STATE OF MAINE
BOARD OF ENVIRONMENTAL PROTECTION

APPEAL OF THE DECISION OF THE COMMISSIONER IN THE MATTER OF

U.S. ARMY CORPS OF ENGINEERS	**Natural Resources Protection Act**
Bath and Phippsburg, Sagadahoc County	**Coastal Wetland Alteration**
L-16281-4E-E-N (approval)	**Water Quality Certification**
***Corrected Order 4/15/2011**	**Findings of Fact and Order**

I. Introduction:

The U. S. Army Corps of Engineers received the above permit from the Maine DEP "pursuant to the provisions of 38 M.R.S.A. 480-A et. seq, and Section 401 of the Federal Water Pollution Control Act." (The Federal Water Pollution Control Act is also known as the Clean Water Act "CWA").

The permit in the project description states, "At the request of the U. S. Navy, the applicant proposes to dredge from both Doubling Point and North Sugarloaf Island reaches to the approved 27-foot channel to ensure safe passage for the U. S. S. Spruance."

The permit incorrectly addresses only the sites of dredging and not of disposal. The one place where the permit discusses practicable alternatives to the disposal sites (page 7 of 10), the permit finds "**that the analysis demonstrates that ocean disposal is the least environmentally damaging practicable alternative that meets the project purpose.**" This conclusion is appropriate and removes many of the deficiencies in this permit decision. This finding is, however, ignored.

The result is the contravening of the CWA Section 401 Certification requirement, the Maine Wetlands and Waterbodies Protection rules and the Maine Natural Resource Protection Act. Then, without following the law, the Kennebec Narrows disposal site in-river and the Jackknife Ledge disposal site near shore are designated for disposal of the dredge spoils.

Neither a proper application for approval of the disposal sites (Kennebec Narrows or Jackknife Ledge), nor a legal approval of the disposal sites has been obtained.

Additional issues:

1. Incorrect application of 40 CFR 230.60 to determine that chemical and biological sampling of the dredge spoils was not needed.
2. Superficial and perhaps flawed analysis dismissing the use of an in situ technique to remove sand waves in the navigation channel for the purpose of this out-of-season emergency dredging.
3. Improperly ignoring the significant impact from dumping about 1MM pounds of silt/clay in the fast tidal currents at Bluff Head, because it only is about 1% by weight of total

dredged material. A similar analysis should be carried out for the Jackknife Ledge disposal area.

4. Information available to the applicant has been withheld from interested parties. All information known to the Army Corps of Engineers or the Department of Environmental Protection which has a bearing on the dredging and disposal permit should be made available, prior to closing the DEP comment period, publishing of a draft order and then issuance of an L-16281-4E-E-N permit.

5. Neither the biological opinion nor the Environmental Assessment is available or finalized, based on a conversation with Mr. Bill Kavanaugh on May 13, 2011. He was not prepared to say when they would be ready. These documents must be made available, with at least a minimum comment period, prior to issuance of the DEP NRPA permit and the CWA Section 401 certifications (dredge spoil discharge (401(a)) and state water quality standards (401(b))).

6. Reasonable conditions were not included in the DEP permit, and the rationale for not including these conditions were either not given or were not explained satisfactorily.

This appeal incorporates by reference the appeals submitted by the Phippsburg commenters and Mr. Douglas H. Watts, Kennebec River wildlife photographer. This appeal incorporates by reference the comments of Dot Kelly to the Maine DEP dated March 15, 2011 and March 20, 2011 and the comments to the ACOE, and copied to Maine DEP, dated March 30, 2011 (sent on March 31, 2011). Please note that the March 20 and March 30 comments are appended to the Phippsburg commenters appeal.

This appeal recommends that the BEP remand this NRPA permit, Water Quality Certification, Clean Water Act Section 401 Certification, and Coastal Wetland Alteration regulation compliance back to the Maine DEP for further analysis since it is defective as enumerated below.

The BEP must insist that the disposal sites, which by their nature contribute to long-term impacts (not days, but years) are not utilized until the proper evaluation of the current state of the disposal sites is done as well as the impacts of this proposed dredging disposal is evaluated and analyzed as required by the Maine Wetlands and Waterbodies Protection regulations, the Maine Natural Resources Protection Act and the Clean Water Act Section 401 certification.

For this emergency dredging, in case it should prove to be necessary, an evaluation of using in situ measures, like a dragline to knockdown the critical sandwaves should be done now, as well as the alternative of a minimal low turbidity dredging with reuse upland or disposal at an approved ocean disposal site.

Please do not shy away from enforcing these legal responsibilities, even if they have been ignored in the past. Thank you for your service to the State of Maine.

II. Standing of Dorothy A. (Dot) Kelly

Since my property, 98 Pleasant Cove Road Phippsburg, Maine, abuts the "Bluff Head Disposal Site"[1], and since the dumping that took place in 2009 had an immediate negative impact on my intertidal zone by covering the rocky shore and the bottom of the stairs with slippery muck, I submit that I have standing to appeal the decision.

In addition, the 2009 disposal impacted the three seals which were residents in the Narrows prior to the disposal. The disposal, with its extensive, long-lasting turbidity, modified their behavior and then apparently caused them to leave the area. Muck remains today in the lower intertidal zone (the upper intertidal muck has been carried to other areas by the current action). Recent testing of the remaining muck shows that it has a high water content, elevated levels of lead and chromium, and is over 33% silt and clay.[2] The cumulative effect of dumping an additional 50,000 cubic yards of dredge spoils in August has not been evaluated. The intertidal zone is degraded for walking on because it is easy to slip on the muck as well as sink into the accumulated muck, making enjoying the water, especially for kayaking and wading, dangerous and difficult. In addition, the areas with accumulated muck are dead zones and appear anoxic, as opposed to being alive with copepods and other creatures. As a property owner to the low tide mark, the impact of immediate and longer term disposal of additional dredge spoils on my property and the estuarine marshes adjacent to the disposal area, as the deposited dredge spoils are winnowed by the currents, was not described, evaluated and determined to be consistent with Maine environmental law. See Figure 5 from the March 20 comments, page 12.

Figure 5. One of the areas of accumulated muck, on an otherwise rocky shore. Footprints From 2/24/2011 when retrieving a sample of the muck for the Phippsburg public meeting.

Additionally, as a member of local conservation organizations, including being an appointed member of the Phippsburg Conservation Committee, I have a keen interest in the quality of the Kennebec Estuary in and around Phippsburg generally.

[1] The Bluff Head Disposal Site is alternatively called the North of Bluff Head Disposal Site, the Fiddler's Reach Disposal Site, and the Kennebec Narrows Disposal Site among others. The site's actual location is shifted around by the applicant, based on a review of licensing documents. The most recent shift, northward, occurred in the BIW use of the site in 2009, under a permit issued by the Army Corps of Engineers. The location is in the Kennebec River in Phippsburg and Arrowsic in the Kennebec Narrows, south of the Morse Cove State Boat Launch which is in Phippsburg and North of "Bluff Head" which is in Arrowsic.

[2] the Maine Testing Lab report which is not to be considered conclusive since the material was disposed 16 months prior, was sampled and sent to the testing laboratory on March 17, 2011. The complete testing report was not received until after the permit was issued. A copy of the report is available. The testing of the dredge material for chemical contamination by the applicant(s) over the years has never been done. Mr. Kavanaugh and Mr. Swan emails at 1:36 pm and 1:56 pm, with copies to Mr. Green. E-mail dated March 30, 2011 in the DEP permit file.

As a 1980 Bachelor of Science chemistry graduate, a former Director of Energy and Environmental Services for a major chemical company, a current energy and environmental consultant, and a past and current member of various environmental and energy boards and committees, I have for more than two decades focused on issues related to environmental compliance and on scientifically evaluating and finding practical, real world improvements to environmental impacts from man-made pollution.

III. Grounds for this Appeal

Appellant asserts the L-16281-4E-E-N approval was issued by the Department of Environmental Protection improperly.

A. **The permit is fatally flawed and must be overturned. On page 7 of 10 at 6.A., the Department finds that the "analysis demonstrates that ocean disposal is the least environmentally damaging practicable alternative that meets the project purpose." However the permit approval does not require "ocean disposal" but approves in-river disposal at the "Bluff Head" site (locally referred to as the Kennebec Narrows and only 330 yards wide) as well as the "Jackknife Ledge" site located in the nearshore adjacent to Popham Beach State Park.**

Since the DEP has determined that "ocean disposal" is the least environmentally damaging practicable alternative and has published that in the permit document, the use of the Kennebec Narrows and Bluff Head for the August dredging needs to be disallowed.

B. **The approval references Section 401 of the Federal Water Pollution Control Act (also known as the Clean Water Act "CWA"), however the approval only discusses the State water quality certification requirements of 401(b) and ignores the requirement 401(a), which require that the DEP certify the applicant's compliance with CWA Section 404, dredged spoil disposal in navigable waters.**

Section 401(a) of the Clean Water Act states:

> **Clean Water Act, Section 401 Certification**
>
> **(a) Compliance with applicable requirements; application; procedures; license suspension**
> (1) Any applicant for a Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters, shall provide the licensing or permitting agency a certification from the State in which the discharge originates or will originate, or, if appropriate, from the interstate water pollution control agency having jurisdiction over the navigable waters at the point where the discharge originates or will originate, that any such discharge will comply with the applicable provisions of sections 301, 302, 303, 306, and 307 of this title.

Thus, for this action, the discharging of dredge spoils into the Kennebec Estuary, the applicable provision is section 301(a).

Section 301(a) states:

> SEC. 301 (a): Except as in compliance with this section and sections 302, 306, 307, 318, 402, and 404 of this Act, the discharge of any pollutant by any person shall be unlawful.

Section 404 of the Clean Water Act regulates the discharge of dredged or fill materials into the waters of the United States. For the purpose of the ACOE permit for dredging the Lower Kennebec, Section 404(b) specifies how discharges of dredged or fill material, are approved. Thus, Section 301(a) says that except in compliance with Section 404, the discharge of any pollutant is unlawful. The State is required to issue a certification that the applicant's discharge of dredged materials into the waters of the United States is compliant with the requirements, or the discharge is prohibited. To the extent the DEP was postponing the 401(a) certification until more information was provided by the applicant, that postponement should have been clearly documented and an additional comment period discussed.

Section 404(b) describes the requirements for a disposal site to be specified. Disposal sites are specified by complying with the guidelines prepared by EPA in 40 CFR 230. If after applying the guidelines in 40 CFR 230, (which includes the evaluation of the site, the material to be disposed, the affect of the discharged spoils over time and weighing the impact), the Secretary determines the site is not approvable, the Secretary is allowed to consider the economic impact of the site on navigation and anchorage.

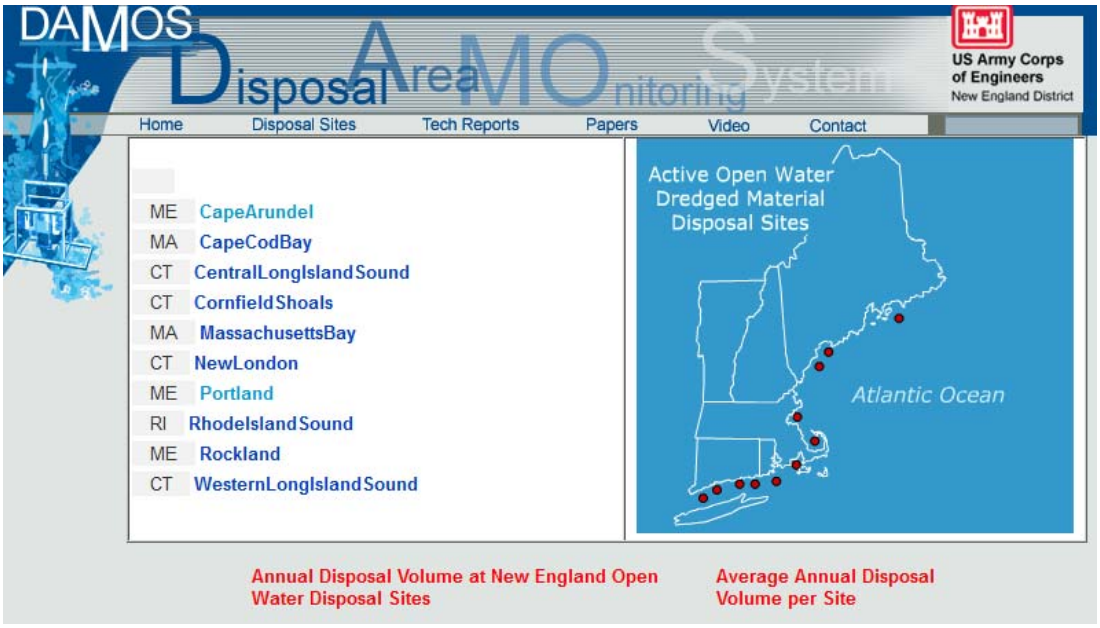
Section 404(b):

> (b) Subject to subsection (c) of this section, each such disposal site shall be specified for each such permit by the Secretary (1) through the application of guidelines developed by the Administrator, in conjunction with the Secretary which guidelines shall be based upon criteria comparable to the criteria applicable to the territorial seas, the contiguous zone, and the ocean under section 403(c), and (2) in any case where such guidelines under clause (1)
> alone would prohibit the specification of a site, through the application additionally of the economic impact of the site on navigation and anchorage.

In the current situation, neither the Kennebec Narrows disposal site, nor the Jackknife Ledge disposal site have undergone the extensive monitoring necessary to determine the potential impacts on physical and chemical characteristics of the aquatic ecosystem (subpart C); potential impacts on biological characteristics of the aquatic ecosystem (subpart D); potential impacts on special aquatic sites like wetlands, mudflats and vegetated shallows (subpart E); potential effects on human use characteristics (subpart F); then actions to minimize adverse effects (subpart H); and compensatory mitigation for losses of aquatic resources (subpart J). Please see the March 30, 2011 comments pg. 8 – 15, regarding the inadequacy of the ACOE application material as a showing of 40 CFR 230 compliance. The DEP must clarify that the

401(a) certification has not yet been issued, thus making the L-16281-4E-E-N permit incomplete.

Recognizing that the effort to approve a site using 40 CFR 230 is a daunting process, the regulations provide for advanced identification of disposal areas (40 CFR 230.80). These sites in New England are managed under the DAMOS program http://www.nae.usace.army.mil/damos/index.asp and include the following sites:



Thus, the extensive process of being qualified as a disposal site under 40 CFR 230 needs to be completed. If after the detailed studies are complete and the determination is made that the site is not a suitable disposal site, the Secretary of the Navy can do an analysis of the economic impact of the site on navigation and anchorage and weigh whether that should overrule impacts determined in the 40 CFR 230 evaluation. To date, no evaluation using the 40 CFR 230 regulations has been complete. Considering the paucity of data on the two disposal sites, it may be years until a suitable evaluation is complete.

The need for the DEP to issue a Section 401(a) certification has been raised numerous times with the DEP, the ACOE and BIW since November 2009, the last disposal action at the Kennebec Narrows. Hopefully compliance with the law will start now.

C. **Even if the step-by-step reasoning of the CWA statute Section 401, presented above, which shows the DEP is required to certify that the Army Corps of Engineers has satisfied Section 404 is rejected, the designated disposal sites must be scientifically evaluated through application of Maine Law (Maine Wetlands and Waterbodies Protection regulations and the Natural Resource Protection Act law). The level of evaluation and analysis provided to the DEP by the Applicant is woefully insufficient and does not meet the statutory requirements.**

The Army Corps of Engineers submitted with the permit application an unsigned and unfinished document dated February 2011 *Environmental Assessment for the Maintenance Dredging of the Kennebec River Federal Navigation Channel. Preliminary Draft. Not for Public Release.* The Maine DEP relied on this document to determine that the Wetlands and Waterbodies Protection Rules were complied with. On page 6-7, the document described modification of the proposed disposal. No analysis for upland use of the sand was described. No analysis of "reducing the size, scope, configuration or density of the project [dredging] as proposed, thereby avoiding or reducing the wetland impact" was done. Thus the application requirements for a Wetlands and Waterbodies Protection Rule permit was not met, and the approval must be overturned.

The Application requirements are detailed in Section 9. Application Requirements.

> ***9. Application Requirements.*** *In addition to broader information required for a Natural Resources Protection Act permit and Water Quality Certification, an application for a wetland alteration activity must contain the following information, unless the department determines that more or less information is needed to evaluate a specific project, based on the nature of the alteration proposed.*
>
> ***A. Alternatives Analysis.*** *A report that analyzes whether a less environmentally damaging practicable alternative to the proposed alteration, which meets the project purpose, exists.*
> *Determining whether a practicable alternative exists includes:*
> *2) Reducing the size, scope, configuration or density of the project as proposed, thereby avoiding or reducing the wetland impact; [related to dredging]*
> *4) Demonstrating the need, whether public or private, for the proposed alteration [related to the disposal in the Kennebec Narrows and Jackknife Ledge].*
> ***B. Site Characteristics Report.*** *A report that contains the following:*
> *1) A plan at a scale of a minimum of 1 inch equals 100 feet, that shows two-foot contour intervals, existing wetland boundaries, the area of wetland to be altered, and project dimensions. All components of the project impacting wetlands or other protected natural resources must be included;*
> *2) Existing wetland characteristics including water depths, vegetation and fauna;*
> *3) If required, a functional assessment of the wetland to be altered, conducted by a qualified professional, that analyzes the wetland's value based on the functions it serves and how the wetland will be affected by the proposed alteration. . . .*
> *4) Current photographs of the wetland to be altered that show its characteristics. Photographs may be taken from the air or ground but should be taken during the growing season.*
> ***C. Activity Description.*** *A description of the overall proposed activity with particular reference to its impact on the wetland, including the precise location of the project activity, its dimensions, the amount of fill (if any proposed), any proposed drainage, the timing and procedures proposed for the alteration, and any efforts proposed for reducing impacts.*
> ***D. Compensation Plan.*** *A plan for the proposed compensation work, if any. . .*

> ***F. Additional Information.*** *Because of the site specific nature of activities and potential impacts, more or less information may be required by the department on a case-by-case basis, in order to determine whether the standards are met.*

These Wetland and Waterbodies Protection rule requirements were just ignored. Thus even under Maine law, the use of the Kennebec Narrows and Jackknife Ledge has not been evaluated in compliance with the law.

D. **Both the Maine DEP and the ACOE maintain that applying the regulations in 40 CFR 230.60 (a-d), results in a conclusion that chemical and biological testing of the dredge spoils is not required. Not testing the dredge spoils has been the watchword of the ACOE for the last 30 years. However, a fair reading of the regulations shows that neither the ACOE or the Maine DEP is correct in maintaining that the dredge spoils should not be tested. Considering the ongoing nature of the dredging and the known contamination of shipbuilding historically and the waterfront area of Bath, not ever testing the dredge spoils is unexcusable and this decision should be reversed.**

40 CFR 230.60(b) states*: The extraction site shall be examined in order to assess whether it is sufficiently removed from sources of pollution to provide reasonable assurance that the proposed discharge material is not a carrier of contaminants. Factors to be considered included but are not limited to:*
(1) Potential routes of contaminants or contaminated sediments to the extraction site, based on hydrographic or other maps, aerial photography, or other materials that show watercourses, surface relief, proximity to tidal movement, private and public roads, location of buildings, municipal and industrial areas, and agricultural or forest lands.
(2) Pertinent results from test previously carried out on the material at the extraction site, or carried out on similar material for other permitted projects in the vicinity. Materials shall be considered similar if the sources of contamination, the physical configuration of the sites and the sediment composition of the materials are comparable, in light of water circulation and stratification, sediment accumulation and general sediment characteristics. Tests from other sites may be relied on only if no changes have occurred at the extraction sites to render the results irrelevant.
(3) Any potential for significant introduction of persistent pesticides from land runoff or percolation;
(4) Any records of spills or disposal of petroleum products or substances designated as hazardous under Section 311 of the CWA (See 40 CFR parts 116).
(5) Information in Federal, State and local records indicating significant introduction of pollutants from industries, municipalities, or other sources, including types and amounts of waste material discharged along the potential routes to the extraction site; and
(6)Any possibility of the presence of substantial natural deposits of minerals or other substances which could be released to the aquatic environment in harmful quantities by man-induced discharge activities.

With the Doubling Point shoal adjacent to the south side of Bath and south of Bath Iron Works, the reasonable conclusion is the dredge material should be tested especially since the data described in (b)(1-5) has not been disclosed. In fact, the permit under C. (page 2) erroneously

describes the west side along the Doubling Point reach as “Brunswick”, not Bath. In order to allow a decision not to test, the information described in 40 CFR 230.60(b)(1-5) should be included and analyzed.

Ignoring 40 CFR 230.60(b)(1-5), the Department on page 4 of 10, makes the finding that, “in accordance with 40 CFR Part 230.60, no further testing would be required because the composition of the samples is primarily sand and not considered a likely carrier of contaminants.” D. Kelly’s March 30th comments detail why the DEP finding is incorrect, see page 13-14. Simply, the Army Corps agreed that testing was required by 40 CFR 230.60(b), though not for the obvious reason that the historic and industrial potential contamination from Bath and BIW means testing is mandatory, but because BIW had a spill of a significant amount of hydraulic oil since the last dredging in 2003. Unreasonably the Army Corps maintains it did not need to test the dredged material because of 40 CFR 230.60(c).

230.60(c) states:

> (c) . . . Where the discharge site is adjacent to the extraction site and subject to the same sources of contaminants, and materials at the two sites are substantially similar, the fact that the material to be discharged may be a carrier of contaminants is not likely to result in degradation of the disposal site. In such circumstances, when dissolved materials and suspended particulates can be controlled to prevent carrying pollutants to less contaminated areas, testing will not be required.

ACOE asserts to the DEP that the dredging site and the disposal site meet the criteria of 230.60(c). That is not true. Firstly, the area at Doubling Point has an industrial history, surrounded by lumber mills and ship yards, blacksmith shops, and a large population with all the attendant contamination risks. The Kennebec Narrows is a rocky, sparsely populated rural area that has no industrial contamination history.

Secondly, the silt & clay are not contained. In an email from Dr. S. Dickson of the Maine Geological Survey dated February 14, 2011 at 12:37 pm, which is available in the DEP permit file, Dr. Dickson states, “Based on the grain size data up to 1% of the sediment volume might be silt and clay (muddy), not settle to the bottom quickly, and be carried by tidal and river currents to intertidal and subtidal depositional sites nearby as well as upstream and downstream of the disposal area.”

This important information about the fate of the silt and clay within the dredged material separating from the sand and depositing on my property, the marshes adjacent to the disposal site, and the clam flats, was not included in the permit findings.

Although the ACOE maintains that testing is not required because 230.60(c) is applicable and the Maine DEP maintains that testing is not required for reasons that the ACOE application does not believe are accurate, the actual application of the regulations must be read to require testing of the dredge spoils. The BEP should remand the permit and require chemical and biological testing of the dredge spoils if disposal is going to be in the waters of the United States.

E. **In situ technique may be an alternative control method for critical peaks of sand waves to provide that the Spruance can depart as desired.**

At the February 24th public meeting hosted by Brian Swan of the Department of Marine Resources, Mr. Kavanaugh stated that to dredge the whole navigation channel in the Doubling Point area to the authorized depth of 27 feet would require dredging of 10,000 cubic yards of material. Although not dredging in August is the most desirable alternative from an environmental impact consideration, it is possible that some minor movement of the sand will need to be done. Also, utilizing a Maine based clamshell dredge and scow to remove targeted sand crests with upland reuse is another viable option, especially given the glorious coarse, light sand/pieces of shell samples[3] that the Army Corps of Engineers brought to the Environmental and Natural Resources committee in August on May 11, 2011. Representative Parker was especially supportive of that option.

In order to fully explore environmentally less impactful alternatives, the application should evaluate in situ techniques, like those described in the US Army Corps' document AD-A257 826 (www.**dtic.mil/cgi-bin**/GetTRDoc?Location=U2&doc=GetTRDoc.pdf). Page 46 describes that hopper dredges are not designed for efficient sand wave dredging. "The hopper dredge drag head may lose contact with bottom sediments as it passes over a sand wave trough." On page 47 the report describes that pulling a large, horizontal I-beam with tugs was used in Savannah Harbor with good results (Stuber 1976). The tugs were able to move between approximately 240 to 3,380 cu yd of sediment and silt per hour. Other in situ methods described on page 47 as useful were propeller wash (mentioned by Representative Parker as well) and water jets.

Bill Kavanaugh, on February 15, 2011, in an email to Robert Green which was just added to the permit file last week well after the comment period ended, discussed "dragging". Bill wrote, "We have actually used "dragging" (the process she describes) to eliminate small shoals that have remained when a dredging project is near completion (typically in silty material) to clear the project to the required depth. However that process wouldn't work here and has been virtually eliminated from use as it is thought to actually increase levels of turbidity by most of the regulatory folks". A quantitative analysis, about the applicability of in situ options, rather than just generalities, especially since the ACOE has used the technique a number of times, seems warranted.

This appeal requests that the best in class in situ sand wave knock down techniques be considered for a targeted polishing if any high section of the channel needs reduction for the September sailaway.

F**. Improperly ignoring the significant impact from dumping about 1MM pounds of silt/clay in the fast tidal currents at Bluff Head, because the Army Corps of Engineers**

[3] Documentation on where the samples that were shown to the legislators was not provided. The samples did look very good. However, the dredged samples, like sample H,(Attachment 1), were described on the grain size analysis sheet as poorly graded fine sand and moist, brown sand. Those descriptions do not match the packaged group of sand jars that was shown at the legislature. Providing the documentation for the samples and explaining why the grain size description appears different from the sand jar material would be helpful.

and the DEP focus solely on the fact that the silt/clay is about 1% by weight of the total dredged material. A similar analysis should be carried out for the Jackknife Ledge disposal area.

An analysis of the number of particles of silt/clay in the dredge spoils (assuming 1% dry weight of silt/clay) compared to sand particles shows that there are between 200,000 to 10,000,000 silt/clay particles for every sand particle. The calculation assumed either all the silt/clay particles were at the largest particle size for silt/clay or that the particle size was at the diameter that distinguishes silt from clay according to ASTM. Although this only is a gross estimation, the huge number of fine particles compared to sand particles, makes clear why the silt/clay particles need to be considered.

D. Kelly's March 20, 2011 comments, page 9 and 10 discussed the calculation used to determine that if the Doubling Point shoal dredge spoils contained 1% silt/clay, and estimated that the dredged spoils contained 135 MM pounds of silt/clay. This comment, and the impact of 135MM pounds of silt/clay being suspended in the Lower Kennebec in August, was not addressed by the DEP in their findings. The sample H grain size analysis, showing 1.1% sand/silt is attachment 1. The location of sample H, on the west side (Bath side) of navigation channel is shown on page 8 of the March 20 comments. In addition, small particles are known to be detrimental to lung function in humans, and from a quick review of the literature this appears to hold true for gill function for fish and benthic organisms as well. See http://water.epa.gov/scitech/datait/tools/warsss/sabs.cfm for a discussion of the toxicity of suspended sediment. A 2003 study of benthic organisms subjected to different particle sizes shows graphically the large impact that reduced particle size has on mortality (page 136).

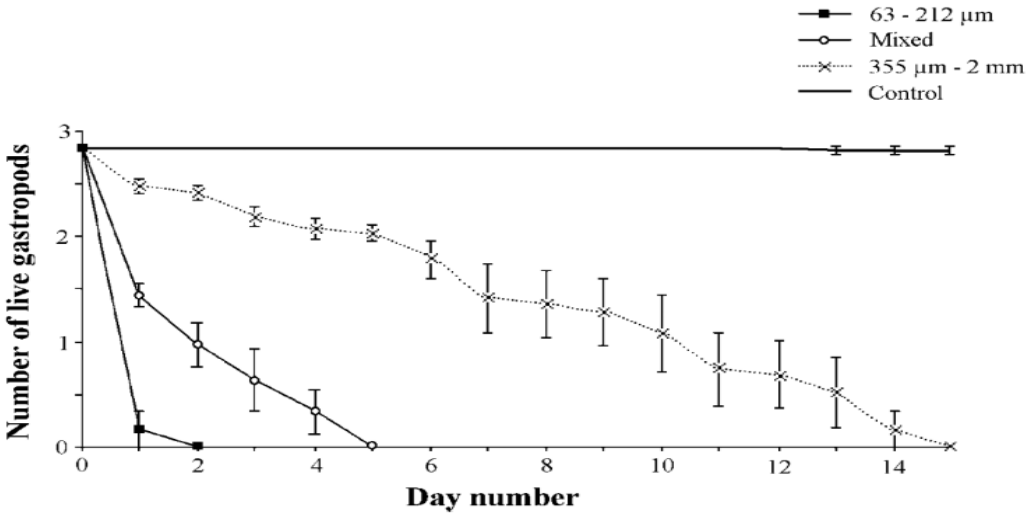


Fig. 1. Mean number of live gastropods recorded in each treatment over the course of the gastropod experiment (± *s.e.*, $n = 6$).

http://tcd.academia.edu/IanDonohue/Papers/299613/Effects_of_Sediment_Particle_Size_Composition_on_Survivorship_of_Benthic_Invertebrates_From_Lake_Tanganyika_Africa .
This information is presented to show the trend that smaller particle size material has a greater negative impact on some species and to point out that the ACOE and the DEP ignoring the silt/clay fraction of dredge spoils is inappropriate.

G. **Information, and analysis, available to the applicant has been withheld from interested parties. All information known to the Army Corps of Engineers or the Department of Environmental Protection which has a bearing on the dredging and disposal permit should be made available, prior to closing the DEP comment period and issuing this L-16281-4E-E-N permit.**

The proposed dredging and disposal has not yet had a biological opinion issued, nor a completed environmental assessment. When I spoke to Mr. Kavanaugh last week, he was unwilling to provide me with a date when these would be complete. These important facets of whether the actions are protective of Maine's natural resources and water quality would seem to need to be finished before DEP could certify that the disposal sites are compliant, that the water quality standards won't be violated, and that the Natural Resources Protection Act requirements have been met. Other information that has not been disclosed includes where the missing sample "G" was taken, see page 8 March 20, 2011 comments. I've since learned that the missing sample "G" was attempted but not successful, because, in fact, the high spot was not an accumulation of sand, but ledge. Obviously, even though overdredging has been done in the past, the ledge didn't just appear. If overdredging is approved, how will the ledge be managed?

Thus, detailed information on where the ledge is and how that impacts the navigation channel should be disclosed. The initial handling of the information, just deleting sample "G" from the map and not mentioning it, is not appropriate scientific reporting.

Along the same line, only one sample was attempted in the Kennebec Narrows disposal area. The map, page 8 of 3/20/2011 comments, did indicate that a sample was attempted in the deepest part of the disposal area but was unsuccessful. No information on how it was unsuccessful was provided. Having reviewed the recently added emails in the permit file at the DEP, it's been learned from a February 3, 2010 email sent from Mr. Kavanaugh to Mr. Green and Mr. Clement that "we also attempted to get a sample at the in-river disposal site, however, our grab sampler got lodged on the rocky bottom (in about 95' of water) at the disposal site and was lost to the cause, so no sample was taken."

Although the email does shed some light on the sample, questions remain. Why didn't they go back and take samples in a few locations. Since the muck showed up immediately in the intertidal zone with the November 2009 disposal and has been somewhat removed by the current, it's important to know how much dredge spoils still remains in the greater disposal area and whether an additional dumping will push additional muck to the shores or will add sand on top of the squishy muck. A new bathymetry survey was taken of the disposal area, which is an on-going requirement of the disposal site regulations. However, the findings did not discuss the survey, which showed no area in the disposal area actually was 95 feet or more deep. See comment on page 9 of the D. Kelly March 20, 2011 comments to DEP.

Additionally, the ACOE should have analyzed the bathymetry data throughout the survey and compared it to prior surveys going back to 1980 and commented on the changes and similarities. As noted in the loss of the core sampling equipment, the rocky bottom probably

hasn't changed significantly, but in the shallower areas, the extent of shoaling and how that impacts the determination of whether the Kennebec Narrows is an appropriate disposal site needs to be part of the record.

Because the disposal area must be evaluated for cumulative impacts, a study that determines the amount, physical and chemical characteristics of the remaining deposited material and whether it is stratified, e.g. sandier in the somewhat deeper regions and more silt/clay in the shallower areas is important. Sampling should also be done in the intertidal zone throughout the disposal area and in the adjacent areas to determine the current state of the greater disposal area, with acknowledgment of where it changes from a water of the State to private property.

The location of the limits of the Bluff Head disposal are fuzzy. Since currently the disposal site is both limited by a somewhat loose depiction of the disposal square (it moves a bit north and a bit west and east without explanation.) However, if the wetland protection rules were followed a detailed large map would have been provided and would be helpful. See Attachment 2 for four different depictions of the disposal site.

In addition, since the disposal area is limited by statements like disposed in "95-100" feet of water, the disposal area is actually much smaller than the noted 500 foot square. In reviewing the 2009 biological opinion from NMFS for the Kennebec Narrows disposal area, their map shows it to be at Bluff Head, which is not surprising since it is referred to as the Bluff Head disposal area, even though that is not where it is located.
www.nero.noaa.gov/prot_res/.../**BathIronWorks2009**-signedBO.pdf page 65.

Clearly demarcating the disposal area is currently not done sufficiently. During disposal, the disposal area should be buoyed.

These are just examples of information that has not been adequately shared.

H. **Only accept statements that have appropriate documentation.**
Many statements in the permit application are not documented with specific references to the underlying information that supports the statement. For example, the email statement by Mr. Kavanaugh on dragging relates information, but there is no way to ascertain whether the information is true. Having the applicant provide accurate, detailed information (like correcting the depth information that has been provided in the permit application) as well as full disclosure (like reporting that sample "G" was attempted in a designated area that turned out to be a ledge) will be an important improvement to the dredging and disposal permitting process.

G. **Suitable conditions to assure that the dredging and disposal occur as described.**

These comments show that the Kennebec Narrows and Jackknife Ledge disposal areas are not permitted in accordance with the law. However, suitable conditions, need to be included in the permit to protect the environment and to track the operation for dredging and the allowed

disposal. These permit conditions were based on a review of some Rhode Island permits and each one should be considered.

Permit conditions should include:

1) no overflow on hopper dredge, if hopper dredge is used.

2) Measuring of turbidity at 50 meters and at 1500 feet if plume extends (more than 10 NTUs above background), additional sampling required at the dredging site and the disposal site if plume extends to 1500 feet..

3) Failed samples at 1500 feet result in requirement that disposal occur at slack tide.

4) Monitoring the disposal area at low tide along both shores to confirm that the dredge spoils are staying off private property.

5) Daily monitoring for fecal coliform and turbidity close to the disposal area, both upstream and downstream, to test for the largest impact.

6) Have the dredge observers present; observe and document both the dredging and disposal.

7) Monitor for noise impacts.

8) Take two grab samples of the dredge spoils on each disposal for analysis and comparison between the samples and across different disposals.

9) Document the actual amount of material dredged and the method by which that is determined.

IV. Recommendations

Appellant recommends the Maine BEP remand this NRPA permit and 401 certification back to the Maine DEP for further analysis and modification as described within and in the comments included by reference.

Sincerely,

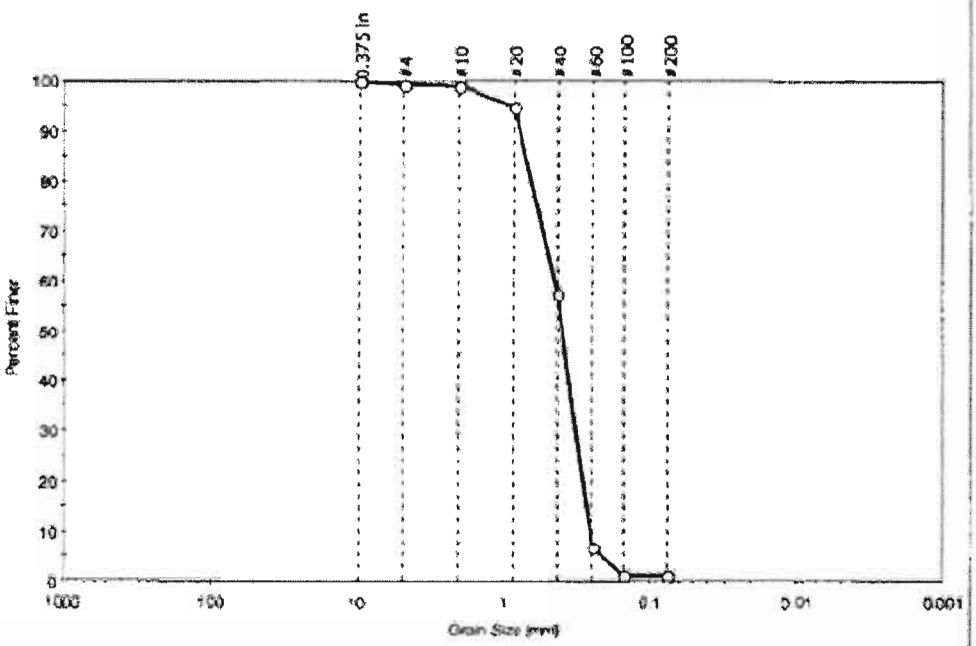
Dot Kelly
dot@dkelly.org
98 Pleasant Cove Road
Phippsburg, Maine 04562
May 16, 2011

Attachment 1: Sample H, Doubling Point Reach west side of navigation channel. Brown sand, 1.1% silt + clay.

GeoTesting EXPRESS

Client:	U.S. Army Corps of Engineers		
Project:	Kennebec River		
Location:	---	Project No:	GTX-10487
Boring ID:	---	Sample Type: bag	Tested By: jbr
Sample ID:	Kennebec H	Test Date: 01/04/11	Checked By: jdt
Depth:	---	Test Id: 202159	
Test Comment:	---		
Sample Description:	Moist, brown sand		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
--	0.4	98.5	1.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec.* Percent	Complies
0.375 in	9.50	100		
#4	4.75	100		
#10	2.00	99		
#20	0.85	95		
#40	0.42	57		
#60	0.25	7		
#100	0.15	1		
#200	0.075	1		

Coefficients

D_{85} = 0.7063 mm	D_{30} = 0.3191 mm
D_{60} = 0.4462 mm	D_{15} = 0.2727 mm
D_{50} = 0.3935 mm	D_{10} = 0.2588 mm
C_U = 1.724	C_C = 0.882

Classification

ASTM Poorly graded sand (SP)

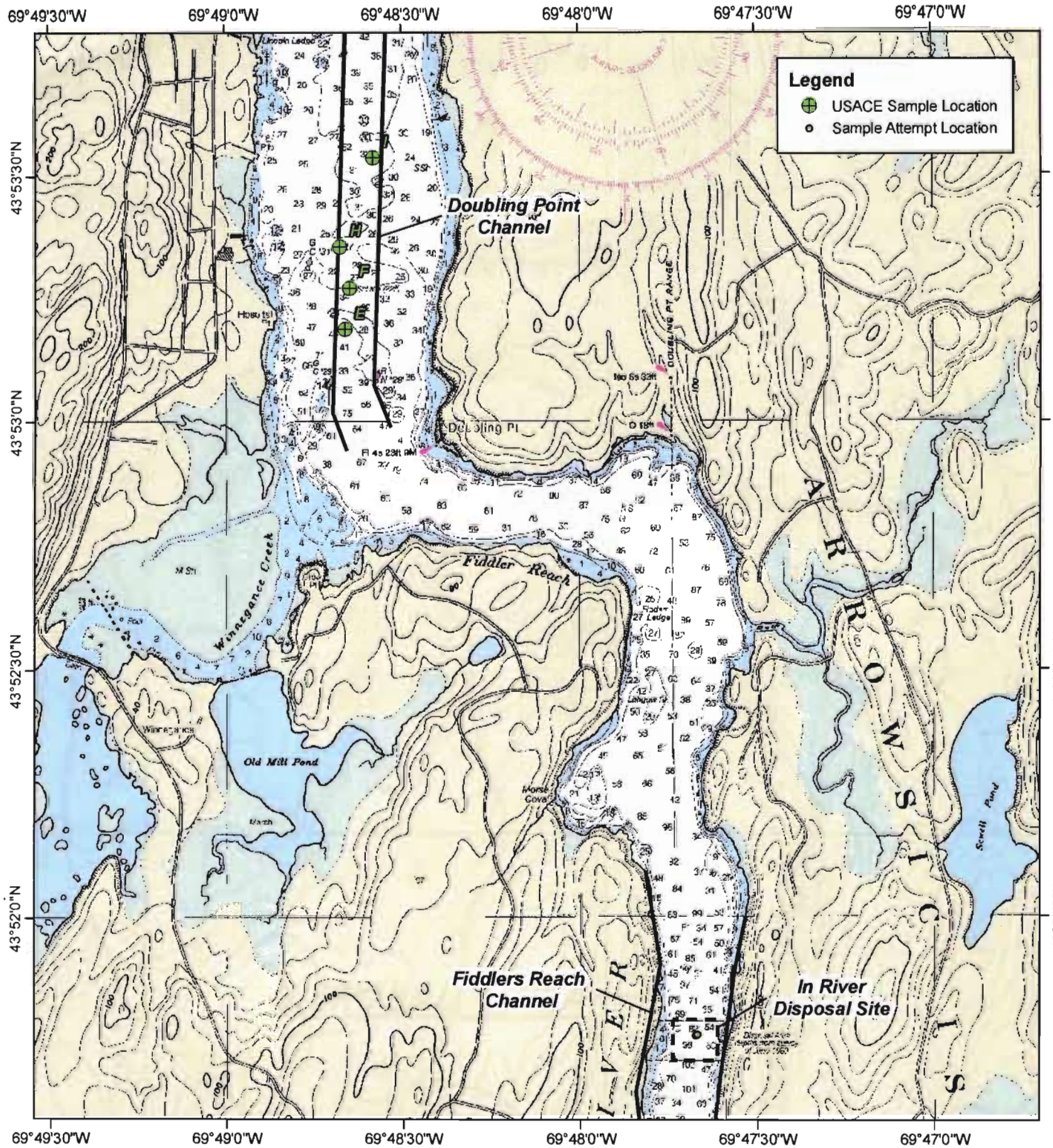
AASHTO Fine Sand (A-3 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Attachment 2(a)



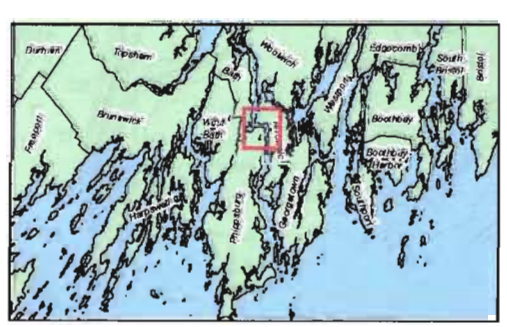
US Army Corps of Engineers
New England District

KENNEBEC RIVER, BATH AND PHIPPSBURG, ME
VICINITY OF DOUBLING POINT
USACE SAMPLE LOCATIONS

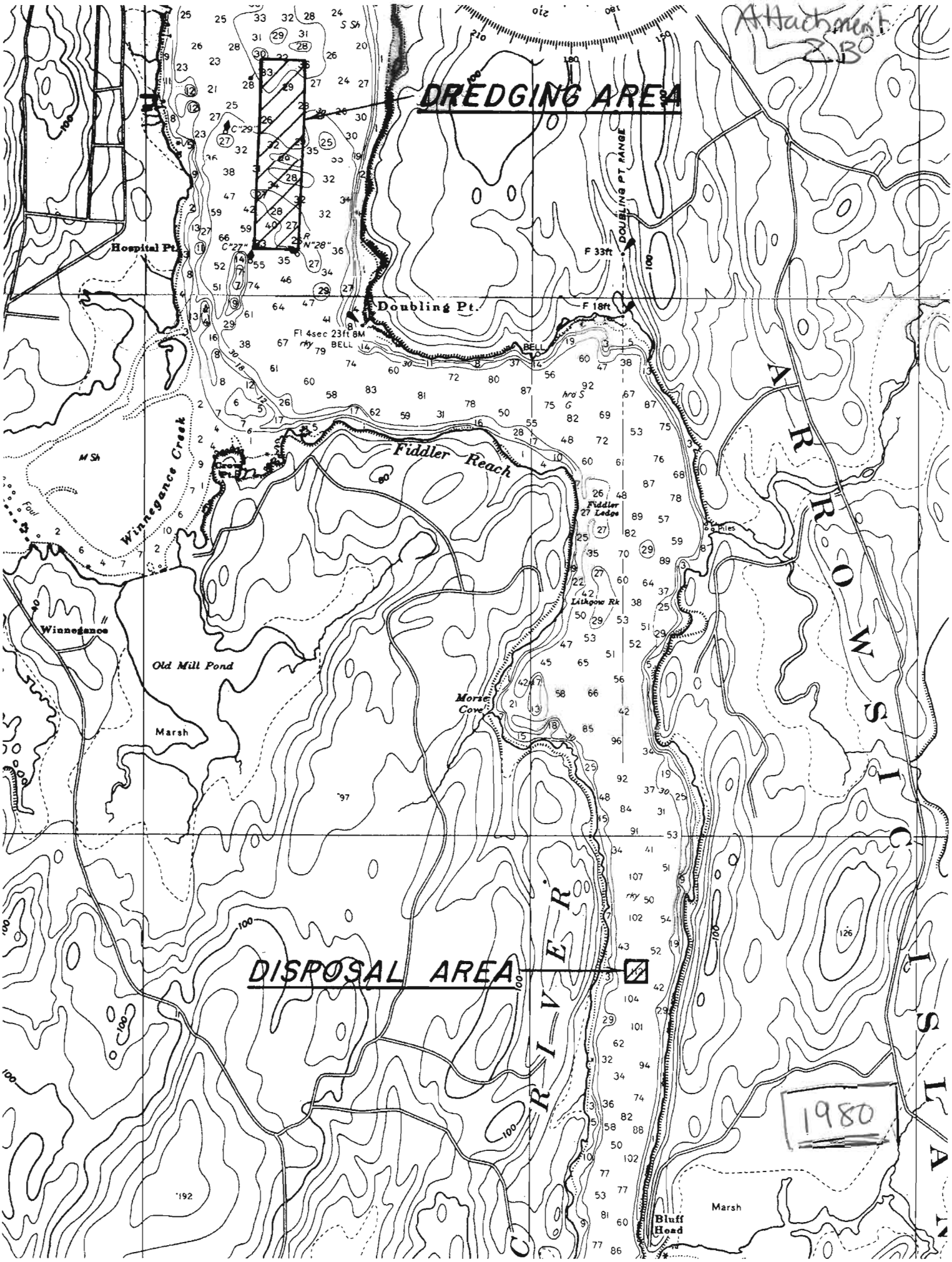
0 1,250 2,500 3,750 5,000 Feet
0 250 500 750 1,000 1,250 Meters
1:20,000

NOAA CHART 13296

GCS NAD 1983



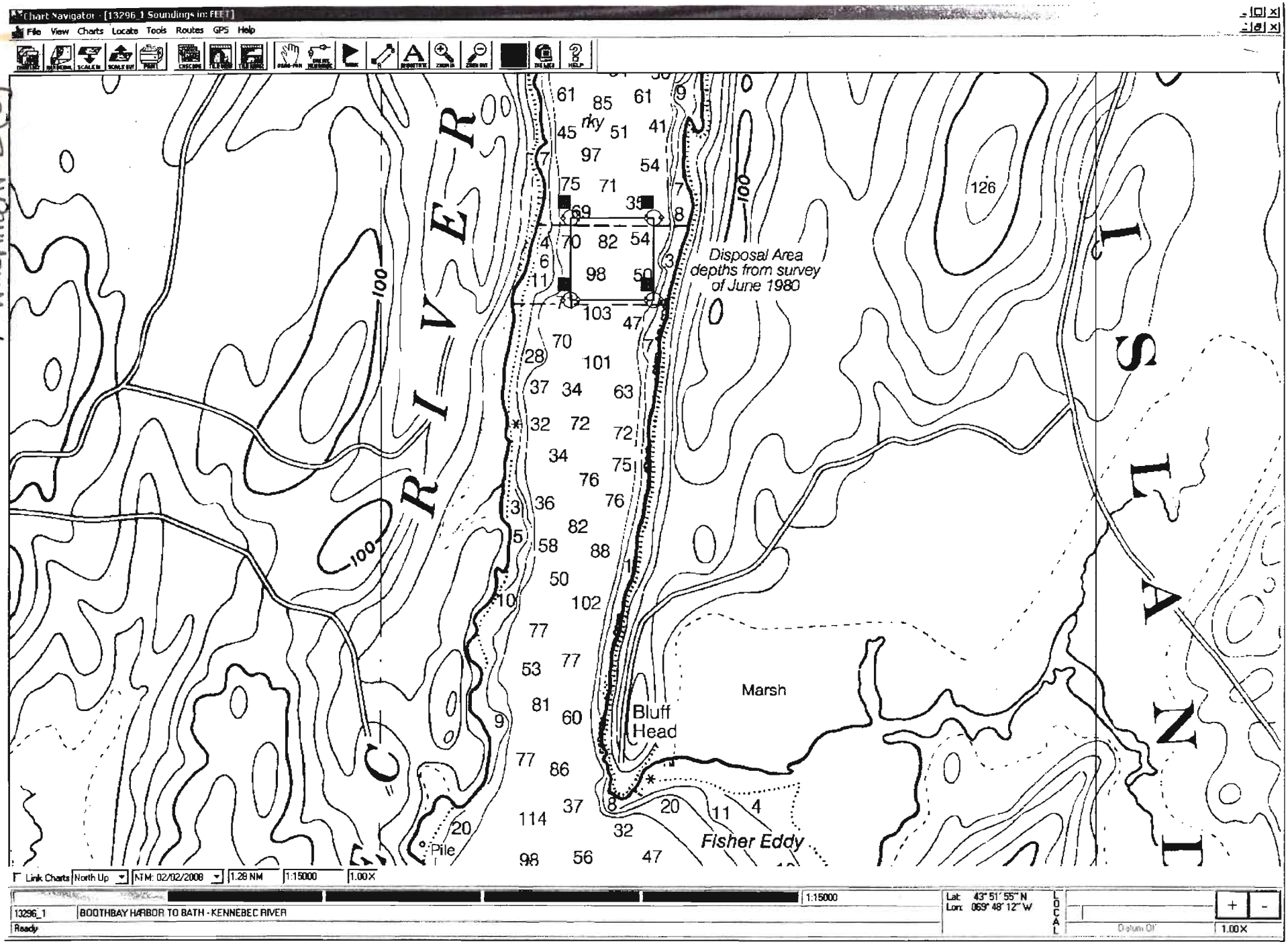
from 2011 permit application of ACOE submission


Attachment 2B
DREDGING AREA
DOUBLING PT RANGE
F 33ft
F 18ft
Hospital Pt.
Doubling Pt.
Fl 4sec 23ft 8M
BELL
Fiddler Reach
Fiddler 27 Ledge
Lithgow Rk
Winnegance Creek
Winnegance
Old Mill Pond
Marsh
Morse Cove
ARROWSIC
DISPOSAL AREA
CRIVER
Bluff Head
Marsh
1980

Attachment 2(c)

From Jay Clement ACOE

2009 expansion from June 1980 depths



Note: Disposal location misidentified. From Nov 2009 Biological Opinion for dredging BIW sinking basin with disposal at Bluff Head

Appendix A

Map of Action Area

Attachment 2(d)

Action Area as described in Opinion

65

pg. 65

Available 5/15/2011 at http://www.nero.noaa.gov/prot_res/section7/ACOE-SignedBOs/BathIronWorks2009-SignedBO.pdf

2/24/2011. 98 Pleasant Cove Rd Phippsburg. Adjacent to "Bluff Head" disposal. Note how clear the water is -- typical.

Attachment 3. Kennebec Narrows disposal site.

2/24/2011. View of Dredge Spoil Disposal Area at low tide. The cloudy area is where I washed off my boots from the intertidal muck.

Attachment 3: Kennebec Narrows disposal site