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NAS KEY WEST
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LETTER SUBMITTING MINUTES FROM 30 JULY 1996 MEETING TO DISCUSS SHORELINE
PROTECTION SYSTEM NAS KEY WEST
8/6/1996
BECHTEL ENVIRONMENTAL

Bechtel

Oak Ridge Corporate Center
151 Lafayette Drive
P.O. Box 350
Oak Ridge, Tennessee 37831-0350

Telephone: (423) 220-2000

AUG 6 1996

Commanding Officer
Department of the Navy, Southern Division
Naval Facilities Engineering Command
Attention: Dudley Patrick (1858)
2155 Eagle Drive, P. O. Box 190010
North Charleston, SC 29419-9010

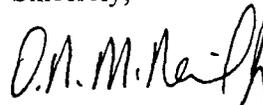
SUBJECT: Bechtel Job No. 22567
Department of the Navy Contract No. N62467-93-D-0936
DO 0004: IR-8 SHORELINE PROTECTION SYSTEM, REVIEW WITH PERMITTING AGENCIES
Subject Code: 1020

Dear Mr. Patrick:

Enclosed are minutes of the 30 July meeting on site with representatives of the Florida Department of Community Affairs and Department of Environmental Protection.

Please give me a call if you have any comments.

Sincerely,



O. N. McNeil, Jr.
Project Manager

ONM:cw:LR0847

cc (w/encl):

Ty Symroski, FDCA
Alan Woolwich, FDCA
Ed Barham, FDEP
Blake Traudt, FDEP
Margaret Diaz, USA COE
Vic Anderson, USA COE
Phil Williams, NAS KW
Ron Demes, NAS KW
Mark Ewing, ROICC KW
Arnim Schuetz, NAS KW



**IR-8 SHORELINE PROTECTION SYSTEM (SPS)
ORIENTATION FOR PERMITTING AGENCIES
NAS Key West, 30 July 1996**

Attendees:

Ty Symroski	Florida Department of Community Affairs (DCA)	305-289-2402
Alan Woolwich	Florida Department of Community Affairs (DCA)	305-289-2402
Ed Barham	Florida Department of Environmental Protection (DEP)	305-289-2310
Dudley Patrick	Remedial Project Manager, Southern Division, Naval Facilities Engineering Command (SOUTHDIR)	803-820-5541
Philip Williams	Environmental Coordinator, Naval Air Station Key West, Public Works Dept. (NAS)	305-293-2061
Arnim Schuetz	Natural Resources Manager, Naval Air Station Key West, Public Works Dept. (NAS)	305-293-2911
Mac McNeil	Project Manager, Bechtel Environmental, Inc. (BEI)	423-220-2745
Roy Hoekstra	Project Engineer, Bechtel Environmental, Inc. (BEI)	423-220-2271
Andrew Hackett	President, Ocean Breeze Construction Co., Inc. (OBC)	407-627-4407
Steve Murray	Delon Hampton & Associates (DHA)	404-872-5514

The Navy and BEI conducted a site tour and preliminary design briefing for representatives of Florida agencies involved in the permitting process. Vic Anderson of the U. S. Army Corps of Engineers was also invited but was unable to attend. The DEP and DCA representatives briefly walked along the shoreline and the top of the shoreline bank and then took a boat tour along the entire shoreline where the SPS will be constructed. A discussion with questions and answers followed the site tour.

The purpose of the orientation was to provide an opportunity for the permitting authorities to comment on the preliminary design and to identify potential problems which could delay permit approval. The preliminary design is an ideal time for initial review by the permitting agencies, because it is the first point at which design drawings and models clearly depict the finished product, and any necessary changes can be more easily accommodated than at final design.

Mac McNeil described the purpose of the project as protection of the landfill from further erosion and preventing landfill debris from falling into the ocean. He described the purpose of the orientation, and stated that the permit application will be submitted as soon as the design is adequate to support the application. The application will be signed by NAS as the owner.

SOUTHDIR acts as program manager for Installation Restoration projects. BEI is the Navy's Response Action Contractor, responsible for performing environmental remediation projects at Key West and other locations. OBC is a subcontractor to BEI and is responsible for design and construction of the SPS. DHA is a lower-tier subcontractor to OBC for engineering design.

DEP receives the permit application and forwards it to DCA, Corps of Engineers, and any other required agencies for review. DEP issues the permit. DCA reviews projects for compliance with the Coastal Zone Management Act, for suitability of purpose, and how well they fit into the surrounding environment.

Design criteria established for the SPS require a 50-year life and survival of a 50-year storm event. This criteria is considered appropriate to protect the surrounding environment and prevent further erosion of the landfill.

Andrew Hackett described the design and construction of the SPS. The face will be covered by a system called ARMORFLEX® Erosion Control System, which is formed by laying articulating mats of precast concrete blocks. The mats are interlocked for stability, placed on an engineered base of bedding stone, geotextile, and fill material. The whole system acts together to meet the specified design criteria. Andy showed and described a typical cross-section (Attachment 1), a sample of the actual block to be used in the mat, a model of the mat, and photographic examples (Attachment 2) of vegetation, including mangroves, growing in Armorflex mats located at the Loxahatchee River, Palm Beach County, FL. He described construction materials and methods, exotic species removal, and the vegetation plan, which includes planting sea purslane on the slope and red mangroves at the toe.

Ed Barham made the following comments:

- Florida Administrative Code requires that construction avoid sea grasses or provide mitigation.
- The permit application must prove that natural vegetation won't protect the landfill. Photos of existing conditions are an acceptable means of proof. Ed noted that existing conditions are unfavorable for natural vegetation.
- A condition of the permit will be that the SPS must be kept free of exotics for a period of 5 years.
- Placement of boulders (1' - 2' dia.) along the toe below the high tide level, is preferable to sand, because boulders provide a good base for mangroves.
- Mitigation measures include the removal of exotics, planting of sea purslane and mangroves, and the SPS itself.

Alan Woolwich expressed concern that unless mangroves and buttonwoods are planted at the top and along the slope of the SPS, Australian Pines will reestablish themselves. He asked whether a block could be removed in various places on the mats or if the web in the center hole of the block could be removed to plant a tree.

Andrew Hackett replied that either action would weaken the structure and jeopardize the ability of the SPS to meet the design criteria. He thought it would be possible to plant trees in the holes as they are. He noted research using PVC pipe sections to protect young trees. The geotextile fabric can be penetrated by roots without being damaged or weakened. The root structures actually help tie the system together.

Ed Barham noted that buttonwoods require soil, whereas mangroves can root in the rocks under the mat.

There was a general discussion of the City of Key West's proposed rip-rap SPS at the adjacent water treatment facility. DEP recently issued a permit for this project. The city's SPS stops approximately 300 feet from where the Navy SPS begins. Andy did not feel the gap between the two systems would be a problem; OBC's system will be keyed into the embankment at its ends.

BEI and OBC will consider the requirements and concerns noted by the State representatives in the preparation of the final design and permit application. BEI will keep the agencies informed of design progress and proposed changes.

Distribution:

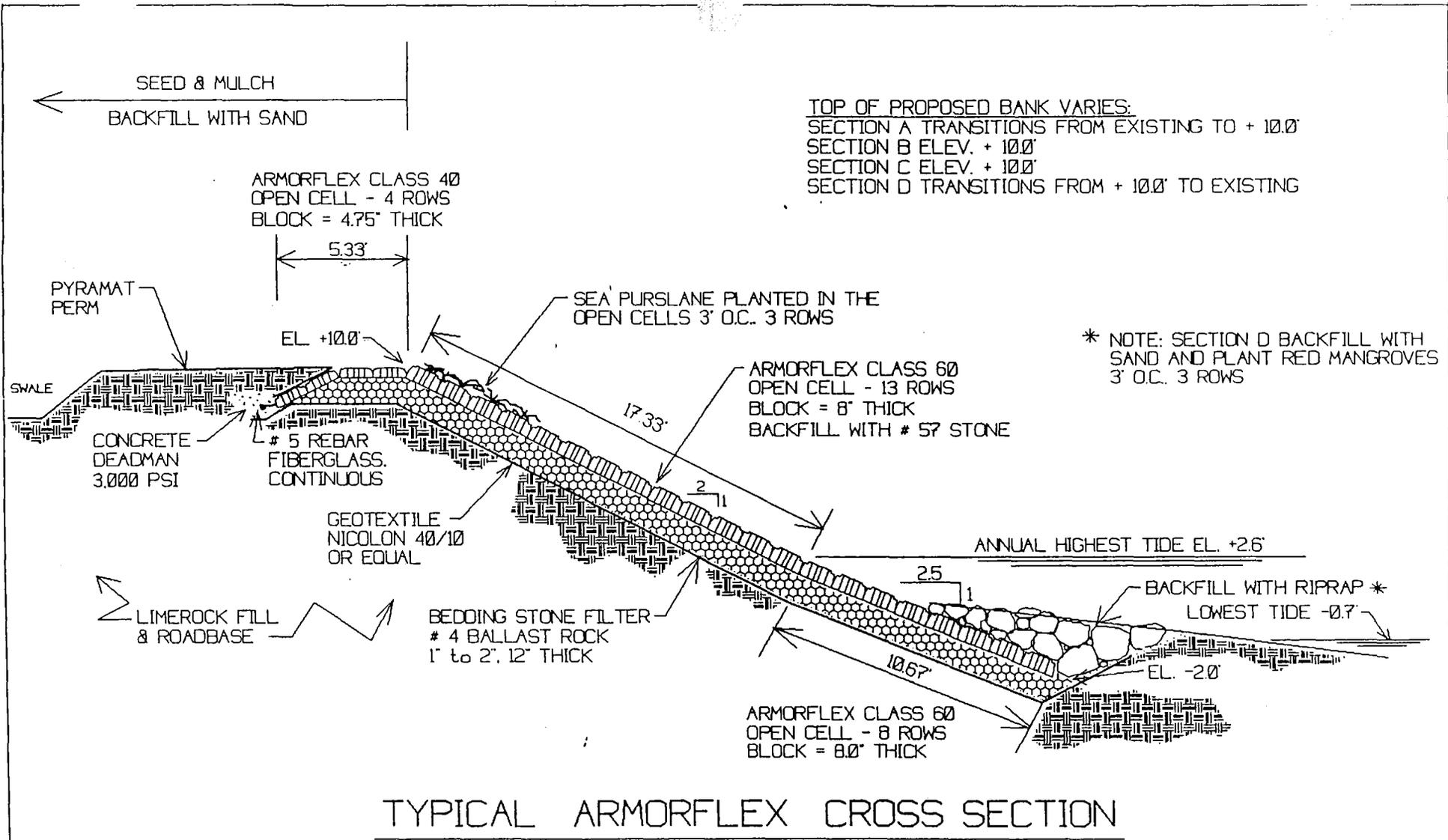
Attendees

Blake Traudt, FDEP

Margaret Diaz, USACOE

Vic Anderson, USACOE

Mark Ewing, ROICC Key West



OCEAN BREEZE CONSTRUCTION CO., INC.

10276 Riverside Drive
Palm Beach Gardens, Florida 33410
(407) 627-4407. Fax 627-4408

PROJECT: Key West Shoreline Protection

PROJECT NO.: 22567-321-SC-0248

RE: ALTERNATE REVETMENT DESIGN

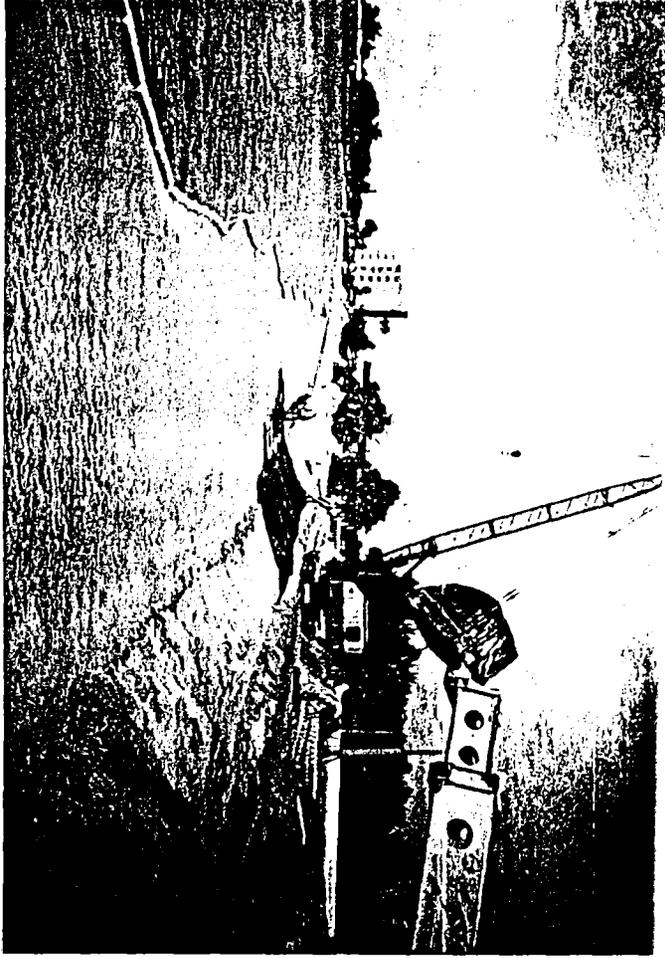
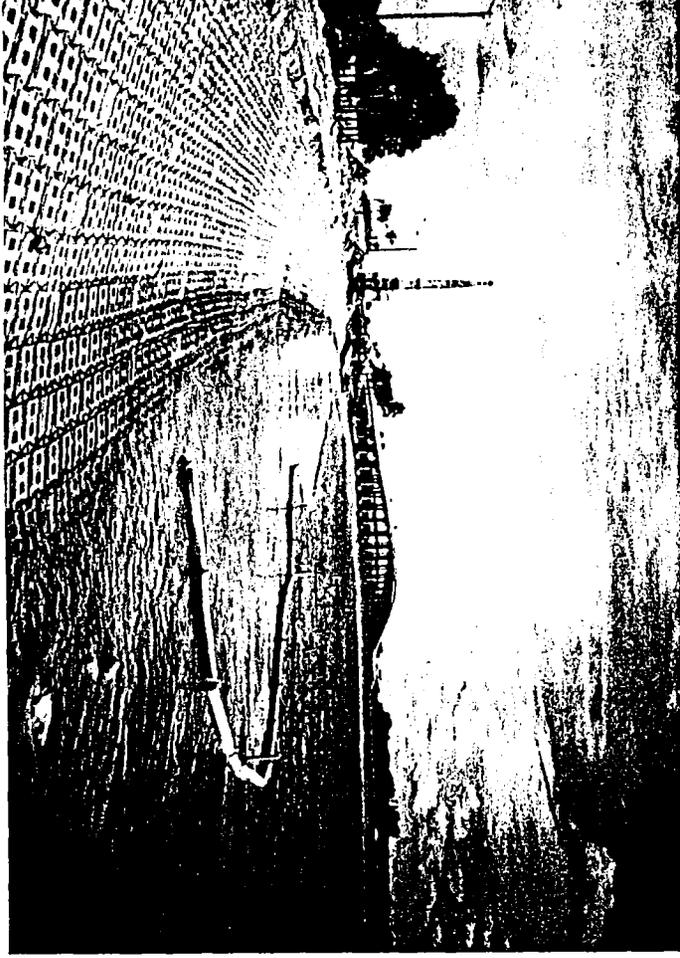
PRIME CONTRACTOR: BECHTEL ENVIRONMENTAL, INC.

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SCALE: N.T.S.

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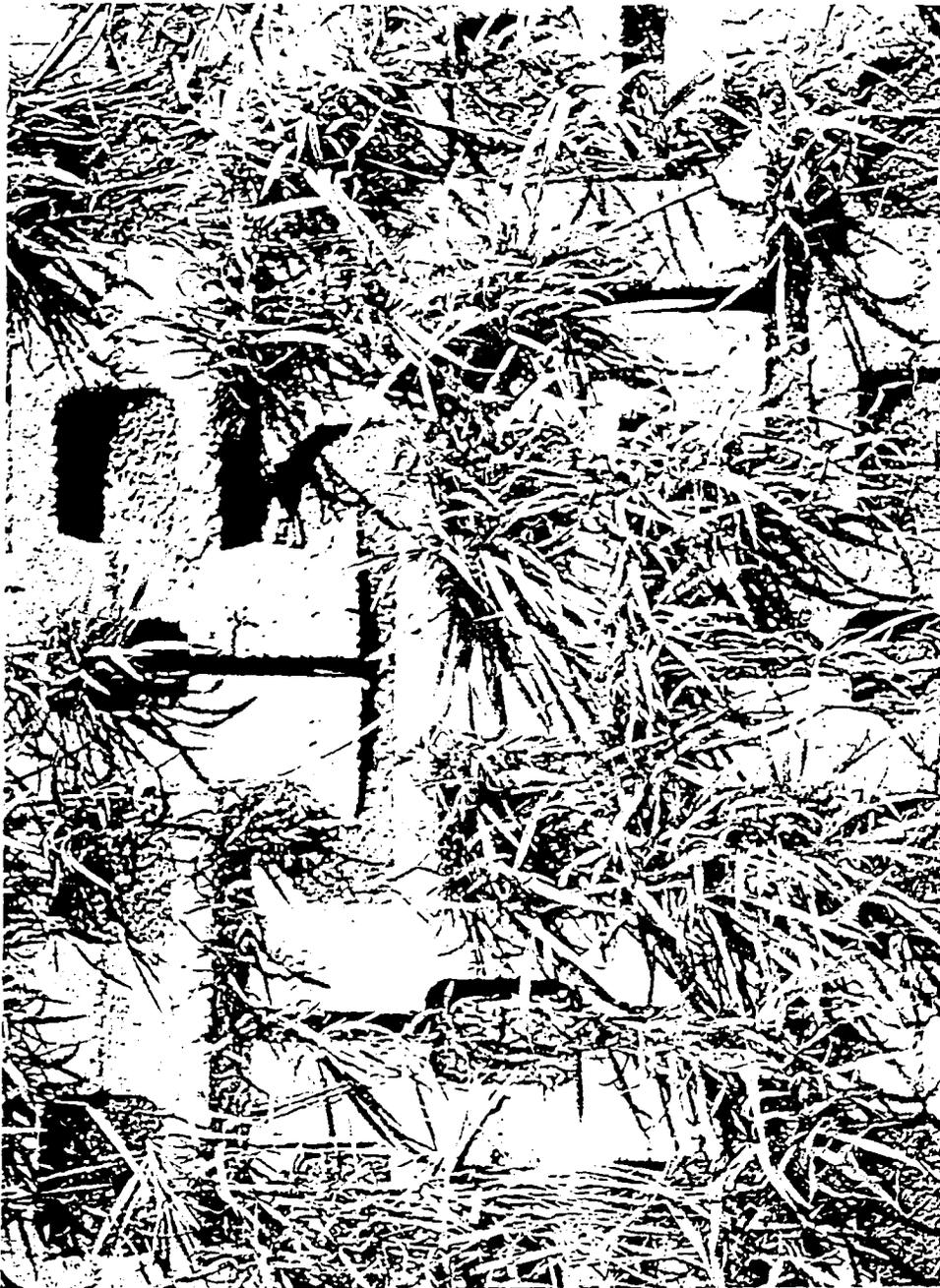
CAPE CORAL PARKWAY
CHARLOTTE HARBOR
ARMORFLEX CLASS 50

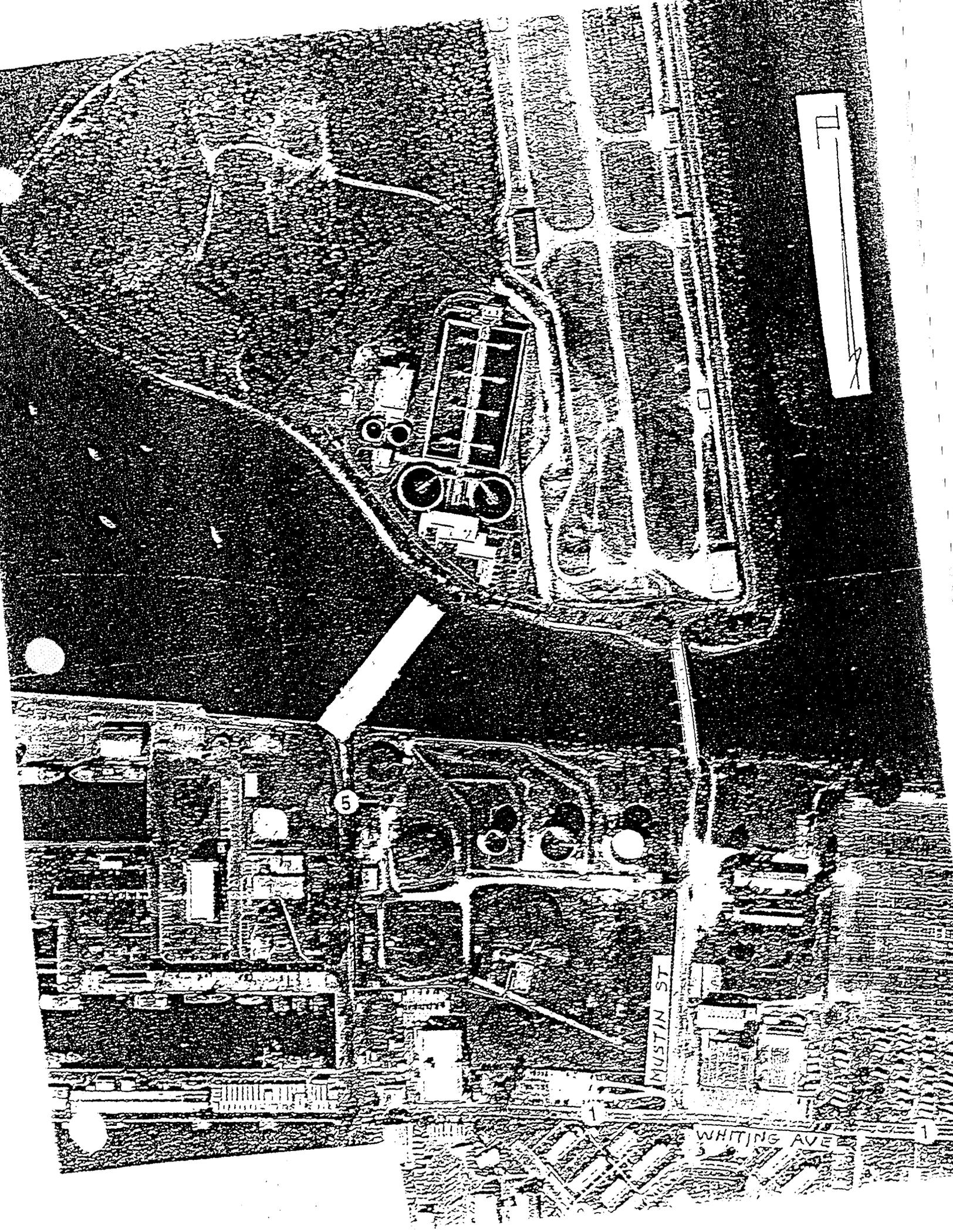


ARMORFLEX CLASS 30 WITH RED MANGROVES



ARMORLOC CLASS 3510 REVEGITATED WITH
SEED AND MULCH





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MUSTIN ST

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