



**US Army Corps
of Engineers.**
Philadelphia District
Wanamaker Building
100 Penn Square East
Philadelphia, PA 19107-3390
ATTN: CENAP-OP-R

Public Notice

Public Notice No.
CENAP-OP-R-200301605-26

Date

JUL 13 2006

Application No.

File No.

In Reply Refer to:
REGULATORY BRANCH

This District has received an application for a Department of the Army permit pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

The purpose of this notice is to solicit comments and recommendations from the public concerning issuance of a Department of the Army permit for the work described below.

APPLICANT: UEK Corporation

AGENT: UEG Delaware
34612 Rickards Road
Frankford, DE 19945-3544

WATERWAY: Indian River Inlet

LOCATION: Indian River Inlet property is identified as Tax Parcel No. 2.00, Parcel 01.00, Block 1, Lot 34. The project is located 45' on the southeast side of the bridge over the Indian River Inlet and 495' from the mouth of the Inlet, Delaware Seashore State Park, Indian River Hundred, Sussex County, Delaware.

ACTIVITY: As depicted on Enclosure E1-E24, the applicant proposes Experimental Phase I of a project to harvest tidal flow energy to generate electricity. Phase I requires the installation of one twin 10' tall turbine 45' feet off the south side of the Indian River Inlet (Inlet) and 495' west of the mouth from the Inlet. The Inlet averages a depth of 45' and 300' in width. The turbine will sit -18.5' below the water surface at mean low water (MLW) and approximately 16' feet from the bottom of the channel.

The turbine, because it will float, must be secured by two 60' long mooring pennant cables that run along the bottom of the Inlet and connect to an anchor on either end. The anchor cable will sit approximately 45' below MLW [Enclosures E6 & E10]. The experimental turbine will be placed on a skid for easier installation and removal, however, skids are not proposed for future Phase II of the project.

Depending on results of Phase I monitoring, potential Phase II of the project will occur at a later date pursuant to Department of the Army authorization. Phase II involves the placement of a 25' twin pair of turbines along the southern bank of the Inlet.

PURPOSE: Generate 61,000,000 KW of electricity per year if Phase II permits are issued. Phase I is an experimental project to determine what, if any, environmental impact the turbine will have on navigation, fish populations and on recreational fishing.

A preliminary review of this application indicates that the proposed work would not affect listed species or their critical habitat pursuant to Section 7 of the Endangered Species Act as amended. As the evaluation of this application continues, additional information may become available which could modify this preliminary determination.

Essential Fish Habitat Assessment: 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 effect essential fish habitat (EFH). Effects of the Project on Essential Fish Habitat (EFH):

The project is located in Essential Fish Habitat identified on Sheet 90 of Guide to Essential Fish Habitat Designations in the Northeastern United States, Volume IV: New Jersey and Delaware, March 1999. The following managed species of fish have been listed in the above referenced guide as occurring in the vicinity of the project: bluefish (Pomatomus saltatrix), summer flounder (Paralichthys dentatus), scup (Stenotomus chrysops), black sea bass (Centropristus striata), Atlantic butterflyfish (Peprilus triacanthus), king mackerel (Scomberomorus cavalla), Spanish mackerel (Scomberomorus maculatus), Atlantic cod (Gadus morhua), winter flounder (Pleuronectes americanus), summer flounder (Paralichthys dentatus), windowpane flounder (Scophthalmus aquosus), red hake (Urophycis chuss), Atlantic sea herring (Clupea harengus), monkfish (Lophius americanus), cobia (Rachycentron canadum); and the following shark species: tiger (Galeocerdo cuvieri), scalloped hammerhead (Sphyrna lewini), sandbar (Carcharhinus obscurus), sand tiger (Odontaspis taurus), dusky (Carcharhinus plumbeus), Atlantic sharpnose (Rhizoprionodon terraenovae), Atlantic angel (Squatina dumerili).

Analysis of the Effects: The proposed turbine installation would occur in the Indian River Inlet which waters and substrates are subject to extreme daily tidal concentrated energy and exceptionally high seasonal boat traffic. Consequently, concentrations of the sessile life stages (eggs and larvae) of the listed species are not expected to be within the Indian River Inlet. The pelagic adults and juveniles of the listed species are highly mobile and capable of avoiding impacts associated with the temporary work.

Corps of Engineers View: Based on the above analysis, the Corps of Engineers has determined that the proposed project would not likely have substantial direct, indirect, site-specific, or habitat-wide impacts on EFH, or upon the managed species and their life stages listed in the above referenced EFH guide, either individually, cumulatively, or synergistically. However, the proposed project would not eliminate, diminish, nor disrupt the functions of EFH.

However, because the proposed project is experimental, no final decision shall be made until the monitoring results are recorded and published.

The decision whether to issue a permit will be based on an evaluation of the activity's probable impact including its cumulative impacts on the public interest. The decision will reflect the national concern for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the work must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the work will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs and welfare of the people. A Department of the Army permit will be granted unless the District Engineer determines that it would be contrary to the public interest.

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.

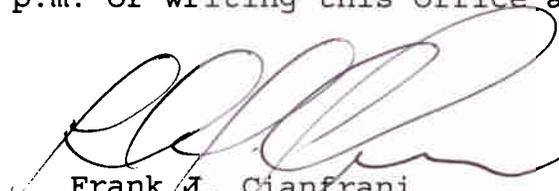
Comments on the proposed work should be submitted, in writing, within 30 days to the District Engineer, U.S. Army Corps of Engineers, Philadelphia District, Wanamaker Building, 100 Penn Square East, Philadelphia, Pennsylvania 19107-3390.

Review of the National Register of Historic Places indicates that no registered properties or properties listed as eligible for inclusion therein are located within the permit area of the work.

In accordance with Section 307(c) of the Coastal Zone Management Act of 1972, applicants for Federal Licenses or Permits to conduct an activity affecting land or water uses in a State's coastal zone must provide certification that the activity complies with the State's Coastal Zone Management Program. The applicant has stated that the proposed activity complies with and will be conducted in a manner that is consistent with the approved State Coastal Zone Management (CZM) Program. No permit will be issued until the State has concurred with the applicant's certification or has waived its right to do so. Comments concerning the impact of the proposed and/or existing activity on the State's coastal zone should be sent to this office, with a copy to the State's Office of Coastal Zone Management.

Any person may request, in writing, to the District Engineer, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for a public hearing shall state in writing, with particularity, the reasons for holding a public hearing.

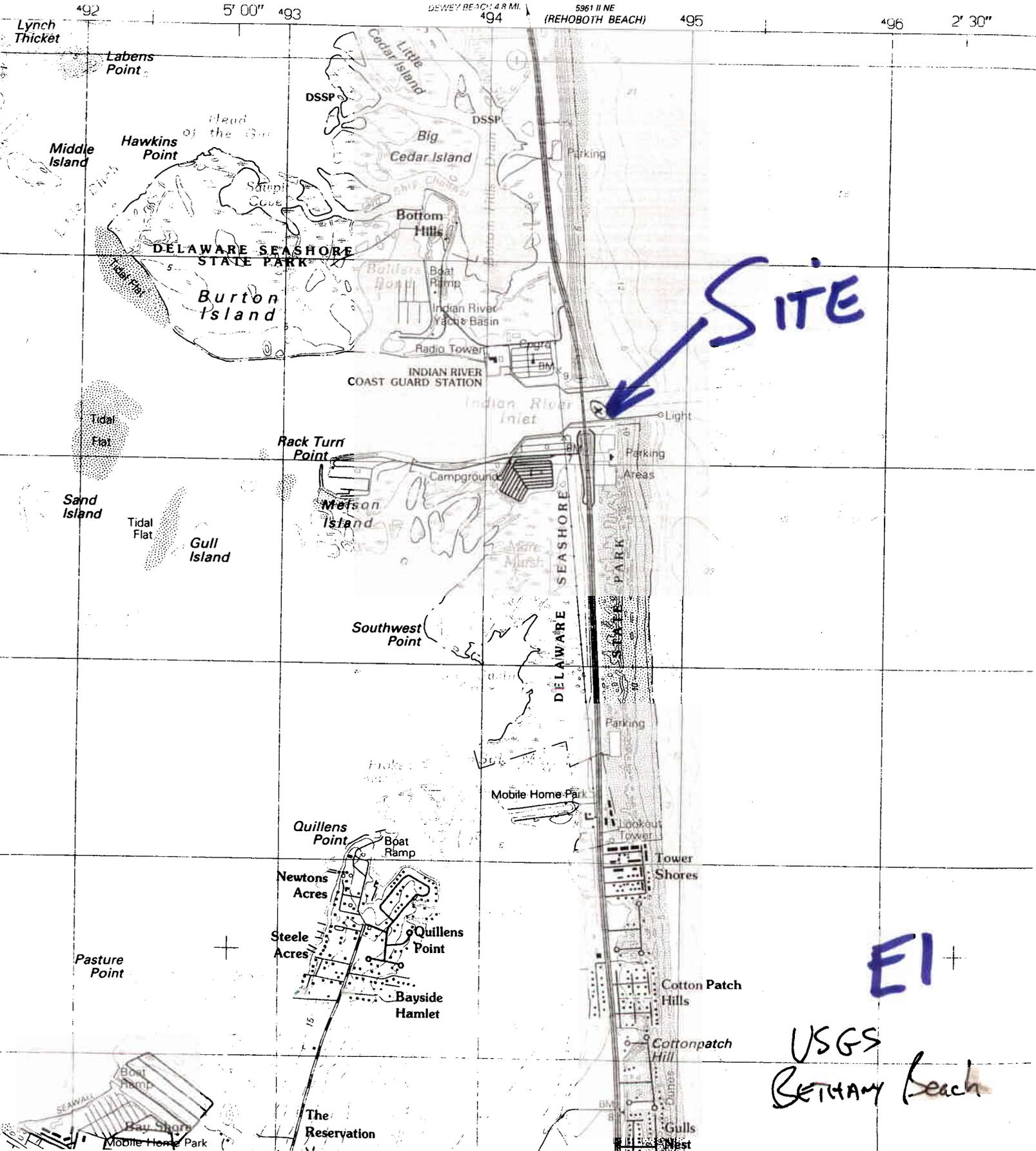
Additional information concerning this permit application may be obtained by calling Kevin E. Faust at (302) 736-9763 between the hours of 1:00 and 3:30 p.m. or writing this office at the above address.



Frank J. Cianfrani
Chief, Regulatory Branch

STATE OF DELAWARE
DELAWARE GEOLOGICAL SURVEY

MILFORD 26 MI.
DEWEY BEACH 4.8 MI. 5961 II NE
494 (REHOBOTH BEACH) 495



SITE

E1

USGS
BETHANY Beach

Exhibit No. 2. This illustration discloses the setup of the Tidal UEK® System in a channel. For ease of understanding, this sketch does not show the screen arrangement.

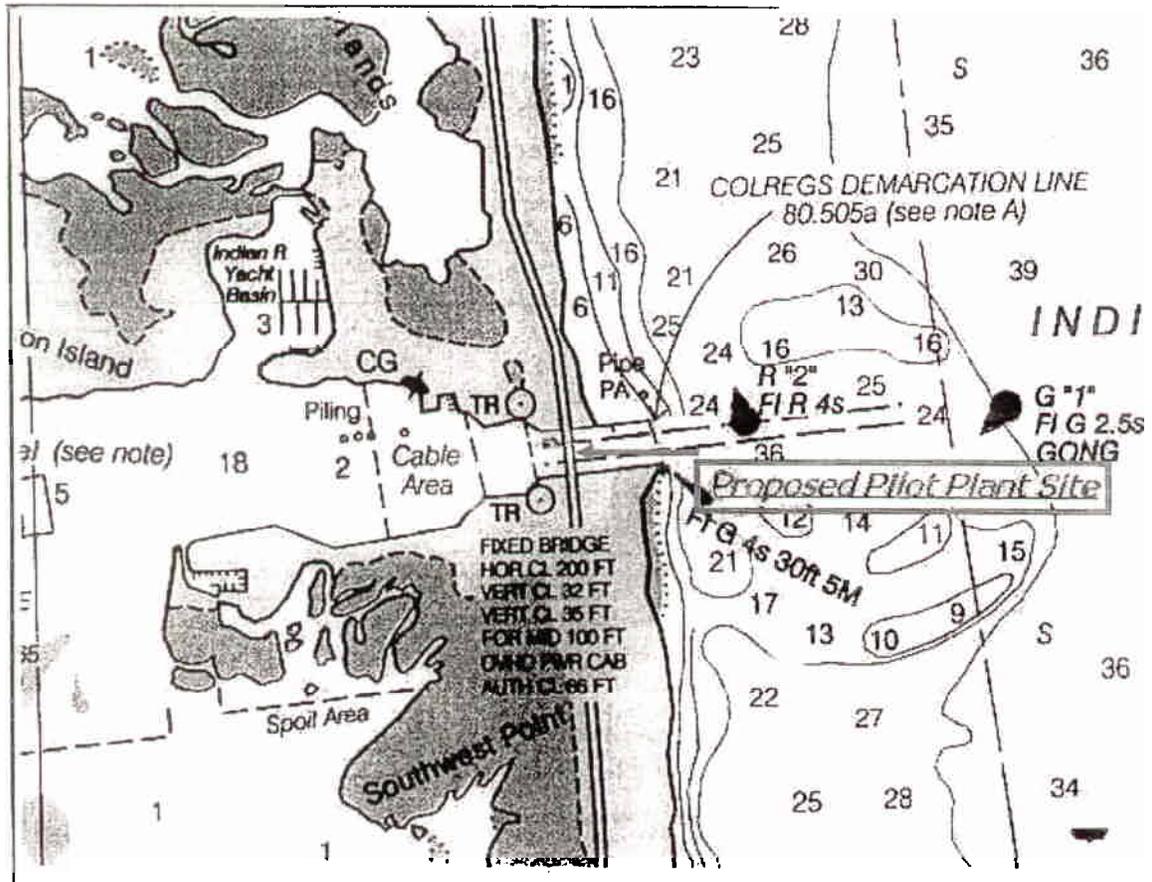


Exhibit No. 3. This navigation map section shows the site and the location of the first Pilot Plant demonstration.

E2

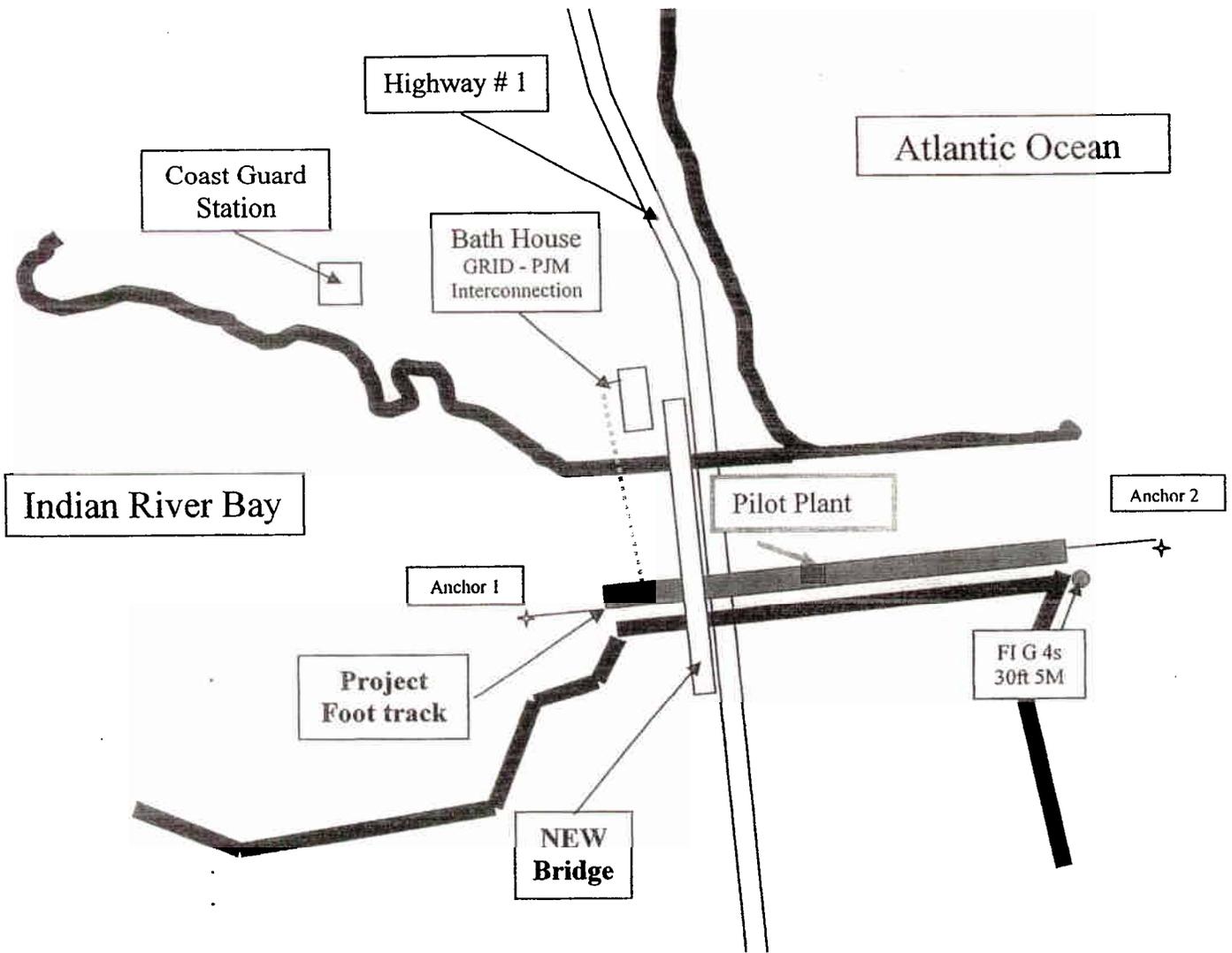
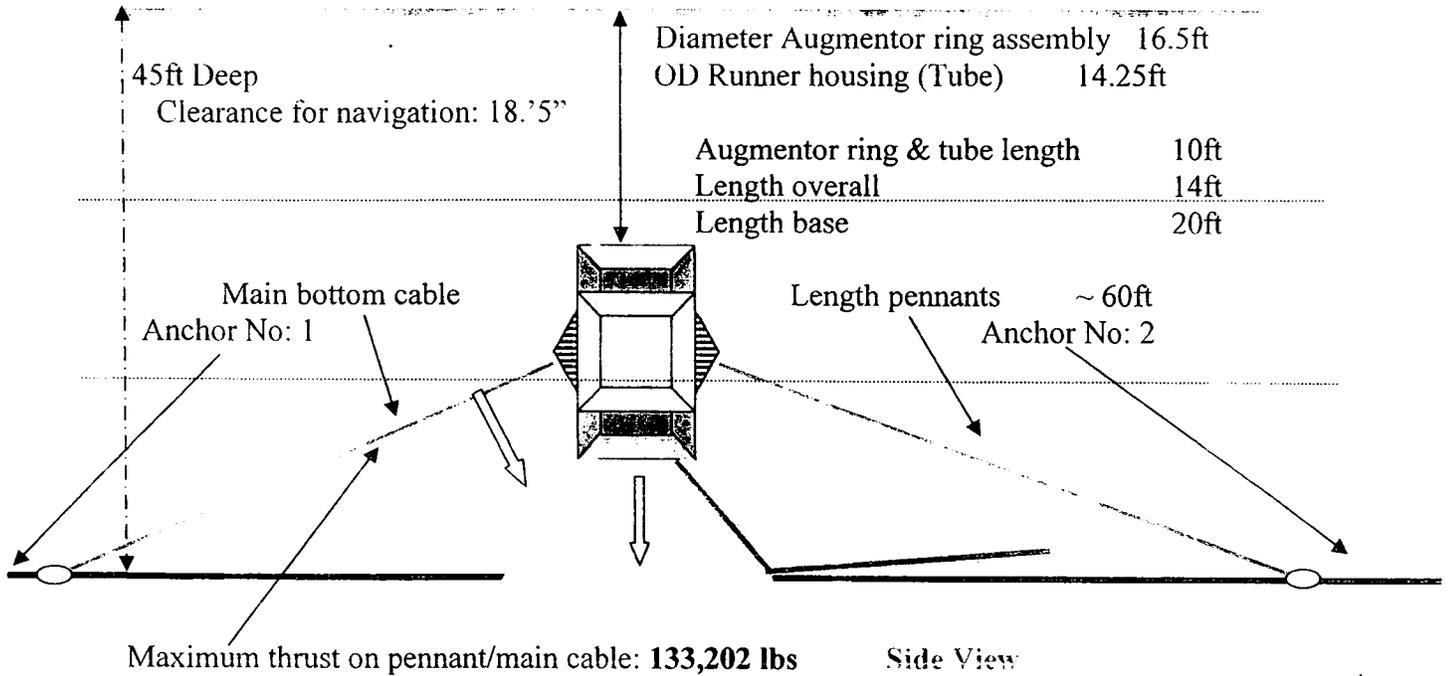


Exhibit No. 4. Schematic of the project's general lay-out.

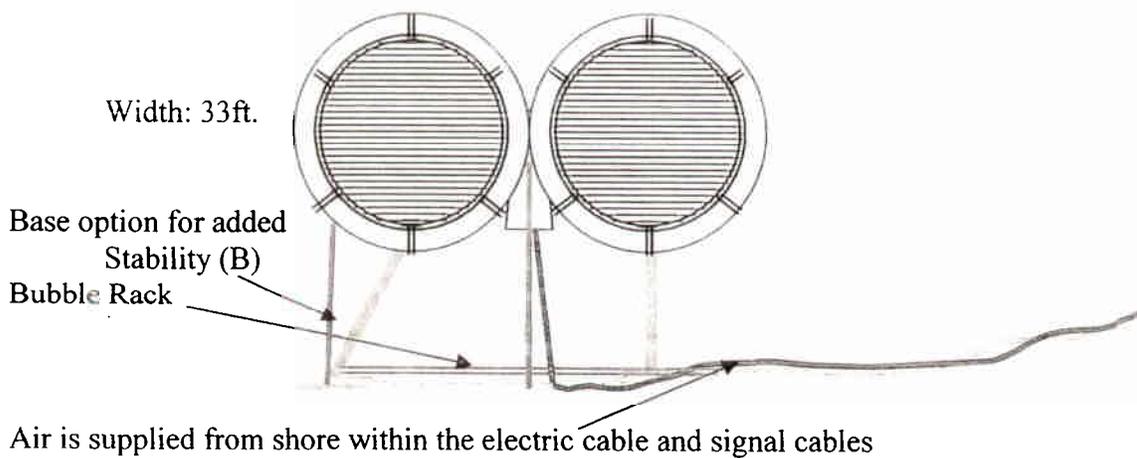
ES

Tidal OER@System: 403.3kW @ 5.8Kts Water velocity



Indian River Tidal Pilot Unit Installation

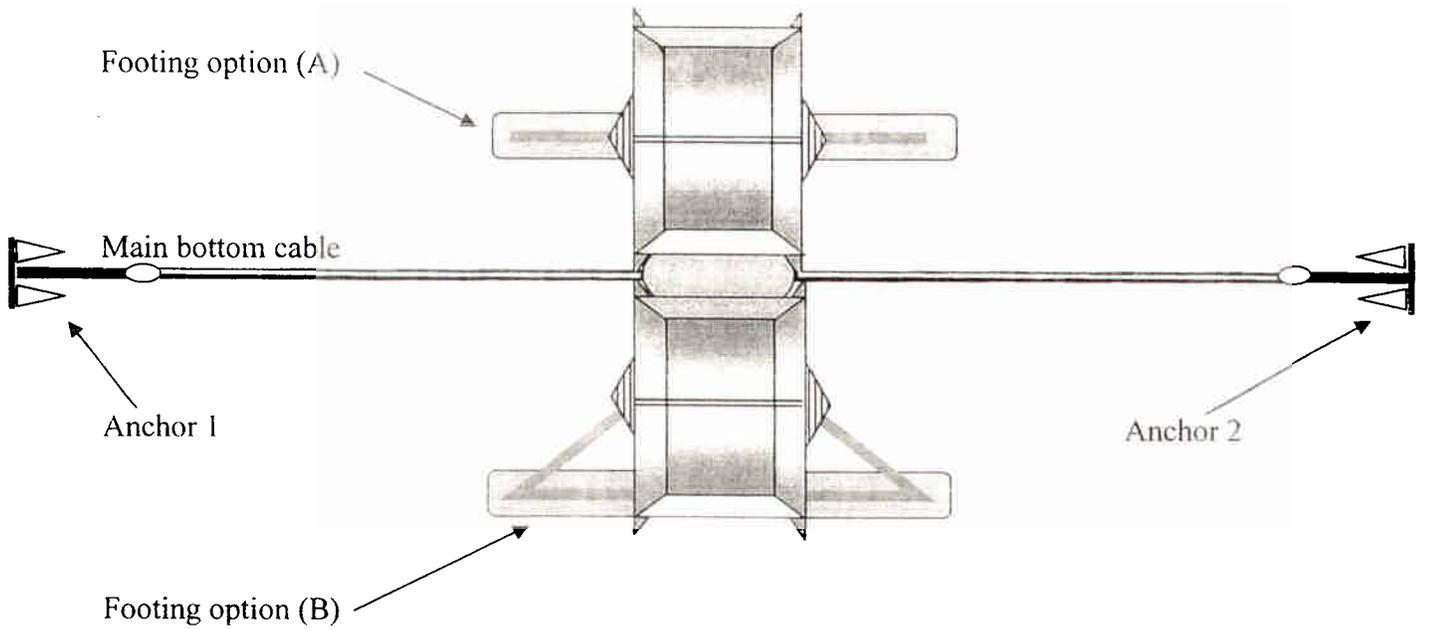
Front or Back view, including Fish Screen And Bubble System



(Same system as the Hydro Ontario demonstration in 2001)

Front View

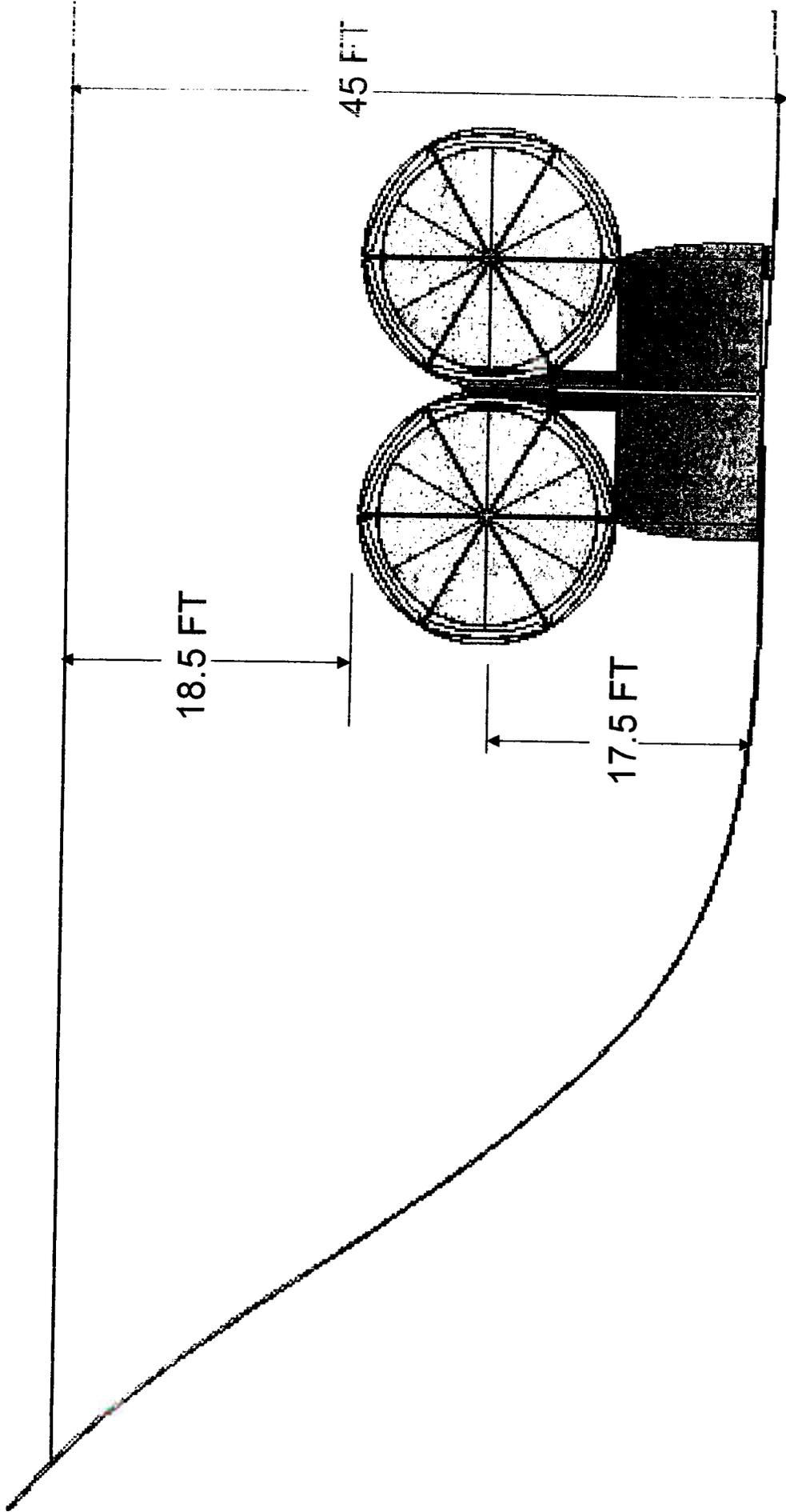
E6



Top View

Ph. Vauthier; July 22nd, 2005

E7

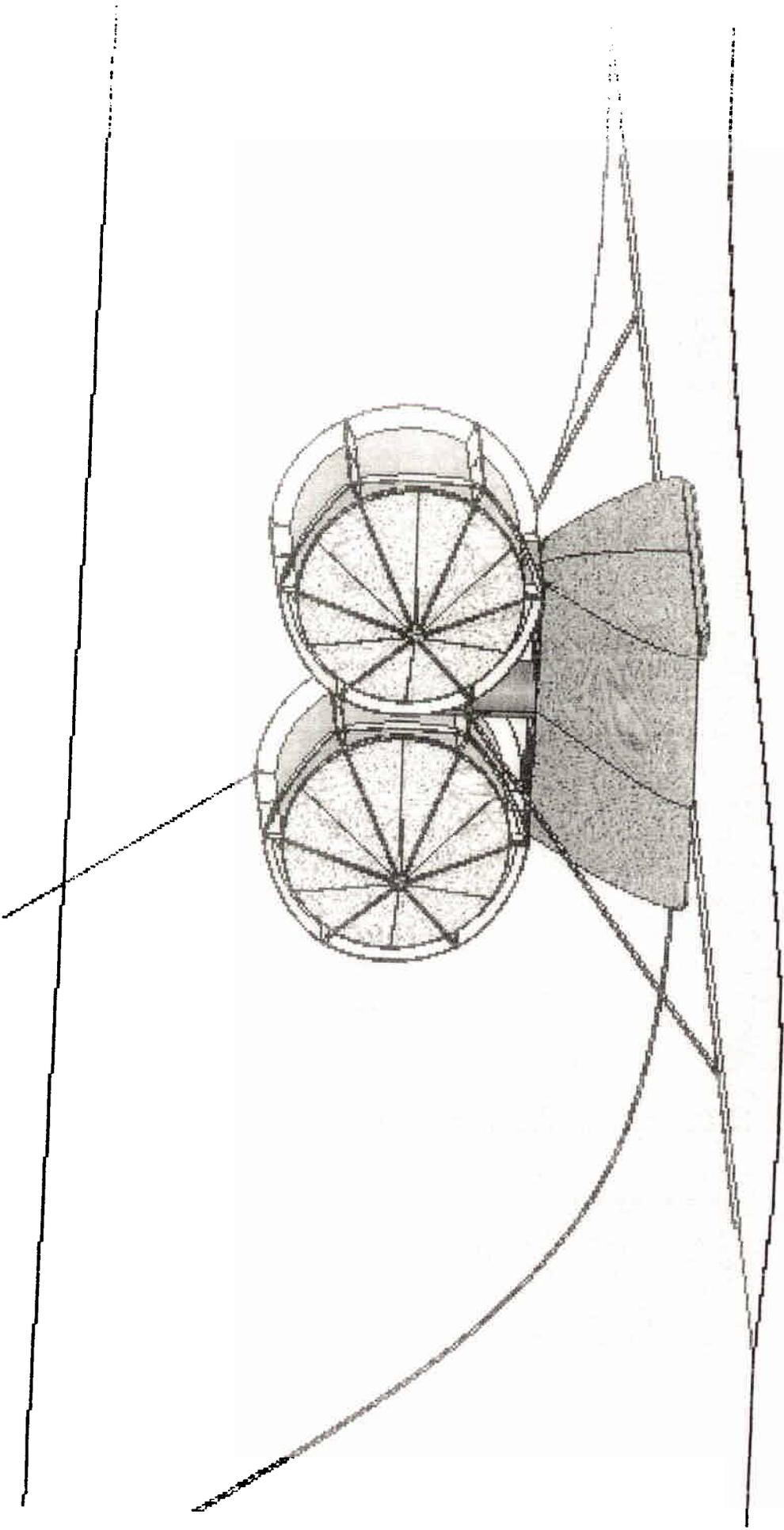


INDIAN RIVER TIDAL PILOT UNIT INSTALLATION

UEK CORPORATION
PROPRIETARY

87

8/10/2005



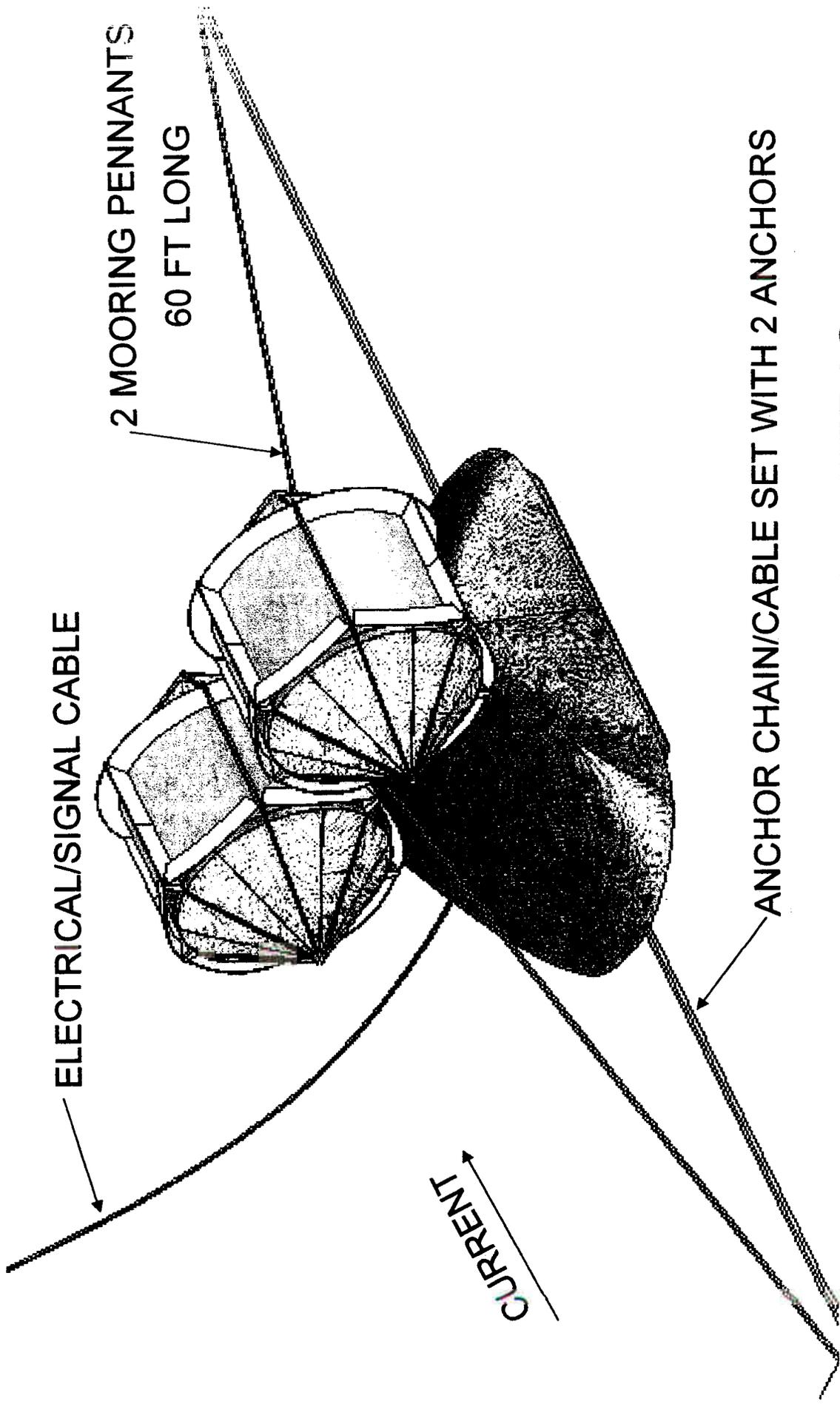
LOOKING IN FROM OCEAN

WATER MODELED TRANSPARENT

UEK CORPORATION
PROPRIETARY

8/10/2005

63

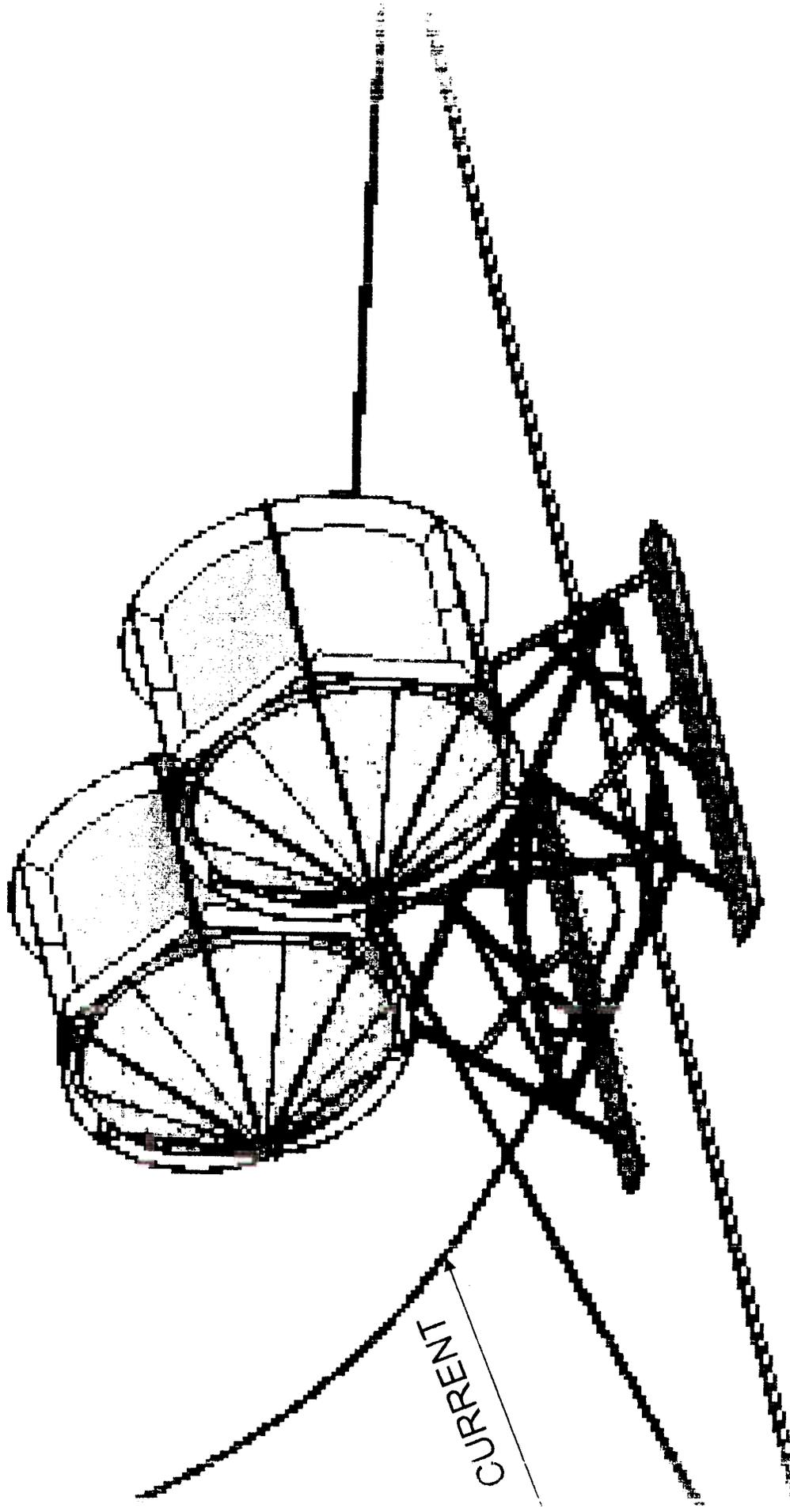


SUBMERGED ISOMETRIC

E10

8/10/2005

UEK CORPORATION
PROPRIETARY



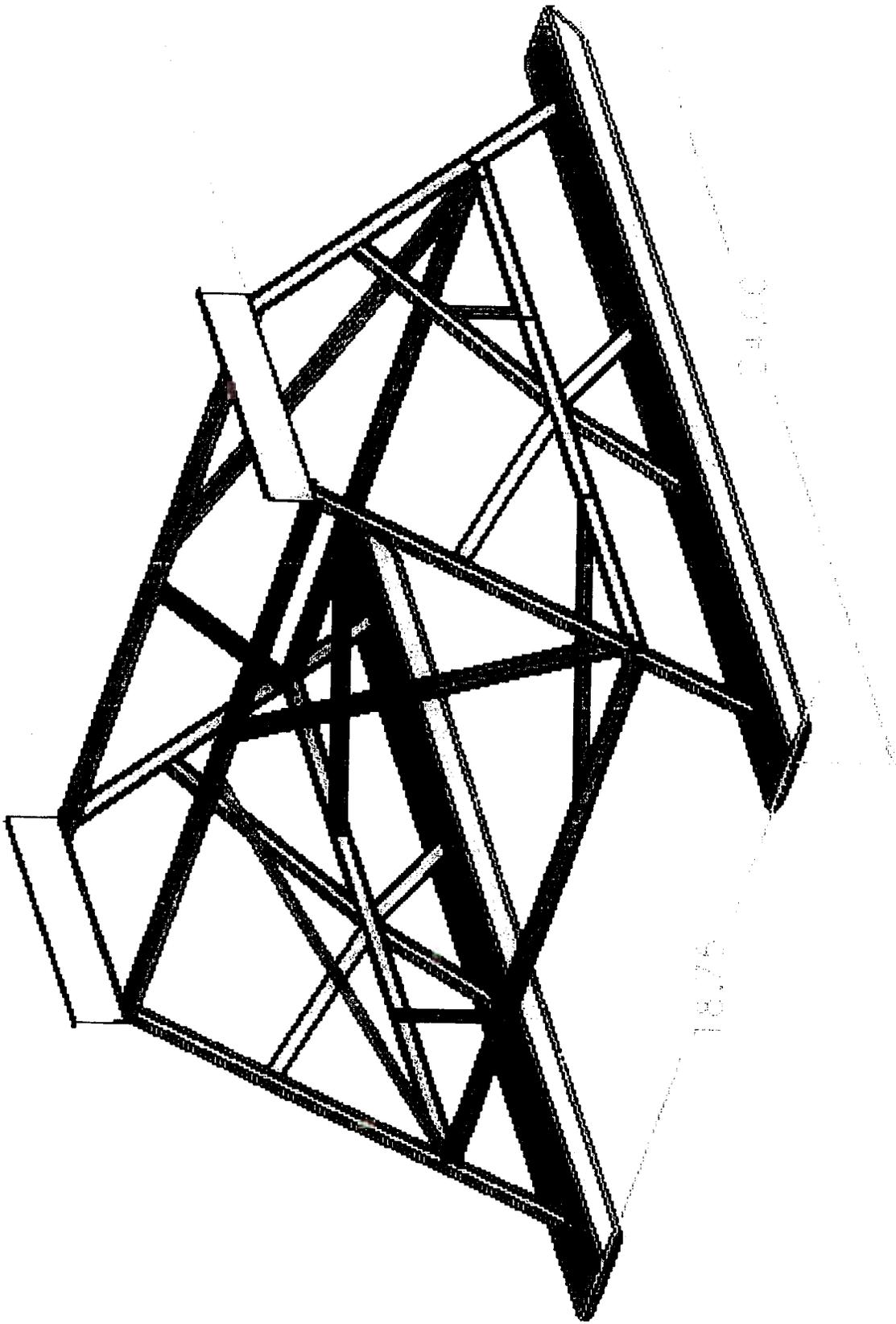
CLOSE UP

UPSTREAM DEFLECTORS FLYING AND DOWN STREAM DEFLECTORS WORKING

8/04/2005

UEK CORPORATION
PROPRIETARY





UEK STAND ISOMETRIC

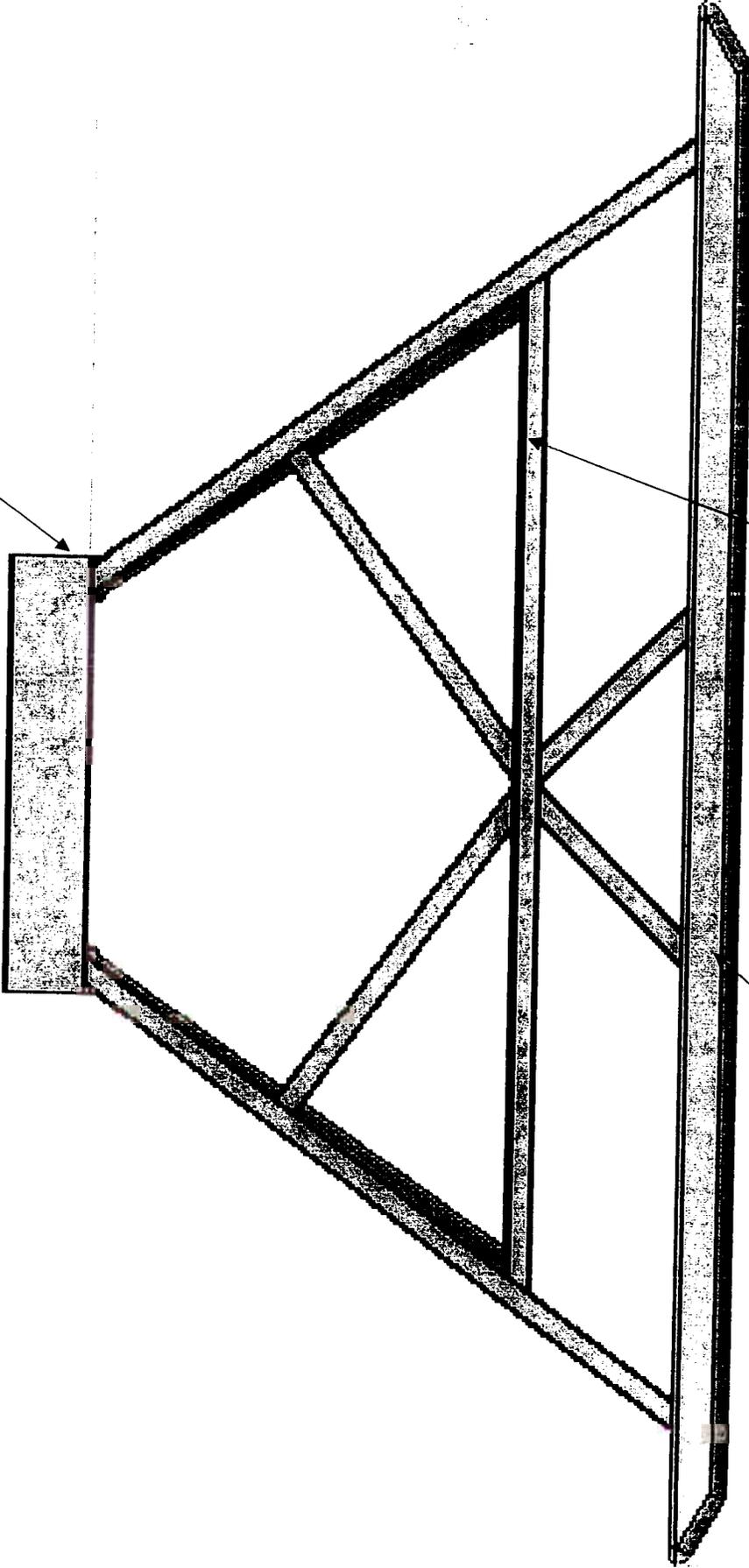
8/04/2005

A stylized logo consisting of the letters 'E' and 'R' in a bold, blue, sans-serif font. The 'E' and 'R' are connected at the top.

UEK CORPORATION
PROPRIETARY

.5" PLATE WELDMENT

8 X 11.5#/FT C CHANNEL



SKIDS TO SUPPORT
STAND ON BOTTOM

5" X 10#/FT STEEL S BEAMS

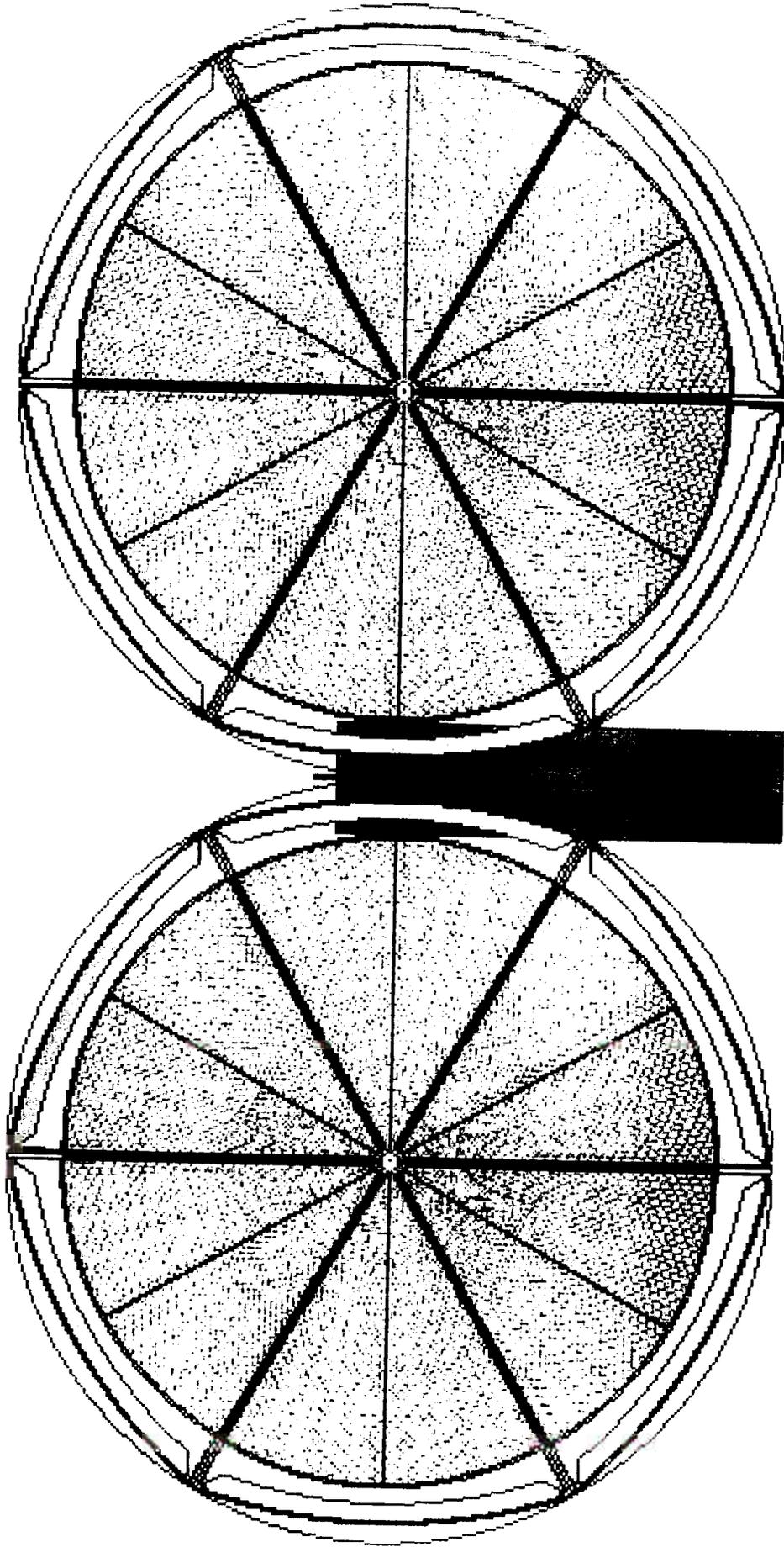
24.00

UEK STAND SIDE VIEW

8/04/2005

UEK CORPORATION
PROPRIETARY

E13



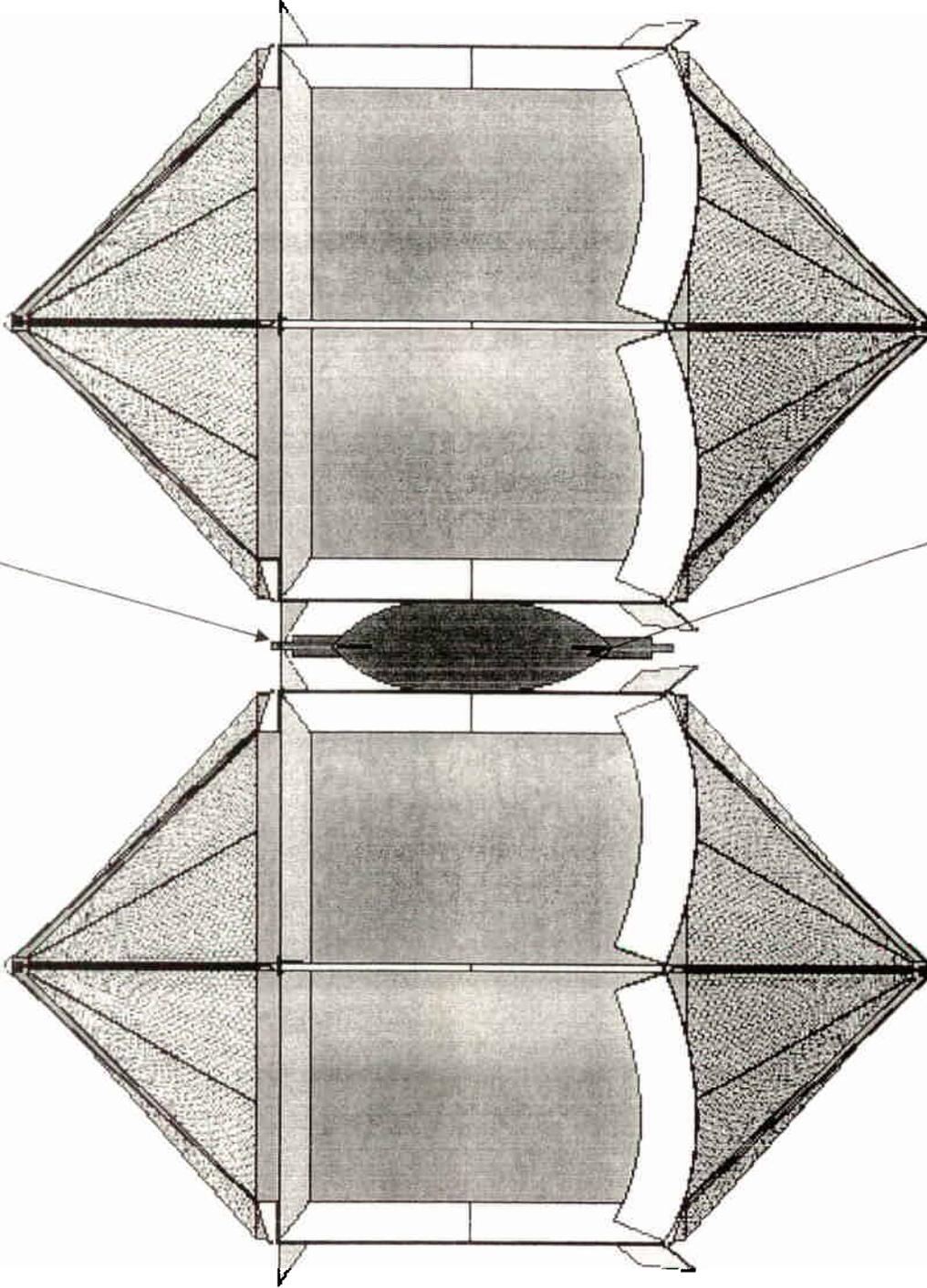
UEK TWIN TURBINE

UEK CORPORATION
PROPRIETARY

8/04/2005



MOORING PENNANT ATTACHMENT



LIFTING PAD EYES

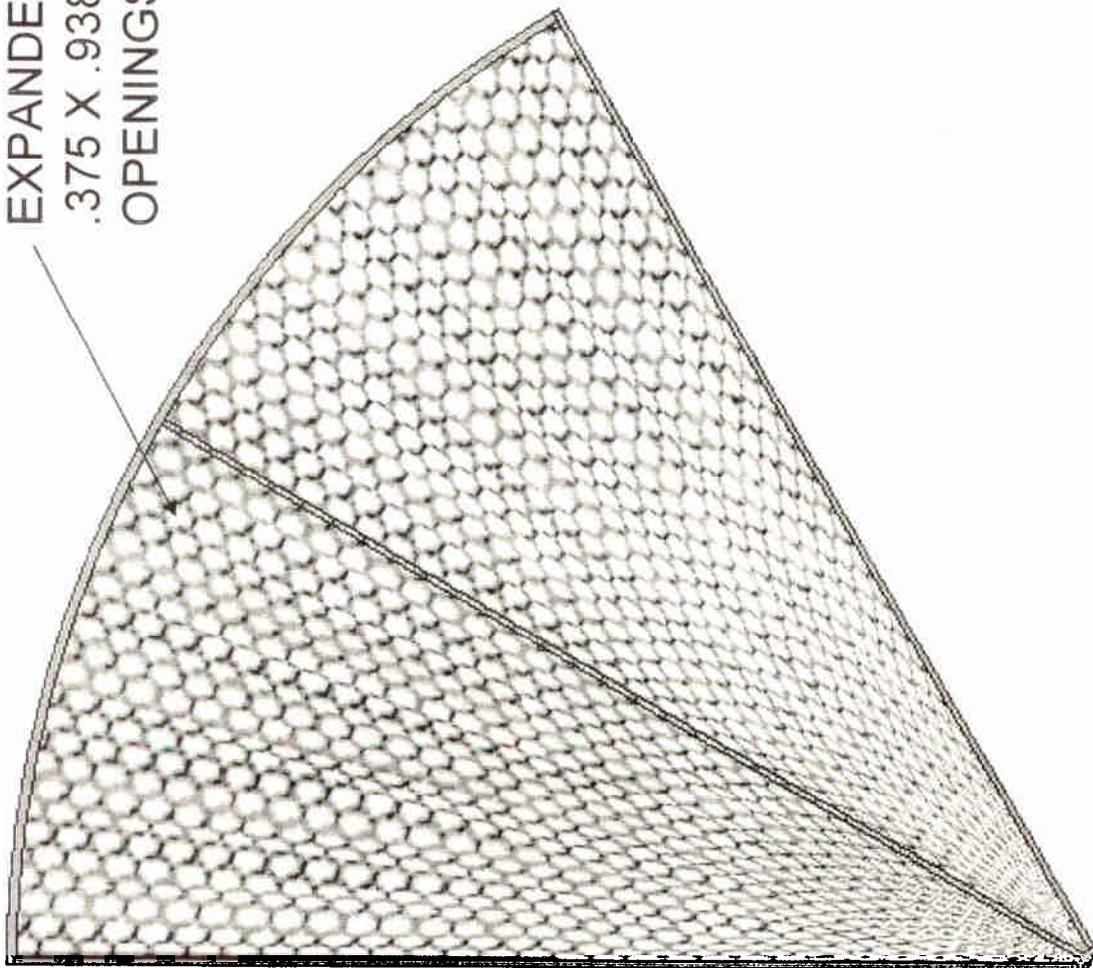
TWIN TURBINE TOP VIEW

8/04/2005

EIS

UEK CORPORATION
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EXPANDED METAL GALVANIZED
.375 X .938 DIMOND SHAPED
OPENINGS, 16 GAGE



GUARD GRATE FRONT VIEW

E16

8/03/2005

UEK CORPORATION
PROPRIETARY



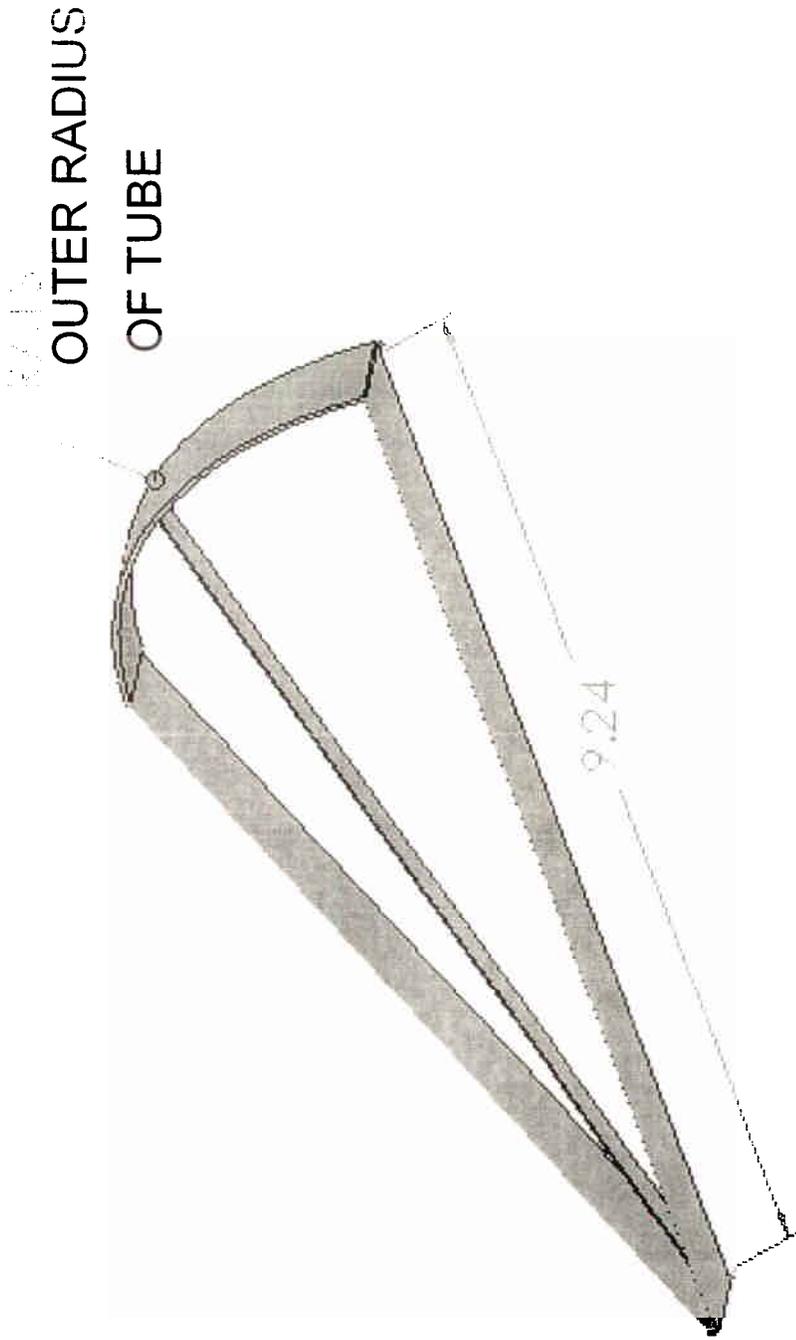
CLEAR FLANGE FOR BOLTING

GUARD GRATE SIDE VIEW

8/03/2005



UEK CORPORATION
PROPRIETARY



GUARD GRATE FRAME

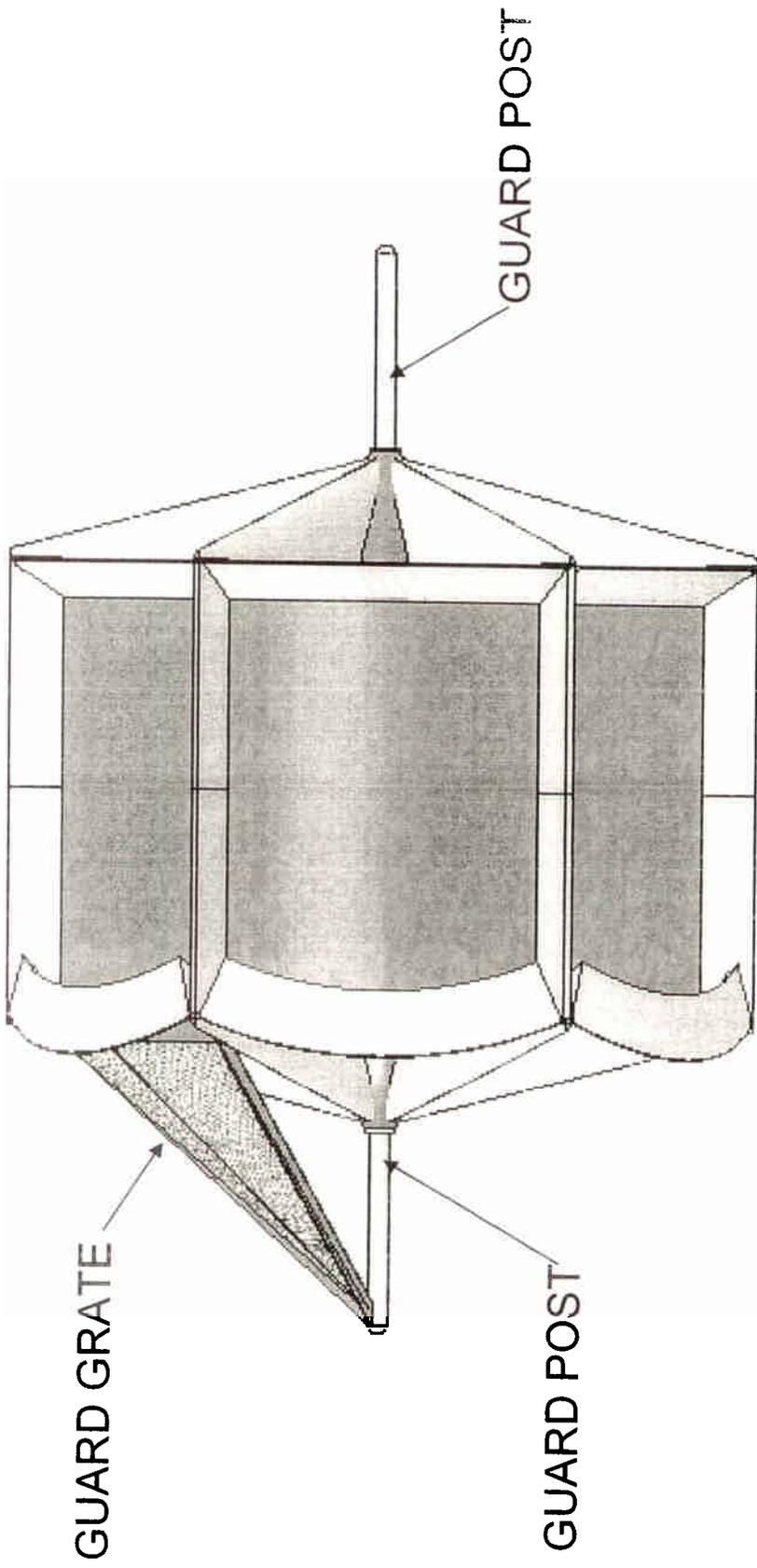
FIBERGLAS STRUCTURE

DIMENSIONS IN FEET

8/03/2005

E18

UEK CORPORATION
PROPRIETARY



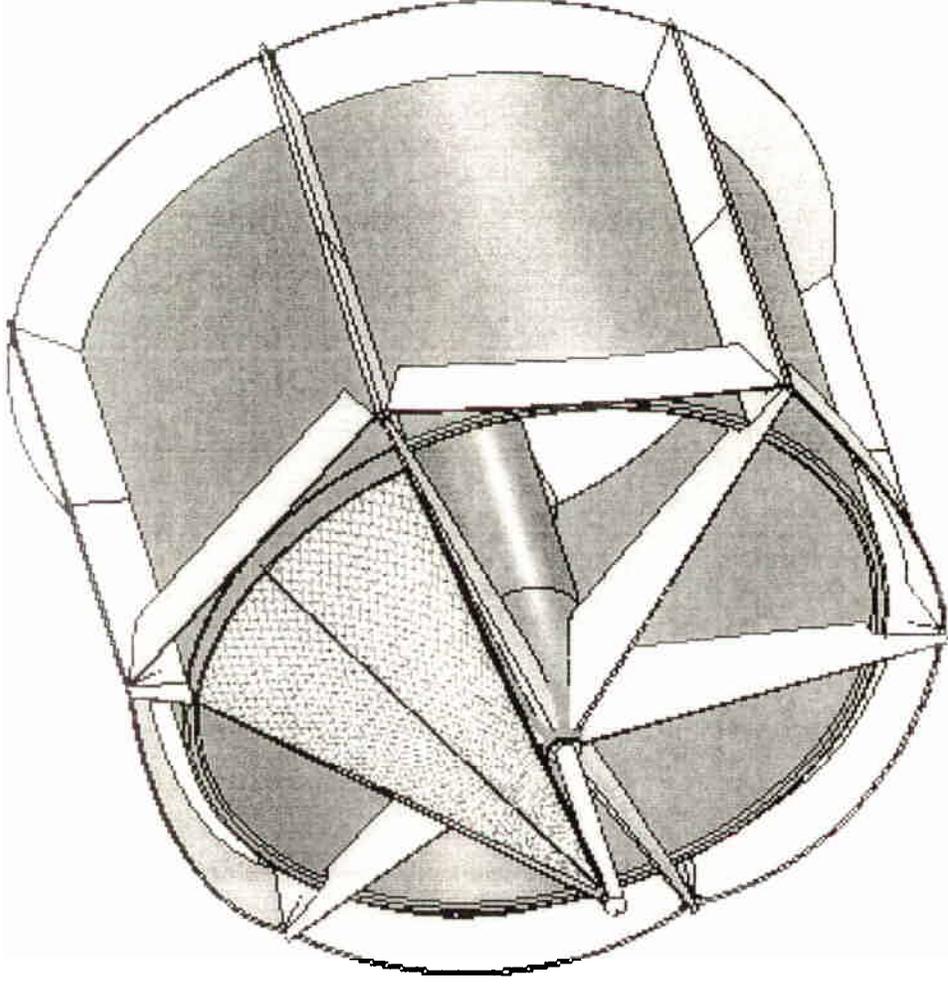
UEK WITH GUARD POSTS AND ONE GUARD GRATE IN POSITION

GUARD POSTS AND GUARD GRATE REMOVABLE FOR SHIPPING

8/03/2005

EM

UEK CORPORATION
PROPRIETARY

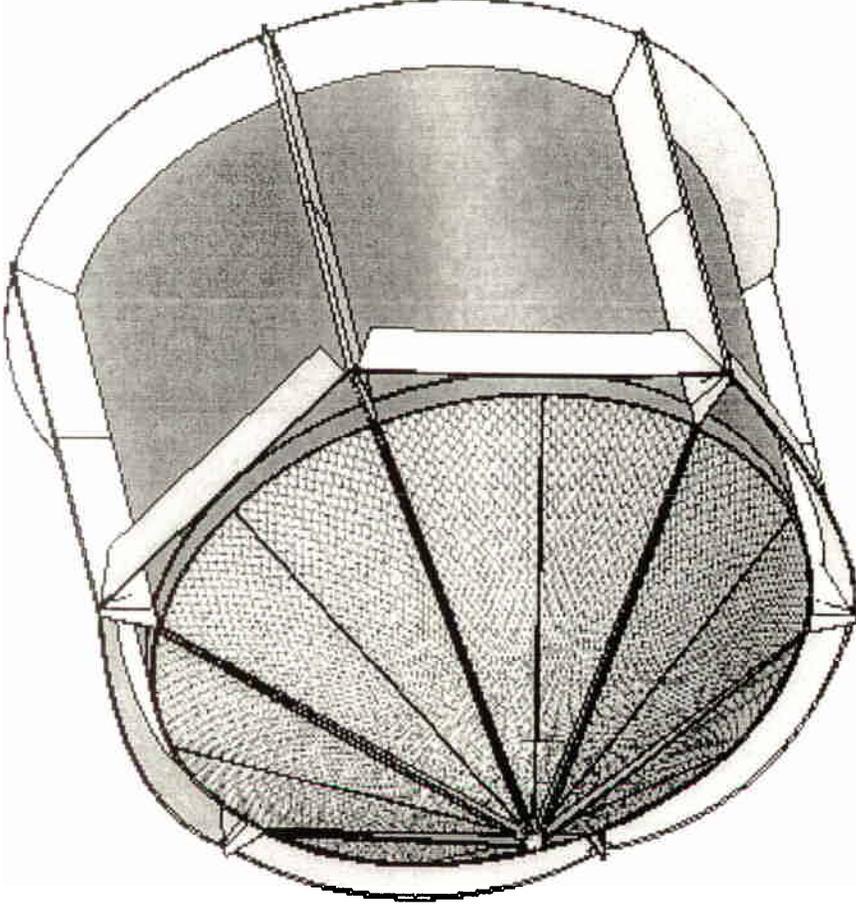


UEK ISOMETRIC WITH ONE GUARD GRATE

8/03/2005

E20

UEK CORPORATION
PROPRIETARY

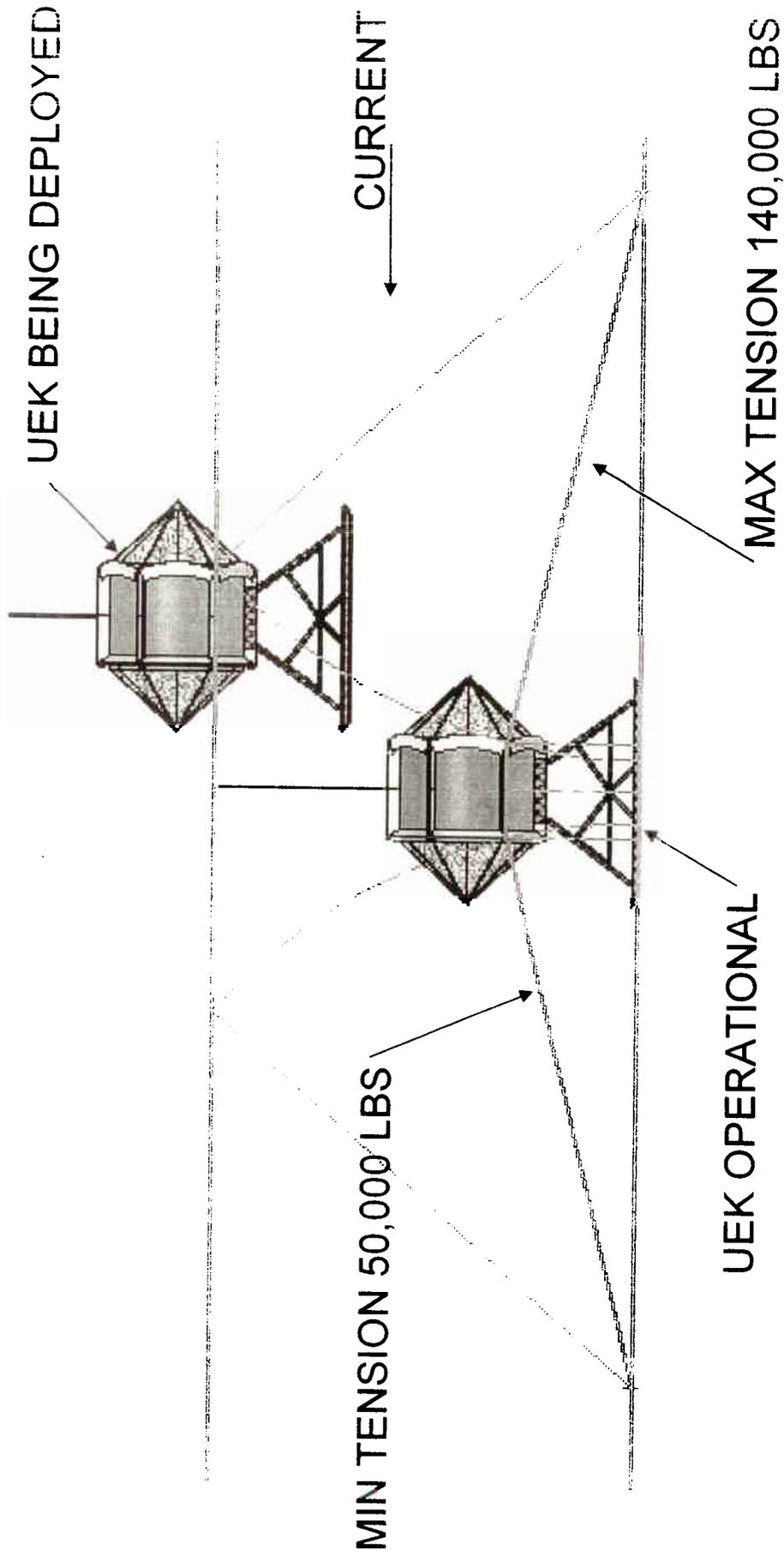


UEK WITH ALL GUARD GRATES

8/03/2005

UEK CORPORATION
PROPRIETARY

E21



INDIAN RIVER UEK DEPLOYMENT

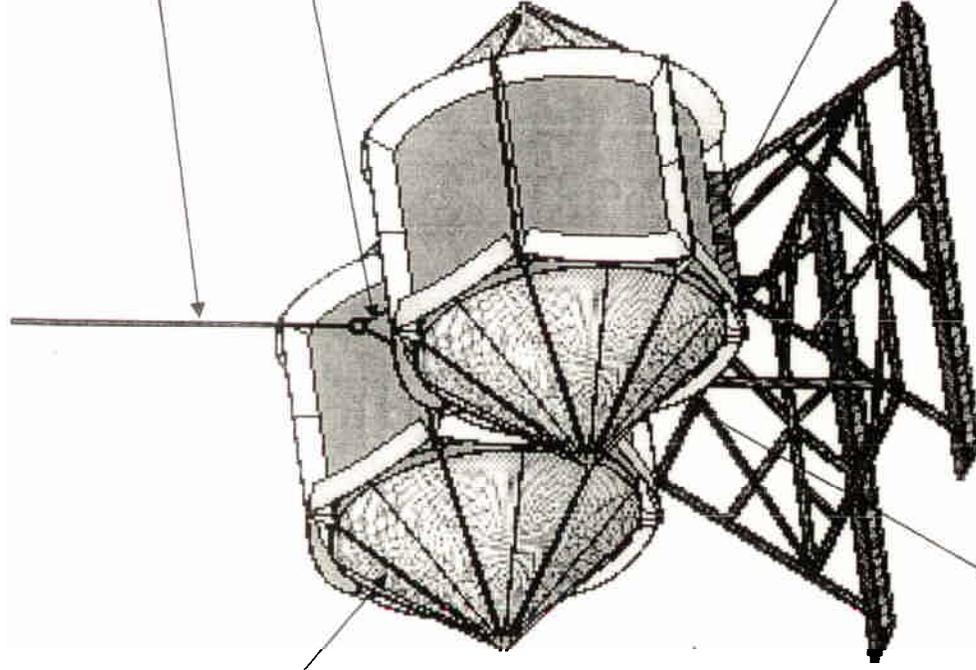
E22

EXPANDED METAL
GUARD GRATES

LIFTING LINE

LIFTING CHAIN BRIDLE

STABILIZER FINS BOLTED
TO STAND



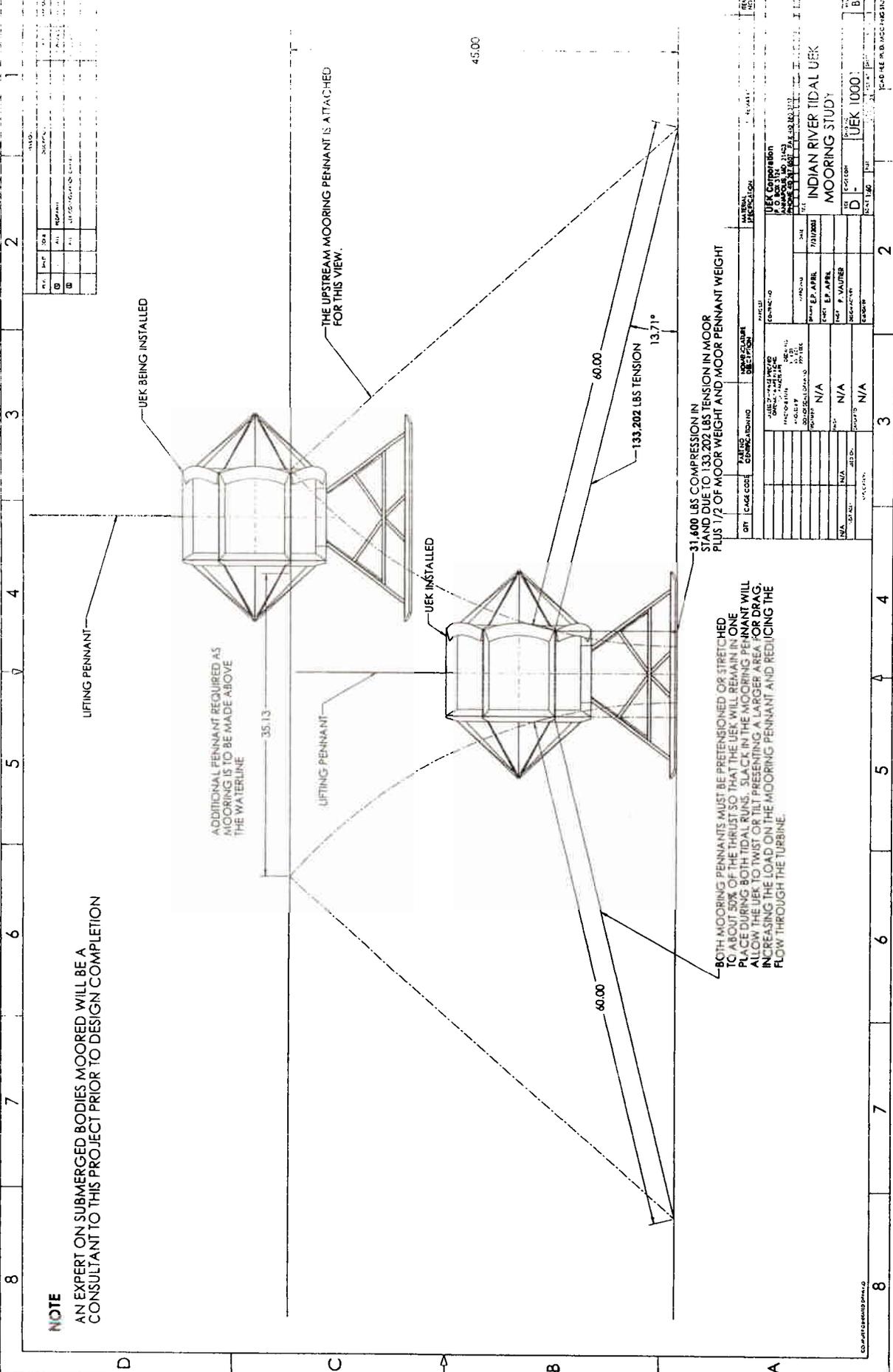
JOINING STRUCTURE MATES
WITH STAND

LIFTING THE INDIAN RIVER UEK

8/04/2005

E23

UEK CORPORATION
PROPRIETARY



E24