action taken.

**3. Cost Sharing. [PGM item 1.c.]** Concerns on cost sharing relate to both the least cost disposal analysis and the channel analysis. See also the Counsel cost sharing concerns in section e.1).

**Comment 1): Life Cycle Costs. [PGM item 1.c.1)]** Table 31 shows the life cycle costs for the least cost plan disposal analysis. The table does not explain the basis for the costs (annual, present worth, etc.), whether these relate to the entire period of analysis, or how they relate to other costs shown elsewhere in the text. Mitigation costs, for example, are shown as \$3.617M in the table for the East Port alternatives and \$80,000 for the west dike strengthening. However, mitigation is shown to cost \$50.2M in Table B-1-9 for either the eastward expansion or the combination with the west dike strengthening, which means the west dike work has no incremental mitigation cost. Table 32 shows the present value of mitigation for the west dike strengthening as \$1.375M. It isn't evident why that would exceed the values cited elsewhere. Also the Real Estate value in Table 32 is \$4.419M versus \$0 in Table 31 for the west dike strengthening. Table 33 also

presents confusing information - real estate costs, for example, of the west dike strengthening are shown to be \$3.63M, which is the value shown in Table 31 for the East Port and East CDF alternatives. The district should review the analysis presented for accuracy and provide further explanation so that it is clear how the least cost plan analysis is being conducted as a basis for the cost sharing.

**Response:** The Least Cost Analysis explanations and descriptions will be further clarified. Table 31 shows the Life Cycle costs in Average Annual Costs. While Table B-1-9 did not separate the additional mitigation for the West Berm from the construction costs. In addition, the Real Estate discussion in the Least Cost Analysis did not separate or distinguish the difference between “salvage value” costs and administrative costs. Salvage value costs are the difference between the without project salvage value and the with project salvage value. Any extension of the CIDMMA’s life-span results in a decrease in the present value of the salvage value. This is counted as a NED cost. While the Real Estate costs counted for construction are administrative costs only. This will be made clearer in the final report.

**Discussion:** The discussion concerning the above mentioned portions of the report will be revised. Additional spreadsheet information will be provided relative to the life cycle costs for the without-project condition, least cost disposal plan, and the alternatives to support the determination of cost sharing.

**Action Required:** The described remedies will be included in the final report.

**Action Taken:** The Least Cost Analysis explanations and descriptions have been further clarified. It is important to note Life Cycle Costs are calculated and presented in two different ways. In Table 34, the life cycle costs are calculated and presented as “economic costs” for the purpose of identifying the least cost method of disposal. For this reason, systems dredging costs are included in the analysis in order to identify the full economic cost of each alternative (note for example, that the without project condition has a higher systems dredging cost than the west berm alternative because a larger volume of material would be shipped to the ocean disposal site under without-project conditions). The underlying calculations conducted for Table 35 are based on “financial costs” for the purpose of identifying the Federal cost share of the recommended plan. Therefore systems dredging costs are not included in the financial cost calculations (systems dredging costs are not a financial cost of building the least cost dredged material disposal method). Table 34 shows the Life Cycle costs as Average Annual Costs, which are used to select among alternatives. Table 35 shows the Life Cycle Costs as a present value, which are used to identify the Federal Cost share.

The timing of construction of the west dike strengthening also impacts the AAEQ construction cost. In Table 34, the \$80,000 shown as the AAEQ mitigation cost for the west dike strengthening is based on \$3,178,000 in mitigation costs occurring in 2025, which is when the strengthening would be required without an accompanying eastward expansion. Table B-1-10, on the other hand, presents an AAEQ mitigation cost for the west dike strengthening as \$69,000 based on \$3,178,000 in mitigation costs occurring in

2028, which is when the strengthening would occur if it were a component of the eastward expansion. The AAEQ cost of the same mitigation is lower when the west dike strengthening is a component of the eastward expansion because the mitigation would occur 3 years later.

It is correct that the same mitigation cost (\$50.2M) is shown in Table B-1-9 for both the eastward expansion and the eastern expansion with the west dike strengthening, however, this should not be interpreted as meaning that the west dike strengthening has no incremental mitigation cost. Table B-1-9 did not disaggregate the mitigation costs for the west dike strengthening from the total west dike strengthening construction costs. The next table (Table B-1-10) shows the itemized components of the \$77,262,000 west dike strengthening construction costs, which include an incremental mitigation component of \$3,178,000.

The \$3.63M real estate cost originally identified in Table 33, should have been \$3,630 not \$3,630,000. In addition, the Real Estate discussion in the Least Cost Analysis did not separate or distinguish the difference between the “salvage value” and administrative components of Real Estate costs. Based on further input from the Norfolk District Real Estate Branch, the administrative costs have now been removed. Salvage value costs are the difference between the without project salvage value and the with project salvage value. Any extension of the CIDMMA’s life-span results in a decrease in the present value of the salvage value. This is counted as a NED cost (i.e, a reduction in the salvage value created by the project). The revised tables in the draft report reflect these changes and no longer include \$3,630 in real estate administrative costs.

**HQ Analysis:** The concern is resolved by the response and text changes noted in the action taken.

**Comment 2) Access Channel. [PGM item 1.c.2)]** The costs assigned to access channel construction for the various depths need to be explained. It is not clear what the basis is for the values shown in Tables 39 to 42 and whether they are consistent with the requirements of ER 1165-2-131, Appendix G. None of the depths appear to include LERRD or mitigation costs. The meaning of the footnote to table 42 is also not clear. The report should be revised to clearly explain the analysis.

**Response:** The costs are assigned based on depth. Cost-sharing for navigation projects is dependent on depth, therefore it is necessary to allocate the costs appropriately by depth to determine what the overall cost-sharing will be. LERRD and mitigation costs will be included as appropriate.

**Discussion:** The response is adequate.

**Action Required:** The sections of the report dealing with the costs of the access channels should be modified to more fully explain how the costs are assigned.

**Action Taken:** Page 136 contains discussion of how the incremental costs were based

on depth. Pages 137-139 detail the access channel cost sharing. The following text is found on page 136:

Cost sharing for the access channels will be done in accordance with Section 101 of the WRDA 1986 and cost shared as a GNF. This requires a blended cost sharing structure as there are three cost sharing depth increments involved. From 0-feet to 20 feet is cost shared 10 percent non-Federal and 90 percent Federal. From 21-feet to 45 feet is cost shared 25 percent non-Federal and 75 percent Federal. Any depth greater than 45 feet is cost shared 50 percent non-Federal and 50 percent Federal. In addition, 10 percent of the total construction cost will be paid by the non-Federal sponsor over a period of 30-years. For the purposes of allocating the cost by depth, the mobilization costs are included in the cost for the 20-foot increment. The demobilization costs are included in the greater than 45-foot increment. The cost sharing for the access channel is presented in the following tables by increment.

**HQ Analysis: The concern is resolved** by the text change noted in the action taken. See comments 2.a. and 2.c in the final assessment, which relate to cost sharing for construction and OMRR&R of the access channel.

**4. MCACES Cost Estimate. [PGM item 1.d.]** The MCACES estimate was reviewed and following comments are provided:

**Comment 1) Incomplete Estimate. [PGM item 1.d.1)]** The MCACES estimate is not complete. The estimate did not include costs for lands and damages, planning engineering and design, supervision and administration, contingencies, and inflation. Also, the estimate is not in the Civil Works Breakdown Structure. Cost item descriptions (such as General, Alt 3 N Levee, Division Dike) stated in the Project Owner Summary – Feature cannot be identified with the features described in the main report. The estimate should be revised to comply with ER 1110-2-1302.

**Response:** Cost Engineer will include the costs for Lands and Damages, PED, SIOH, Contingencies, and Inflation in the MCACES portion of the Government Estimate.

**Discussion:** The response is adequate.

**Action Required:** The information described in the response will be included in the report.

**Action Taken:** The information described in the response is included in the report in Appendix A.

**HQ Analysis: The concern is resolved** by the text changes in Appendix A.

**Comment 2): Narrative. [PGM item 1.d.2)]** The project narrative describing the basis and assumptions used in the development of the estimate is not adequate to support the development of costs, assumptions, construction duration, and contingency development.

It is not very clear as to the source and basis for the costs for the relocation of fuel lines and dredging. Without a complete narrative the reviewer has difficulty understanding the basis and assumptions used in the development of the estimate. Also, the narrative would provide the district with a historical basis as the project proceeds and would bring it into conformance with ER 1110-2-1302. A narrative should be included in the MCACES estimate.

**Response:** Cost Engineer will add notes to the MCACES estimate, which will describe the assumptions used in development of the costs. The narrative will be provide a historical basis and conform to ER 1110-2-1301.

**Discussion:** The response is adequate.

**Action Required:** The information described in the response will be included in the report.

**Action Taken:** The information described in the response is included in the report in Appendix A.

**HQ Analysis:** **The concern is resolved** by the text changes in Appendix A.

**Comment 3) ITR. [PGM item 1.d.3]** There is no evidence that a thorough ITR was performed on the MCACES estimate.

**Response:** A technical review was performed during the development of the cost estimates at several phases of the development of the Feasibility Study. Each estimate was reviewed by other disciplines, to include dredging, planning, geotechnical and operations. The Technical and Legal Certification, provided with the report, and signed by the Chief, Cost Engineer, certifies that the technical review has been performed on the cost estimate and the other disciplines agree with the cost summary.

**Discussion:** The response is adequate.

**Action Required:** The information described in the response will be included with the report.

**Action Taken:** The information described in the response is included in the report in the Quality Control Report. The signed cost estimate summary page is in Appendix A.

**HQ Analysis:** **The concern is resolved** by the actions taken.

**5. Counsel. [PGM item 1.e.]** Generally, the Feasibility Report and Draft EIS appear to be in compliance with applicable laws and regulations. There are several items that may warrant further consideration. These include the following:

**Comment 1) Cost Sharing. [PGM item 1.e.1]** Explanations of cost sharing on page 109 of the feasibility study should be clarified. At the outset, it should be explained that there are two separate cost-sharing frameworks for different portions of the proposed expansion project. One is related to the disposal of dredged material (page 109) while the other concerns channel deepening (pages 217-126).

As presently written, the first full paragraph regarding cost-sharing for dredged material disposal on page 109 (beginning with “CIDMMA is a unique dredged material disposal facility . . .”) could be read as internally inconsistent. The district may wish to change the second sentence to specifically reference WRDA 1996 Section 201(b) (as opposed to Section 201 in general). The third sentence could note Section 201(g)(1) of WRDA 1996, which presents a savings clause to the general cost-sharing rules named in the preceding sentence, prohibiting any increase in the non-federal share of expansion projects for toll-based facilities such as Craney Island. The fourth sentence of this paragraph should be clarified to explain why the Federal cost share of an expansion project on Craney Island would be limited to the discounted present value of the least cost dredged material disposal method (this appears to be addressed elsewhere in the third full paragraph on page 122, but it should be clarified on page 109 as well).

**Response:** Concur. The suggestions presented will be included.

**Discussion:** The response is adequate.

**Action Required:** The information described in the response will be included in the final report.

**Action Taken:** The reference to page 109 is now on pages 116 and 117. It has been revised to reflect the following:

CIDMMA is a unique dredged material disposal facility in that it was created and continues to operate as a self-liquidating (through toll collection) disposal facility, which is 100 percent Federally-funded. The Section 101 of the WRDA of 1986 as amended by the WRDA of 1996, Section 201(b), changed the status of most new confined dredged material disposal facilities from an item to be funded solely by a non-Federal sponsor (i.e., one of the LERRD’s) to a feature to be cost shared the same as any other Federal general navigation feature (GNF) of a project. However, Section 101 of the WRDA of 1986, as amended, further maintained the unique status of such facilities as CIDMMA’s by stating that the cost sharing for O&M and any new expansion of CIDMMA will continue to be in accordance with the (original) authorizing legislation. This is also presented in Section 201(g)(1) of WRDA of 1996, which presents the savings clause to the general cost-sharing rules that prohibits any increase in the non-Federal share of expansion projects for toll-based facilities such as the CIDMMA. Current policy does not allow the USACE to cost share the eastward expansion of CIDMMA as a GNF because it is not the least-cost dredged material disposal method. Under existing law and policy, the USACE cost-sharing responsibility is limited to the present value of the least-cost long-term dredged material method.

Therefore, in consideration of CIDMMA's unique status and current USACE policy, the Federal cost share of an eastern expansion for port development would be based on the discounted present value of the additional costs necessary to construct the least-cost dredged material disposal method:

- Federal costs would be partially recovered through the collection of tolls for disposal of non-USACE materials and usage.

Even though the Recommended Plan meets all engineering, economic, and environmental criteria for recommendation, it is not the least-cost disposal method because of construction activities required to support port construction. Therefore, Federal cost sharing will be limited to that amount which would ordinarily be applied to an expansion of CIDMMA for dredge material purposes only (strengthening of the CIDMMA west berm.).

**HQ Analysis: The concern is resolved** by the action taken. See comment 2.b. in the final assessment, which suggests an alternative methodology to determine the Federal interest and cost sharing.

**Comment 2) Endangered Species Act Coordination. [PGM item 1.e.2)]** The National Marine Fisheries Service (NMFS) has determined that consultation may be necessary regarding several endangered species. See Feasibility Report, page 10-11; EIS Annex A, page 15; EIS Annex F, page 3. NMFS has confirmed that formal consultation is necessary in order to ensure compliance with the Endangered Species Act (ESA). ESA concerns could affect the selection of alternatives and would normally be addressed during the feasibility stage to ensure an accurate alternative selection analysis and a reliable cost estimate. Please confirm that while existing data may be presently insufficient to permit NMFS to make an informed analysis of ESA compliance during the feasibility phase, it is adequate to determine that the recommended plan is economically and environmentally feasible. Moving on to the PED phase of the project without finalizing NMFS consultation would be most appropriate if the outcome of NMFS consultation would not affect the selection of alternatives. It would be helpful if the Feasibility Report and EIS explain that future NMFS consultation will not affect the selection of alternatives. Consultation with NMFS should be completed as soon as practicable and resulting recommendations made by NMFS should be incorporated in the project design. See C-3.c.(2) of ER 1105-2-100.

**Response:** The Corps has determined that data acquired subsequent to publishing the DEIS is sufficient to make a "not likely to affect" determination and to permit NMFS to make an informed analysis of ESA compliance. This data will be provided to NMFS and will be included in FEIS. The outcome of Section 7 consultation will not affect the selection of Eastward Expansion as the Recommended Plan. The Corps will seek concurrence from NMFS to conclude Section 7 consultation.

**Discussion:** The District transmitted a letter to the NMFS dated January 5, 2006, which provided information on its "not likely to affect" determination and requested NMFS

concurrence. The Corps will continue to seek concurrence from NMFS to conclude Section 7 informal consultation. In the unlikely event that Section 7 consultation is not concluded during this phase, it will be concluded during PED and prior to signing a PCA. The outcome of Section 7 consultation will not affect the selection of Eastward Expansion as the Recommended Plan and will not substantially affect analysis of the costs and benefits associated with the proposed project. HQUSACE encouraged the District to conclude Section 7 consultation during this phase, if possible.

**Action Required:** Seek NMFS concurrence and conclude Section 7 consultation as soon as possible. Where applicable, revise documents to provide recent developments with Section 7 consultation.

**Action Taken:** Document revised to provide recent developments with Section 7 consultation (FEIS, Section IV, pgs, 34-39). Seeking NMFS concurrence to conclude Section 7 consultation.

**HQ Analysis:** The concern is resolved by the actions taken.

**Comment 3) ROD. [PGM item 1.e.3]** Page 1 of Appendix F of the EIS states that a draft Record of Decision would be prepared at the “future completion date” of July 2005. Provided this is still outstanding, a draft ROD should be developed and forwarded for review. Please note that the Record of Decision should document compliance with the ESA, with no outstanding issues from the consultation process that could substantively affect the project.

**Response:** Comment noted. A draft Record of Decision will be prepared at the appropriate time and in accordance with Department of the Army procedures. The ROD will document compliance with the ESA for this stage of project development, with no outstanding issues from the consultation process that could substantively affect the project.

**Discussion:** Response accepted, no further discussion.

**Action Required:** The District will provide a draft ROD with the final documents.

**Action Taken:** District has prepared a draft ROD and will provide with the final documents.

**HQ Analysis:** The concern is resolved. The draft ROD was provided following submission of the final report and EIS and it will be finalized after completion of the Chief of Engineers report.

**Comment 4) HTRW. [PGM item 1.e.4]** Paragraph h on page 137 recommends studies to identify the existence and extent of any hazardous substances regulated under CERCLA. The district should ensure that any activity involving CERCLA-regulated substances will be in full compliance with all laws and regulations. ER 1165-2-132 requires, *inter alia*, that the non-Federal sponsor is responsible for the disposal costs

associated with CERCLA-regulated substances. Additionally, HTRW-contaminated areas should be identified in the reconnaissance, feasibility or PED phase and construction in these areas should be avoided where practicable (see ER 1165-2-132 § 6.b).

**Response:** The district will provide assurances that any activity involving CERCLA-regulated substances will be in full compliance with the law. The District and the non-Federal sponsor understand that ER 1165-2-132 requires, *inter alia*, that the non-Federal sponsor is responsible for the disposal costs associated with CERCLA-regulated substances. To the extent that such areas exist, HTRW-contaminated areas have been or will be identified in the reconnaissance, feasibility or PED phase and construction in these areas will be avoided where practicable (see ER 1165-2-132 § 6.b).

**Discussion:** See previous discussion regarding CERCLA.

**Action Required:** If hazardous substances regulated under CERCLA are identified, the District will provide provisions in the PCA that would limit CERCLA liability to the non-Federal sponsor. This will be documented in the Final Report/EIS.

**Action Taken:** The District will provide provisions in the PCA that would limit CERCLA liability to the non-Federal sponsor. This has been documented in the Final Report/EIS. This can be found in Main Report on pages 113-114 and 139; FEIS, Appendix B, pages B-62-64.

**HQ Analysis:** The concern is resolved by the text changes noted in the action taken.

**B. RESOLUTION OF POLICY COMPLIANCE REVIEW CONCERNS ON THE AFB MATERIALS.** The following paragraphs discuss the resolution of concerns raised on the Craney Island Eastern Expansion AFB Materials during the HQUSACE policy compliance review. CENAO draft responses on the policy concerns were discussed during the 21 June AFB meeting and final responses, as shown below, were provided subsequent to the meeting. Discussions during the AFB meeting are documented in the attached CENAO Memorandum for the Record (encl 1). HQUSACE Assessment/Action Required paragraphs were added below to guide preparation of the draft feasibility report. The Action Taken by the District in preparing the draft report is shown for each concern. The HQUSACE Analysis indicates whether or not the concern is resolved by the changes the draft report. For unresolved concerns the Action Required and Action Taken for the final report are noted followed by the HQ Analysis. **All concerns raised on the AFB materials have been resolved.**

#### **1. Port Development. [PGM item 2.a.]**

**Comment 1) Corps Participation in Port Development: [PGM item 2.a.1)]** There is a long-standing Congressional policy excluding the Corps of Engineers from port development. Notwithstanding the study authority for Craney Island, development of

port infrastructure has been, and continues to be, the complete responsibility of the non-Federal public and/or the private sectors.

**CENAO Response:** Concur.

**HQUSACE Assessment/Action Required:** The draft report should explain the Corps Civil Works program interest in general navigation feature improvements and note that this excludes development of port lands, facilities and infrastructure. In addition, the report should fully respond to Congressional direction in the study authority with respect to eastern expansion for port land development and should also note the effects of any subsequent legislation.

**Action Taken:** The draft report contains the information requested.

**HQUSACE Analysis:** **The concern is resolved** by the text changes incorporated in the draft report. It is noted that the dredging to provide for dike construction also results in an access channel that is a General Navigation Feature.

**Comment 2) Division of Responsibility: [PGM item 2.a.2)]** The report argues that there is a justification for Corps participation in the eastward expansion of Craney Island based on the theory that the transportation savings from the 50-foot inbound channel project will be limited in the future without additional port capacity. The HQUSACE position is that lower transportation costs are in the national interest, but the division of responsibilities established by Congress dictates that transportation savings displayed in the analysis are to be captured by non-Federal port interests, with the Federal interest limited to the transportation savings associated with General Navigation improvements such as channel deepening. Since no general navigation feature improvements are proposed within this analysis, the District's economic justification in the feasibility report needs to be limited to the dredged material cost savings, if any, generated by introducing an eastward expansion component into the least cost long-term dredged material disposal plan.

**CENAO Response:** Concur that lower transportation cost savings are in the national interest. The draft feasibility report will reflect that the recommended plan provides substantial benefits to the nation and that cost sharing by the Corps is limited by current laws and regulations to a level equal to the Federal cost sharing for least cost dredged material disposal.

**HQUSACE Assessment/Action Required:** The draft report should reflect that Corps Civil Works program cost share for the project is limited to the present worth value of the least cost long-term dredged material alternative. The district and sponsor should also consider potential opportunities for other Federal and/or state agencies that may have missions and interests in cost-sharing the incremental costs of port land development and expansion.

**Action Taken:** The draft report fully reflects that the Corps Civil Works cost share for the project is limited to the present worth value of the least cost dredged material disposal method. The sponsor is considering alternative cost sharing agreements. This is shown on page 109.

**HQUSACE Analysis:** The concern is resolved by the text changes incorporated in the draft report.

**Comment 3) Applicability of Transportation Cost Savings: [PGM item 2.a.3)]** The transportation cost savings associated with port development at Craney Island cannot be counted as part of the rationale for Federal participation in the eastward expansion plan as the recommended plan. ER 1105-2-100 (pages E-64 and E-65) states that the NED plan is to rely exclusively on navigation benefits and that land creation is not to be considered in the net benefit calculation. Paragraph E-7 defines general navigation features as channels, jetties, locks and dams, etc. and includes dredged material disposal areas, but only to the extent that such areas are part of a basic Federal navigation system. Paragraph 15.f clearly states that for beneficial uses that include dredged material for land creation or land enhancement, all of the incremental implementation costs above those required for the base disposal plan must be paid by non-Federal interests. Regardless of how land creation benefits are measured (e.g. increased market value, land transportation savings, or any other measure), these are not disposal cost savings to be considered in the formulation of long-term dredged disposal plans.

**CENAO Response:** Concur that current laws and regulations require that the incremental costs of beneficial use of dredged material, above the cost of least-cost disposal, are to be paid by non-Federal interests. The draft feasibility report will identify disposal cost savings separate from the transportation cost savings generated by the recommended plan. The incremental costs of beneficial use of dredged material for port development purposes will be clearly presented.

**HQUSACE Assessment/Action Required:** The draft report will identify the transportation savings benefits attributable to the port development and the Corps Civil Works program cost share will be limited to the present value of the least cost dredged material disposal alternative.

**Action Taken:** The draft report identifies that transportation cost savings are attributable to port development and explains the cost share limitations as directed in the PGM. This is located on pages 109-117 and pages 122-129.

**HQUSACE Analysis:** The concern is resolved by the text changes incorporated in the draft report.

## **2. Study Objectives and Content: [PGM item 2.b.]**

**Comment 1) Dredged Material Disposal Strategy. [PGM item 2.b.1)]** The pre-conference AFB materials do not demonstrate complete success in answering the

fundamental questions posed by the study resolution: What is the present Corps long-term strategy for disposal of dredged materials in Hampton Roads? How can this strategy be adjusted to accelerate port facility expansion to accommodate increased container traffic? Is this adjusted process more or less expensive than the current strategy? If so, how much? Under existing policy, how much of the extra cost can the Federal government assume in any additional cost of the revised plan? What new policy and/or legislation is needed to enhance the Corps' ability to participate in the proposed eastward expansion of Craney Island? The District needs to lay out these steps in an orderly progression leading to a recommendation in the draft report. Any gaps or omissions in the progression make it difficult to determine HQUSACE support for a recommended plan.

**CENAO Response:** The District will lay out the plan formulation steps in the following manner:

1. Clearly identify the future without project condition regarding dredged material disposal over the planning horizon.
2. Identify the project costs for least cost disposal, which are based on the lowest life-cycle costs for dredged material disposal (absent port development).
3. Formulate and identify the plan that best addresses the problems and opportunities identified in the feasibility study, including dredged material disposal, beneficial use of dredged material, and port development.
4. Calculate and present the disposal cost and transportation cost savings generated under the lowest life- cycle cost approach and the recommended plan.

**HQUSACE Assessment/Action Required:** The draft report will present a logical explanation of the steps taken to formulate the tentatively recommended plan and identify the Corps Civil Works program interest, as noted in the response. Consideration should be given to other Federal and/or state programs that may have missions and interests in contributing to the costs and aspects of the overall project that are not eligible for Civil Works program funding.

**Action Taken:** A logical explanation of the plan formulation process has been presented in the draft report as directed. The VPA is considering alternative cost sharing arrangements. This is located on pages 40-95.

**HQUSACE Analysis:** The concern is partially resolved by the text changes incorporated in the draft report as noted in the response. The order of the presentation in the plan formulation text is difficult to follow, since a recommended plan is presented without knowing what the base plan is for dredged material disposal. Information on the base disposal plan is presented only as a basis for determining the cost sharing for the recommended plan. The presentation would be smoother and more logical if it was reordered.

**Discussion:** Discussions with Headquarters USACE have been ongoing. The action coming out of those discussions is that the report does not need to be re-ordered. However, additional information detailing the least cost analysis needs to be provided.

**Action Required:** The final report should identify the least cost (base) disposal plan first, since that establishes the Federal interest in dredged material disposal activities, then formulate plans for dredged material disposal with consideration to land development in response to the study resolution.

**Action Taken:** The following text has been added to the report on page 2a to clarify the sequence of analyses:

The Feasibility Study, as presented in this report, proceeds along two tracks:

- Assessment of alternative plans that meet the dual purpose cited in the authorizing resolution (port development and CIDMMA useful life expansion); and
- Identification and evaluation of the least-cost dredged material disposal option, which is used to calculate the Federal cost share of the recommended plan, under existing laws and policies.

The report first presents the assessment of alternative plans that meet the dual purpose of the study authority (Pages 42-100), and second presents the least-cost disposal analysis in order to calculate the Federal cost share of the recommended plan (Pages 117-125)). The additional information requested detailing the least cost analysis is included in the main report as well as Appendix B. This action comes out of discussions with HQUSACE and NAD.

**HQ Analysis: The concern is resolved** by the text changes noted in the action taken.

**Comment 2) Need to Define the Long-Term Dredged Material Management Plan: [PGM item 2.b.2)]** As HQ interprets the AFB materials presented, the current without-project disposal strategy should be to construct a western berm, which would facilitate dike raising and increase the life of Craney Island from 2025 to about 2039, then convert to ocean disposal for most (97%) of the dredged material thereafter. Some new confined disposal area to receive a relatively small amount of contaminated wastes would still be required. It is difficult to determine whether this is in fact the without-project base disposal plan, or if it is even the best long-term strategy, because so many disposal options were removed from the evaluation process due to their failure to address the port expansion objective. In order to establish a basis for Federal participation and to determine the amount of cost sharing under existing law and policy, the District needs to present a without-project least cost long-term dredged material disposal plan in the draft report, without consideration of port expansion, and consistent with Section E-15 of ER 1105-2-100. However, in this instance, since the current disposal practice is sufficient until 2025, the time line for developing the without-project strategy needs to extend throughout a 50-year period of analysis from the base year.

**CENAO Response:** The draft feasibility report will identify the current without-project disposal strategy, which is the disposal strategy that excludes any capital investments at Craney Island (other than those already planned for). The report will also identify the project costs associated with least cost disposal as discussed in comment B1) above.

**HQUSACE Assessment/Action Required:** The draft report will clearly present the least cost strategy for disposal of dredged material throughout the period of analysis, as noted in the response. This will be based on the life-cycle costs for Federal and non-Federal dredging, including a sensitivity regarding construction of the authorized 55-foot channel.

**Action Taken:** The draft report clearly presents the least cost strategy for disposal as directed. A sensitivity analysis concerning the effects of construction of the authorized 55-foot channel has been conducted and included in the analysis. This is located on pages 110-117.

**HQUSACE Analysis:** The concern is partially resolved. The text does not adequately clarify the least cost (base plan) for dredged material disposal. See discussion under 2.c. 2).

**Action Required:** See 2.c. 2) on Dredging and Disposal Practices.

**Action Taken:** The following text has been added to the main report on page 17. Also see 2.c.2) for more information.

The Norfolk Harbor Dredged Material Management Plan (DMMP) largely relies on CIDMMA as the predominant dredged material placement option. Four dredged material placement options are typically available under the DMMP:

- CIDMMA;
- U.S. Environmental Protection Agency (USEPA) designated ocean disposal site (the Norfolk Dredged Material Management Area), located approximately 47 miles from the CIDMMA and 17 miles east of the mouth of the Chesapeake Bay;
- Upland disposal; and
- Beneficial use.

Use of the ocean disposal site is typically limited to material that comes from areas outside of the harbor, beyond the Hampton Roads Bridge-Tunnel. Upland disposal is limited to materials that are unsuitable for CIDMMA, the ocean disposal site, or beneficial use. The beneficial use option is employed as material characteristics and use opportunities allow.

**HQ Analysis: The concern is resolved** by the response and text changes noted in the action taken.

**Comment 3) NED Effects Relative to the DMMP: [PGM item 2.b.3)]** As HQ reads the materials presented, the proposed revised strategy is to insert an eastward Craney

Island expansion component into the existing without-project disposal plan, which would delay the need for construction of the western berm and later convert to ocean disposal by about three years. If this is correct, then it is possible to compare the two plans and determine the difference in life-cycle investment and operational dredged disposal costs between the two plans. The District should be prepared to present a framework for such a cost comparison at the AFB meeting, to the extent possible at this time, and will need to present a comprehensive cost analysis of both the without-project and with-project dredge disposal strategies in the final report. The resultant effects should be discussed as NED cost savings.

**CENAO Response:** The District presented cost comparisons between the without-project and least cost disposal at the AFB, which included full life-cycle costs. The District also identified disposal cost savings that would occur during a brief window of time based on travel time reductions for barges carrying dredged material to the disposal site.

**HQUSACE Assessment/Action Required:** The draft report should present a comparison of the full life cycle costs for the least cost disposal (base plan) strategy under the future without project conditions and the with-project conditions.

**Action Taken:** The draft report presents the life cycle cost comparisons as directed. This is located on pages 110-117.

**HQUSACE Analysis:** The concern is partially resolved by the text changes incorporated in the draft report. It is still not clear how the calculations were performed to translate the life cycle costs to average annual values and whether the base plan has been adequately defined. Also, see related comment 2.c. 2).

**Discussion:** The final report should include documentation on the calculation of life cycle costs to provide the reader with a better basis for understanding the base plan assumptions for dredged material disposal and analysis. The district concurs. The additional information will be included.

**Action Required:** Additional tables showing the least cost analysis and the full lifecycle cost will be included.

**Action Taken:** Additional tables showing the least cost analysis and the full lifecycle cost have been included in Appendix B, Part 1. Table 34, on page 121, presents a direct comparison of the full life cycle costs of the base plan (the without project condition) and the three alternatives under consideration.

**HQ Analysis:** The concern is resolved by the text changes noted in the action taken.

**Comment 4) Craney Island Exemption from GNF: [PGM item 2.b.4)]** WRDA 1996, Section 201, changed the status of most new confined dredged material disposal facilities from an item to be funded solely by a non-Federal sponsor (i.e. one of the LERRD's) to a

feature to be cost shared the same as any other Federal general navigation feature of a project. The District relies on this change in status to declare the eastward expansion a general navigation feature. However, paragraph 9.a of PGL 47 specifically excludes the Federally-owned Craney Island facility from this change in law, stating that the cost sharing for the (current) operation and maintenance and any new expansion of the Craney Island disposal facility will continue to be in accordance with the (original) authorizing legislation. This exemption has to be factored into any new recommendation for Federal participation in the eastward expansion. The District needs to describe the existing authority for Craney Island during the AFB and be prepared to justify why the exception from WRDA 1996 does not rule out any claim that the eastward expansion should be treated as a GNF navigation feature. In the final report, it may be necessary to recommend, if deemed necessary, a change in law to remove the exemption, with appropriate consideration for the changes needed to transform the facility from a Federally-owned to a State or Authority-owned facility, including recommendations regarding compensation for such a change.

**CENAO Response:** The District described the existing Craney Island authority during the AFB and there was an extensive discussion of the study resolution background and changes that have occurred at Norfolk Harbor since the study resolution (1997). The draft feasibility report will consider changes in law that may be required for Federal participation in the recommended plan.

**HQUSACE Assessment/Action Required:** The draft report should present the cost sharing based on the applicable policy and law. Currently, Craney Island is exempted from being characterized as GNF as defined by Section 101 of WRDA 86, since it is authorized for 100% Federal funding with toll collection authority for disposal of non-Federal dredged materials at the facility. The draft report should discuss how 100% Federal funding and toll collections would be applied to the Civil Works investment based on least cost-disposal.

If future legislation should specify that an eastern expansion to Craney Island be characterized as GNF, the cost sharing would follow the GNF rules in section 7 of PGL 47 unless a cost sharing percentage for its construction and operations is specified by the legislation. Note that current policy for the construction and maintenance of new GNF disposal facilities at existing projects calls for cost sharing to prorated according to the capacity being provided for material from Federal channels with depths less than 45 feet (100% Federal) versus greater than 45 feet (50%/50%) [see the cost sharing example for new construction in Appendix G, ER 1165-2-131 and the examples for multiple project disposal facilities in Encl. 4 of PGL 47], the capacity provided for private material (100% non-Federal), and the capacity to be used by other Federal agencies (100% non-Corps). The resulting percentage of Federal (Corps) cost share would not likely be 50% as shown in the AFB material, and might be either a higher or lower percentage depending on the relative proportions of dredged material from the various sources.

**Action Taken:** The draft report addresses all the directives in this comment including:

- Cost sharing based on existing policy and law, page 109.
- Application of toll collections in the calculation of the Federal cost share, page 109.
- Discussion of potential cost share arrangements if CIDMMA were to be considered a GNF through new legislation was taken out based on discussions at a meeting on 15 August 2005 at HQUSACE.

**HQUSACE Analysis:** The concern is resolved by the text changes incorporated in the draft report. However, see related comment 2.e.1), which asks for further clarification on cost sharing in the text.

**Comment 5) Tolls for Dredged Material Disposal: [PGM item 2.b.5)]** Corps policy, as stated in Planning Guidance Letter 47, defines special rules for confined disposal facilities which are operated by the Corps of Engineers and which are authorized for cost recovery through the collection of tolls. Craney Island is such a facility. The existing project collects tolls for disposal and, for deliveries using barges without pump-out capability, handling charge as well. The AFB pre-conference materials are silent on the operation and maintenance practices to be used during the development of the eastward expansion, specifically on whether tolls will be collected for disposal to the expansion project. Under the existing authorization, tolls should be charged to offset some, or perhaps all, of the cost of the expansion dikes. At the AFB, the District needs to present how toll collection would impact the cash flow for the expansion project, specifically, how tolls would be used to offset part or all of the recommended Federal and/or non-Federal investment in the expansion project.

**CENAO Response:** As discussed during the AFB, under the recommended plan, the existing facility would continue to be operated under the existing authorization, including toll collection. The expansion would be operated and cost-shared under a new authorization that would not include toll collection.

**HQUSACE Assessment/Action Required:** If new legislation characterizes the eastern expansion as GNF, tolls would no longer be applicable and disposal facility construction and maintenance would be cost shared among interested parties in accordance with the planned capacity requirements or any cost sharing specified in the legislation. HQ believes that if the recommended plan has Corps cost-sharing limited to the least cost disposal, it should be recommended in a way that would maintain toll collections for the costs associated with least cost disposal and have local interests be responsible for ownership and OMRR&R of the eastern expansion.

**Action Taken:** Cost sharing based on the costs associated with the least cost disposal method maintains toll collections and have local interests responsible for ownership and OMRR&R as directed. This is located on page 109.

**HQUSACE Analysis:** The concern is resolved by the text changes incorporated in the draft report.

### 3. Without-Project Conditions. [PGM item 2.c.]

**Comment 1) Commodity Movements. [PGM item 2.c.1)]** Several places in the report information is presented implying that traffic would be diverted from Norfolk to other ports and that the without-project and with-project condition traffic forecasts for container movements through Norfolk would be the same. These are conflicting statements in and of themselves, and present misleading information. Reference for example the 4th paragraph on page i of Executive Summary wherein it is mentioned that there would be "shifting historical Norfolk Harbor cargo to alternative ports"; page 17 that states, "these future TEU volumes are used in the analysis of both without and with project conditions but are capped once throughput capacity is exceeded"; and page 24 that states, "these excess TEU's will be diverted to alternative ports...."

These, among other similar statements, are misleading at best and incorrect at worst. The without condition forecast for TEU traffic through Norfolk will reach some threshold based on the assumed throughput capacity. All other TEUs would go through other ports to their hinterland destinations. In with condition, the TEUs that would go through other ports in the without condition, would be "diverted" through Norfolk due to less costly total transportation costs to their ultimate destinations.

**CENAO Response:** Clarifications will be made in the draft feasibility report that the without project condition is diversion of some cargo to ports other than Norfolk. The with project condition will be clarified to show that a portion of that cargo would not need to divert due to the additional cargo handling capacity provided by Craney Island Eastward Expansion. Norfolk Harbor's container handling capacity will be exceeded in both the without and with-project conditions, but under with-project conditions fewer containers would need to find alternative ports. Without the recommended project, the nation would incur an additional transportation cost burden, which would be relieved by the recommended plan.

**HQUSACE Assessment/Action Required:** The response does not fully address the concern and continues to inappropriately use the term "diversion" in describing the without-project condition. The draft report should revise the presentation on the without-project conditions to clarify that commodity movements from Norfolk's historic hinterlands are limited by the throughput capacity of its facilities, with excess cargo going to alternative ports. This should not be described as a diversion, since Norfolk has no capacity to handle the commodities. Under the with-project conditions the report should indicate that the excess cargo would then be diverted to Norfolk.

**Action Taken:** The draft report has revised the presentation as directed such that excess cargo utilizes alternative ports in the without-project condition and that diversion of cargo to Norfolk occurs in the with-project condition. This discussion is on page 79.

**HQUSACE Analysis:** The concern is resolved by the text changes incorporated in the draft report.

**Comment 2) Dredging and Disposal Practices. [PGM item 2.c.2)]** The Base Plan needs to be clearly identified for the future without-project conditions during the period of analysis. The text should briefly describe the various Corps' navigation channels that are maintained, the disposal capacity typically used at each disposal area, and the costs. New work dredging planned under the future without-project conditions should be described, including its timing, disposal capacity requirements and the sites used. The report should also describe the typical disposal requirements of other Federal and non-Federal interests.

**CENAO Response:** In the draft feasibility report, the District will identify the base plan for future without-project conditions, which does not include capital improvements at Craney Island (other than those already planned). The District will also include additional descriptions of the various Corps' navigation channels that are maintained and new work dredging planned under the future without-project conditions, including its timing, disposal capacity requirements and the sites used.

**HQUSACE Assessment/Action Required:** The draft report will identify the base plan for navigation, which is the least cost means of dredging and maintaining the navigation channel system throughout the period of analysis and evaluate the with-project conditions in comparison.

**Action Taken:** The draft report identifies the least cost means of dredging and maintaining the channel system and evaluates with-project conditions for dredged material disposal in comparison. This is located on pages 110-117.

**HQUSACE Analysis:** The concern is partially resolved by the text changes incorporated in the draft report. Although the least cost plan is identified as the western dike strengthening and continued use of the existing facility, the report does not clearly state what the base plan is for dredged material disposal throughout the period of analysis once that is filled. It appears that ocean disposal is the next less costly alternative. Also the ERDC analysis provided as part of the Engineering Appendix raises concern as to whether the base plan has been adequately defined. Initial simulations of the Craney Island facility in 2001 evaluated installation of strip drains as a management measure alone and in combination with the western berm strengthening. The analysis showed that strip drains could extend the useful life of CIDMMA by 9 years alone (Alternative 14) and 24 years when combined with the western berm strengthening plan (Alternative 16). Subsequent simulations accomplished by ERDC in 2003 did not address the strip drain concept, and it is not clear whether this would be an economical option for site management that should be included as part of the base plan/least cost disposal analysis.

**Discussion:** The strip drains were eliminated very early on due to costs. Installing strip drains throughout the interior of CIDMMA was evaluated as an alternative and was not found to be cost-effective. In 2002 price levels, strip drains through out the interior of Craney Island on a 6-foot off-center placing would cost approximately \$900 million. Using a 12-foot off-center placing would cost approximately \$230 million. These prices do not include preconstruction, engineering and design or construction management, nor

do they include contingencies. For these reasons, it was not considered prudent to continue evaluating alternatives that could not be part of a cost effective plan.

**Action Required:** The base plan for dredged material disposal throughout the period of analysis should be clearly stated in the final report, so that the plan is identified throughout the period of analysis and the viability of strip drains is addressed. As previously stated, more information regarding the least cost analysis will be provided in the final report.

**Action Taken:** The least cost disposal alternative or disposal base plan is the west dike strengthening. It includes disposal at CIDMMA, ocean disposal (at the Norfolk Dredged Material Management Area) for materials that come from the approach channel, upland disposal for materials that are unsuitable for CIDMMA or ocean disposal and beneficial use when feasible. The west dike strengthening would be constructed in 2025 to allow continued disposal at CIDMMA until 2039. The without-project condition dredged material disposal option, relies on the DMMP, which includes CIDMMA, ocean disposal (at the Norfolk Dredged Material Management Area) for materials that come from the approach channel, upland disposal for materials that are unsuitable for CIDMMA or ocean disposal and beneficial use when feasible.

The following text concerning strip drains has been added to the main report on page 118 and Appendix B:

The preliminary screening also identified obvious potential environmental impacts and excessive costs, such as strip drains. The strip drains were eliminated very early on due to costs. Installing strip drains throughout the interior of CIDMMA was evaluated as an alternative and was not found to be cost-effective. In 2002 price levels, strip drains through out the interior of CIDMMA on a 6-foot off-center placing would cost approximately \$900 million. Using a 12-foot off-center placing would cost approximately \$230 million. These prices do not include PED or construction management, nor do they include contingencies. For these reasons, it was not considered prudent to continue evaluating these alternatives that could not be part of a cost-effective plan.

**HQ Analysis: The concern is resolved** by the text change noted in the action taken.

**Comment 3) Port Development: [PGM item 2.c.3)]** The AFB report indicates that the port authority has analyzed potential sites for future port development and concluded there is no developable land in Norfolk Harbor. The analysis assumes that without Federal participation in Craney Island expansion, the Virginia Port Authority will not be able to adequately address future Hampton Roads port expansion needs. HQ does not agree with this portrayal of the without-project condition. Based on the analysis to date, which shows a sharp increase in future container traffic and about a 5 to 1 benefit-cost ratio for port expansion, it can be assumed that the Virginia Port Authority would expand Hampton Roads facilities to accommodate this increased container traffic with or without Corp participation in the Craney Island expansion project. Also, based on analysis to

date, this would be accomplished through eastward expansion of Craney Island. According to existing policy, Federal cost sharing is to be targeted only at projects that cannot or will not be undertaken by non-Federal interests at the State or local level or by the private sector (see Policy Digest, para. 1-4 and ER 1105-2-100, page D-17, para. D-4.d.). One private sector container handling company in Hampton Roads has already launched an expensive port expansion project near Craney Island. It barely makes a dent in the shortfall of capability caused by expected growth in container shipping activity. Therefore, the without-project condition needs to be adjusted to account for such economically rational behavior by the Port Authority and shipping lines.

**CENAO Response:** As per discussions carried out during the AFB, the without-project conditions at the port will be fully explained and will include all planned capital expenditures that have already been identified by VPA. The eastward expansion of Craney Island as described in the recommended plan is not a component of the without-project condition.

**HQUSACE Assessment/Action Required:** The draft report will describe the existing and planned port facilities in the project area and the throughput conditions expected to prevail under the future without-project conditions. This should address the future plans of the public port as well as any facilities developed by private entities. No new port expansion beyond those currently planned need to be included in the future without project condition.

**Action Taken:** The draft report describes existing and planned port facilities and throughput capacities as directed. This is located on pages 22 and 23.

**HQUSACE Analysis:** **The concern is resolved** by the text changes incorporated in the draft report.

#### **4. With-Project Conditions. [PGM item 2.e.]**

**Comment 1) Net Disposal Capacity: [PGM item 2.e.1)]** Based on preliminary calculations shown in the minutes of the Vertical Quality Control team, the total disposal space to be created by the eastward expansion will be 24 MCY, less 15 MCY needed for constructing the dikes, leaving a net of 9 MCY available for handling routine channel maintenance materials. A later estimate claims 12 MCY for net disposal space. In either case, the estimate of net space created is less than three times the 5 MCY/year average requirements for dredged materials. What is the current estimate for net space created and is the three-year extension of time still valid?

**CENAO Response:** The current estimate is 12 MCY of capacity created. Some of the berthing and access channel dredging would not occur until after the year 2028. This brings the capacity up from 9 MCY to 12 MCY. In addition, as the construction material to build the dikes is brought in from the ocean, the material dredged to make room for dike construction will utilize ocean disposal when possible. This would create further capacity, however that has not been included in capacity estimates due to uncertainty.

The long-term yearly cubic yard average is 4.8 MCY. Thus 12 MCY is equivalent to roughly 2.5 years or 3 years rounded. Further clarification will be provided in the draft report.

**HQUSACE Assessment/Action Required:** The draft report should provide further clarification on the project's effects on the long-term disposal capacity needs, as noted in the response.

**Action Taken:** The draft report provides further clarification as directed.

**HQUSACE Analysis:** The concern is resolved by the text changes incorporated in the draft report.

**Comment 2) Unit Cost: [PGM item 2.e.2)]** As recently as March 2004, the total cost of constructing the confinement dikes was estimated to be \$277M plus mitigation costs. Table 6-1 of the pre-conference materials shows a cost estimate of \$647.3M for construction of the eastward expansion. Dividing \$647.2M by 12MCY, the highest net capacity value above, yields almost \$54/CY, almost six and one-half times the estimated cost of equivalent ocean disposal, without any consideration for extra material handling and rapid dewatering costs. Is this correct?

**CENAO Response:** Concur. The cost estimate of \$647.3 million is correct. The \$277 million costs was purely a construction cost and did not include LERR, E&D, S&A, 20% Contingencies or, as noted above, mitigation. There were also changes to the engineering assumptions that were used in the initial design. The net capacity value is high, and based on the discussions at the AFB, cost sharing of the eastward expansion would be based on the project costs for least cost disposal.

**HQUSACE Assessment/Action Required:** The draft report will present the least cost strategy for dredged material disposal under the without-project conditions and develop a comparison the with-project conditions in order to identify the project's economic effects and establish the appropriate Federal cost sharing.

**Action Taken:** The draft report presents the least cost strategy for dredged material disposal and conducts the comparisons as directed. This is located on pages 110-117.

**HQUSACE Analysis:** The concern is partially resolved by the text changes incorporated in the draft report. However, it is not clear whether the least cost strategy (base plan) has been identified throughout the planning period as a basis for the cost sharing. See Comment 4.c.2) above.

**Discussion:** The requested changes will be included in the final report.

**Action Required:** As previously stated, more information will be included in the final report to clearly show the least cost analysis and the base disposal plan throughout the period of analysis.

**Action Taken:** The western dike strengthening alternative is the least-cost dredged material disposal method. The discounted present value of the costs necessary to construct, operate and maintain the west dike strengthening over its useful life are presented in the following table. Federal cost sharing, in accordance with current laws and policy, for an eastward expansion of CIDMMA that accommodates port development (the Recommended Plan) is limited to the present worth value of the west dike strengthening alternative, as it is the least-cost dredged material disposal method. The present worth of the least-cost dredged material disposal method is \$55,215,000. The least cost alternative provides CIDMMA with an additional 67.2 million cubic yards of capacity at a cost of \$0.82 per cubic yard ( $\$55,215,000 / 67.2 \text{ million cubic yards} = \$0.822/\text{cu yd}$ ). This information is included in the main report on pages 117 thru 125. The detailed life-cycle cost analysis is included in Appendix B, Part 1.

**HQ Analysis:** The concern is resolved by the response and text changes noted in the action taken.

**Comment 3) Construction Process: [PGM item 2.e.3]** Based on the AFB pre-conference materials submitted, it is difficult to discern how the proposed eastward expansion is to be constructed. Without such information, it is difficult to judge whether all of the expansion project components qualify for dredge material disposal-related Federal cost participation and whether the assumed timing for port operations is reasonable. The process for dewatering, settlement, and consolidation can normally take years and may significantly affect the timeframe in which port facilities with any significant loading pressure can actually be developed on filled lands. It is not clear whether the projected timeframes for benefits attributable to increased throughput capacity are realistic given the engineering considerations.

**CENAO Response:** See response below for details summarizing the anticipated construction methodology. The description will be clarified in the draft feasibility report.

**HQUSACE Assessment/Action Required:** The district will clarify the construction methodology in the draft report as noted below.

**Action Taken:** The draft report clarifies construction methods as directed. This is located on pages 88-92. Plates have been added as well.

**HQUSACE Analysis:** The concern is resolved by the text changes incorporated in the draft report.

**Comment (a). Bottom Materials. [PGM item 2.e.3)(a)]** Is special preparation needed to excavate or pre-consolidate saturated bottom materials under the dike or within the disposal basin in order to meet accelerated port expansion construction time requirement? If so, these costs may not qualify for cost sharing because the extra cost should be allocated to port development.

**CENAO Response:** See response below for details.

**HQUSACE Assessment/Action Required:** The draft report will explain the difference in costs for disposal facility construction and maintenance versus the requirements for accelerated consolidation to support port expansion as a basis for determining the project costs subject to cost sharing.

**Action Taken:** The draft report explains the differences in costs between the two alternatives in the least cost disposal analysis located on pages 110-117.

**HQUSACE Analysis:** **The concern is resolved** by the text changes incorporated in the draft report.

**Comment (b) Drying Practices. [PGM item 2.e.3)(b)]** Similarly, does the fill for port expansion need to be placed in the dry to avoid long drying times? Does dried backfill need to be borrowed from the existing disposal area to accelerate construction time? Transfer costs and/or dewatering costs may need to be assigned to the port development function.

**CENAO Response:** Using the drier material from existing CIDMMA was considered during preliminary design. The option will be considered again during PED phase.

**HQUSACE Assessment/Action Required:** It is not clear to what extent the reuse of dried material was investigated as an alternative. The draft report should discuss the consideration given to reuse of dredged material from the existing facility as dry fill and its effects on the ultimate costs for dredging and disposal in comparison to other alternatives considered under the with-project conditions.

**Action Taken:** The draft report discusses the consideration given to the reuse of dried material as directed. This is located on page 91.

**HQUSACE Analysis:** **The concern is resolved** by the text changes incorporated in the draft report.

**Comment (c) Partition Dike. [PGM item 2.e.3)(c)]** Does the cost estimate include the cost of the partition dike, which may or may not otherwise be necessary for the confined disposal function?

**CENAO Response:** The cost of the partition dike, or division dike, is included in the estimate. The division dike is considered necessary to improve water quality and allow rapid-filling of a portion of the site in a reasonable time.

**HQUSACE Assessment/Action Required:** The response does not fully address the concern. The draft report should clarify whether the division dike is a necessary part of the disposal facility in the absence of port development or is related to the requirement for rapidly filling a portion of the site.

**Action Taken:** The draft report clarifies that the division dike is related to the rapid filling for port development and is not a necessary part of the disposal facility absent port development. This is located on page 90 and 91.

**HQUSACE Analysis:** **The concern is resolved** by the text changes incorporated in the draft report.

**Comment (d) Spreading. [PGM item 2.e.3)(d)]** Does the planned use of spreading dredged materials in lieu of rotation between cells ultimately result in the loss of disposal capacity in the eastward expansion?

**CENAO Response:** No, it does not. Regular rotation or a fixed rotation schedule results in a shorter life. The spreading option is the selective use of the expansion for large slugs of material. This allows for more drying on the larger existing facility thus creating more capacity. As shown in table A-4 there is a 1-year difference.

**HQUSACE Assessment/Action Required:** The response does not fully address the concern. The draft report should explain the effects of depositing large slugs of material on the dewatering and consolidation of material placed in the expansion area, as well as the overall effects on the existing disposal area.

**Action Taken:** The draft report explains the effects of depositing large slugs of material in the plan description as directed. This is located on page 91.

**HQUSACE Analysis:** **The concern is resolved** by the text changes incorporated in the draft report.

**Comment (e) Construction Process. [PGM item 2.e.3)(e)]** To respond to the above concerns, the District needs to prepare a presentation of the proposed construction process of the eastward expansion for the AFB and be prepared to distinguish between eastward expansion activities that are necessary for confined dredged disposal and activities intended to speed up the port expansion process.

**CENAO Response:** The District will clarify the construction process with supporting information to be included in the draft feasibility report. The following information summarizes assumptions for the construction of a 600-acre cell to the east of the existing Craney Island Dredged Material Management Area (CIDMMA). After filling the new cell will become the location for the new Craney Island Marine Terminal. The design of the proposed port and port facilities is not discussed herein. The following construction methods, assumptions, figures and sketches were the basis for construction times and cost estimates. A general layout of the expansion is shown in Figure 1.

Pre-dredge Foundation and Access Channel Dredging. Pre-dredging along the Main Dike (Alternative Levee Design) is anticipated to be completed by a combination of bucket and pipeline cutter-head dredges. 10% of the pre-dredge foundation and

access channel dredging material is assumed to go into the existing CIDMMA via a pipeline dredge. The remaining 90%, anticipated to be dredged by bucket dredge, would be disposed of in the Norfolk offshore placement site. Sketch 1 shows the limits of pre-dredging.

Access Channel. The Access Channel dredging is defined as the area between the federal navigation channel (Norfolk Harbor and Craney Island Reaches) and the new wharf. The Access Channel is generally 500 feet in width. The Access Channel will be flared at both ends where it adjoins the federal channel. The dredging depth will be to -50 feet MLLW with 2' advance maintenance dredging. Maintenance material within the existing channel template was not included in the estimated quantities. Sketch 1 shows the limits of the Access Channel.

Pre-Dredge Foundation to -60'	15,400,000
Access Channel to -52' (50' +2' Advance Maintenance)	3,700,000

Basis for 10% going to Craney. The predominately clayey material to be dredged is likely undisturbed, with contamination transport through layers unlikely. However it is thought that by placing the upper few feet of material in Craney all remaining material will be suitable for ocean disposal. The upper several feet will be defined as 10% of material dredged. Although no one knows, on average, what percent of material going into Craney would be unsuitable for ocean placement, 10% is thought to capture a conservative upper limit. Environmental testing to verify the material is suitable for ocean placement is anticipated to be completed during PED. The 10% (estimated to be up to 1.8 MCY) could be placed into Craney without impacting operations.

Production rate for a single bucket dredge is estimated to be 5,000 CY/Day. For this project a minimum of two bucket dredges would be used

1. Sand Fill. In order to construct the dikes, sand will be dredged from offshore borrow areas by hopper dredge. Once transported to the eastward expansion site the material will be offloaded using a self-contained offshore transfer station buoy ("SCOTS buoy"). The Atlantic Ocean Channel is designated as the primary source of material for dike construction. NEPA documentation will name the Atlantic Ocean Channel as the primary borrow source for dike construction, with Thimble Shoal and Cape Henry Channels as secondary sources. Sketch 2 shows dike layout. Sketches 3 and 4 show dike geometry for the two dike geometries (Alternative 3 and Alternative Levee Design).

The total amount of sand fill required is estimated to be 19.5 million CY (in-place at dikes), broken down as follows:

Main Dike (3,000 LF)	5.3 million CY
South Dike (2,800 LF)	1.5 million CY
Division Dike (2,800 LF)	1.5 million CY
Continue Main Dike (5,500 LF)	9.7 million CY
North Dike (2,800 LF)	1.5 million CY
Total	19.5 million CY

Note: A single hopper dredge is assumed to be capable of 10,000 CY/day. Quantities shown in the table above include additional material required for anticipated displacement of the soft clay foundation and loss of material outside dike template. Assumptions for displacements are as follows:

Alternative Levee Design: 40% increase. With the proposed over-dredging foundation displacements will be minimized. The largest losses will be due to sands falling outside the dike geometry

Dike Alternative 3: 100% increase. Estimated quantities of sand are doubled for the dike Alternative 3 in order to account for losses during placement and foundation displacements. This quantity is thought to be conservative due to Alternative 3 including the use of a geotextile. The geotextile should reduce displacements.

2. Riprap. To provide protection to the dikes from erosion, slopes will be protected with riprap.

Exterior Slope of Main Dikes. As the dikes are constructed the slopes along the exterior of the dike along the wharf will be protected from +8' to -3' MLLW. The riprap section for this reach will consist of a 4-foot thick layer of VDOT Class III riprap underlain by a 1.5-foot thick layer of VDOT No. 1 stone, underlain by geotextile. Note that additional riprap, not included under the dike construction contract, will be provided under the contract to construct the Wharf.

Interior Slopes of North Cell and Exterior North and South Dike Slopes. The interior slopes of the dikes in the northern cell, including the division dike, will also be protected. Interior slope riprap will consist of a 2.8-foot thick layer of VDOT Class II riprap underlain by a 1-foot thick layer VDOT No. 1 stone, underlain by geotextile. The riprap will be placed on the exterior of the slopes from elevation +8' to -3'.

3. Construct Spillboxes. To allow dewatering of the dredge fill spillboxes will be installed. Four spillboxes are anticipated, two at the division dike, and two along the north dike.

4. Rapidly Fill Phase 1 Cell. Modeling estimated that it would take 12 months to rapidly fill the southern port cell to elevation +15 feet MLLW. Surcharge and ground improvements can begin approximately 3 to 6 months after this rapid filling. After that time a surface crust would form allowing the surcharge and strip drains to be installed.
5. Wharf Construction. Construction of the wharf would start concurrent with filling of the cell, as it is envisioned that shaping the main dike and beginning installation of wick drains could begin soon after the dike has be constructed.

**HQUSACE Assessment/Action Required:** The draft report should include the information in the above response to provide a more comprehensive explanation of the project design, construction methodology, and costs.

**Action Taken:** The draft report contains a more comprehensive explanation of project design, construction methods, and costs as directed. This is located on page 88-93.

**HQUSACE Analysis:** **The concern is resolved** by the text changes incorporated in the draft report.

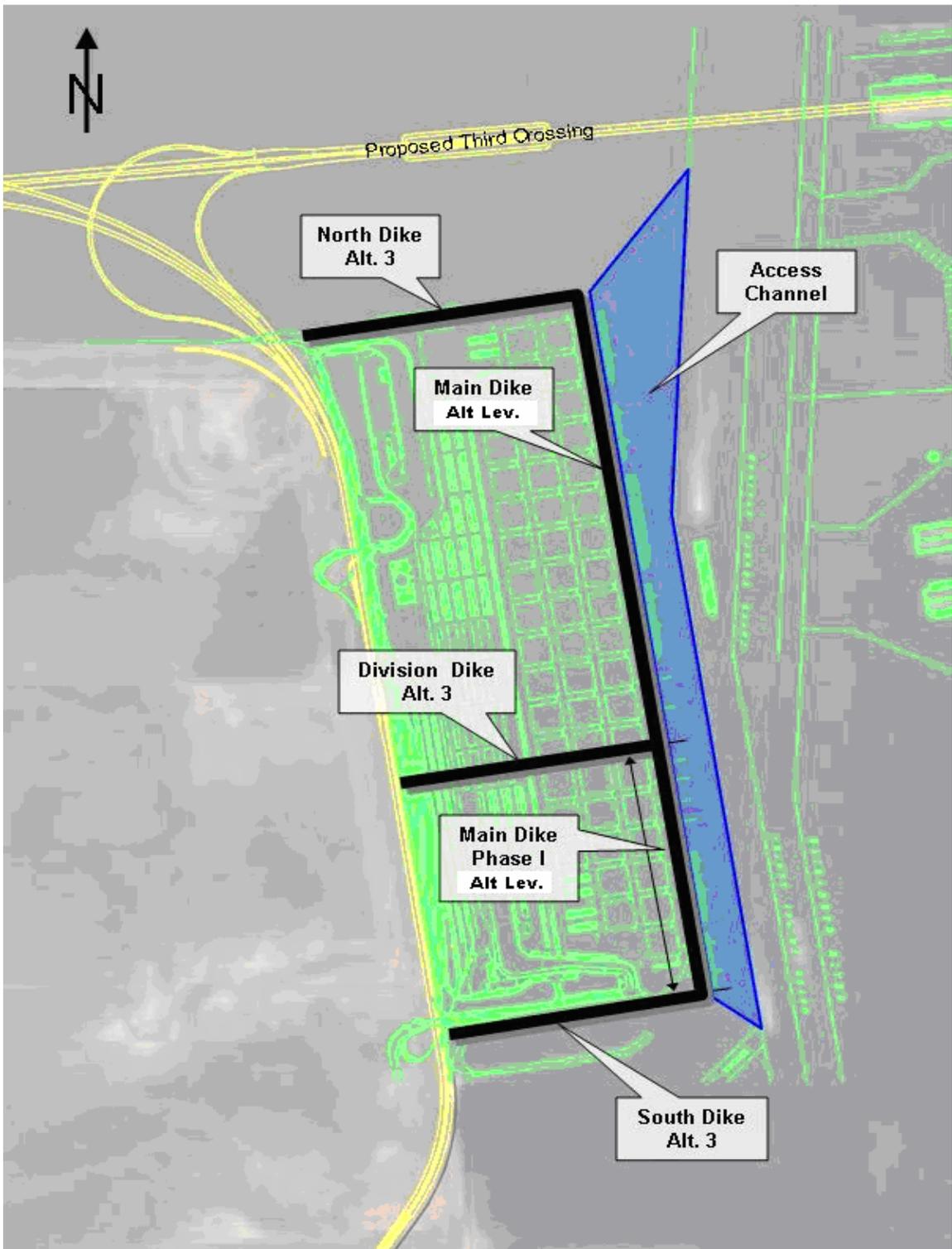
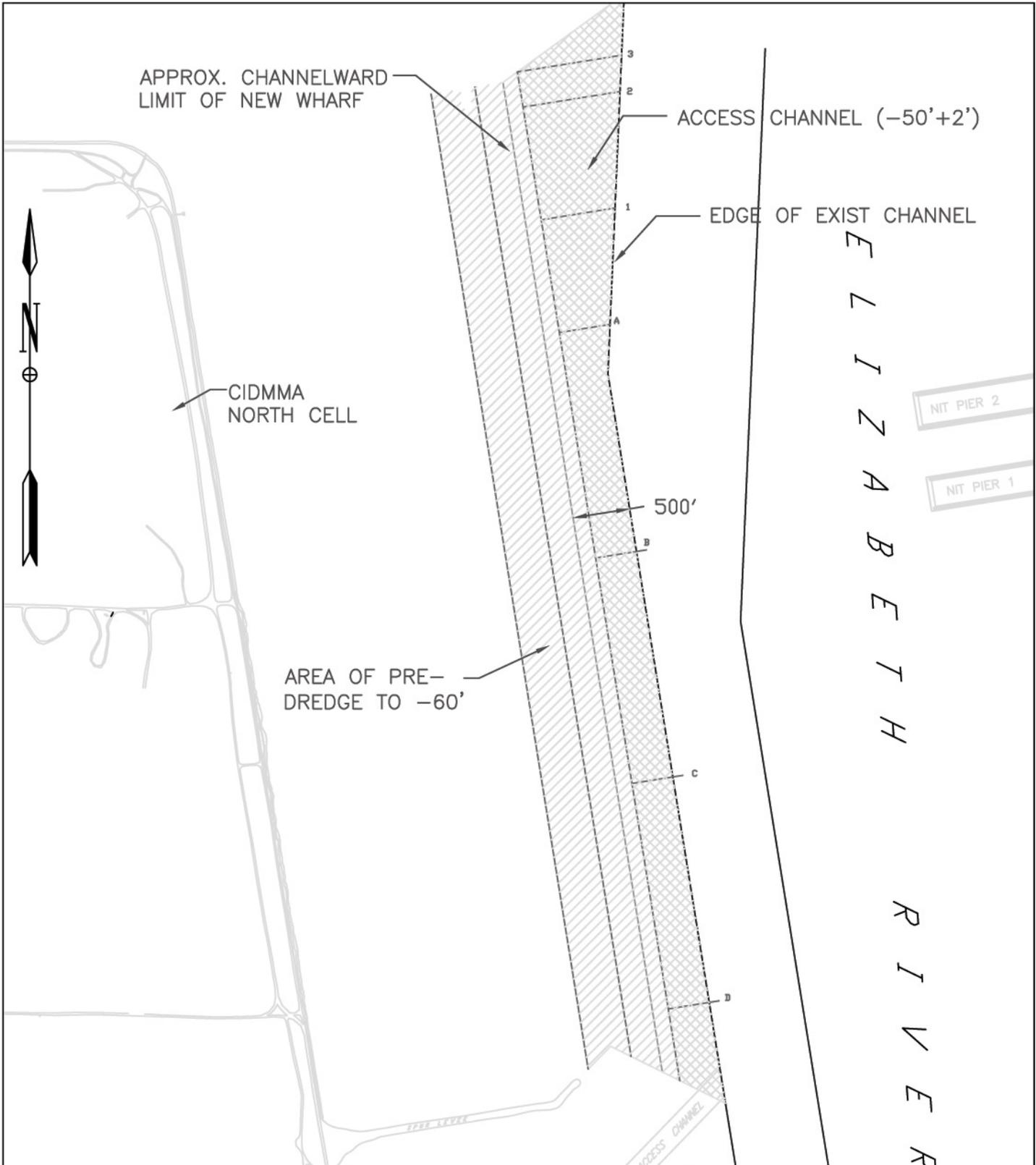


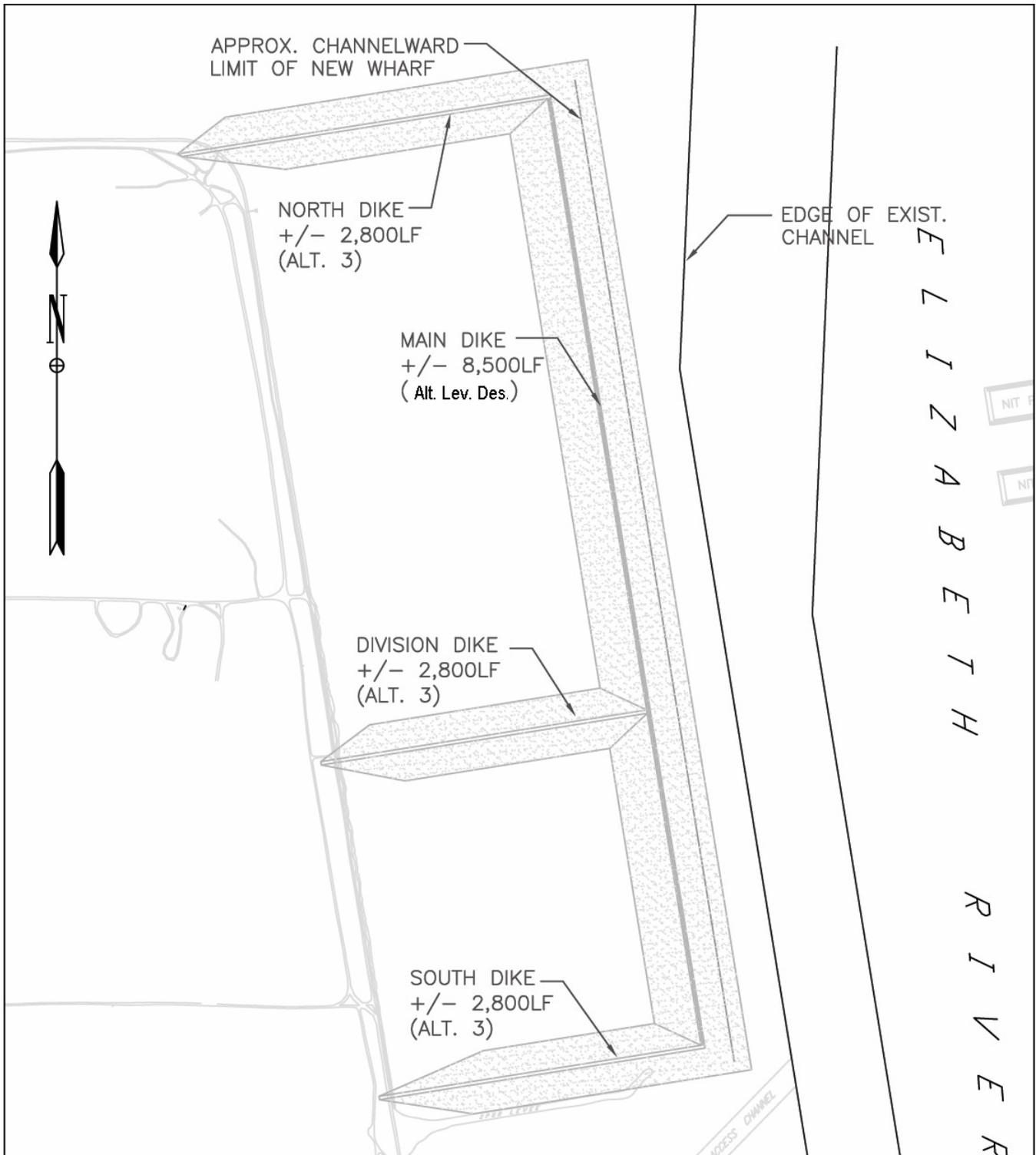
Figure 1 - Layout of New Cell



ACCESS CHANNEL &  
PRE-DREDGE LIMITS

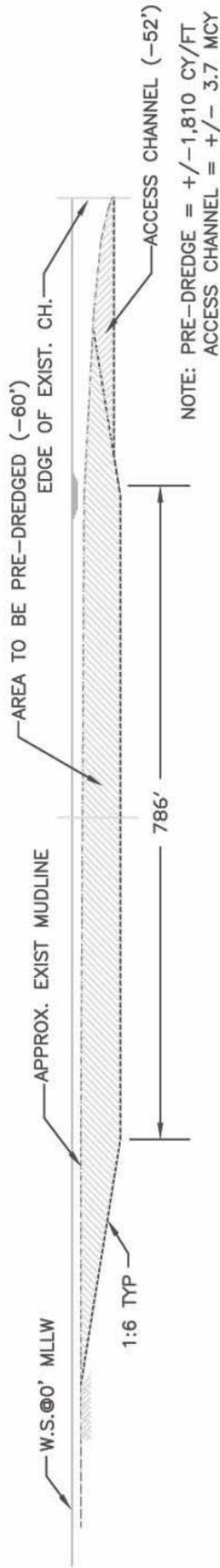


CRANEY ISLAND  
EASTWARD EXPANSION



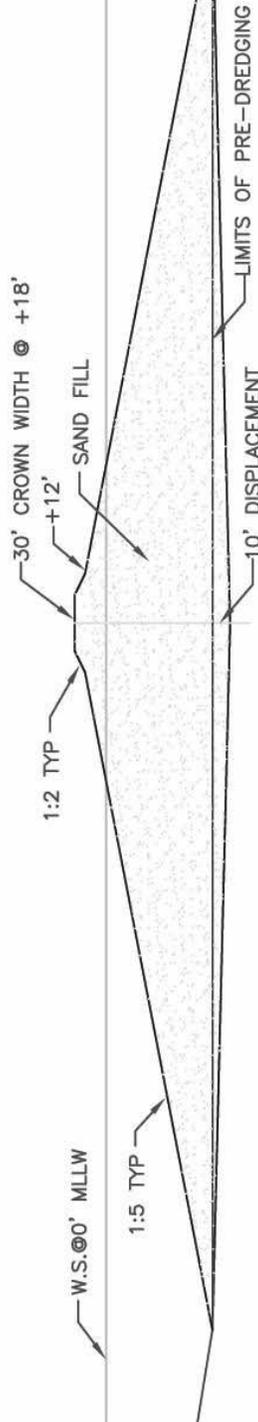
SKETCH 2

PRE-DREDGE DIKE FOUNDATION TO -60'  
& ACCESS CHANNEL TO -52'



PLACE SAND FILL

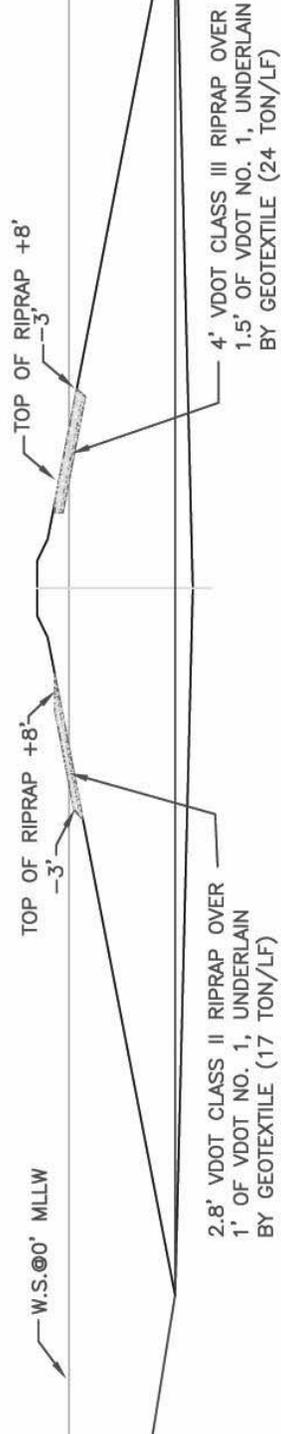
NOTE: SAND = +/- 1,260 CY/LF



EXTERIOR SLOPE

PLACE RIPRAP

INTERIOR SLOPE  
NORTH CELL ONLY



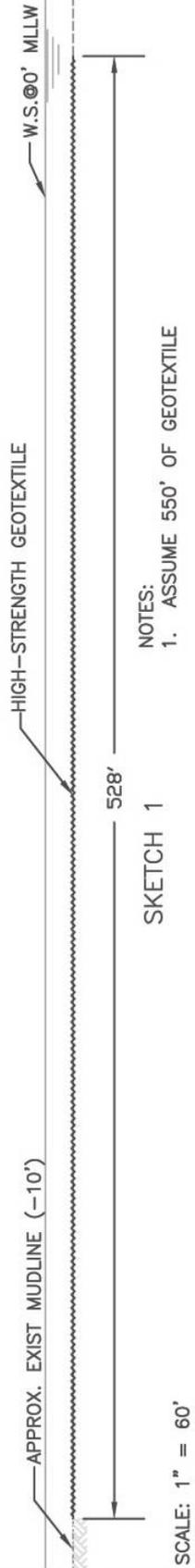
DATE: 11/2004

SKETCH 3

ALTERNATIVE LEVEE DESIGN

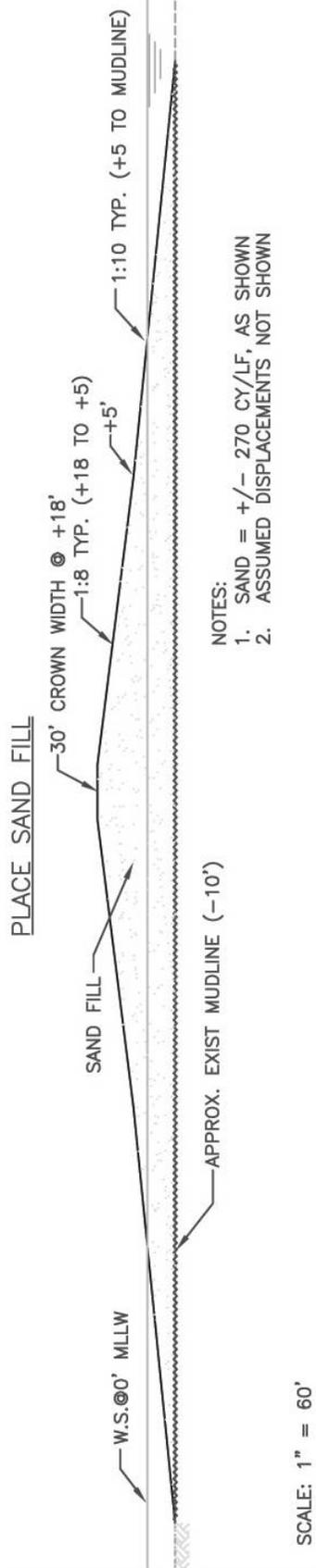
CRANEY ISLAND  
EASTWARD EXPANSION

INSTALL HIGH-STRENGTH GEOTEXTILE



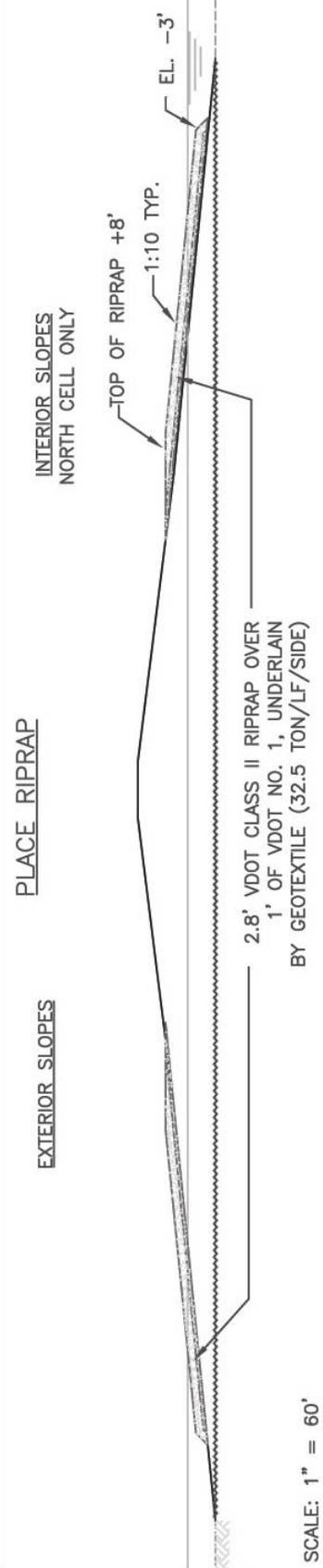
SKETCH 1

NOTES:  
1. ASSUME 550' OF GEOTEXTILE



PLACE SAND FILL

NOTES:  
1. SAND = +/- 270 CY/LF, AS SHOWN  
2. ASSUMED DISPLACEMENTS NOT SHOWN



PLACE RIPRAP

DIKE ALTERNATIVE 3

## 5. Economic Analyses. [PGM item 2.f.]

**Comment 1) Benefits for Avoiding Ocean Disposal Costs. [PGM item 2.f.1)]** It is not clear why benefits are claimed for avoiding ocean disposal. Is that the eastern expansion cheaper than the cost of ocean disposal? The comparison of the base disposal plan under the without-project versus with-project conditions may result in avoided costs (NED cost savings) to the Federal government in disposal investments or O&M dredging expenses that should be quantified and discussed in the report. There is a sound basis for claiming NED benefits for the avoided costs of adding capacity to the existing dike disposal area that is needed for channel maintenance and new construction. See comment 4.B.3) above on effects relative to the DMMP.

**CENAO Response:** Ocean disposal, on a per unit basis, is more expensive to the dredger than placing material into Craney Island or its eastern expansion because the ocean disposal site is farther away from the channels being maintained than Craney Island. Avoidance of ocean disposal under with-project conditions generates future cost savings during that window of time (three years) when material can be placed in the eastward expansion instead of ocean disposal.

**HQUSACE Assessment/Action Required:** The draft report should substantiate that ocean disposal is part of the least cost disposal strategy during the period of analysis and that those costs would be avoided under the with-project future conditions.

**Action Taken:** The draft report substantiates that ocean disposal is part of the without project condition and identifies the costs avoided under with-project conditions. This is located on page 20 and page 84.

**HQUSACE Analysis:** The concern is resolved by the text changes incorporated in the draft report.

**Comment 2) Port Throughput Capacity: [PGM item 2.f.2)]** Port throughput capacity is shown as 2.5 million TEU's in 2011. The TEU capacity estimates are used as a base upon which to measure benefits. With container volume growing and storage capacity scarce, many railroads serving ports are reducing and eliminating on-terminal storage. They are also reducing free storage time and raising storage rates. Marine terminals are considering following the railroads example and reducing free container storage time to free up additional yard capacity. The raising of rail and ship terminal storage rates can be considered a non-structural alternative to increase throughput capacity and needs to be considered in the draft report.

**CENAO Response:** Concur that there are non-structural considerations that would have positive impacts on port capacity. These considerations have been accounted for in the Port's Master Plan, which is the source of the capacity forecast for this study. The draft report will consider the potential impact from reducing free storage time at the container facilities.

**HQUSACE Assessment/Action Required:** The draft report will address the potential impact on throughput capacity of reducing storage time, and will discuss the non-structural considerations, which were included in the Port's Master Plan.

**Action Taken:** The draft report includes additional discussion of the non-structural considerations identified by the port's Master Plan as directed. This is located on pages 21-23.

**HQUSACE Analysis:** The concern is partially resolved by the text changes incorporated in the draft report. It is not clear from the discussion provided how reducing free storage time and raising rates was considered.

**Discussion:** Further explanation should be provided on the consideration given to reducing free storage time and raising storage rates as means to increase throughput in the port's Master Plan. The additional information will be provided in the final report.

**Action Required:** The additional information will be included in the final report.

**Action Taken:** The information presented below has been included in the report on pages 23 thru 24.

The VPA's Master Plan is a constantly updated program of identifying new efficiencies and innovations that may be applied at the port. In the future, new operational or structural improvements may be identified and implemented by the port that further increase productivity rates beyond today's reasonable expectations. However, it is highly unlikely that additional future improvements beyond those currently identified in the Master Plan would significantly increase productivity to a level that would have a major impact on the formulation of this project. Marginal additional improvements may be squeezed out by opportunistically stacking boxes higher as conditions allow or by increasing fees as an incentive to reduce dwell time, but all of the major operational and structural improvements that would significantly affect productivity have been identified and assessed in the development of the Master Plan.

Two examples of potential improvements that were considered in the development of the Master Plan, but not recommended for full implementation due to other constraints include "six high" stacking and charging container storage fees to reduce dwell time. "Six high" stacking (using "one over five" machines) is considered to be the maximum practical for loads worldwide. (Empties are sometimes stacked up to 7 or 8 high, but this is not often or common.) Most loads at Norfolk are imports. Analysis conducted by the VPA indicate that "six high" stacking machines for random delivery of imports have a maximum average operating height of 4.17 and yield an actual storage density increase of 19% over the more common "five high" ("one over four") machines currently deployed at most ports. In addition, as stacking height increases, particularly for imports, service productivity goes down, so there is a dynamic capacity penalty associated with the static capacity increase. These factors were considered in the Master Plan.

Similarly, the Port's ability to increase capacity by reducing dwell time through the imposition of charges is limited by many factors, such as competition with other ports. Unless all ports increase storage fees, the boxes that can feasibly do so, particularly empties, will shift to a lower cost port. Many of the empties at east coast ports are positioned there from the West Coast and repositioned by rail. So, for empty boxes the shipping lines can route them to the cheapest port to some extent. However, for loaded containers it would be incorrect to assume that increasing demurrage charges would always reduce dwell time. Especially during peak import periods, retailers are willing to pay demurrage on loads.

Every US container-port has to confront the problem of empty containers, which must be stored somewhere. Unless empty depots are developed inland, and used by the owners of the containers, the ports will have to deal with a portion of their dwell time being used by boxes waiting between import use and export loading. The allocation of loading slots and the imposition of storage restrictions by the railroads have increased the use of ports as container storage facilities. Fee assessment on storage time is not considered an effective measure to significantly reduce container dwell time.

**HQ Analysis: The concern is resolved** by the text changes noted in the action taken.

**Comment (a) Container Handling Capacity 5,000 Lifts Per Acre: [PGM item 2.f.2)(a)]** The evaluation assumes that container handling productivity is ultimately capped at approximately 5,000 lifts per acre, or double the current productivity rate. The 5,000 lifts per acre was considered technically feasible since the late 1990's, with containers stacked three high. With the latest technology containers can be stacked six high. Therefore, the base of 5,000 with 1.89% annual increase may not full capture container productivity per acre. Also, according to the April 2005 issue of Marine Digest and Cargo Business News, larger crane gangs have allowed higher container crane productivity in Southern California. This non-structural measure to increase productivity should also be considered in the analysis.

**CENAO Response:** Concur that non-structural measures to increase port productivity should be included in the draft feasibility report. Non-structural considerations were considered in the development of the Port's Master Plan and will be further identified and discussed in the draft report. Industry averages are around 30 moves per hour. Each move requires the crane operator to move the spreader from the wharf to the container in the ship, "hook" the container and transfer the container back to the wharf. VPA currently averages 35 moves per hour with the newest cranes on the wharf and is just shy of 30 per hour with the older cranes. As pointed out in the comments above, terminal capacity is a function of many variables, all of which must be considered together. These factors were all analyzed in developing the VPA Master Plan, which identifies the terminal capacities, and in applying the efficiency increases to the future conditions. Clarification and additional supporting information will be included in the draft report.

**HQUSACE Assessment/Action Required:** The draft report should include additional information on the assumptions for port productivity as noted in the response.

**Action Taken:** Port productivity assumptions are more thoroughly addressed in the draft report as directed. This is located on pages 22 and 23.

**HQUSACE Analysis:** The concern is partially resolved by the text changes discussed in the Action Taken. It is still not clear from the text cited that the analysis has considered the effects of stacking containers six high, as noted in the original comment. The final report should address the effects of stacking containers six high on the throughput analysis.

**Discussion:** The additional information will be included.

**Action Required:** The additional information will be included in the final report.

**Action Taken:** The response to the previous comment presents the material that has been included in the report.

**HQ Analysis:** The concern is resolved by the text changes noted in the prior comment.

**Comment (b) TEU Capacity Change 2005-2010: [PGM item 2.f.2)(b)]** Reference is made to subject report page 17. Port Throughput Capacity is shown as 2.5 million TEU's in both 2005 and 2010. However, further improvements are shown during the remaining evaluation period 2011 to 2060. The five years between 2005 and 2010 should also have a future annual rate of landside capacity improvement.

**CENAO Response:** Concur. The capacity figure for 2005 is incorrect (typographical error). The correct capacity is approximately 1.9 million TEUs.

**HQUSACE Assessment/Action Required:** The draft report should be revised as noted in the response.

**Action Taken:** The draft report has been revised as directed. This is located on page 21.

**HQUSACE Analysis:** The concern is resolved by the text changes incorporated in the draft report.

**Comment (c) Basis for Throughput Capacity. [PGM item 2.f.2)(c)]** The information in the report should include a description of the factors affecting conclusions on throughput capacity. Throughput capacity may be a function of the number of berth spaces, the lift capacity of dockside equipment, assumptions for labor and gangs, storage area, and landside transportation. The factors being considered in estimating the port throughput capacity should be explained in the text, since it is critical to assumptions on cargo movement through alternative ports and the benefits to port development on the eastern expansion.

**CENAO Response:** Concur. The draft report will include additional supporting information concerning port productivity forecasts. This information will be based on the Port's Master Plan.

**HQUSACE Assessment/Action Required:** The draft report will present additional information from the Port's Master Plan to support the throughput capacity forecasts.

**Action Taken:** Additional information from the port's Master plan has been included in the draft report as requested. This is located on pages 21-23.

**HQUSACE Analysis:** The concern is partially resolved by the text changes incorporated in the draft report. See comments 2.f. 2) and 2.f. 2)(a).

**Discussion/Action Required:** Additional information will be included in the final report. See comments 2.f. 2) and 2.f. 2)(a).

**Action Taken:** The following text has been added to the report on page 23 and 23a:

Terminal capacity is a function of many variables, all of which must be considered together. These factors were analyzed in developing the VPA Master Plan, which identifies the terminal capacities. The efficiency increases expected by the VPA were included in the development of future conditions. Overall, implementation of the VPA's Master Plan will double VPA's container handling productivity to approximately 5,000 lifts per acre. This improved productivity rate is an ambitious yet reasonable goal considering that the port typically services partial vessel loads (i.e., only a portion of the containers on the vessel are unloaded or loaded at Norfolk) and a variety of vessel sizes. The types of improvements that VPA is implementing or plans to implement are outlined below.

Operational improvements that have been implemented or that are in the process of implementation include:

- Extended gate hours;
- Saturday gate hours during peak shipping season;
- Enhanced computer equipment for container tracking and yard planning;
- A port-wide chassis pool that has improved trucker turn times and freed up acreage for storing containers (first U.S. port for implementation); and
- Greater storage density (higher stacking): and
- Dwell-time reduction measures.

Operational improvements that are scheduled for future implementation include:

- Additional computer controls for yard equipment routing;
- Automation on yard and gate equipment; and
- Second and third shifts for gates.

The structural improvements identified in the master plan, such as equipment and facility upgrades that have been recently implemented or that are in the process of implementation, include:

- Complete renovation of the Norfolk International Terminals (NIT) South wharf (4,230 linear feet [LF]) and the addition of 8 Suez-max Cranes;
- Renovation of 48 acres of container yard at NIT South; and
- Expansion of NIT North container yard (10 acres).

The structural improvements that are scheduled for future implementation include:

- Renovation of an additional 96 acres of container yard at NIT South;
- Expansion of NIT North container yard by 30 acres with the addition of one more berth with three new 100 gage cranes; and
- Renovation and expansion of rail yard to double railcar handling capacity. Double stacked trains are currently in use.
- Continuing efforts to reduce dwell time and increase land use intensity as new technologies become available

The VPA's Master Plan is a constantly updated program of identifying new efficiencies and innovations that may be applied at the port. In the future, new operational or structural improvements may be identified and implemented by the port that further increase productivity rates beyond today's reasonable expectations. However, it is highly unlikely that additional future improvements beyond those currently identified in the Master Plan would significantly increase productivity to a level that would have a major impact on the formulation of this project. Marginal additional improvements may be squeezed out by opportunistically stacking boxes higher as conditions allow or by increasing fees as an incentive to reduce dwell time, but all of the major operational and structural improvements that would significantly affect productivity have been identified and assessed in the development of the Master Plan.

**HQ Analysis:** The concern is resolved by the text changes noted in the action taken.

**3). Alternative Port Capacity: [PGM item 2.f.3)]** There are several concerns regarding assumptions regarding container-handling capacity at alternative harbors:

**Comment (a) Baltimore: [PGM item 2.f.3)(a)]** In the absence of container handling capacity at Hampton Roads, the container shipping lines would need to drop off more containers at other ports on their rotation. The economic analysis implies that it would be too expensive to add another port of call. However, the possibility exists that if sufficient capacity was not available at Hampton Roads, some deliveries may be diverted to a nearby port with good rail connections to the Midwest, like Baltimore. To a limited extent, Baltimore could take the place of Norfolk on the rotation. The evaluation needs to determine origin to destination costs comparing Norfolk to Baltimore to determine the feasibility of additional port calls at Baltimore when Norfolk reaches capacity.

**CENAO Response:** Concur. The analysis did conduct an origin/destination cost comparison with Baltimore, however, this comparison was not used or presented in the final analysis because Baltimore is a less likely alternative port than those selected. Baltimore is a particularly unlikely alternative port because of the distance (and time)

required to get from the coastal sea lanes to the port at Baltimore. Additional discussion and analysis of cost and schedule differentials between Norfolk and Baltimore will be added to the draft report.

**HQUSACE Assessment/Action Required:** The draft report should present further information to support the alternative ports assumed to handle excess cargo from the Norfolk hinterlands, as noted in the response. This is particularly needed in light of the sizable overlap of ports' hinterlands and the recent consideration given to Baltimore by private interests for facility development.

**Action Taken:** Additional information has been provided in the draft report as directed. This is located on page 37.

**HQUSACE Analysis:** The concern is partially resolved by the text changes incorporated in the draft report. The text cited contains some additional information on the distance and time associated with travel to Baltimore versus Norfolk, but it isn't evident how that affects transportation costs in comparison to the selected alternative ports through which excess commodities are assumed to pass. Further information is needed to address the concern.

**Discussion:** A comparison of transportation costs for goods on the North Atlantic route was conducted for Baltimore and Norfolk. Weighted average (weights based on proportion of goods going to each trade cluster) landside transportation costs, including port costs, for Baltimore are \$380 per box and \$370 per box for Norfolk. These costs do not include the additional cost of 240 miles of ocean travel to Baltimore. Baltimore was rejected as an alternative port early in the analysis because of the additional ocean travel required which adds an additional day to the vessel's itinerary. The relatively low volume of containers that go through Baltimore today, even though landside transportation costs are similar to NY and Norfolk, is due to the burden of additional ocean travel.

**Action Required:** The final report should present cost information that compares the transportation costs through Baltimore versus Norfolk as well as other potential alternative ports, including those selected.

**Action Taken:** The information presented in the discussion above has been included in the report on page 38.

**HQ Analysis:** The concern is resolved by the text change noted in the action taken.

**Comment (b) NY/NJ: [PGM item 2.f.3)(b)]** In the Norfolk Harbor And Channels, Virginia Craney Island Eastward Expansion Feasibility Study of 2004, a reference is made to New York and New Jersey Harbor Deepening Project Limited Reevaluation Report, Volume IIIA, Economics Appendix of January 2004, page 9, Table 8. "Beginning in the mid-2020's the projected total Port container-handling capacity will fall short of total quantity of container-handling services (measured in TEU's)

demanded” However, Table 5-2 on page 18 of the subject report shows a deficit in capacity for NY/NJ beginning at 2020. Additional coordination and verification of port service shortfall is needed with the New York, Savannah, Jacksonville, and Charleston districts.

**CENAO Response:** Concur. Additional coordination and verification (which will be an update on verification already conducted) will be obtained and documented in the draft report.

**HQUSACE Assessment/Action Required:** The draft report will document additional coordination and verification of the port service shortfalls at the alternative ports noted in the comment and response.

**Action Taken:** Verification of capacity shortfalls at alternative ports has been conducted and documented as directed.

**HQUSACE Analysis:** The concern not resolved. It is not clear where the verification of shortfalls has been documented in the text.

**Discussion:** Sources port capacities

- NY/NJ: NY/NJ Harbor Navigation Study Post Authorization Economic Reevaluation (Sept. 2004), New York District
- Savannah: Georgia Port Authority (pers communication with S Schaffer) and Journal of Commerce Special Report dated 28Feb05
- Miami: Jacksonville District (pers. Communication R. King) and Miami Harbor Navigation Study, General Reevaluation Report, Appendix A: Economics, February 2003.
- Charleston: South Carolina State Port Authority, Final Environmental Impact Statement, Attachment 5: Statement of Need. February 2004

**Action Required:** The district will assure that the documentation has been provided in the text and cite the location where the response can be found in the final report.

**Action Taken:** The information presented above has been included in the main report on pages 37 and 38.

**HQ Analysis:** The concern is resolved by the text change noted in the action taken.

**Comment (c) LA/LB Port Capacity. [PGM item 2.f.3)(c)]** LA/LB is used as an alternative port for containers not able to use Norfolk due to capacity limits. However, no information was provided on the current or projected container handling capacity constraints at LA/LB. The capacity of alternative ports must be sufficient to handle the projected commodity growth for the hinterlands they currently serve in addition to whatever is attracted from the Norfolk hinterlands once its capacity is reached. This information should be presented in the report to support the benefits claimed.

**CENAO Response:** The analysis assumes that LA/LB would be able to increase capacity sufficiently to absorb Norfolk's anticipated overflow. This is a conservative assumption for the benefits calculations because many efficiencies were allocated to landside transport out of LA/LB (double stacked trains, repacked containers, no time sensitive goods). As indicated in the response to (b) above, additional coordination and verification will be obtained and documented in the draft report.

**HQUSACE Assessment/Action Required:** The draft report will document the ability of the Port of LA/LB to increase its capacity and absorb the excess cargo from the Norfolk hinterlands.

**Action Taken:** Documentation has been included as requested.

**HQUSACE Analysis:** The concern is not resolved. It is not clear where the documentation has been included in the text.

**Discussion:** Port of Long Beach Master Plan, 2004. Port of Los Angeles Navigation Study, November 2000, Los Angeles District.

**Action Required:** The district should provide the documentation in the final report and cite the location where it is addressed.

**Action Taken:** The following text has been added to the main report on page 39:

The following tables display Norfolk Harbor's excess TEU volumes and how they would be allocated to alternative ports under without project condition. By 2045, the selected East Coast alternative ports run out of available capacity that could handle the Norfolk Harbor's excess TEU's. After 2045, the model allocates all of the excess TEU's to LA/LB as a proxy low cost alternative for a solution to the East Coast's capacity constraint. This is a conservative assumption from the perspective of project benefits, because LA/LB is the next least expensive alternative to Norfolk, once Savannah's capacity constraint is reached. The assumption that the ports of LA/LB would be able to handle Norfolk's excess TEU's is supported by the Port of Los Angeles Channel Deepening Project Feasibility Study (Nov. 2000) and the Port of Long Beach Facilities Master plan 2020 (Feb 2002).

**HQ Analysis:** The concern is resolved by the text change noted in the action taken.

**Comment (d) Benefit Assumption: [PGM item 2.f.3)(d)]** When NY/NJ is deepened (2016): A reference is made to Norfolk Harbor And Channels, Virginia 50-Foot Inbound Element Final Limited Revaluation Report , pages A-33 and A-39. The assumption was that there are no benefits after NY/NJ is deepened in 2016. Nevertheless, the benefits for the inbound element exceed the project costs with just eleven (11) years of benefits before the vessel routing change when NY/NJ is deepened. It is not clear why this assumption was not carried forward for the benefit analysis for Craney Island.

**CENAO Response:** The transportation cost savings generated by the recommended plan would include benefits relating to all containership sizes and not just the subset of larger vessels that were identified as benefiting from the 50-foot inbound project.

**HQUSACE Assessment/Action Required:** The draft report should include the information provided in the above response.

**Action Taken:** The information has been included in the draft report as directed.

**HQUSACE Analysis:** The concern is not resolved. HQ has not located where this information is included in the draft report.

**Discussion:** Section and paragraph will be noted in the final compliance memo.

**Action Required:** The final report will include the information in the response and the location should be noted in the final compliance memo.

**Action Taken:** The information has been added to the paragraph following table 25, page 86 of main report.

**HQ Analysis:** The concern is resolved by the text change noted in the action taken.

## **6. Plan Formulation and Selection. [PGM item 2.g.]**

**Comment 1) Project Optimization. [PGM item 2.g.1)]** There was no apparent attempt to optimize the port expansion to maximize net benefits.

**CENAO Response:** The VPA did conduct an extensive analysis to optimize port development. Supporting information concerning optimization of port development will be included in the draft report.

**HQUSACE Assessment/Action Required:** The draft report will include information to support the selected size of the eastern expansion. However, as the eastern expansion is not to be recommended as a GNF, normal optimization is not required.

**Action Taken:** Additional information concerning the size of the eastward expansion has been included in the draft report as directed. This is located on page 47.

**HQUSACE Analysis:** The concern is resolved by the text changes incorporated in the draft report.

**Comment (a). Size of Expansion: [PGM item 2.g.1)(a)]** A 580-acre site was selected with no stated port development criteria and is the only expansion project evaluated. Staging of the project (build one-third first and last two-thirds later) is considered, but there is no information in the report about whether a smaller or a larger expansion would

increase net benefits. A sufficient range of expansion sizes needs to be evaluated to bracket the optimum plan (See Policy Digest, para. 19-26).

**CENAO Response:** The VPA conducted an analysis, based on the Master Plan forecast and maximizing the operational capacity of the existing terminals. VPA found a need for an additional 1,200 acres of land required to meet the containerized forecast. With the announcement of the Maersk facility construction of approximately 300 acres of marine terminal, the VPA still requires as much as 900 acres of additional container yard to meet the long-term forecast. Due to site constraints, such as the federal channel to the east, the re-handling basin to the south, and the legal constraint to the west, the expansion is constrained to approximately 580 acres.

**HQUSACE Assessment/Action Required:** The draft report will document the rationale and constraints for sizing the eastern expansion, as noted in the response above.

**Action Taken:** Rationale and constraints for sizing eastern expansion have been included in the draft report as directed. This is located on page 47.

**HQUSACE Analysis:** **The concern is resolved** by the text changes incorporated in the draft report.

**Comment (b) Timing of Expansion: [PGM item 2.g.1)(b)]** It appears that only one aspect of the timing of expansion was considered – immediate construction. The timing of project implementation is an important consideration in the formulation and evaluation process. Both staged construction and delayed implementation can have a material impact on maximizing economic benefits. See Policy Digest, para. 3-1.c. and ER 1105 – 2-100, page 2-6, para. 2-3.d. and e. for further details on project timing.

**CENAO Response:** Concur concerning the importance of project timing and the Policy Digest reference. Additional supporting information concern project implementation timing will be presented in the draft report. The relatively immediate timing of the expansion is due to the long lead time required to design and construct the eastward expansion, fill it with dredge material, perform ground improvements, and then construct the marine terminal. On a very aggressive schedule this process will require at least 12 years to complete. Note that the container handling capacity shortage in Norfolk is expected to begin in 2011 and the first phase of the new marine terminal would not be available until 2017.

**HQUSACE Assessment/Action Required:** Additional information will be included in the draft report to support the recommended timing for project construction.

**Action Taken:** Additional information has been included as directed.

**HQUSACE Analysis:** **The concern is resolved** by the text changes incorporated in the draft report.

**Comment 2) Non-Structural Measures. [PGM item 2.g.2)]** Although the discussion of management measures includes some non-structural considerations, it is not evident whether consideration was given to reuse of dried material from the existing Craney Island facility as fill for port development in order to renew its capacity. Dried material may provide better fill material than fluid dredged material to allow for more rapid consolidation and settlement required for the construction of port facilities in the expansion area. It would result in extending the life of the existing disposal, resulting in benefits from avoiding costs of replacement capacity, as potentially benefits from accelerated development of port facilities and reduced dewatering costs. The potential for this option should be discussed in the report to assure that consideration is given to the full range of non-structural alternatives. See 2-3.e.(5) of ER 1105-2-100.

**CENAO Response:** Concur. This option was considered during the analysis and will be discussed in the draft report. Using the drier material from existing CIDMMA was considered as a source of fill for the expansion area, in particular for surcharge for the consolidation of the dredge fill. The additional cost of moving the drier material from CIDMMA to the new eastern cell for all fill would significantly increase project costs. However, this option may be reconsidered during the PED phase.

**HQUSACE Assessment/Action Required:** Additional information will be included in the draft report to describe the consideration given to the reuse of dry material from the existing Craney Island facility in the screening of management measures and its relative costs in comparison to the least cost means of providing dredged material disposal capacity.

**Action Taken:** Additional information concerning reuse of dry material in its relative cost have been included as directed. This is located on page 91.

**HQUSACE Analysis:** **The concern is resolved** by the text changes incorporated in the draft report.

**Comment 3) Spread and Rotation Options. [PGM item 2.g.3)]** Table A-4 indicates that the spread options, which allow for large single placements of material into the expansion cell, result in capacity being available for a slightly longer period than the rotation options. This seems counter-intuitive, since rotation practices should provide better dewatering and consolidation, resulting in more capacity and a longer life. Further explanation is needed to clarify the site operations and accuracy of the table, since this may affect the assumed benefits and plan formulation results.

**CENAO Response:** Further explanation will be provided in the draft report to clarify site operations and to support the accuracy of the table, as requested.

**HQUSACE Assessment/Action Required:** The draft report will include further explanation to support the table presentation, which indicates that the spread option results in increased capacity and during efficiencies for the overall Craney Island operations.

**Action Taken:** Additional information has been included in the draft report as directed. This is located on page 91.

**HQUSACE Analysis:** The concern is resolved by the text changes incorporated in the draft report.

## **7. Project Costs. [PGM item 2.h.]**

**Comment 1) O&M Costs. [PGM item 2.h.1)]** Table A-7 shows that the eastern expansion has annual O&M costs of \$50,825, whereas the expansion plus west dike strengthening is shown to have annual O&M costs of \$913,161. This doesn't seem reasonable since the incremental annualized construction cost for the expansion plus dike strengthening is about \$1.2M. Further explanation is needed to assure the annual O&M and annualized total project costs used in the plan formulation are correct. See D-3.e.(9) of ER 1105-2-100.

**CENAO Response:** Further explanation will be provided in the draft report as requested. A major component of the O&M cost differential cited in the comment is due to the additional 14 years of dike raising that would be required under the west dike strengthening alternative. Additional clarification to assure that the cost calculations are correct will be included in the draft report.

**HQUSACE Assessment/Action Required:** The response partially addresses the concern. However, the eastern expansion only adds three years of disposal capacity and it is not clear how the stream of O&M costs for the two plans could be so different if disposal capacity is provided for the entire period of analysis. The clarification provided in the draft report needs to fully address the concern.

**Action Taken:** The draft report contains additional information that explains the difference in O&M costs and explains the additional capacity (in cubic yards and years of operation) afforded by each alternative. This is located on page 86.

**HQUSACE Analysis:** The concern is not resolved. Page 86 of the draft report mentions the O&M cost differences between the plans, but there is insufficient information to understand the basis for the incremental O&M costs.

**Discussion:** The selected plan, by itself, has no O&M costs. The eastward expansion would be built to its final height during initial construction, thus eliminating the O&M costs of raising the dikes. The incremental increase in O&M is due to the longer life of the existing facility. There are three additional years of life, thus three additional years of O&M. The O&M for the access channel will be included in the analysis as well.

**Action Required:** Clarification is needed on the calculation of incremental O&M costs to address the concern. The discussion should be made clear in the report. Additionally, the O&M for the access channel will be included in the report.

**Action Taken:** Under existing and without-project future conditions, CIDMMA dikes are raised to meet the expected immediate demand for dredged material disposal. This periodic dike raising is the source of CIDMMA O&M expenses. The eastward expansion, without the western dike strengthening, would be built to its final height during initial construction, thus eliminating the need to periodically raise its dikes. However, the eastward expansion would increase the useful life of the entire facility by three years. During those three years, the dikes surrounding the existing facility will need to be raised thereby incurring O&M expenses. The incremental O&M costs for the eastward expansion without the western dike strengthening are only the cost of periodically raising the dikes surrounding the existing facility for the three years of additional useful life (2025-2028). The incremental O&M costs for the eastward expansion without the western dike strengthening are identified on Table 29 as \$69,000 (AAEQ).

The O&M costs for the eastward expansion with the western dike strengthening include the additional O&M costs associated with periodically raising the western dike during the years following its construction in 2028. The full incremental O&M cost for the eastward expansion with western dike strengthening includes the three years of additional O&M for the existing facility and the cost of periodically raising the western dikes during the 14 years of its useful life. Table 29 identifies the incremental O&M cost for this alternative as \$1,558,000 (AAEQ). Additional information has been included on pages 89 and 90.

The O&M for the access channel will be included in the analysis as well. The discussion is included in Appendix B.

**HQ Analysis: The concern is resolved** by the text changes incorporated in the final report.

**Comment 2) E&D, S&A, Contingency Costs. [PGM item 2.h.2)]** Table A-8 shows the alternatives for eastern expansion and the expansion with west dike strengthening to have the same costs for PED, construction management, and contingencies, despite the fact that the construction costs are different for those alternatives. It is not clear why that would be the case. In addition, the estimates should include E&D during construction, in addition to the PED costs. The costs used in the plan formulation should be reviewed to assure their accuracy as a basis for plan selection. See D-3.e.(2) and (3) of ER 1105-2-100.

**CENAO Response:** Concur. The E&D and S&A costs were not included for the west dike strengthening that would occur in 2028. These costs will be included as directed.

**HQUSACE Assessment/Action Required:** The draft report will present the complete costs for the detailed alternatives as a basis for plan evaluation and selection and cost sharing.

**Action Taken:** Complete costs for the detailed alternative evaluation have been included

in the draft report as directed.

**HQUSACE Analysis:** The concern is resolved by the text changes incorporated in the draft report.

## **8. Cost Sharing. [PGM item 2.i.]**

**Comment 1) Cost Sharing for Beneficial Use of Dredged Material: [PGM item 2.i.1)]** Policy Guidance Letters (PGL) No. 47 and 17 state that dredged material from a Federal navigation project can be used to construct a facility that not only serves as a disposal facility but also serves for another purpose, such as a parking lot or terminal facility. In these cases, the guidance in Policy Guidance Letter 17 and ER 1105-2-100, paragraph 4-7d, will be followed. The Federal government will only share in the costs allocated to confined dredged material disposal facilities and all other costs allocated to creation of approach channels, berths, and port facility infrastructure will be non-Federal costs. The operation and maintenance cost of these berthing and ship service facilities are a non-Federal responsibility as well.

**CENAO Response:** Concur with policy guidance references.

**HQUSACE Assessment/Action Required:** The draft report will reflect cost sharing appropriate for the Corps Civil Works program interest in the least cost dredged material disposal scenario in the absence of port facility development and the special authorization of Craney Island.

**Action Taken:** The appropriate cost sharing based on the costs associated with the least cost dredged material disposal method are presented in the draft report as directed. This is located on page 109 and pages 122-126.

**HQUSACE Analysis:** The concern is partially resolved. There are still questions with regard to the basis for cost sharing shown in the report. Specifically, the report does not appear to account for berth area dredging in establishing the cost share relative to the access channel dredging. Information should be shown in the report text and figures that explain that the berth area dredging as a non-Federal responsibility. There are also discrepancies in the presentation with regard to the Federal share. Page 128 notes that the USACE will share only 1.6% of the construction costs for the eastward expansion. In contrast the Executive Summary indicates that the Federal share would be about 4% based on the least cost disposal and access channel benefits. Also, there are questions regarding the least cost disposal plan, which need to be addressed as a basis for cost sharing. See related comments 1.c. 2) and 1.e. 1), which ask for further clarification on cost sharing in the text.

**Discussion:** Berthing areas are a non-Federal responsibility and this will be clarified in the main report. The discrepancy in the percentages shown will be clarified. The 1.6% relates to the amount of cost-sharing based on disposal capacity and the 4% relates to a combination of the access channel cost sharing and the disposal capacity cost sharing.

**Action Required:** The final report will clearly present the area required for berths and account for the berth dredging costs as a non-Federal expense. The text should also present the cost sharing consistently based on the least cost disposal alternative. It should be clearly stated in the final report that the berthing areas for the port facility are a non-Federal responsibility.

**Action Taken:** It is stated in the first paragraph of “Division of Plan Responsibilities” on page 135 that, “The initial construction and O&M of the berthing and ship service facilities are also a non-Federal responsibility.” Additionally, the following text and table have been added on page 139.

The Federal and non-Federal cost shares were calculated exclusive of associated costs relating to berthing areas and the port facility that would be constructed on top of the eastward expansion. The following table presents the construction cost share apportionment in 2006 dollars.

Construction Cost Share Apportionment (\$ 2006)			
	Federal	Non-Federal	Total
Eastward Expansion	\$9,864,000	\$633,478,000	\$643,342,000
Access Channel	\$16,356,000	\$11,642,000	\$27,998,000
Total	\$26,220,000	\$645,120,000	\$671,340,000
Percentages	3.9%	96.1%	100%

**HQ Analysis: The concern is resolved** by the text changes noted in the action taken. See comments 2.a., 2.b., and 2.c. of the final assessment, which relate to Federal interest and cost sharing for construction and OMRR&R.

**Comment 2) Land Creation Benefits. [PGM item 2.i.2)]** The district should estimate the value of land creation benefits and address the need for cost sharing due to land creation benefits, in accordance with paragraph 12-20.c of EP 1165-2-1 as well as local cooperation. A reference is made to ER 1105-2-100 22 Apr 2000 pages E-64 and E-65. “The NED plan relies on navigation benefits exclusively (land creation is not considered in the net benefit calculation). Special cost sharing is required: it is based on the magnitude of land creation benefits relative to total benefits.” “Reports proposing land creation, where lands are necessary for development of port facilities to accommodate traffic, shall require the non-Federal sponsor to ensure the lands are retained in public ownership for uses compatible with the authorized purpose of the project. The non-Federal sponsor shall regulate the use, growth and development on such lands for those industries whose activities are dependent upon water transportation.”

**CENAO Response:** Concur with policy guidance references.

**HQUSACE Assessment/Action Required:** HQ noted at the AFB that the guidance was developed primarily for situations where additional material beyond GNF channel requirements was being dredged for fill to create lands. This represents an alternative

measure of the outputs from development of port facilities being created at the eastern expansion, similar to the reduced transportation costs described in the AFB material. As such there is no need to analyze the land creation benefits as a basis for determining the cost sharing, since this would be based on the least cost dredged material scenario in the absence of port development. No further action is required in the draft report.

**Action Taken:** Not applicable.

**HQUSACE Analysis:** The concern is resolved.

## **9. Environmental and Mitigation Concerns. [PGM item 2.j.]**

**Comment 1) EPA Concerns. [PGM item 2.j.1)]** HQUSACE seeks clarification concerning the USEPA statement in the letter of February 24, 2005 that additional work is needed for the alternatives analysis for the Craney Island project. It is not clear whether they disagree with the Corps' decision to limit the project alternatives to an eastward expansion of Craney Island, or are merely questioning the validity of the preliminary mitigation concept. EPA criticism of the validity of the Corps' range of project alternatives is a significant issue, however, a comment directed toward the mitigation plan is not.

**CENAO Response:** In response to USEPA's February 24, 2005 letter, the District met with USEPA staff in Philadelphia on 24 March 2005. A thorough presentation was given and discussion ensued which addressed all EPA questions concerning project alternatives and mitigation alternatives analysis accomplished to date. A follow-up letter was sent to USEPA dated 25 March 2005 as a record of this visit and the favorable outcome of the meeting (enclosure).

**HQUSACE Assessment/Action Required:** The response clarifies the EPA position. Documentation on the further EPA coordination should be included in the draft report.

**Action Taken:** Documentation on further EPA coordination has been included in the draft report as requested.

**HQUSACE Analysis:** The concern is resolved by the text changes incorporated in the draft report.

**Comment 2) Locally Preferred Mitigation Plan: [PGM item 2.j.2)]** According to information in the AFB materials, the most cost effective mitigation plan justified through incremental cost analysis may not be the consensus plan to which key stakeholders, including the local sponsor, will agree. Paragraph E-3 of ER 1105-2-100 states that a plan that deviates from the most cost-effective plans (NED and/or NER plan) may be identified as the LPP. If the sponsor prefers a plan more costly than the NED/NER plan, and the increased scope of the plan is not sufficient to warrant full Federal participation, the ASA(CW) may grant an exception as long as the sponsor pays the difference in cost between those plans and the LPP.

**CENAO Response:** Concur. The referenced guidance was followed in the mitigation planning process and the most cost effective mitigation plan and the selected mitigation plan are very similar. Additional clarification will be provided in the draft report.

**HQUSACE Assessment/Action Required:** The draft report will clarify the development of the recommended mitigation plan and will present the cost sharing appropriate to its designation as NED or LPP.

**Action Taken:** IWRPlan was used to identify the best buy plan that meets the mitigation criteria. This plan is the mitigation plan. Development of the mitigation plan has been included in the draft report as directed. This is located on pages 96-109.

**HQUSACE Analysis:** The concern is not resolved. See comment 1.a. on the draft report regarding mitigation formulation.

**Discussion:** The EIS, Appendix B (Mitigation Appendix) provides detailed discussion indicating that the LPP is the recommended and fully justified mitigation plan. The cost sharing provisions of the mitigation plan are commensurate with this recommendation.

**Action Required:** The final report must document the NED plan for mitigation and recommend appropriate cost sharing for the mitigation plan based on its designation as NED or LPP.

**Action Taken:** The EIS, Appendix B (Mitigation Appendix) provides detailed discussion indicating that the mitigation plan for this project is the NED Mitigation Plan as identified by IWR Plan and therefore is the recommended and fully justified mitigation plan. The cost sharing provisions of the mitigation plan are commensurate with this recommendation. The LPP designation was a remnant of an analysis that predates the AFB and that predates the final cost effectiveness/incremental cost analysis conducted to identify the NED mitigation plan.

**HQ Analysis:** The concern is resolved by the response and text changes incorporated in the final report.

**Comment 3) Mitigation Trust Fund: [PGM item 2.j.3]** According to the report, the sponsor has requested that the additional non-Federal funds to finance the LPP be placed into an existing or newly established trust fund to accomplish the specified consensus mitigation plan. While not specifically addressed in guidance, this appears to be an approach that could be negotiated as part of a Project Cooperation Agreement, at which time it would be subject to full legal review and approval.

**CENAO Response:** Concur.

**HQUSACE Assessment/Action Required:** The approach proposed above appears acceptable. The draft report should discuss any plans to pursue a mitigation trust fund.

**Action Taken:** None.

**HQUSACE Analysis: The concern is resolved.** Further coordination will be undertaken during coordination of the PCA.

**10. Real Estate. [PGM item 2.k.]** The real estate costs shown in table A-7 and A-8 are confusing in that A-8 shows both alternative plans to have real estate costs of \$35,050,000, yet the annualized real estate costs in A-7 are different. A-7 shows the eastern expansion to have annualized real estate costs of \$75,046 whereas the addition of the west dike strengthening results in an annualized cost of \$294,018. This may relate to the loss of value for an existing pipeline facility as a Government asset, as noted on page A-30, however it should be explained in the table for clarity.

**CENAO Response:** The explanation on page A-30 is incomplete and will be expanded upon in the draft report as requested. The \$35,050,000 cost can be broken out as \$50,000 administrative Real Estate costs and \$35,000,000 in relocation costs for relocating the Navy pipeline. Additional investigation will be conducted to determine if relocation of the Navy Fuel line should be allocated as a Federal cost, as per discussion held during the AFB.

**HQUSACE Assessment/Action Required:** Further coordination with HQ Counsel identified concern with regard to designating the \$35M value for pipeline relocation costs as an LERR item. Given that the pipeline relocation is related to the western berm needed for dike raising at the existing facility, it would appear to be a construction item subject to the existing project cost sharing, which would be 100% Federal with reimbursement through tolls. The district should verify the accuracy of the relocation cost and explain its basis in the draft report. The LERR for alternatives involving the western berm/dike raising should reflect any real estate costs associated with the landside interface of the pipeline work and the relocations should be included as construction items.

**Action Taken:** It is noted that the pipeline is not impacted by the western berm/dike raising.

**HQUSACE Analysis: The concern is resolved.** Text changes on B-1-14 and 15 of the draft report clarify that relocation of the Navy pipeline is associated with the eastern expansion rather than the western berm strengthening. The difference in annualized real estate costs results from the change in value of the existing facility, since it will be assessed farther into the future.

**11. Local Cooperation. [PGM item 2.l.]** The elevated upland fill in the eastern extension to Craney Island will be created with dredged material to facilitate port development. Paragraph 12-8 of EP 1165-2-1 indicates that it is Corps policy for reports that include a proposal to fill lands for development of port facilities to include a local cooperation requirement that the local sponsoring agency will retain fee ownership of those lands for so long as the project remains authorized and regulate the use, growth,

and development of port facilities on those lands. This requirement should be added to the standard list of items of local cooperation in the report.

**CENAO Response:** Concur.

**HQUSACE Assessment/Action Required:** The additional item of local cooperation should be included in the draft report.

**Action Taken:** Local Cooperation has been included in the draft report as directed. This is located on pages 134-145.

**HQUSACE Analysis:** **The concern is resolved** by the text changes incorporated in the draft report.

**12. Miscellaneous. [PGM item 2.m.]**The materials include conflicting information, which should be reconciled in future submissions to improve clarity. For instance, the construction and O&M costs in Table 6-1 differ from those in Tables A-7 and A-8 of the Formulation Appendix and Tables B-9 and B-11 of the Economic Appendix. Additionally, it would be helpful to provide additional descriptive information on the alternatives such as the capacity of the eastern extension in millions of cubic yards and the length of east-west dikes.

**CENAO Response:** Concur. Conflicting information identified in these comments will be reconciled in the draft report. Additional descriptive information on alternative plans will also be provided as requested.

**HQUSACE Assessment/Action Required:** The draft report will be reviewed to assure that conflicting information is reconciled and additional descriptive information is included.

**Action Taken:** The draft report has been reviewed to reconcile any conflicting information as directed.

**HQUSACE Analysis:** **The concern is resolved** by the text changes incorporated in the draft report.

/s/  
C. Lee Ware, P.E.  
Review Manager