



**US Army Corps
of Engineers**®
New England District

696 Virginia Road
Concord, MA 01742-2751

PUBLIC NOTICE

Date: March 2, 2010
Comment Period Ends: April 2, 2010
File Number: NAE-2007-3002
In Reply Refer To: Susan Lee
Or by e-mail: susan.k.lee@usace.army.mil

The District Engineer has received a permit application from the applicant below to **conduct work in waters of the United States** as described below.

APPLICANT

Connecticut Department of Transportation (CTDOT), 2800 Berlin Turnpike, PO BOX 317546, Newington, Connecticut 06131-7546

ACTIVITY

CTDOT proposes to discharge dredged and fill materials below the high tide line in tidal wetland areas associated with Baker Cove and the Poquonock River in Groton, Connecticut. The work in wetlands is associated with the proposed upgrade to the Runway Safety Areas (RSA) for Runways 5 and 23 at Groton-New London Airport to comply with FAA design standards for RSAs. The project would utilize a technology called an Engineered Material Arresting System (EMAS). The proposed activity will take place within the ends of Runway 5-23 at the Groton-New London Airport. The two sites where the development activities are proposed are bordered to the east by the Poquonock River and its associated wetlands. Proposed regulated activities include filling and regrading of a portion of abutting tidal wetlands. The proposed activity will affect approximately 0.47 acres of tidal wetlands and involves work below the High Tide Line. The wetland loss will be mitigated by a creation of 2.54 acres of tidal wetland. The proposed mitigation area is located on the banks of the Poquonock River in the vicinity of Runway 23.

A detailed description and plans of the activity are attached.

WATERWAY AND LOCATION OF THE PROPOSED WORK

This work is proposed in the Poquonock River, Baker Cove and adjacent tidal wetlands in Groton, Connecticut. The project begins at coordinates 41.33289 degrees N and -72.03656 degrees E on the USGS New London, CT quadrangle sheet.

AUTHORITY

Permits are required pursuant to:

- Section 10 of the Rivers and Harbors Act of 1899
 Section 404 of the Clean Water Act
 Section 103 of the Marine Protection, Research and Sanctuaries Act).

The decision whether to issue a permit will be based on an evaluation of the probable impact of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization

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of important resources. The benefit which may reasonably accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered,

including the cumulative effects thereof; among those are: conservation, economics, aesthetics, general environmental concerns, wetlands, cultural value, fish and wildlife values, flood hazards, flood plain value, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food production and, in general, the needs and welfare of the people.

The Corps of Engineers is soliciting comments from the public; Federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Where the activity involves the discharge of dredged or fill material into waters of the United States or the transportation of dredged material for the purpose of disposing it in ocean waters, the evaluation of the impact of the activity in the public interest will also include application of the guidelines promulgated by the Administrator, U.S Environmental Protection Agency, under authority of Section 404(b) of the Clean Water Act, and/or Section 103 of the Marine Protection Research and Sanctuaries Act of 1972 as amended.

ESSENTIAL FISH HABITAT

The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires all federal agencies to consult with the National Marine Fisheries Service on all actions, or proposed actions, permitted, funded, or undertaken by the agency, that may adversely affect Essential Fish Habitat (EFH).

This project will impact approximately 0.47 acres of Essential Fish Habitat (EFH) for those species and life stages identified on the attached 'Summary of Essential Fish Habitat Designation' (2 sheets). This habitat consists of wetlands areas below high tide line. Loss of this habitat may adversely affect listed species and life stages as a result of filling/grading activities occurring below high tide line in tidal wetlands areas surrounding the Runway 5 end of Runway 5-23. Sedimentation controls will be in place to minimize off-site migration of disturbed soils. Compensatory mitigation is proposed to compensate for wetlands functions and values impacts (see mitigation discussion below). However, the District Engineer has made a preliminary determination that the site-specific adverse effect will not be substantial. Further consultation with the National Marine Fisheries Service regarding EFH conservation recommendations is being conducted and will be concluded prior to the final decision.

SECTION 106 COORDINATION

Based on his initial review, the District Engineer has determined that little likelihood exists for the proposed work to impinge upon properties with cultural or Native American significance, or listed in, or eligible for listing in, the National Register of Historic Places. Therefore, no further consideration of the requirements of Section 106 of the National Historic Preservation Act of 1966, as amended, is necessary. This determination is

based upon one or more of the following:

- a. The permit area has been extensively modified by previous work.
- b. The permit area has been recently created.
- c. The proposed activity is of limited nature and scope.
- d. Review of the latest published version of the National Register shows that no presence of registered properties listed as being eligible for inclusion therein are in the permit area or general vicinity.
- e. Coordination with the State Historic Preservation Officer and/or Tribal Historic Preservation Officer(s)

ENDANGERED SPECIES CONSULTATION

The New England District, Army Corps of Engineers has reviewed the list of species protected under the Endangered Species Act of 1973, as amended, which might occur at the project site. It is our preliminary determination that the proposed activity for which authorization is being sought is designed, situated or will be operated/used in such a manner that it is not likely to adversely affect any federally listed endangered or threatened species or their designated critical habitat. By this Public Notice, we are requesting that the appropriate Federal Agency concur with our determination.

The States of Connecticut, Maine, Massachusetts, New Hampshire and Rhode Island have approved **Coastal Zone Management Programs**. Where applicable the applicant states that any proposed activity will comply with and will be conducted in a manner that is consistent with the approved Coastal Zone Management Program. By this Public Notice, we are requesting the State concurrence or objection to the applicant's consistency statement.

The following authorizations have been applied for, or have been, or will be obtained:

- (X) Permit, License or Assent from State.
- (X) Permit from Local Wetland Agency or Conservation Commission.
- (X) Water Quality Certification in accordance with Section 401 of the Clean Water Act.

In order to properly evaluate the proposal, we are seeking public comment. Anyone wishing to comment is encouraged to do so. **Comments should be submitted in writing by the above date.** If you have any questions, please contact Susan Lee at (978) 318-8494 or (800) 343-4789, (800) 362-4367 if calling from within Massachusetts.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider the application. Requests for a public hearing shall specifically state the reasons for holding a public hearing. The Corps holds public hearings for the purpose of obtaining public comments when that is the best means for understanding a wide variety of concerns from a diverse segment of the public.

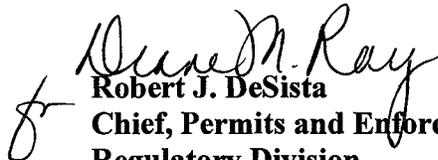
The initial determinations made herein will be reviewed in light of facts submitted in response to this notice. All comments will be considered a matter of public record. Copies of letters of objection will be forwarded to the applicant who will normally be requested to contact objectors directly in an effort to reach an understanding.

In accordance with 33 CFR 325.2(a)(8), we publish monthly a list of permits issued or denied during the previous month at www.nae.usace.army.mil/reg, under the heading "Monthly General and Individual Permit Authorizations." Relevant environmental documents and the SOFs or RODs are available upon written request

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and, where applicable, upon the payment of administrative fees. Also visit www.nae.usace.army.mil for more information on the New England District Corps of Engineers programs.

THIS NOTICE IS NOT AN AUTHORIZATION TO DO ANY WORK.


Robert J. DeSista
Chief, Permits and Enforcement Branch
Regulatory Division

If you would prefer not to continue receiving Public Notices, please contact Ms. Tina Chaisson at (978) 318-8058 or e-mail her at bettina.m.chaisson@usace.army.mil. You may also check here () and return this portion of the Public Notice to: Bettina Chaisson, Regulatory Division, U.S. Army Corps of Engineers, 696 Virginia Road, Concord, MA 01742-2751.

NAME: _____
ADDRESS: _____

PROPOSED WORK AND PURPOSE

The work includes the discharge of dredged or fill materials below high tide line in tidal wetlands areas for the construction of runway safety areas (RSAs) for Runway 5 and Runway 23 at Groton-New London Airport in Groton, CT.

The proposed RSA improvements at Runway 5 and Runway 23 are approximately 390 feet by 180 feet areas consisting of materials using an Engineered Material Arresting System ('EMAS') technology. As defined in FAA's EMAS fact sheet dated August 11, 2008: "An Engineered Material Arresting System (EMAS) uses materials of closely controlled strength and density placed at the end of a runway to stop or greatly slow an aircraft that overruns the runway. The best material found to date is a lightweight, crushable concrete. When an aircraft rolls into an EMAS arrestor bed, the tires of the aircraft sink into the lightweight concrete and the aircraft is decelerated by having to roll through the material.

At Runway 5, the RSA improvement will impact two areas of the tidal wetlands, identified as Impact Areas 1 and 2. Both areas are part of a large existing tidal wetland bordering south and east sides of the airport. The portion of the wetland at Impact Area 1 is high marsh composed of *Spartina patens*, *Juncus gerardii*, and *Phragmites australis* (see FIGURE 3). The wetland at Impact Area 2 is high marsh composed of a mowed brackish wet meadow community of *Andropogon virginicus*, *Juncus gerardii*, *Limonum nashii*, *Plantago major*, also depicted on FIGURE 3.

Work affecting the regulated area at Runway 5 Impact Area 1 consists of:

- Installing sedimentation controls and a sandbag cofferdam along the proposed toe of slope at the east edge of Impact Area 1. Approximately 233 feet of the sandbag cofferdam will be below the High Tide Line (HTL).
- Excavating organic material from the Runway 5 (south) end. A portion of this excavation will be performed waterward of the existing high tide line. Material will be dewatered on site, then transported for placement at an upland location within the airport property or disposed of offsite at an approved location.
- Placing fill material including subbase and pavement courses, earthen fill material, and crushed stone. A portion of this material will be placed waterward of the existing high tide line. The pavement section is required to provide a solid and stable foundation for the pavement and live loads (aircraft).
- Installing the EMAS bed at the Runway 5 end, at a variable depth of approximately 5" to 18" thick, on top of a bituminous concrete pavement base.

Work affecting the regulated area at Runway 5 Impact Area 2 is limited to fill because Impact Area 2 is outside the limits of excavation required for the EMAS and pavement. Work will consist of:

- Installing sedimentation controls and a sandbag cofferdam along the toe of slope. Approximately 27 feet of the sandbag cofferdam will be below the HTL
- Limited removal of topsoil within the fill limits, and placing earthen fill material. A portion of this fill material will be placed waterward of the existing high tide line

At Runway 23, work to construct the EMAS is similar to EMAS construction at Runway 5, but is entirely landward of the existing high tide line in the vicinity of Runway 23. Minor drainage reconstruction will be

required at the Runway 23 end, outside of the regulated area, but within the flood hazard area.

At both Runways 5 and 23, the ground surface around the perimeter of the EMAS will be graded to drain away from the EMAS to provide safe, stable slopes to support the EMAS bed. Existing electrical conduits will be replaced as needed. Topsoils excavated for the installation of the EMAS beds will be stockpiled and applied to the surface of the revised grades, in order to increase the likelihood that the new fill areas will support vegetation similar to that impacted by the project, as state listed plant species are present.

The purpose of the project is to provide Runway 5-23 Safety Areas (RSAs) at Groton-New London Airport to comply with Federal Aviation Administration (FAA) design standards (FAA Advisory Circular 150/5300-13 Change 14, dated November 1, 2008). The specific proposed improvements to the Runway 5-23 RSAs are designed to safely support and contain aircraft that *overrun* the runway. The need for RSA improvements at Runway 5 and 23 is documented in the CTDOT/FAA Final Environmental Impact Statement & Final Environmental Impact Evaluation, 2004.

The work is described and shown on the attached plans entitled "RUNWAY 5 – 23 SAFETY IMPROVEMENTS" on eight (8) sheets (FIGURES 2-9), various dates (1/21/09, 1/26/09, 2/06/09), and on the attached Table 2 (Tidal Wetland Impacts). The proposed mitigation is shown on the attached FIGURES C-1 through C-4.

MITIGATION

CTDOT has avoided and minimized water resource impacts to the extent practicable within the context of existing Runway 5-23. The proposed EMAS dimensions for Runway 5 and 23 are the minimum required RSA lengths to meet FAA criteria.

CTDOT proposes mitigation for unavoidable wetland impacts as well as impacts to state-listed plant and bird species.

1.) Compensatory tidal wetland creation. The proposed creation site will be in the vicinity of the former Town Beach on the Poquonock River on the east side of the Airport (See FIGURE 1). The mitigation site is approximately 2.83 acres, yielding 2.54 acres of created wetland. In order to create the wetland mitigation, a tidal channel will be constructed at the east end of the site, requiring temporary impacts to 7,878 SF (0.18 Ac.) of existing wetland (0.17 acre of vegetated tidal wetland and 0.01 acres of mud flat). Vegetation and soils from this 0.17-acre impacted wetland will be salvaged and utilized at the adjacent *Phragmites* excavation area, as described below. Excavation of existing upland area will be required to provide appropriate elevations for tidal wetlands creation. An organic soil layer will be placed, and appropriate seedlings and plantings will be provided to establish a 'low marsh' habitat. Construction of the wetland will also require installation of a temporary 166-foot-long sandbag cofferdam below the HTL at the creation area's connection to the Poquonock River. The site is expected to yield 2.36 acres net creation (creation minus temporary impact).

The proposed compensatory tidal wetland will create 0.604 acres of estuarine intertidal emergent high marsh, 1.560 acres of estuarine intertidal emergent low marsh, and 0.375 acres of estuarine intertidal unconsolidated shore (unvegetated open water/mudflat). An additional 0.148 acres of upland graded areas around the perimeter of the site will provide a transition from the existing elevations to the required tidal wetland elevations.

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Habitat diversity will be enhanced by incorporating channels, upland inclusions, and salt pannes (a shallow depression that holds tidal water after high tide recedes). Dendritic channels will provide tidal circulation and some mud flat and open water habitat. These channels, along with a shallower swale along the north (upland) edge of the site will prevent common reed (*Phragmites australis*) from infesting the site. An existing stand of Eastern red-cedar (*Juniperus virginiana*) will be preserved by grading to create an upland 'island' within the created wetland. Salt pannes will be created using deep sumps. Deep sumps provide habitat for small fish that consume mosquito larvae.

2) Removal, by excavation, of an approximately 0.45- acre stand of *Phragmites* adjacent to the compensatory tidal wetland creation area. Approximately 0.25 acres of this stand is within an existing tidal wetland.

3) Control of *Phragmites* and other invasive species in approximately 2.75 acres of other existing wetlands on the airport property. Control will be achieved by means of biological control (beetle release to control purple loosestrife); selective herbicide application, alone or in conjunction with mowing, for *Phragmites*; and cutting and painting cut stems with herbicide for woody invasives including oriental bittersweet and European buckthorn.

Table C-1 below provides a summary of the proposed wetland creation area and adjacent *Phragmites* excavation area.

Table C-1 Tidal Wetland Mitigation Site and *Phragmites* Excavation Area

Location	Areas							
	High Marsh		Low Marsh		OW/Mudflat		Total	
	s.f.	Ac.	s.f.	Ac.	s.f.	Ac.	s.f.	Ac.
Tidal Wetland Creation Area	26,310	0.60	67,954	1.56	16,335	0.38	110,599	2.54
Temporary Impacts	6,488	0.15	829	0.02	561	0.01	7,878	0.18
Net Creation	19,822	0.46	67,125	1.54	15,774	0.36	102,721	2.36
Temporary Impacts and Enhancement at <i>Phragmites</i> Excavation Area	10,906	0.25	--	--	--	--	10,906	0.25

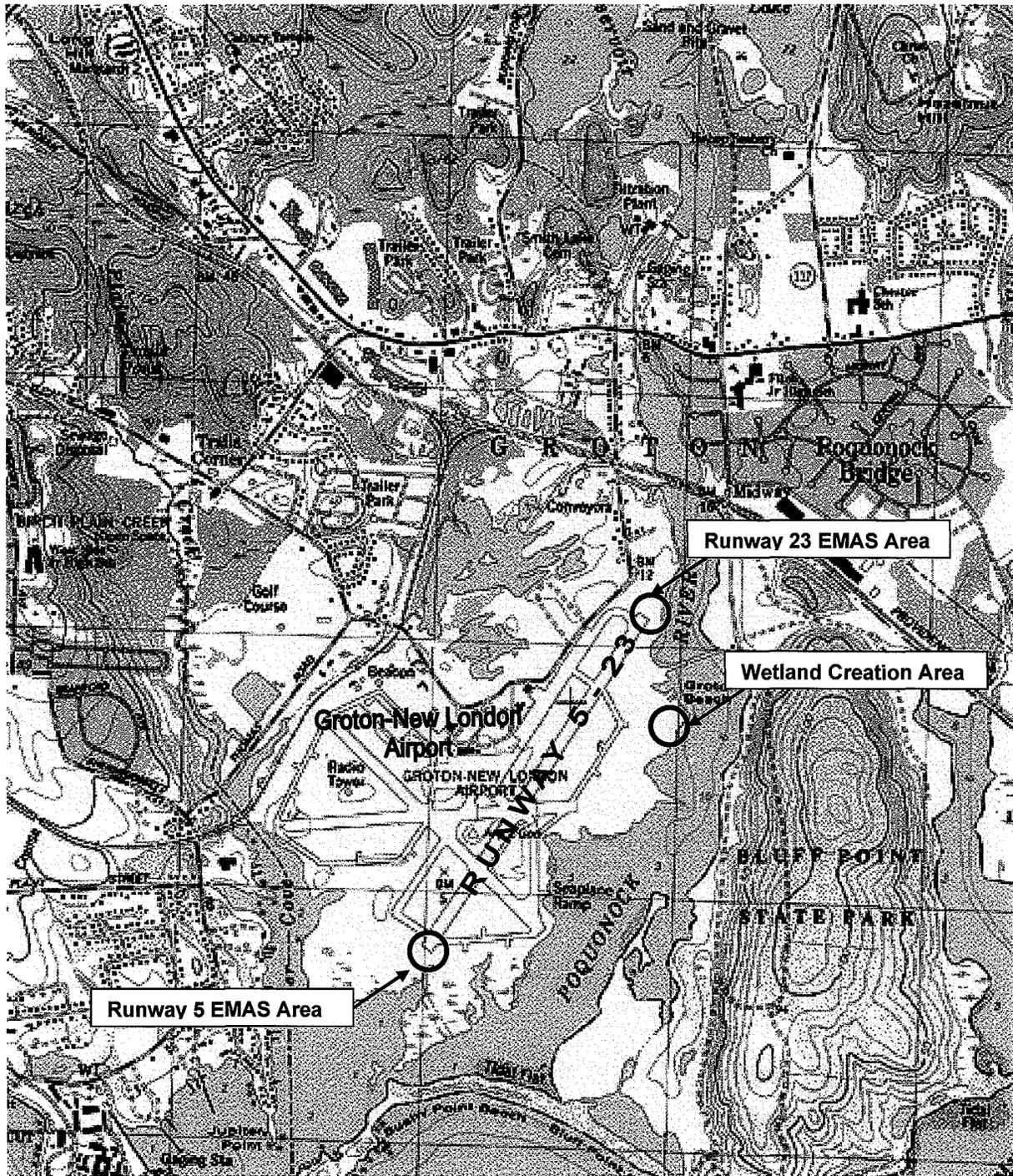
Source: Parsons, 2009

Other project-related mitigation measures include mowing restrictions, removal of invasive species, and re-establishment of state-listed plant species. The proposed re-use of existing topsoil from the Runway 5-23 impact areas will improve the likelihood that two impacted state-listed plants will re-colonize post-construction.

The EMAS will result in an increase of 2.60 acres of impervious surfaces at the airport. Additional mitigation includes removal of existing old/un-used airport pavement. Several areas of existing, unneeded pavement will

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be removed to offset this increase. Pavement will be removed near Old Town Beach, at a storage yard at the north end of the airport, at several old 'spurs' on perimeter roads, and by narrowing several unnecessarily-wide perimeter roads, for a total of 4.55 acres of pavement removed. These improvements will result in a net decrease in paved (impervious) surface area of 1.95 acres. The pavement in each removal area will be replaced by grasses which will be routinely mowed. This will benefit plants, birds, and water quality. Prior to removal of pavement at the former Town Beach area, CTDOT will check the site to determine if the single plant of *Hudsonia tomentosa*, a state-listed species recorded in 2006, and located at the edge of the existing broken pavement, is still present. If present, care will be taken to avoid disturbing the plant or its roots.



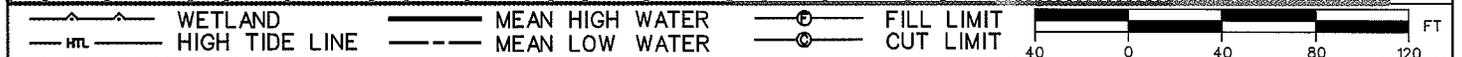
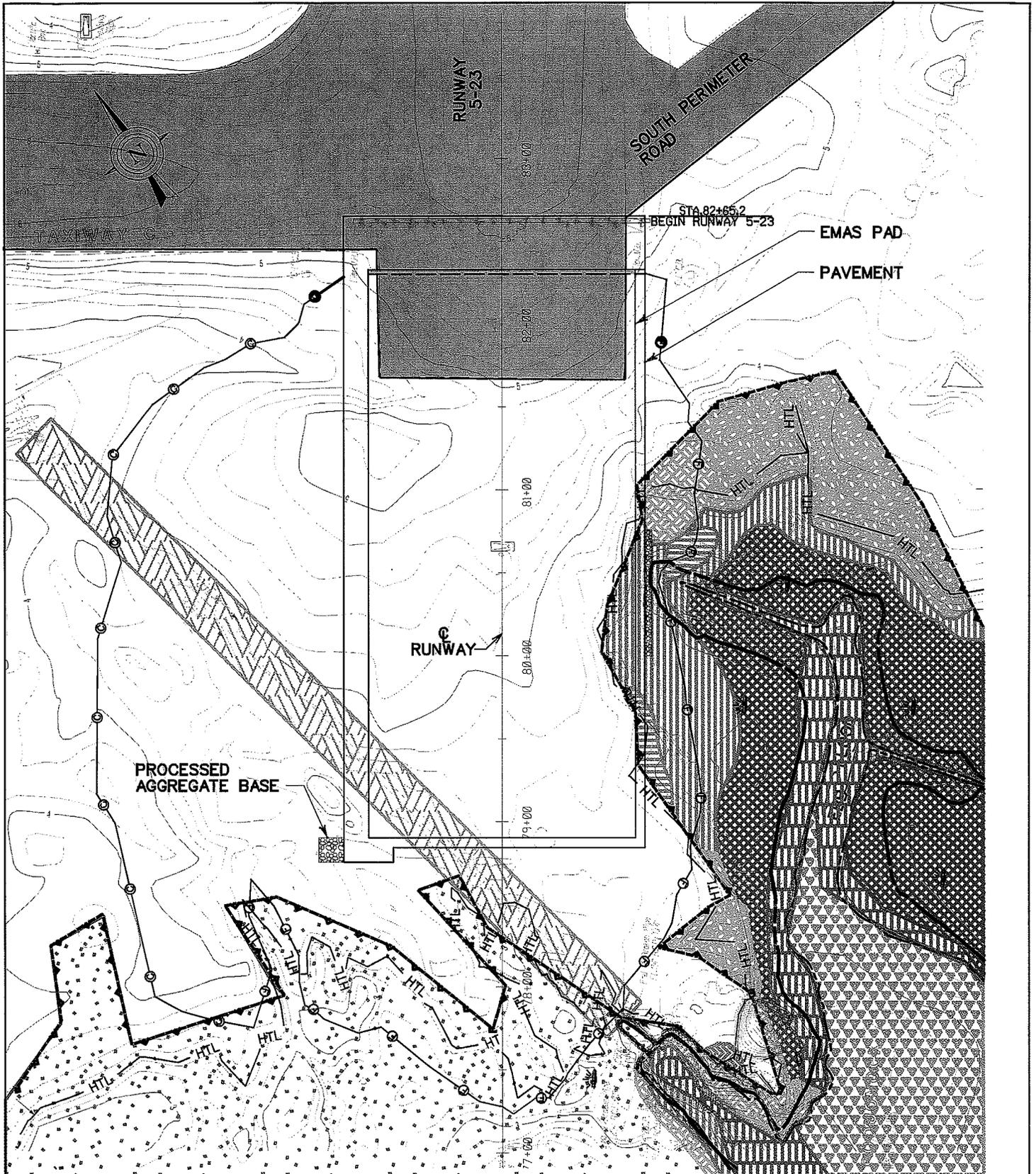
Source: USGS Topographic Map Printed from TOPO 1998 Wildflower Productions

Produced for the
**Connecticut Department of
 Transportation**
 By **PARSONS**

N
 Scale
 1" = 2,000'
 (1:24,000)

**Groton-New London Airport Safety
 Improvements Runway 5-23**

Figure 1: Project Location



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Connecticut Department of Transportation
GROTON - NEW LONDON AIRPORT
PROJECT 58 - 303
RUNWAY 5 - 23
SAFETY IMPROVEMENTS

FIGURE 3:
VEGETATION SKETCH
PLAN VIEW
RUNWAY 5
 DATE: 1/26/09

VEGETATION SKETCH LEGEND

	UPLAND/LAWN (ANDROPOGON V., TARAXACUM O., PLANTAGO M.)
	UPLAND/SHRUB (ROSA RUGOSA)
	PHRAGMITES AUSTRALIS
	JUNCUS GERARDII
	SPARTINA PATENS
	SPARTINA ALTERNIFLORA
	IVA F. / BACCHARIS H. / MYRICA P.
	BRACKISH LAWN (ANDROPOGON V., JUNCUS G., LIMONUM N., PLANTAGO M.)
	MUD FLAT
	OPEN WATER
	DISTURBED
	EXISTING PAVEMENT AREA

PREPARED FOR:



CONNECTICUT
DEPARTMENT OF
TRANSPORTATION

PREPARED BY:

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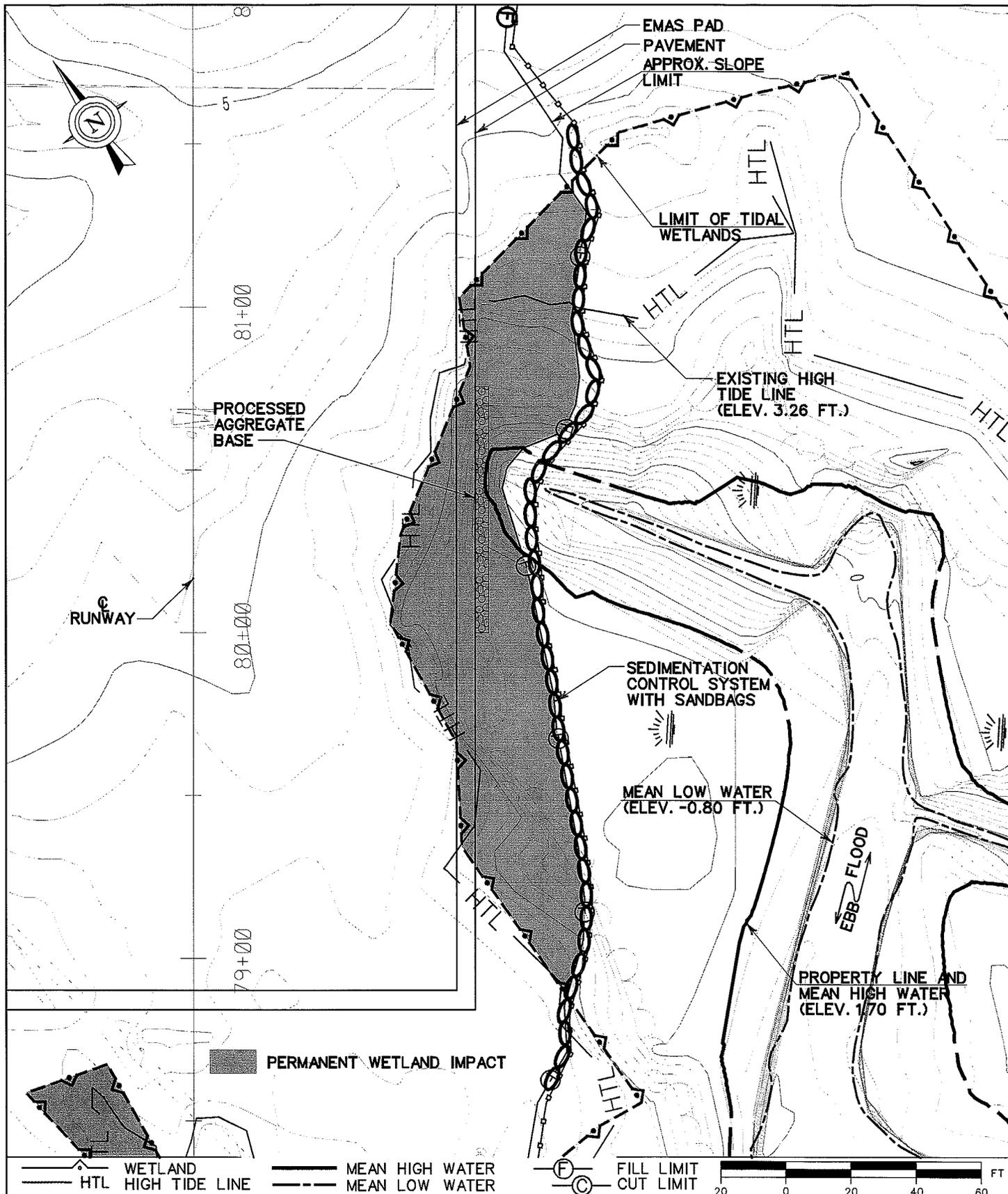
Connecticut Department of Transportation
GROTON - NEW LONDON AIRPORT
PROJECT 58 - 303

RUNWAY 5 - 23
SAFETY IMPROVEMENTS

FIGURE 4:

VEGETATION SKETCH
KEY
RUNWAY 5

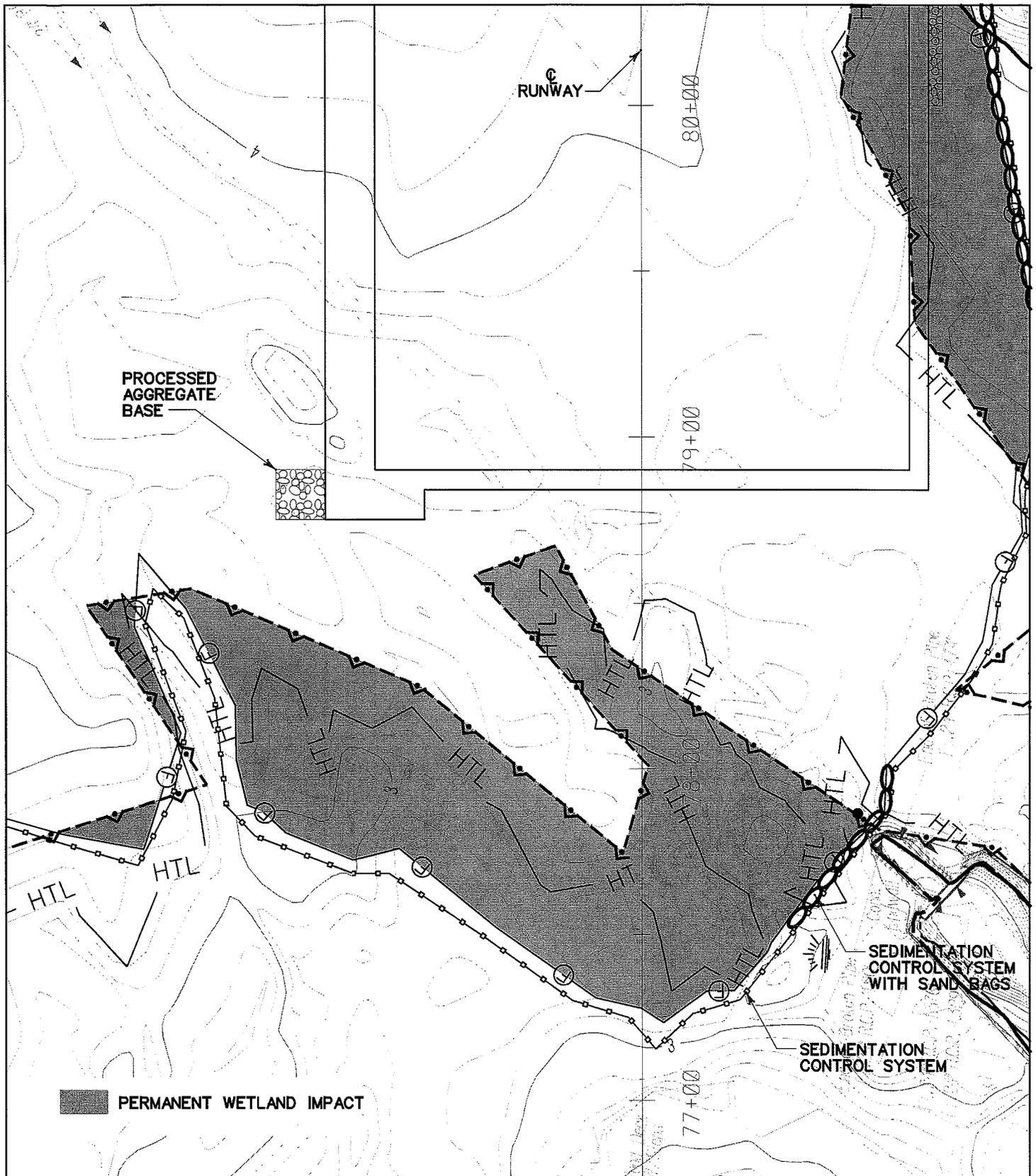
DATE: 1/21/09



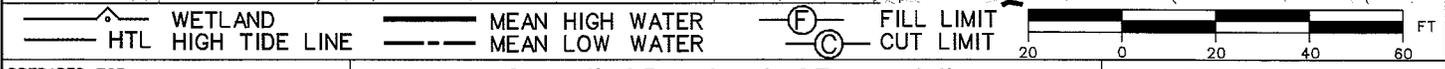
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 PROJECT 58 - 303
RUNWAY 5 - 23
SAFETY IMPROVEMENTS

FIGURE 5:
 40 SCALE PLAN
 VIEW OF IMPACT
 AREA 1
 DATE: 2/06/09



PERMANENT WETLAND IMPACT

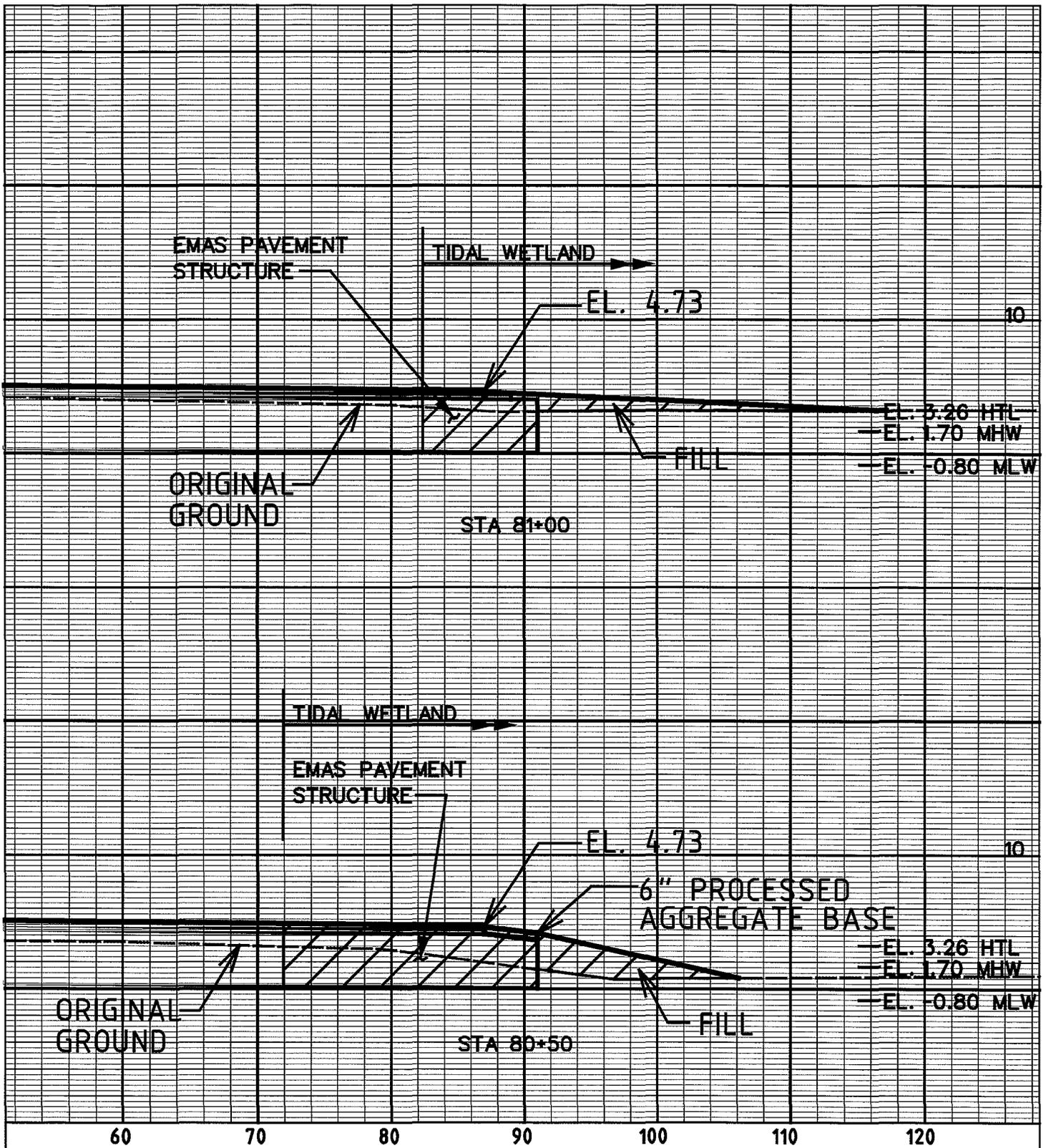


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FIGURE 6:
40 SCALE PLAN
VIEW OF IMPACT
AREA 2
 DATE: 02/06/09



 FILL IN TIDAL WETLAND

SCALE 1" = 10'

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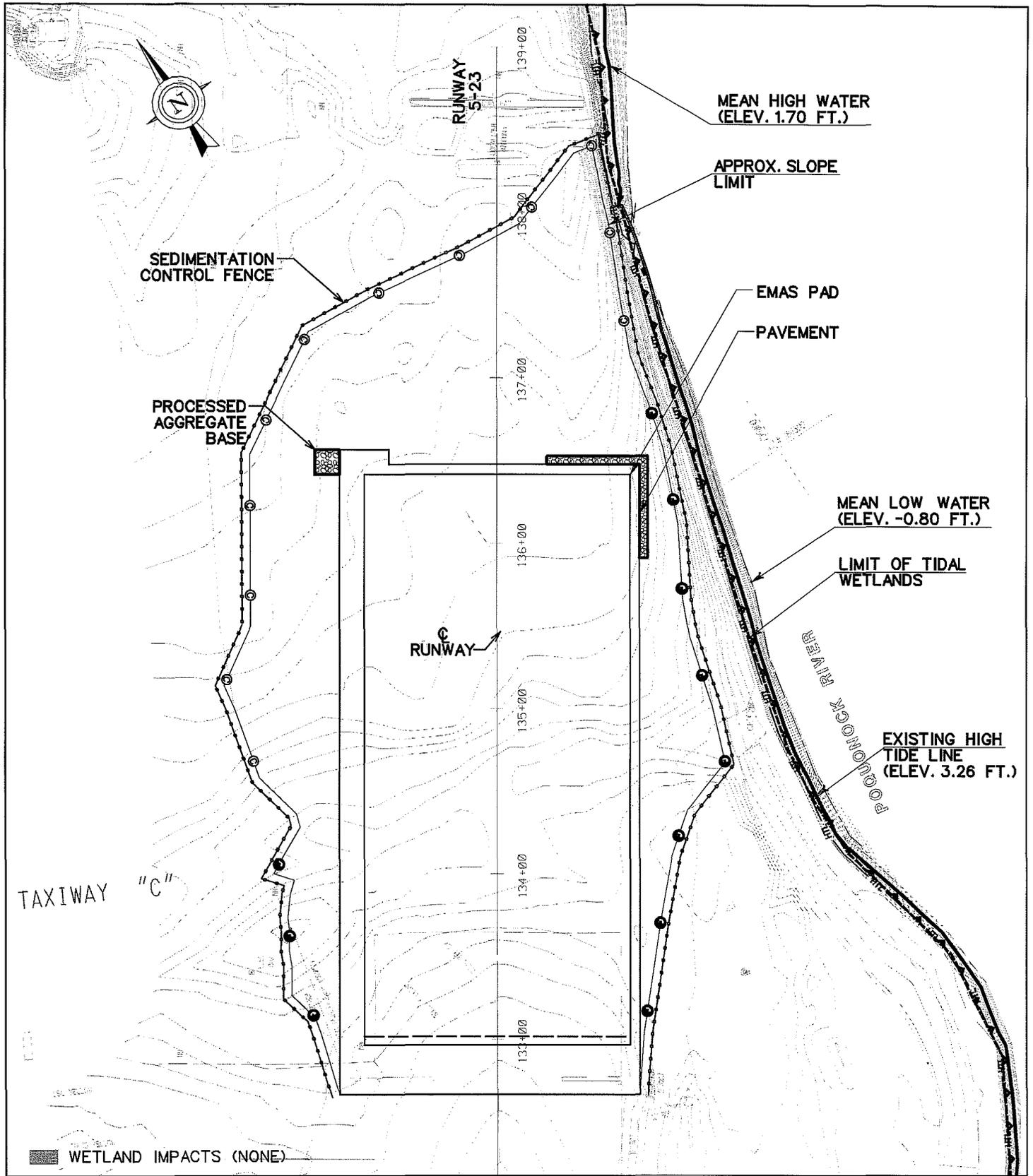
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SAFETY IMPROVEMENTS

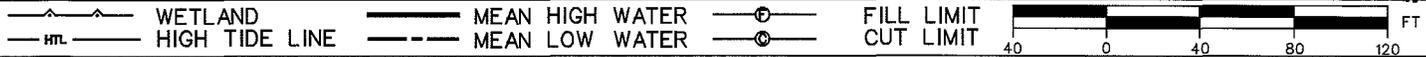
FIGURE 7

CROSS SECTION
OF IMPACT AREA
RUNWAY 5

DATE: 1/26/09



WETLAND IMPACTS (NONE)



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RUNWAY 5 - 23
SAFETY IMPROVEMENTS

FIGURE 8:
PLAN VIEW
RUNWAY 23
 DATE: 1/21/09

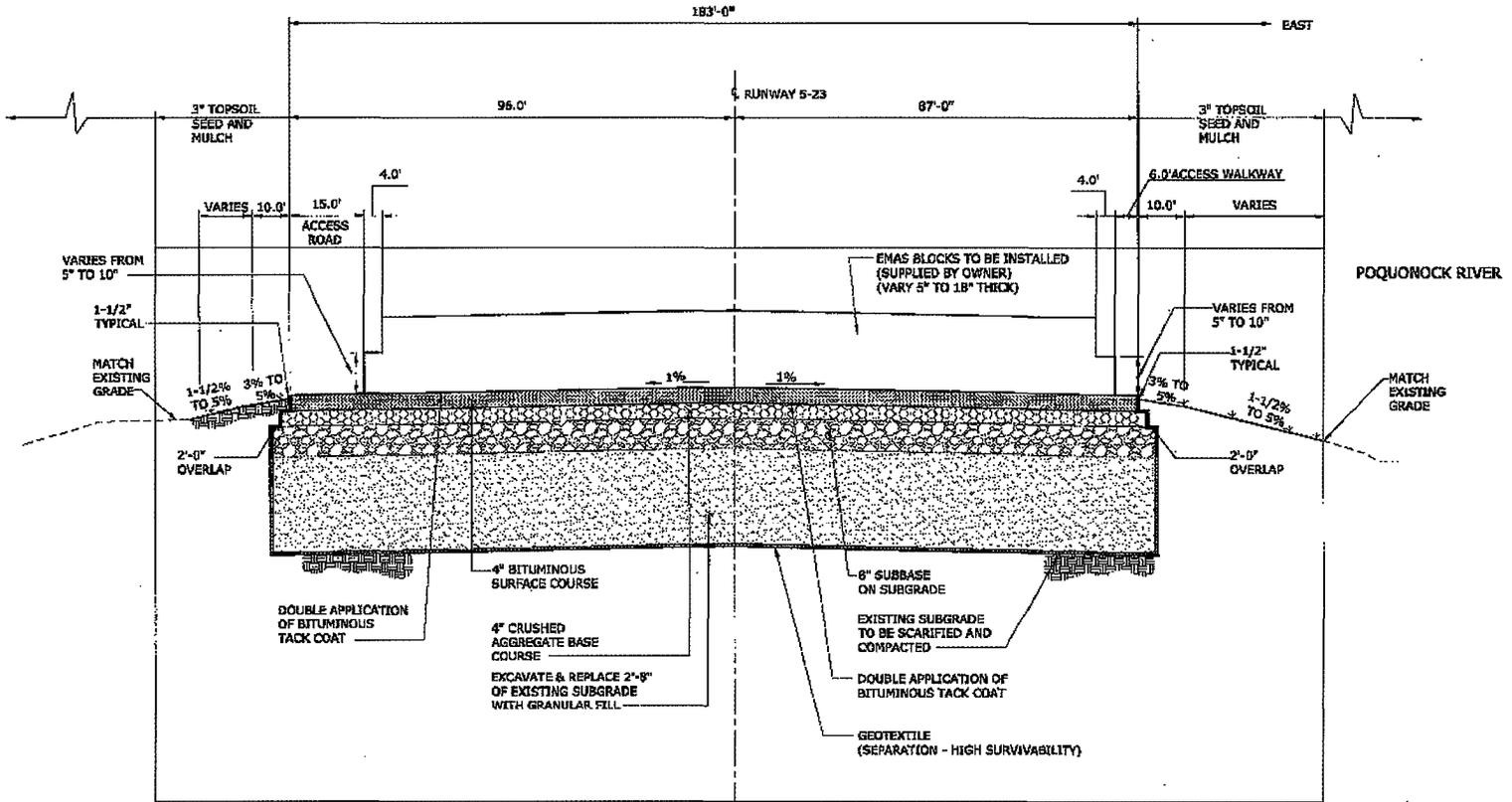


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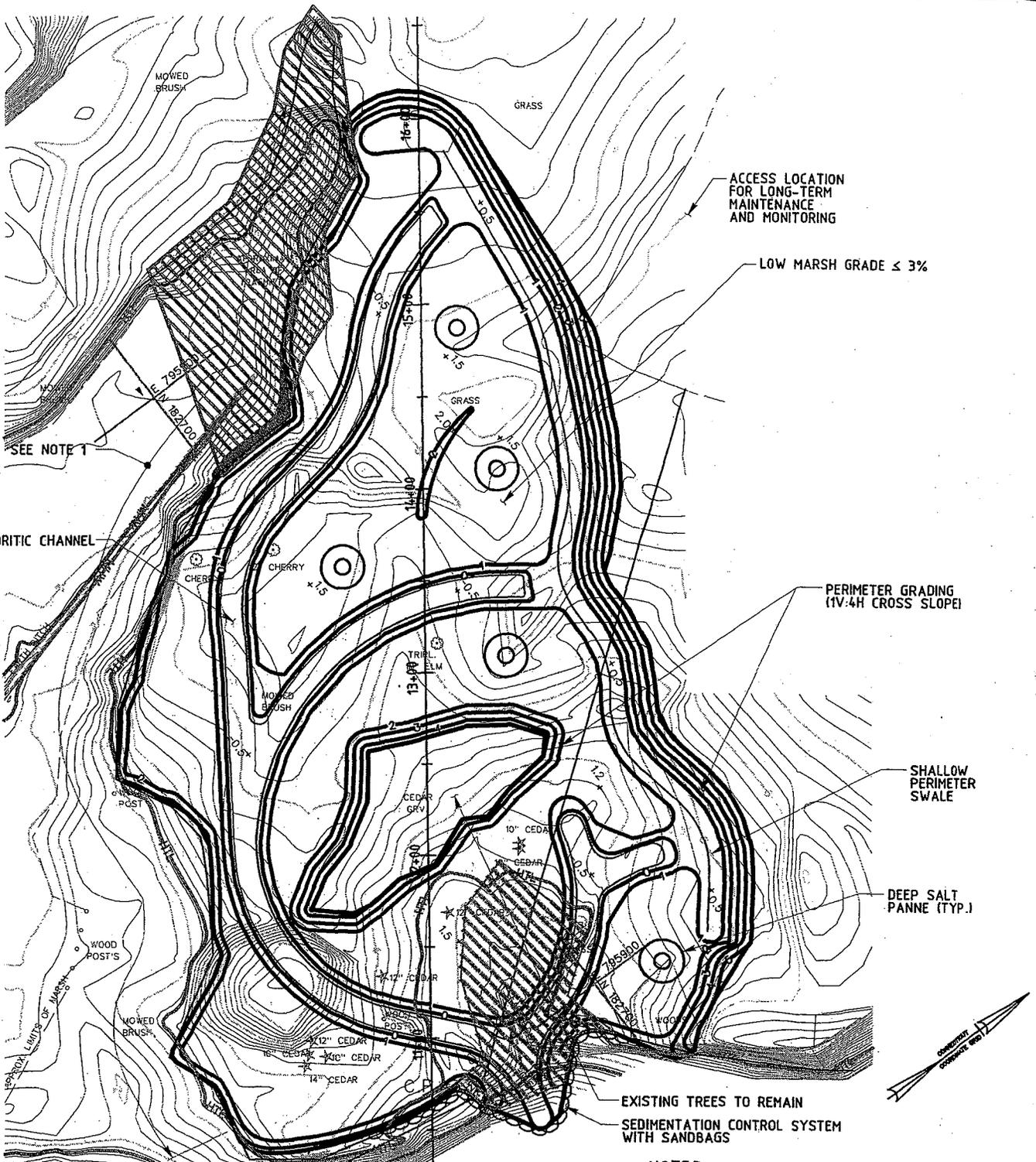
TYPICAL SECTION - 5 APPROACH END (RUNWAY 23 DEPARTURE)
SCALE: NOT TO SCALE

FIGURE 9:
TYPICAL EMAS
SECTION
RUNWAY 5
DATE: 1/21/09

Table 2 Tidal Wetland Impacts

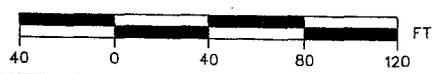
Regulated Vegetated Tidal Wetland Areas			Areas								
			Runway 5				Tidal Wetland Creation Area		Total		
Temp/Perm.	Location	Wetland Vegetation	Area 1		Area 2		Area 3		s.f.	Ac.	
			s.f.	Ac.	s.f.	Ac.	s.f.	Ac.			
Temporary	Above HTL	Phragmites	0	0	0	0	0	0	0	0	
		High Marsh	0	0	0	0	0	0	0	0	
		Mowed High Marsh	0	0	0	0	599	0.01	599	0.01	
		Low Marsh	0	0	0	0	0	0	0	0	
	Subtotal Temp. Above HTL			0	0	0	0	599	0.01	599	0.01
	Below HTL	Phragmites	0	0	0	0	0	0	0	0	
		High Marsh	0	0	0	0	0	0	0	0	
		Mowed High Marsh	0	0	0	0	5,889	0.14	5,889	0.14	
		Low Marsh	0	0	0	0	829	0.02	829	0.02	
	Subtotal Temp. Below HTL			0	0	0	0	6,718	0.16	6,718	0.16
	Total Temporary Impacts			0	0	0	0	7,317	0.17	7,317	0.17
	Permanent	Above HTL	Phragmites	758	0.02	0	0	0	0	758	0.02
			High Marsh	187	0.00	0	0	0	0	187	0.00
			Mowed High Marsh	0	0	5,582	0.13	0	0	5,582	0.13
Subtotal Perm. Above HTL			945	0.02	5,582	0.13	0	0	6527	0.15	
Below HTL		Phragmites	991	0.02	0	0	0	0	991	0.02	
		High Marsh	5,686	0.13	0	0	0	0	5,686	0.13	
		Mowed High Marsh	0	0	7,315	0.17	0	0	7,315	0.17	
Subtotal Perm. Below HTL			6,677	0.15	7,315	0.17	0	0	13,992	0.32	
Total Permanent Impacts			7,622	0.17	12,897	0.30	0	0	20,519	0.47	

Source: Parsons, 2009



NOTES:
 1. LIMITED GRADING WILL BE REQUIRED AS DIRECTED BY THE ENGINEER IN COORDINATION WITH CONDOT DEP. TO PROVIDE TRANSITION TO EXISTING WETLANDS. GRADE TO ELEVATION 3.0 TO AVOID LEAVING A 'BERM' BETWEEN THE EXISTING AND PROPOSED WETLAND AREAS.

- SALVAGE EXISTING WETLAND SOIL AND VEGETATION
- PHRAGMITES EXCAVATION AREA

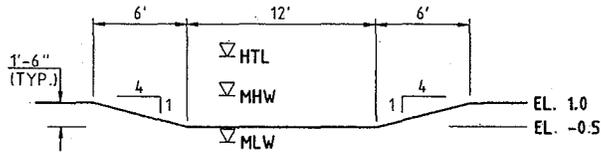


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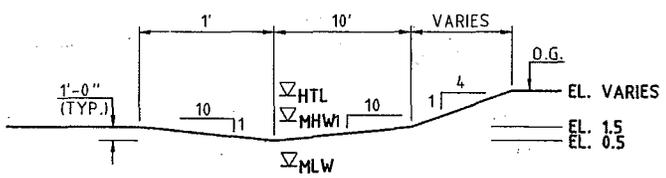
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RUNWAY 5 - 23
SAFETY IMPROVEMENTS

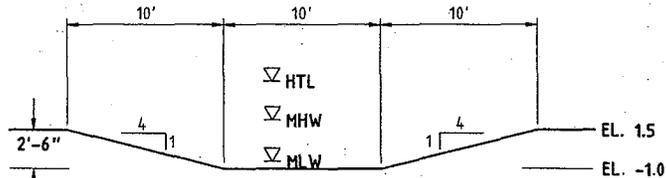
FIGURE C-1
WETLAND CREATION
GRADING PLAN
 DATE: 3/16/09



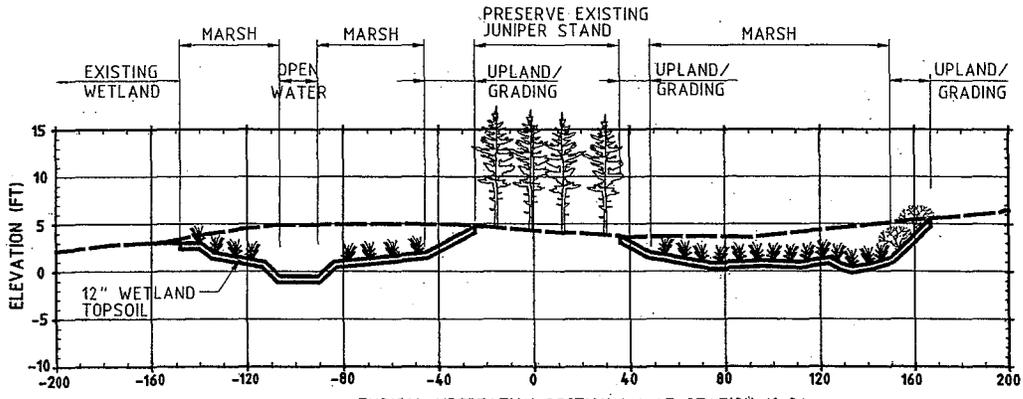
TYPICAL TIDAL DENDRITIC CHANNEL SECTION
N.T.S.



TYPICAL SHALLOW PERIMETER SWALE SECTION
N.T.S.



TYPICAL DEEP SALT PANNE SECTION
N.T.S.



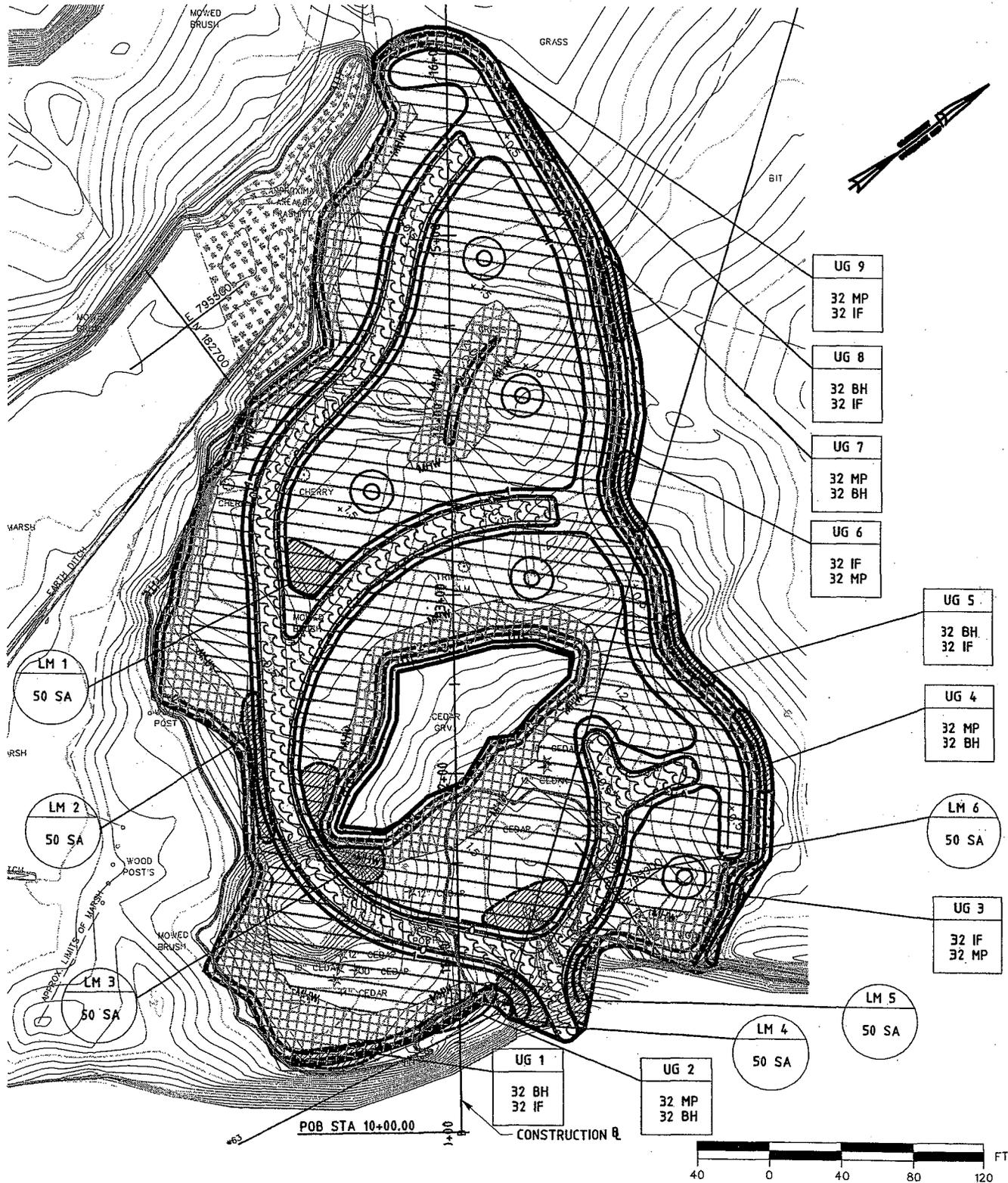
TYPICAL VEGETATION SECTION 'A' AT STATION 12+30
SCALE: -HORIZ. 1" = 80'
-VERT. 1" = 20'

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FIGURE C-2:
 WETLAND CREATION
 GRADING DETAILS
 DATE: 3/16/09

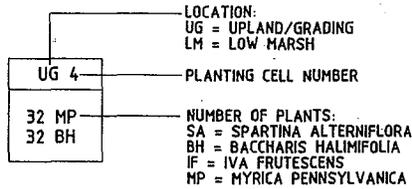


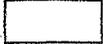
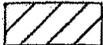
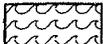
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FIGURE C-3:
 WETLAND CREATION
 PLANTING PLAN
 DATE: 3/13/09



COVER TYPE CALCULATIONS AND KEY	AREA (ACRES)
 UPLAND/GRADING (ABOVE HTL) (ABOVE EL. 3.26)	0.148
 LOWER HIGH MARSH (CHARACTERISTIC SPECIES: SPARTINA PATENS) (FROM MEAN HIGH WATER EL. 1.7 TO HIGH TIDE LINE EL. 3.26)	0.604
 LOW MARSH (CHARACTERISTIC SPECIES: SPARTINA ALTERNIFLORA) (FROM EL. 0.0 TO MEAN HIGH WATER EL. 1.7)	1.56
 OPEN WATER CHANNEL/MUDFLAT (BELOW EL. 0.0)	0.375
SUBTOTAL - TIDAL WETLAND	2.539
TOTAL PROPOSED MITIGATION AREA (EXCLUDING UPLAND PRESERVATION)	2.832

 REPLANTING ZONE IN PHRAGMITES REMOVAL AREA.
 PHRAGMITES REMOVAL AREA = 0.45 AC.
 PLANTING ZONE = 0.17 AC.

SYMBOL	BOTANICAL NAME	COMMON NAME	TYPE	QUANTITY
WETLAND CREATION AREA				
SA	<i>Spartina alterniflora</i>	Smooth Cordgrass	Plug	300
BH	<i>Baccharis halimifolia</i>	Groundsel Tree	1 Gallon Container 12"-18" Height	192
IF	<i>Iva frutescens</i>	High Tide Bush	1 Gallon Container 12"-18" Height	192
MP	<i>Myrica pennsylvanica</i>	Northern Bayberry	1 Gallon Container 12"-18" Height	192
PHRAGMITES REMOVAL AREA				
SP	<i>Spartina patens</i>	Saltmeadow Cordgrass	Plug	977

NOTE:
 ALL PLANTINGS WILL BE INSTALLED AT 3-FOOT ON-CENTER SPACING.

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FIGURE C-4:
 WETLAND CREATION
 PLANTING KEY
 AND SCHEDULE

DATE: 3/13/09

Summary of Essential Fish Habitat (EFH) Designation**10 x 10 Square Coordinates:**

Boundary	North	East	South	West
Coordinate	41° 20.0 N	72° 00.0 W	41° 10.0 N	72° 10.0 W

Square Description (i.e. habitat, landmarks, coastline markers): The waters within the square within the Connecticut River estuary affecting the following: the northeast tip of Plum I., Great Gull I., Little Gull I., the western third of Fishers I., Flat Hammock, South Dumpling, and North Dumpling. These waters also affect the following south of Groton, CT., from Groton Long Point to Millstone Point just east of Niantic Bay, including south of the entrance to New Long Harbor, and south of the following: Mumford Point, Poquonock Point, Avery East Point, Eastern Point, and Goshen Point. In addition, these waters affect the following: western Fishers Island Sound, North Hill and Hay Harbors, New London Harbor, western West Harbor, Silver Eel Cove, Mumford Cove, and the entrance to the Thames River. Finally, the following features are affected: Constellation Rock, Old Silas Rock, Valiant Rock, Little Goshen Reef, Twotree I., Twotree I. Channel, Bartlett Reef, Goshen Ledge, Rapid Rock, Flat Rock, High Rock, Cormorant Rock, Sarah Ledge, Black Ledge, Vixen Ledge, New London Ledge, Black Ledge, Pine I., Pine I. Channel, Frank Ledge, Black Rock, Jordan Cove, and Pleasure Beach, along with a dumping ground just south of New London Harbor.

Species	Eggs	Larvae	Juveniles	Adults
Atlantic salmon (<i>Salmo salar</i>)			X	X
Atlantic cod (<i>Gadus morhua</i>)				
haddock (<i>Melanogrammus aeglefinus</i>)				
pollock (<i>Pollachius virens</i>)				
whiting (<i>Merluccius bilinearis</i>)				
red hake (<i>Urophycis chuss</i>)				X
white hake (<i>Urophycis tenuis</i>)				
redfish (<i>Sebastes fasciatus</i>)	n/a			
witch flounder (<i>Glyptocephalus cynoglossus</i>)				
winter flounder (<i>Pleuronectes americanus</i>)				
yellowtail flounder (<i>Pleuronectes ferruginea</i>)				
windowpane flounder (<i>Scopthalmus aquosus</i>)				
American plaice (<i>Hippoglossoides platessoides</i>)				
ocean pout (<i>Macrozoarces americanus</i>)				
Atlantic sea scallop (<i>Placopecten magellanicus</i>)				
Atlantic sea herring (<i>Clupea harengus</i>)				X
monkfish (<i>Lophius americanus</i>)				

bluefish (<i>Pomatomus saltatrix</i>)			X	X
long finned squid (<i>Loligo pealei</i>)	n/a	n/a		
short finned squid (<i>Illex illecebrosus</i>)	n/a	n/a		
Atlantic butterfish (<i>Peprilus triacanthus</i>)				
Atlantic mackerel (<i>Scomber scombrus</i>)				
summer flounder (<i>Paralichthys dentatus</i>)				
scup (<i>Stenotomus chrysops</i>)	n/a	n/a		
black sea bass (<i>Centropristus striata</i>)	n/a			
surf clam (<i>Spisula solidissima</i>)	n/a	n/a		
ocean quahog (<i>Artica islandica</i>)	n/a	n/a		
spiny dogfish (<i>Squalus acanthias</i>)	n/a	n/a		
tilefish (<i>Lopholatilus chamaeleonticeps</i>)				
king mackerel (<i>Scomberomorus cavalla</i>)	X	X	X	X
Spanish mackerel (<i>Scomberomorus maculatus</i>)	X	X	X	X
cobia (<i>Rachycentron canadum</i>)	X	X	X	X
sand tiger shark (<i>Odontaspis taurus</i>)		X		
dusky shark (<i>Charcharinus obscurus</i>)			X	
bluefin tuna (<i>Thunnus thynnus</i>)				X