

FE319

Diagram No. 1213-4

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

DESCRIPTIVE REPORT

Type of Survey .. Side Scan Sonar ..
Field No. HE-10-3-88 ..
Registry No. FE-319SS ..

LOCALITY

State Connecticut--New York ..
General Locality Long Island Sound ..
Sublocality Between Oak Neck Point ..
..... & Greenwich Point ..

19 88

CHIEF OF PARTY
LCDR C.B. Lawrence

LIBRARY & ARCHIVES

DATE October 23, 1989 ..

FE319

HYDROGRAPHIC TITLE SHEET

FE-319-SS

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form,
filled in as completely as possible, when the sheet is forwarded to the Office.

FIELD NO.

HE-10-3-88

State Connecticut ~~and~~ New YorkGeneral locality Long Island SoundLocality Between Oak Neck Point and Greenwich PointScale 1 : 10000Date of survey September 9 - October 19, 1988Instructions dated May 26, 1988 *Project No. OPR-B660-RU/HE-88Vessel NOAA Ship HECK S-591, EDPN 9140Chief of party Christopher B. Lawrence, ~~Lcdr~~ ^{LCDR}, NOAA, Commanding Officer HECKSurveyed by LT Grady H. Tuell, LT(jg) Andrew L. Beaver, ST Walter R. MorrisSoundings taken by echo sounder, hand lead, pole DSF6000N Echosounder, Dual BeamGraphic record scaled by Automated HDAPS SystemGraphic record checked by LT Tuell, LT(jg) Beaver, ST MorrisProtracted by _____ Automated plot by HDAPS (Field)Verification by Hydrographic Processing UnitSoundings in ~~XXXXXX~~ feet at ~~MLLW~~ MLLW feet at MLLW

REMARKS: This survey covers work completed on boat sheet HE-10-3-88 and HE-10-5-88,
which includes AWOIS items 1749 (resolved), 4405 (resolved), 4412 (resolved), 4413
(resolved), 4414 (disproved), 4452 (resolved), 4453 (resolved), 6716 (resolved),
6801 (resolved), 6814 (resolved), and 6816 (resolved).

Notes in red were made during office processing.

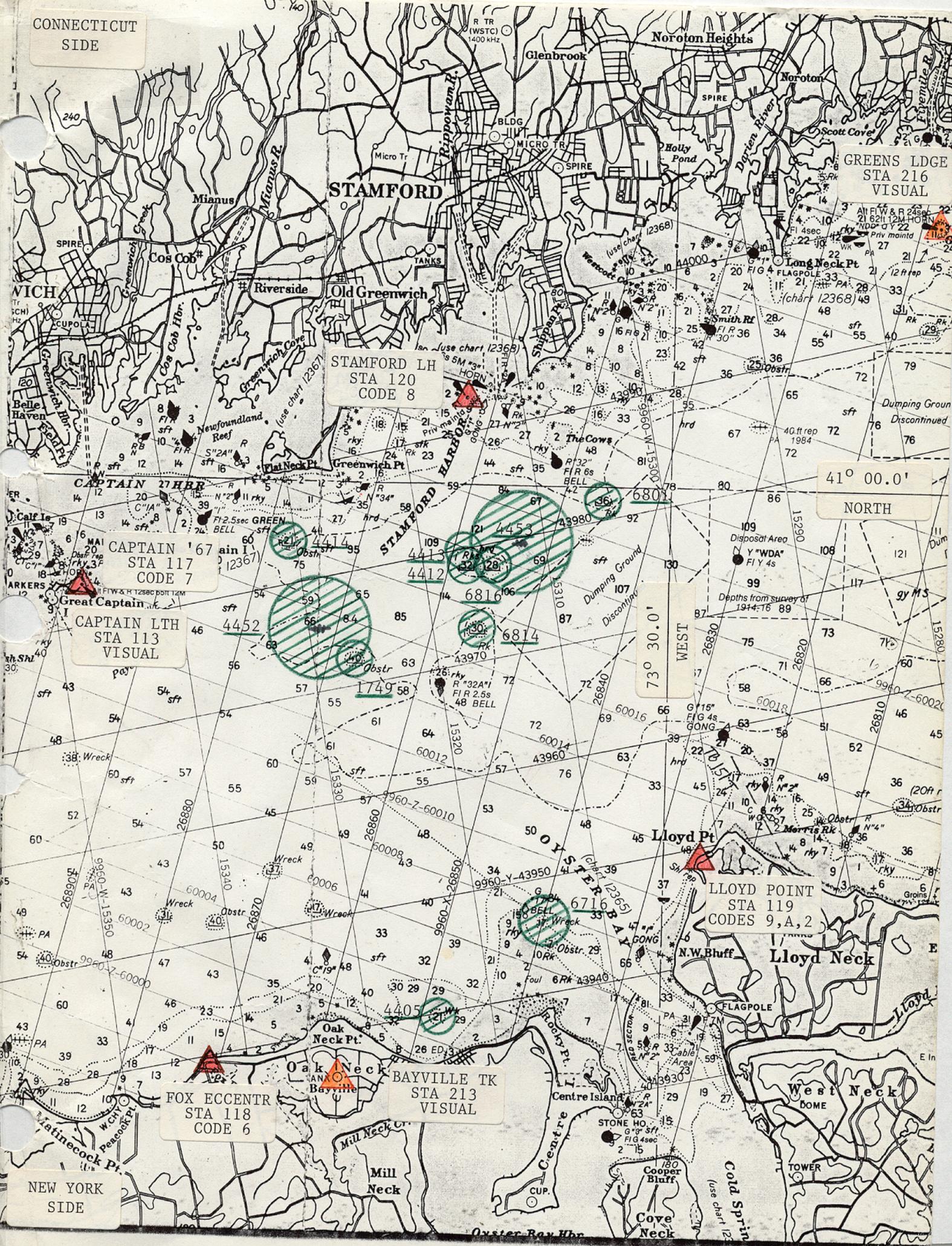
AWOIS/SURF TM & M 10/26/89

* Ammended by: Change No. 1, dated 6 July 1988

Change No 2, dated 26 September 1988

X.W.W. 3/8/94

CONNECTICUT
SIDE



STAMFORD LH
STA 120
CODE 8

CAPTAIN STA 117
CODE 7

CAPTAIN LTH
STA 113
VISUAL

FOX ECCENTR
STA 118
CODE 6

BAYVILLE TK
STA 213
VISUAL

LLOYD POINT
STA 119
CODES 9, A, 2

GREENS LGE
STA 216
VISUAL

NEW YORK
SIDE

41° 00.0'
NORTH

73° 30.0'
WEST

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APPENDICES *Filed with original field records*

- I. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS
 - IA. SIDE SCAN SONAR
 - IB. RAYTHEON DSF 6000N ECHO SOUNDER
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 - IE. HEAVE SENSOR
 - IF. SETTLEMENT AND SQUAT
 - IG. TIDES INFORMATION *Tides Request included in original Descriptive Report*
- II. HORIZONTAL POSITION CONTROL
 - IIA. STATION INFORMATION *List of stations included in original Descriptive Report*
 - IIB. BASELINE CALIBRATION INFORMATION
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- III. POSITION/DAILY DATA ABSTRACTS
- IV. TARGET ABSTRACTS *included in the original Descriptive Report*
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DESCRIPTIVE REPORT TO ACCOMPANY
SURVEY FE-319SS
FIELD NUMBER HE-10-3-88
SOUTHERN NEW ENGLAND COAST, CT AND NY, LONG ISLAND SOUND
BETWEEN OAK NECK POINT AND GREENWICH POINT
Scale 1:10,000
NOAA Ship HECK S-591
LCDR Christopher B. Lawrence, CMDG

A. PROJECT DESCRIPTION

A1. Project Authorization

This survey was conducted in accordance with Hydrographic Project Instructions OPR-B660-RU/HE-88, Southern New England Coast, Connecticut and New York, dated May 26, 1988, as amended by Change No. 1 dated July 6, 1988, and Change No. 2 dated September 26, 1988.

A2. Project Purpose

This project is in response to requests from the Northeast Marine Pilots Inc., of Newport, RI, to verify or disprove and determine least depths for certain wrecks and obstructions in western Long Island Sound. The data from this project will supplement a basic hydrographic survey (OPR-B285) which is scheduled for this area in 1989-91. The U.S. Navy, as well as state and local governments have requested updated bathymetric and hydrographic survey data for western Long Island Sound and vicinity to aid in proposed biological, environmental, chemical, and coastal zone management studies in this region.

B. PROJECT OVERVIEW

B1. General

Project Instructions for Project OPR-B660-RU/HE-88 assigned to the NOAA Ships HECK and RUDE a total of 63 AWOIS Items, all of which are submerged wrecks or obstructions. Field work for OPR-B660-RU/HE-88 began on July 13, 1988 (JD 195) and concluded on November 30, 1988 (JD 335). This report addresses all field work accomplished in resolving AWOIS items 1749, 4405, 4412, 4413, 4414, 4452, 4453, 6716, 6801, 6814, and 6816. Recovery and installation of horizontal control stations for this sheet began on September 9, 1988 (JD 253) with on-line data acquisition beginning on September 14, 1988 (JD 258). Operations for this sheet concluded with dive operations on AWOIS 6716 on October ~~18~~¹⁹, 1988 (JD 292).

Approximately four days of production were lost due to the extreme sea and wind conditions that are common in Long Island Sound during the fall months.

During work on field sheet HE-10-3-88, the side scan sonar towfish was constantly in danger of being entangled in the numerous lobster pot lines in the area. There were several instances when a survey line was terminated due to a lobster pot "hook". In some instances the data at the end of that particular line would be rejected and rerun. The line would be resumed upon "unhooking" the lobster pot.

Several of the items investigated on these sheets were rocky shoals on which it was very difficult to locate prominent targets with the side scan sonar. Although larger than average rocks could be located, these contacts often fell within waters deeper than the nearby rocky shoal. The HECK decided in these cases that the nearby shoal was a far greater hazard to navigation; diver investigations were conducted on the shoals.

While investigating AWOIS 6716, a large number of boulders were discovered within the required search area. Five of the largest most hazardous rocks were investigated by divers. These investigations are discussed in section K7 of this report.

LORAN C positions were obtained and recorded for each of the detached positions taken for this report. Plotting of the detached positions and LORAN rates indicates that the LORAN overlay is not properly charted. All LORAN positions appear to be northwest of the detached position by approximately 30 meters.

B2. Methodology

Survey work on this sheet was carried out using an EG&G Model 260 slant corrected Side Scan Sonar recorder and a dual beam Model 272 Side Scan towfish. Side Scan ensonification was supplemented by echosounder records obtained utilizing the ship's Raytheon DSF-6000N echosounder.

Side scan sonar (SSS) coverage was accomplished by running independent perpendicular sets of 100% coverage lines. Upon recognition of targets deemed significant, an approximate position was scaled and plotted from the side scan sonar record. These coordinates were then entered into the HDAPS system as a target and a sounding line run over the contact to determine a relative height above the bottom while at the same time deploying a dive buoy.

Frequently, additional SSS coverage was obtained of a target to assist in evaluating the target's significance. This reconnaissance SSS coverage was usually acquired at the 50 meter range scale setting using the 100 khz frequency setting. Reconnaissance SSS lines were not smooth plotted. However, the appropriate fix numbers are shown on the target abstract. Refer to Appendix IV of this report for copies of the target abstracts.

Upon descending the buoy line, the divers conducted a circle search of the area to locate the target. Once the target was located, the divers moved the buoy weight to the contact and proceeded with a search for the shoalest point. Upon finding the high point, the buoy weight was moved to the shoal point, the pneumofathometer line was lowered to the divers and the least depth reading taken. The ship then passed close to the buoy positioned over the least depth to acquire the detached position of the contact.

Survey data was acquired and processed using the Hydrographic Data Acquisition and Processing System (HDAPS) and the latest version Navitronic Navisoft 300 software provided by N/CG24.

C. AREA SURVEYED

The position, survey requirements, and dates of field work for each AWOIS item investigated are as follows:

| AWOIS NUMBER | POSITION (NAD27) | SURVEY REQUIREMENTS | DATES SURVEYED (DOY) |
|-----------------|----------------------------------|---------------------------------------|-------------------------|
| 1749 | 040° 58' 18.0" 073° 33' 55.0" | 200 meter radius 400% SSS coverage | (258-272) |
| 4405 | 040° 54' 58.2" 073° 32' 44.2" | 75 meter radius 200% SSS coverage | (277-288) |
| 4412 | 040° 59' 13.5" 073° 32' 32.5" | 75 meter radius 200% SSS coverage | (267-286) |
| 4413 | 040° 59' 16.0" 073° 32' 34.0" | 75 meter radius 200% SSS coverage | (267-286) |
| 4414 | 040° 59' 23.3" 073° 34' 47.0" | 100 meter radius 400% SSS coverage | (266) |
| 4452 | 040° 58' 38.0" 073° 34' 03.0" | 700 meter radius 200% SSS coverage | (258-266) |
| 4453 | 040° 59' 18.0" 073° 31' 57.0" | 700 meter radius 200% SSS coverage | (267-291) |

| | | |
|------|----------------------------|----------------------------|
| 6716 | 040 ^o 55' 51.0" | 500 meter radius (279-292) |
| | 073 ^o 31' 31.0" | 200% SSS coverage |
| 6801 | 040 ^o 59' 50.0" | 75 meter radius (271-291) |
| | 073 ^o 30' 51.0" | 200% SSS coverage |
| 6814 | 040 ^o 58' 39.1" | 100 meter radius (271-273) |
| | 073 ^o 32' 24.2" | 200% SSS coverage |
| 6816 | 040 ^o 59' 13.8" | 75 meter radius (267-291) |
| | 073 ^o 32' 14.7" | 200% SSS coverage |

D. SURVEY VESSELS

The following survey vessels were used for data collection:

| <u>VESSEL</u> | <u>ELECTRONIC DATA PROCESSING NUMBER</u> | <u>PRIMARY FUNCTION</u> |
|---------------------------|--|-----------------------------|
| NOAA Ship HECK (S-591) | 9140 | Data Acquisition |
| HECK Boston Whaler (HE-1) | None | Mini-Ranger Service |
| HECK SISU Launch (HE-3) | None | Dive Operations |

E. SURVEY SHEETS (FIELD)

All survey sheets were generated aboard the NOAA Ship HECK using HDAPS and the Brunning 824 CS Plotter (S/N 15237). Survey sheets were plotted on the Modified Transverse Mercator Projection on NAD 1983.

All side scan sonar field work and smooth plots were plotted on 1:10,000 scale sheets. See Appendix V* for plotter sheet parameters. Multiple field and smooth sheets were plotted in the following manner:

SHEET HE-10-3-88 : SIDE SCAN COVERAGE SHEET (1:10,000) FOR ITEMS
1749, 4412, 4413, 4414, 4452, 4453, 6801,
6814, AND 6816

Track Plot - 2 Smooth

Swath Plots - 2 On-line and 4 Smooth

Depth Plot - 1 Smooth for Prior Survey and Chart Comparisons

Contact Plot - 1 Smooth Plot of DP's, Reported Positions and
MARTEK Cast Locations

* Removed from the original Descriptive Report and filed with the survey records.

SHEET HE-10-5-88 : SIDE SCAN COVERAGE SHEET (1:10,000) FOR ITEMS
4405, AND 6716

Track Plot - 1 Smooth

Swath Plot - 2 On-line and 2 Smooth

Depth Plot - 1 Smooth for Prior Survey and Chart Comparisons

Contact Plot - 1 Smooth Plot of DP's and Reported Positions

The largest scale charts of the area are NOS Charts 12367, 17th Ed., November, 1986; 12365, 19th Ed., March, 1984; and 12368, 19th Ed., August, 1986.

Only mainscheme SSS lines were smooth plotted. Where reconnaissance lines were run, the appropriate fix numbers are shown on the target abstract. Holiday lines are plotted in red with mainscheme lines plotted in black.

F. SOUNDING EQUIPMENT

F1. Raytheon DSF6000N Echosounder

Soundings were taken with a Raytheon DSF6000N Dual Beam Echosounder (S/N A107). The DSF6000N was calibrated daily with an Electronic Depth Simulator Instrument (EDSI) provided by AMC's Electronic Engineering Branch.

The DSF6000N provided a good quality representation of the bottom. Due to interference of undetermined origin, the echosounder was often operated in the manual gain setting. Operation in manual gain did not effect the digital return from the bottom. Reverb blanking was also utilized to block out interference in the water column. Refer Appendices IA* and IB* for dates of use and abstracts of daily tests.*

F2. EG&G Model 260 Side Scan Sonar

The HECK is equipped with an EG&G model 260 Slant Corrected Side Scan Sonar recording unit (S/N 0011443) and a model 272, 100/500 khz towfish (S/N 0011591). The towfish is led through a fairlead block over the stern of the HECK and towed at speeds of from 2.5 to 5.5 knots. Fish height is controlled by a combination of vessel speed and amount of cable out.

Side scan operations were conducted in accordance with the Provisional Side Scan Sonar Manual. During normal operations the 100 khz frequency was used. The EG&G system produced a good quality picture with the 100 khz frequency.

Printer and rub tests as well as confidence checks were conducted daily. Return from the outer edges of the side scan record indicated throughout work on these items that the side scan unit was operating effectively. The results of all checks and tests are included as a part of the graphic record. See Appendix IA for an abstract of side scan sonar tests and dates of use.

Paper speed on the side scan recorder was set to the manual speed setting. Periodic checks were made by switching to the automatic speed mode and the appropriate value locked in by switching back to the manual speed mode when the actual speed appeared on the digital readout. This procedure eliminated "speed jumps" and assured correct imaging of all targets.

On September 27, 1988 (JD 271) the primary side scan tow cable was damaged by a lobster pot "hook" and subsequently replaced with the 50 meter backup cable. Following repair the primary cable was put back into service on October 3, 1988 (JD 277).

F3. Pneumofathometer (*Pneumatic Depth Gauge*)

Least depths for all significant contacts identified during operations on these items were determined with one of two pneumofathometer gauges. Refer to Appendix IC for pneumofathometer calibration information and dates of use.

With the ships current pneumofathometer configuration, the shallow gauge (0-70 FSW) can be easily overpressurized. On October 12, 1988 (JD 286) the shallow gauge was overpressurized beyond adjustment. All readings and calibrations performed up to that date indicate that least depths taken with the shallow gauge are accurate. Beginning on October 12, 1988 (JD 286) all least depths were taken with the deep gauge (0-140 FSW).

System check values were not applied to the diver determined least depths. Wind and sea conditions were not calm enough to yield a corrector deemed accurate enough for application.

G. CORRECTIONS TO SOUNDINGS

G1. Velocity Correctors

Velocity correction data for the Raytheon DSF 6000N echosounder were obtained by MARTEK casts conducted on September 14, 1988 (JD 258) and October 19, 1988 (JD 293). Positions for the casts are indicated on the smooth contact plots where applicable.

A dual leadline/DSF6000N comparison was conducted on August 25, 1988 (JD 238). Results of this comparison indicate agreement within one foot for DSF6000N high frequency depths. Refer to Appendix ID* for leadline/DSF6000N comparison results.

** Filed with the original served records*

MARTEK data are reduced and velocity corrections calculated using program VELOCITY. The computed velocity correctors were applied by entering the VELOCITY output data into a HDAPS sound velocity table. Refer to Appendix ID* for MARTEK cast and calibrations data as well as copies of all HDAPS sound velocity tables.

MARTEK units receive a pre and post deployment calibration by AMC. A copy of the pre deployment calibration is enclosed in Appendix ID* of this report. A copy of the post deployment calibration will be forwarded to the Hydrographic Surveys Branch for inclusion in this report following calibration.

G2. Tidal Correctors

The tidal datum for this project is mean lower low water. The operating tide station at Bridgeport, CT (846-7150) served as control for datum determination and reference station for predicted tides. The operating tide station at Willets Point, NY (851-6990) provided additional control for datum determination. No tide stations were established for work on this project.

Predicted tidal correctors were generated and applied by entering 1988 NOS Tide Table values into the HDAPS predicted tide tables. Bridgeport, CT was used for the reference station with time and height correctors applied for Great Captain Island. Hard copies of the applicable tables are included in Appendix IG.

A request for smooth tides was made to N/MOA12 on December 8, 1988. See Appendix IG for a copy of the request.

G3. Settlement and Squat Correctors

Settlement and Squat correctors for the HECK were determined on March 22, 1988 (JD 82) at the Little Creek Naval Amphibious Base in Norfolk, VA. Settlement and squat corrector values were applied to survey data using the Offset Table of HDAPS. See Appendix IF* for offset table parameters and Settlement and Squat Correction data.

G4. Heave Correctors

Heave is measured by a Datawell B.V. (S/N 19110-C) heave, roll, and pitch sensor (HIPPY) located amidships near the transducer. This sensor gathers on line heave data which are applied to soundings in near real time. To date, no HIPPY calibration requirements or procedures have been defined or used.

HDAPS software does not allow the acquisition of heave data while conducting side scan operations. Correction of this system deficiency is under consideration by the HDAPS support group at this time. Since no hydrography is submitted in this report, the HIPPY was not used during this time period.

** Filed with the original survey records.*

G5. Vessel Draft Corrector

During the 1987-88 winter inport drydock period, an exact measurement of 19.0 feet was taken from the DSF6000N transducers to a point established on each bridge wing of the HECK. Using these two points, two leadline comparisons were performed on May 13 and 16 (JD 134 and 137) with the DSF6000N echosounder at which time the HECK's static draft was determined to be 6.9 feet (2.10 meters). This value was applied to survey data using the Offset Table of HDAPS. See Appendix I E* for offset table parameters.

H. HORIZONTAL POSITION CONTROL *See Section 2 of the Evaluation Report*

H1. Electronic Positioning Systems

Positioning for this survey was provided by the Motorola Mini-Ranger Falcon 484 microwave positioning system. HDAPS allows use of up to four lines of position (LOP'S) plus gyro course and speed for improved positioning accuracy.

During work on this survey, four LOP'S were routinely acquired during on-line operations. A minimum acceptable signal strength (MASS) of 15 was used in the positioning algorithm; any LOP with a signal strength of less than 15 was excluded from the position computation. On-line maximum residuals were consistently less than 5 meters (i.e. 0.5 mm at the scale of the survey) and error circle radius (ECR) values were consistently less than 15 meters (i.e. 1.5 mm at the scale of the survey) throughout work on these items. Based on observed maximum residuals and ECR values, position quality is deemed excellent.

Both Mini-Ranger RPU/RT combinations which had been originally issued to the HECK failed before the time period covered by this survey. The backup combination issued to the NOAA Ship RUDE was installed on the HECK on August 3, 1988 (JD 216), and was used for the duration of this survey. The initial baseline calibration was performed at Navy Auxiliary Air Field Fentress in Norfolk, VA on July 6 (JD 188). The results of this calibration are shown in Appendix IIB*. The range correctors determined during this BLC were applied online by entering the appropriate values into the HDAPS C-O tables. The various C-O tables used for this survey are also included in Appendix IIB*.

Proper performance of the Mini-Ranger navigation system was verified daily by non-critical systems checks. Critical 3-point sextant calibrations were performed monthly or whenever the position control configuration was altered.

** Piled with the original survey records*

On October 6, 1988 (JD 280), control station Fish (code 5) was used as part of the position control network. No critical or non-critical calibrations were performed with Fish as part of the position control scheme. Maximum residuals and ECR values indicate that the LOP obtained from station Fish was within calibration limits. All data collected with code 5 on JD 280 is considered of adequate quality for this survey.

Station Stamford Harbor Light was sometimes not usable due to range holes. The range holes were particularly evident in the area of AWOIS #6716 where the ship often operated on only two lines of position (LOP's). Several of the detached positions taken in that area have only two LOP's, but are considered accurate for charting purposes. *Concur*

On September 21 (JD 265) Mini-Ranger code 9 failed while installed on Lloyd Point. All noncritical calibrations performed up until that day indicate that the unit was working properly and that all data collected with code 9 is of adequate quality. Code 9 was replaced with code 10(A) and work resumed following a critical calibration including the new unit. On September 26 (JD 270), code 10(A) failed. All noncritical calibrations performed up until that day indicate that the unit was working properly and that all data collected with code 10(A) is of adequate quality. Beginning on September 26 (JD 270) code 2 was used on Lloyd Point. Appendix IIA contains a listing of Mini-Ranger locations. Dates of use for all shore stations are included in Appendix III.*

H2. Geodetic Position Control *See also section 2.2. of the Evaluation Report.*

The horizontal datum for this project is the North American Datum of 1983 (NAD 83). The coordinates for each station were taken from published NGS Geodetic control data listings or from listings provided by AMC Photogrammetry Branch personnel.

All horizontal control stations were recovered in accordance with the Hydrographic Manual and AMC OPORDER 82. Stations Fox 1942, and Captain 1967 were occupied. Other stations were verified by theodolite cuts or by visual inspection and comparison to descriptions. Field observations were conducted by HECK personnel using ship's equipment. All computations were done on the ship's IBM PC using the ENHANCEMENTS routines for the NGS MTEN software. Computations, recovery notes, and supporting abstracts are included in Appendix II.* Horizontal Position Control.

An eccentric position was computed from station FOX and used as a Mini-Ranger station. The eccentric was set on the roof of a nearby First Aid Station. A position for the eccentric was computed based on observations made on August 9 and August 30, 1988 (JD 222 and 243). Computations and supporting abstracts are submitted in Appendix II.*

* *Filed with the original survey records*

Electronic control stations were readily accessible by small boat or land. Electronic control stations at Captain 1967 and Lloyd Point 1952 were positioned directly over the marks.

I. AUTOMATED DATA PROCESSING

Project OPR-B660-RU/HE-88, Southern New England Coast, Connecticut and New York, was conducted using the Hydrographic Data Acquisition and Processing System (HDAPS) which was still undergoing software modification and enhancement at the time of this survey. Some changes to the HDAPS software were made in Norfolk just prior to beginning operations on this project. Remaining and newly discovered software bugs are described below as they relate to the data.

The HDAPS positioning algorithm contains a software bug which allows "flyers" to pass through the position filter. As a result, anomalous positions beyond the geographic limits of the field sheet are occasionally plotted causing the sheet to spool off of the plotter. When this occurs the plotter must be reinitialized. Review of the data in the vicinity of these flyers showed no apparent reason for the occurrence, yet these flyers were carried over to the smooth plot. Evidently, a data field which is not displayed in the post-processing mode is retaining the flyer. The HDAPS support group is currently working on the problem.

HIPPY data is not applied to soundings during on-line side scan sonar operations. Therefore, the soundings plotted on the smooth depth plot sheets used for comparisons to prior surveys are not corrected for sea state. Some error is therefore expected during prior survey comparisons due to sea action that is not applied to the soundings. Because seas were consistently less than three feet during operations on this survey, uncorrected comparisons are considered adequate for chart adequacy purposes.

At the time of this report, HDAPS provided no straightforward method of plotting contacts on field or smooth sheets. To plot detached positions taken on contacts it is necessary to generate a position in the control station table and plot the contacts as though they are control stations. For this report, reported positions of AWOIS items and detached positions are plotted in black with different cartographic codes for each type of position. MARTEK cast locations are plotted in blue. Control Station Table Numbers (CSTN) are assigned as the last three digits of the AWOIS number for reported positions. Detached positions (DP's) and MARTEK cast locations utilize CSTN numbers 001 through 099.

While conducting on line operations in the side scan sonar mode, an occasional buffer lock was experienced in the recording of echosounder data to the magnetic tape. These buffer locks result in the recording of locked depths on both the high and low frequency sounding records for extended periods of time with no indication of the lock appearing on either the echosounder trace or raw data printout. The problem only seems to occur with any significant frequency during side scan operations and rarely during hydrographic operations. To correct the problem the operator must edit the raw sounding and then record the edited data to an edited data tape. Since echosounder data are not routinely reduced during side scan operations this problem does not effect the quality of this survey. The HDAPS support group is currently working on the problem.

A conversion rounding error exists in the Control Station Table of the Pre Survey menu of HDAPS. When coordinates of a control station are inputted into the table, the system slightly alters the Latitude and Longitude when converting from the Easting and Northing coordinates. Variations of 0.001 to 0.003 seconds have been observed. These variations have no effect on data quality.

J. COMPARISONS WITH PRIOR SURVEYS AND RELEVANT CHARTS

Comparisons with prior surveys were made with survey sheets H-1732a, 5402a, 5222, and 5544. The depth plot sheets made for the comparisons were overlayed on the priors and the soundings directly compared. Only soundings taken on fixes were plotted to avoid congestion. All depths are plotted on NAD 83 versus the NAD 27 used for the prior surveys.

All depths plotted on sheet HE-10-3-88 agree within one foot of the prior survey depths. On plotter sheet HE-10-5-88, the depths have shoaled approximately two to three feet in the southwest half of the AWOIS #4405 search area. Although the depths are not shoaling enough to warrant immediate attention, they should be further investigated during the next basic survey of the area.

Chart comparisons were made to the following charts :

| | |
|---|---|
| 12368 North Shore of Long Island Sound Sherwood Point to Stamford Harbor | 19th Ed. August 30, 1986 |
| 12367 North Shore of Long Island Sound Greenwich Point to New Rochelle | 17th Ed. November 1, 198 6 ⁶ |
| 12365 South Shore of Long Island Sound Oyster and Huntington Bays | 19th Ed. March 10, 198 6 ⁴ |

All charted depths agree within two feet of the depths obtained on these sheets.

K. AWOIS ITEM INVESTIGATION REPORTS

A specific discussion of each AWOIS item investigated is included in Section K of this text. For some items, several SSS targets were investigated. Each target is discussed as a subsection of the AWOIS item in whose radius the target was found.

The following table summarizes the results of the survey :

| <u>AWOIS ITEM</u> | <u>STATUS</u> |
|-------------------|---------------|
| 1749 | RESOLVED ✓ |
| 4405 | RESOLVED ✓ |
| 4412, 4413* | RESOLVED ✓ |
| 4414 | DISPROVED ✓ |
| 4452 | RESOLVED ✓ |
| 4453 | RESOLVED ✓ |
| 6716 | RESOLVED ✓ |
| 6801 | RESOLVED ✓ |
| 6814 | RESOLVED ✓ |
| 6816 | RESOLVED ✓ |

** Awois item is not considered either verified nor disproved. See section 6.6. page 4 of the Evaluation Report
All other Awois items are resolved or disproved.*

K1. INVESTIGATION REPORT FOR AWOIS ITEM #1749

AWOIS HISTORY : H5142/31WD--PROJ. NO. 64; OBSTR (GROUNDING), HUNG 41FT (CHARTED AS CLEARED 40FT), SCALED IN LAT 40-58-18N, LONG 73-33-55W; ACTUAL SOUNDING OF 54FT. (NAD 27 position)

SURVEY REQUIREMENTS : Full, verify or disprove through 400% side scan sonar coverage, 200 meter radius, least depth and position required if found.

METHOD OF INVESTIGATION : 400% side scan sonar coverage was accomplished with the 100 khz frequency over the required 200 meter radius. A total of 13 mainscheme side scan sonar lines were run at headings of 060-240 and 150-330 over the entire search area. Diver investigations were conducted on all significant contacts.

RESULTS OF INVESTIGATION : The AWOIS item in question was located during the initial 100% coverage. Development side scan sonar lines were run past the item and an accurate position determined from the side scan record. Contact 1 was the only significant contact found within the search area.

K1.1. CONTACT INVESTIGATION REPORT FOR CONTACT 1.

DETERMINATION OF DIVE SITE : The contact was originally identified by side scan sonar and is listed as contacts 1 and 7 on the target abstract. An echosounder line was run directly over the contact and a dive buoy deployed when the wreck was directly beneath the ship as indicated on the DSF6000N.

SEARCH PROCEDURE : Divers LT(jg) Beaver and LT Tuell descended the buoy line and conducted a 15 meter circle search to find the wreck. Upon locating the item, the divers conducted a thorough search of the contact for the highest point. When the shoalest point was located, the divers moved the dive buoy weight to that point.

LEAST DEPTH DATA : After locating the shoalest point of the wreck, the pneumofathometer air line was lowered to the divers via the dive buoy line. The divers held the pneumofathometer orifice over the shoalest point while the dive tenders, ST Morris and OS Aldridge, took several readings with both the shallow and deep pneumofathometers.

The dives were performed on September 27 and 28 (JD 271 and 272). The three readings from the shallow pneumofathometer taken on September 28 (JD 272) are as follows :

| | | |
|----------------------|--------------------------------|------------------------|
| 1) TIME (UTC) : 1830 | RAW LEAST DEPTH READING | (FT) : 62.8 |
| 2) TIME (UTC) : 1830 | RAW LEAST DEPTH READING | (FT) : 62.8 |
| 3) TIME (UTC) : 1830 | <u>RAW LEAST DEPTH READING</u> | <u>(FT) : 62.8</u> |
| | AVERAGE LEAST DEPTH READING | (FT) : 62.8 |
| | <u>Actual TIDE CORRECTOR</u> | <u>(FT) : -8.1-7.6</u> |
| | ACTUAL LEAST DEPTH | (FT) : 54.86 |

GENERAL STATEMENT OF POSITION QUALITY : The wreck was positioned by maneuvering the ship alongside the dive buoy while the buoy was tied off to the shoalest point. The detached position, position 463, was taken when the profile of the wreck appeared on the DSF6000N record. The fix utilized three LOP's with a maximum residual of 0.2 meters and an ECR value of 5.4 meters. The fix is considered to be of good quality.

POSITION OF CONTACT : LAT : 040° 58' 21.⁸~~477~~ N E : 108571.2
LONG : 073° 33' 53.⁴⁰~~397~~ W N : 24728.1

LORAN CHAIN : 9960 RATES : W-15326.6 X-26867.5
Y-43973.7 Z-60015.9(bad rate)

ITEM DESCRIPTION : The divers found the remains of an old wooden wreck, origin unknown. Poor visibility and strong currents made the dives difficult. The divers discovered the wreck's boiler and another large steel object protruding above the bottom. All that remained of the wreck were the two metal hulks and portions of a severely deteriorated wooden hull partially sunken into the bottom. The highest point of the wreck was determined to be the boiler.

RECOMMENDATIONS : The wreck is currently charted as an obstruction cleared to 40 feet on chart 12367, 17th Edition, November, 1986. The wreck found by the divers is very close to the reported position of the AWOIS item in question. Since the full 400% coverage was completed on the item and no other contacts were found, the wreck is deemed to be AWOIS #1749. *Concur*

Because this wreck protrudes only four feet off the bottom in surrounding depths of 59 to 60 feet, the contact poses no hazard to surface navigation. The HECK recommends that the existing charted obstruction symbol be removed and a wreck ~~symbol~~ with a least depth of ⁵⁷~~57~~ feet, not dangerous to surface navigation, be charted at the position determined by this survey. The detached position for the contact is plotted as Control Station Table Number (CSTN) 021 on the smooth contact plot for sheet HE-10-3-88. *Concur. See also section 6.b. of the Evaluation Report*

AWOIS item 1749 is considered resolved. *Concur.*

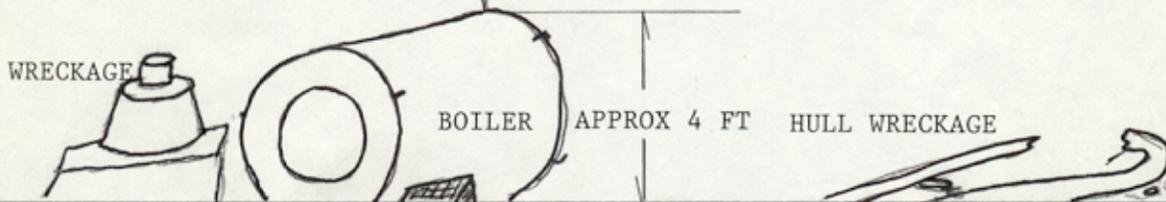
54 WK

AWOIS ITEM #1749
CONTACT 1
CSTN NUMBER 021

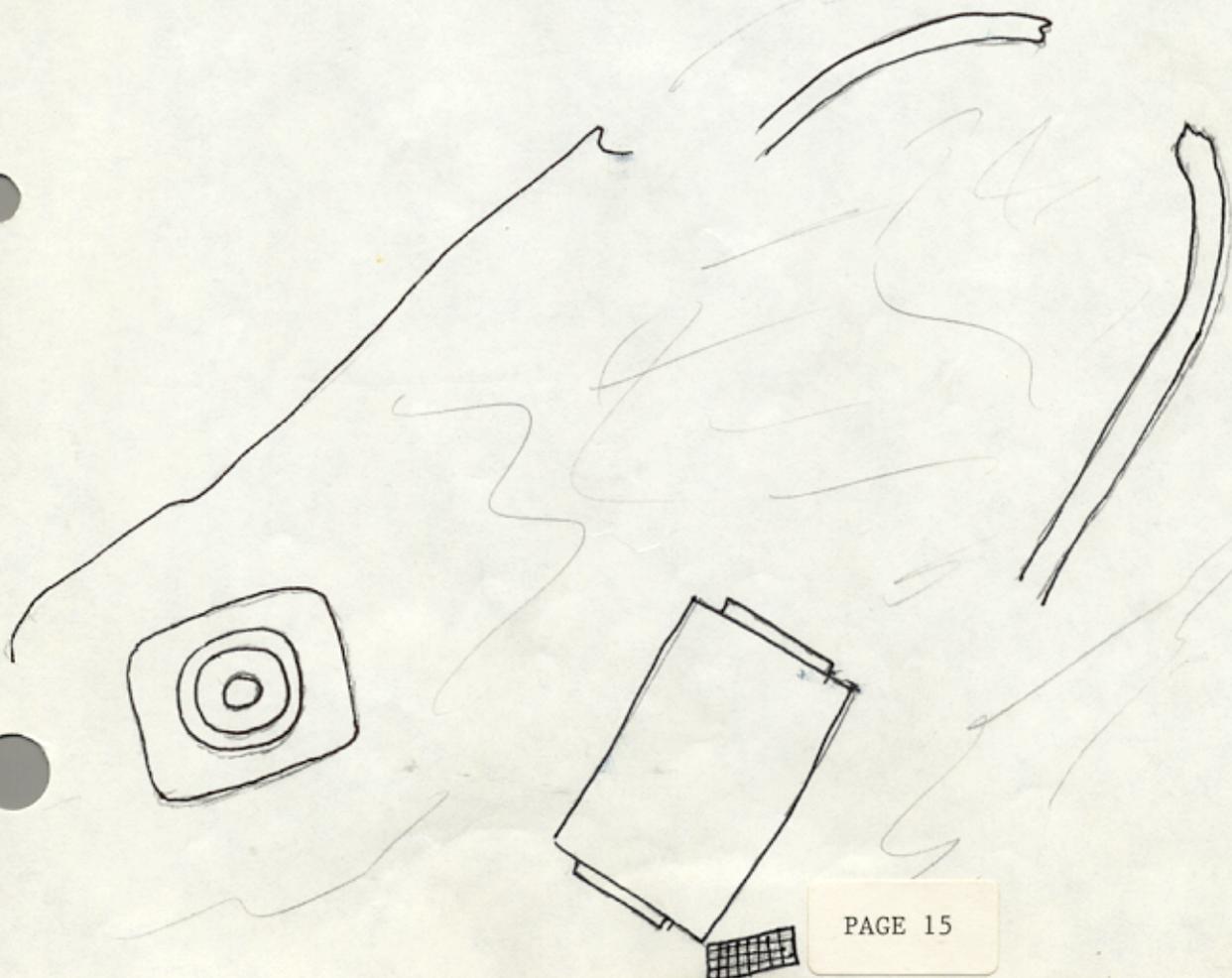
DIVERS : LT TUELL, LTJG BEAVER
METHOD OF SEARCH : CIRCLE
LEAST DEPTH DETERMINATION : PNEUMO

SURFACE

LEAST DEPTH = PNEUMO DEPTH 62.8 FEET
Actual - TIDE VALUE ~~8.1~~ FEET ~~-7.6~~
54.7 FEET
6



BOTTOM



AWOIS ITEM #1749, CONTACT #1
CSTN #021
LEAST DEPTH=54.8' ON BOILER

6 13:37:19

050M

6

050M

6

050M

6

050M

6

050M

6 13:37:05

050M

6

050M

6

050M

6

050M

6

050M 13:36:51

6

050M

6

050M

6

050M

6

050M

6

050M 13:36:37

6

050M 13:36:32 132

6

050M

6

200 FT

463

*U.T.D.
272*

AWOIS ITEM #1749, CONTACT #1
CSTN #021
LEAST DEPTH=54.7' ON BOILER

220 FT

*First Line
D.P.
1749*
↓

440 FT

*REJECT
462
AND
464*

660 FT

880 FT

1100 FT

11 C

191958

Easting.....: 108571.2
 Northing.....: 24728.1
 Latitude.....: 040:58:21.477
 Longitude.....: 073:33:53.397

CSTN 021

User 1 Caps Running

HELP Dump Dump
Alpha Graphics

| Time | Tide Corr. | Units | FEET |
|-----------|-------------|---------------|------|
| 17:00 | -8.2 | | |
| 272 17:15 | -8.4 | | |
| 272 17:30 | -8.5 | | |
| 272 17:45 | -8.5 | | |
| 272 18:00 | -8.4 | | |
| 272 18:15 | -8.3 | | |
| 272 18:30 | <u>-8.1</u> | -7.6 (actual) | |
| 272 18:45 | -7.8 | | |
| 272 19:00 | -7.5 | | |
| 272 19:15 | -7.1 | | |
| 272 19:30 | -6.7 | | |
| 272 19:45 | -6.2 | | |
| 272 20:00 | -5.7 | | |
| 272 20:15 | -5.2 | | |
| 272 20:30 | -4.6 | | |
| 272 20:45 | -4.0 | | |
| 272 21:00 | -3.4 | | |
| 272 21:15 | -2.9 | | |
| 272 21:30 | -2.3 | | |
| 272 21:45 | -1.8 | | |
| 272 22:00 | -1.2 | | |
| 272 22:15 | -.8 | | |
| 272 22:30 | | | |

DIVING OPERATIONS

DATE: SEPT 27 1988 UNIT: NOAA SHIP HECK 5591
 LOCATION: SOUTHERN NEW ENGLAND COAST AWDIS ITEM # # 1749
 TARGET# 1

VE MASTER: LTJG.A.BEAVER
 ENDERS: ST.W.MORRIS
 AB.M.JONES
 OS. ALDRIDGE
 DIVERS : LT.G.TUELL
 : LTJG.A.BEAVER

DIVE PLAN: CIRCLE SEARCH AND ITEM INVESTIGATION. MAX.DEPH: 75 FT.
 MAX TIME : 30
 DEPTH(1) _____ (2) _____ (3) _____ AVRG.LEAST DEPTH: _____
 LEAST DEPTH TIME: _____

EQUIPMENT USED: OPEN CIRCUIT SCUBA.

CONDITIONS:
 WIND : DIR NE KTS 5
 SEAS : DIR NE FT 1
 CURRENT: KTS 1KT
 VISIBILITY: FT. 0.5
 AIR TEMP. : (C) 20.5
 WATER TEMP: (C) 21.0
 ALL TIMES: (LOCAL)

| # | DIVERS NAME | SI | GROUP | RNT | IN | | PRES. CHNG | IN | | BOTTOM TIME | DEPTH | GROUP |
|---|-------------|----|-------|-----|------|-----|------------|-------|-------|-------------|-------|-------|
| | | | | | IN | OUT | | IN | OUT | | | |
| 1 | TUELL | | | | 2800 | 500 | | 15:09 | 15:13 | 4 | | |
| 1 | BEAVER | | | | 2650 | 400 | | 15:09 | 15:13 | 4 | | |
| 1 | TUELL | | | | 2800 | 750 | | 15:32 | 15:48 | 16 | 70 | |
| 1 | BEAVER | | | | 2800 | 700 | | 15:32 | 15:48 | 16 | 75 | |
| 3 | TUELL | | | | | | | | | | | |
| 3 | BEAVER | | | | | | | | | | | |
| 3 | TUELL | | | | | | | | | | | |
| 4 | BEAVER | | | | | | | | | | | |

POST DIVE COMMENTS: _____
Very poor visibility in very high current,
should have aborted dive.

Andrew Beaver
 DIVE MASTER SIGNATURE.

X1

DIVING OPERATIONS

DATE: SEPT 20 1988

UNIT: NOAA SHIP HECK 5591

LOCATION: SOUTHERN NEW ENGLAND COAST

AWOIS ITEM # 1749
TARGET #1

DIVE MASTER: LTJG.A.BEAVER

DIVERS : LT.G.TUELL

TENDERS: ST.W.MORRIS

: LTJG.A.BEAVER

AB.H.JONES
OS M. ALDRIDGE

DIVE PLAN: CIRCLE SEARCH AND ITEM INVESTIGATION. MAX.DEPH: 72' FT.

DEPTH(1) 62.8 (2) 62.8 (3) 62.8 AVRG.LEAST DEPTH: 62.8

MAX TIME : 24 min

TIME : 1430GMT

EQUIPMENT USED: OPEN CIRCUIT SCUBA.

CONDITIONS:

WIND : DIR SW KTS 10

VISIBILITY: FT. 1 FT.

SEAS : DIR SW FT 1-2

AIR TEMP. : (C) 20.5 21.0

CURRENT: KTS 1

WATER TEMP: (C) 20.8 21.0

2nd DIVE

| # | DIVERS NAME | SI | GROUP | RNT | PRES. | | IN | | BOTTOM TIME | DEPTH | GROUP |
|---|-------------|-----|-------|-----|-------|------|-------|-------|-------------|-------|-------|
| | | | | | CHNG | IN | OUT | OUT | | | |
| 1 | TUELL | | | | 2700 | 2200 | 10:18 | 10:42 | 24 | 72' | F |
| | BEAVER | | | | 500 | | | | | | |
| 1 | TUELL | | | | 2700 | 2300 | 10:18 | 10:42 | 24 | 72' | F |
| | BEAVER | | | | 400 | | | | | | |
| 2 | TUELL | 3hr | C | 13 | 2750 | 2650 | 14:09 | 14:33 | 24 | 75' | J |
| | BEAVER | | | | 1000 | | | | | | |
| 2 | TUELL | 3hr | C | 13 | 2800 | 2100 | 14:09 | 14:33 | 24 | 78' | I |
| | BEAVER | | | | 700 | | | | | | |
| 3 | TUELL | | | | | | | | | | |
| | BEAVER | | | | | | | | | | |
| 3 | TUELL | | | | | | | | | | |
| | BEAVER | | | | | | | | | | |
| 4 | TUELL | | | | | | | | | | |
| | BEAVER | | | | | | | | | | |

POST DIVE COMMENTS:

Due to visibility & light current on first dive, second dive alot better, got LDD DP on second dive

Andrew L. Beaver LTJG/NOAA
DIVE MASTER SIGNATURE.

K2. INVESTIGATION REPORT FOR AWOIS ITEM #4405

AWOIS HISTORY : H5142/31WD--PROJ. NO. 64; WRECKAGE, 21FT, SCALED IN LAT 40-54-58.2, LONG 73-32-44.2. (ENTERED 3/86 RWD) (NAD 27 position)

SURVEY REQUIREMENTS : Full, verify or disprove through 200% side scan sonar coverage, 75 meter radius, least depth and position required if found, salvage documentation acceptable as disproof.

METHOD OF INVESTIGATION : 200% side scan sonar coverage was accomplished with the 100 khz frequency over the required 75 meter radius. A total of six mainscheme side scan sonar lines were run at headings of 000-180 and 090-270 over the entire search area. Diver investigations were conducted on all significant contacts.

RESULTS OF INVESTIGATION : The AWOIS item in question was located during the initial 100% coverage. Development side scan sonar lines were run over the item and an accurate position determined from the side scan trace. Contact 26 was the only significant contact found within the search area.

K2.1. CONTACT INVESTIGATION REPORT FOR CONTACT 26.

DETERMINATION OF DIVE SITE : The contact was originally identified by side scan sonar and is listed as contacts 26 and 27 on the target abstract. A echosounder line was run directly over the contact and a dive buoy deployed when the wreck was directly beneath the ship as indicated on the DSF6000N.

SEARCH PROCEDURE : Divers LT(jg) Beaver and LT Tuell descended the buoy line and conducted a 20 meter circle search to find the wreck. Upon locating a portion of the wreck, the divers conducted another 20 meter circle search to find the shoalest point of the wreckage. The divers then moved the dive buoy weight to the shoal point.

LEAST DEPTH DATA : After locating the shoalest point of the wreck, the pneumofathometer air line was lowered to the divers via the dive buoy line. The divers held the pneumofathometer orifice over the shoalest point while the dive tenders, AB Jones and CB Mickle, took several readings with the deep pneumofathometer.

The dive was performed on October 14 (JD 288). The three readings from the deep pneumofathometer are as follows :

| | | |
|----------------------|----------------------------------|------------------------------|
| 1) TIME (UTC) : 1415 | RAW LEAST DEPTH READING | (FT) : 26.1 |
| 2) TIME (UTC) : 1415 | RAW LEAST DEPTH READING | (FT) : 26.1 |
| 3) TIME (UTC) : 1415 | <u>RAW LEAST DEPTH READING</u> | <u>(FT) : 26.3</u> |
| | AVERAGE LEAST DEPTH READING | (FT) : 26.2 |
| | <i>Actual</i> / - TIDE CORRECTOR | (FT) : 26.3 - 2.8 |
| | ACTUAL LEAST DEPTH | (FT) : 22.9 23.4 |

GENERAL STATEMENT OF POSITION QUALITY : The wreck was positioned by maneuvering the ship alongside the dive buoy while the buoy was tied off to the shoalest point. The detached position, position 764, was taken when the profile of the wreck appeared on the DSF6000N trace. The fix utilized three LOP's with a maximum residual of 2.5 meters and an ECR value of 5.5 meters. The fix is considered to be of excellent quality.

POSITION OF CONTACT : LAT : 040° 54' 58.930 N E : 110241.1
LONG : 073° 32' 42.345 W N : 18482.2

LORAN CHAIN : 9960 RATES : W-15324.0 X-26848.3
Y-43941.0 Z-60003.6

ITEM DESCRIPTION : The divers found the severely deteriorated remains of a wooden hulled craft. The only significant part of the vessel remaining was the diesel power plant which extended approximately 8 feet off the bottom. There was a large area of decaying wood and metal lying in the vicinity of the engine.

RECOMMENDATIONS : The wreck is currently charted as a submerged wreck, hazardous to surface navigation, on chart 12365, 19th Edition, March, 1984. The wreck found by the divers is the only contact found during the 200% side scan coverage and is located very close to the AWOIS item's reported position. The HECK concludes that the contact found is the AWOIS item in question. *Concur*

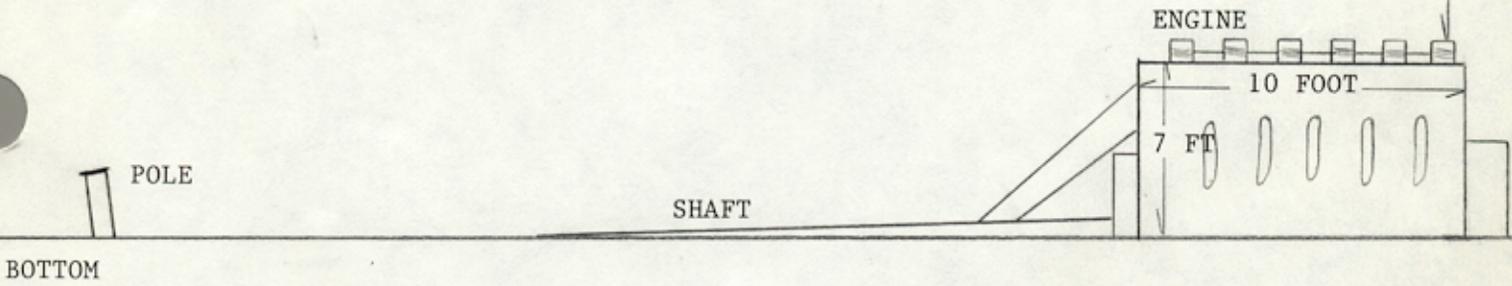
Due to the contacts eight foot height above the surrounding water depths, the wreckage found poses a hazard to surface navigation in the area. The HECK recommends that the current wreck symbol be removed and ~~the symbol for~~ a dangerous ^{submerged} wreck over which the depth of 23 feet is known be placed at the new position. The detached position for the contact is plotted as CSTN 026 on the smooth contact plot for sheet HE-10-5-88. *Concur*
See also section 6.6. of The Evaluation Report.
AWOIS item 4405 is considered resolved.

AWOIS ITEM #4405
CONTACT #26
CSTN NUMBER 026

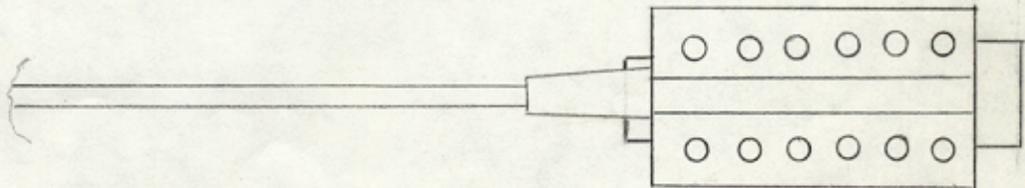
DIVERS : LT TUELL, LTJG BEAVER
METHOD OF SEARCH : 20 METER CIRCLE
LEAST DEPTH DETERMINATION : PNEUMO

SURFACE

LEAST DEPTH = PNEUMO DEPTH 26.2 FT
Actual - TIDE VALUE ~~3.3~~ FT
22.9 FT
23.4



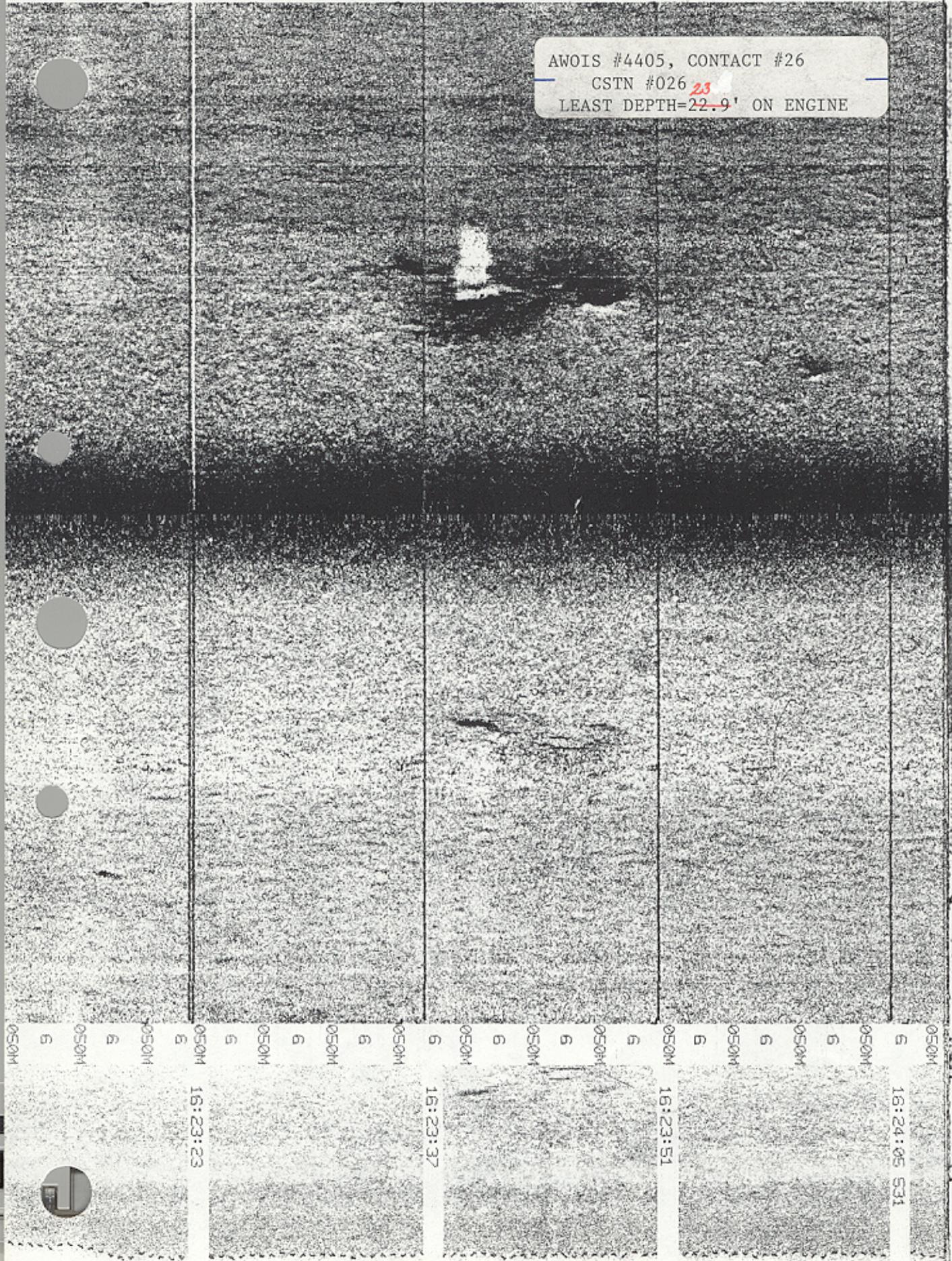
MUD AND SHELL BOTTOM
SURROUNDING WRECK



SIGNIFICANT TARGET

4.9 $\sqrt{\text{U}}$ U *

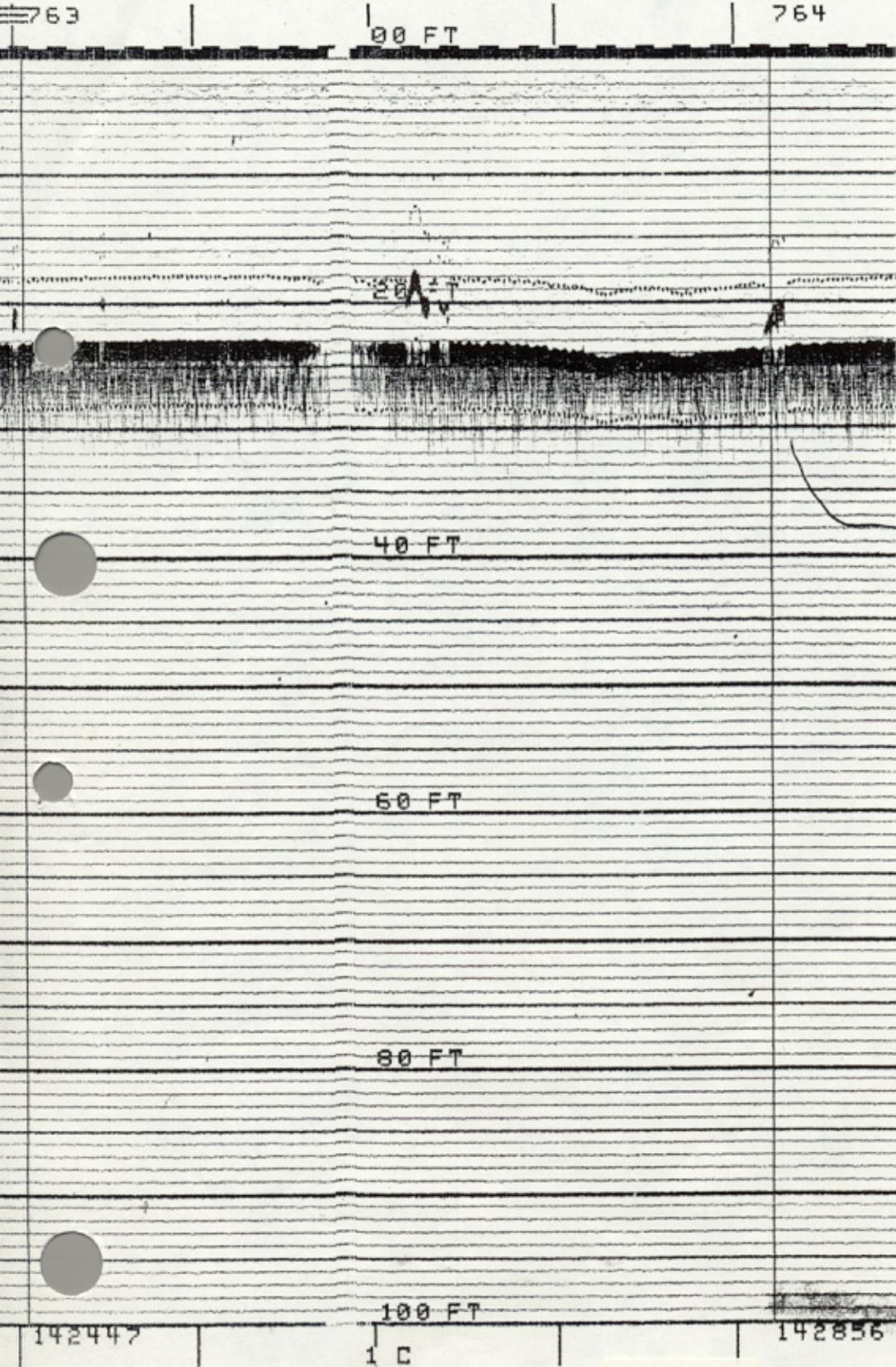
AWOIS #4405, CONTACT #26
CSTN #026 ²³
LEAST DEPTH=~~22.9~~' ON ENGINE



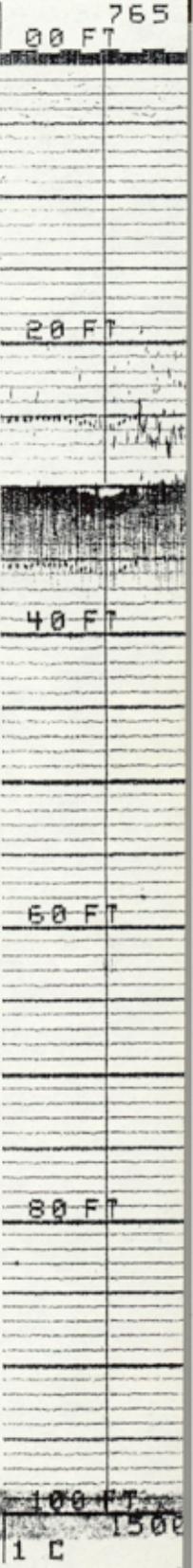
AWOIS #4405, CONTACT #26

CSTN #026 ²³

LEAST DEPTH=22.9' ON ENGINE



DP
X 2 6



ing.....: 110241.1
 No ching.....: 18482.2
 Latitude.....: 040:54:58.930
 Longitude.....: 073:32:42.345

CSTN 026

User 1 Caps Running

HELP Dump Dump
 Alpha Graphics

| | Time | Tide | Corr. | Units | FEET |
|-----|-------|------|-------|-------|------|
| 288 | 13:00 | -1.5 | | | |
| 288 | 13:15 | -1.8 | | | |
| 288 | 13:30 | -2.1 | | | |
| 288 | 13:45 | -2.5 | | | |
| 288 | 14:00 | -2.9 | | | |
| 288 | 14:15 | -3.3 | | | |
| 288 | 14:30 | -3.7 | | | |
| 288 | 14:45 | -4.1 | | | |
| 288 | 15:00 | -4.6 | | | |
| 288 | 15:15 | -5.0 | | | |
| 288 | 15:30 | -5.4 | | | |
| 288 | 15:45 | -5.8 | | | |
| 288 | 16:00 | -6.2 | | | |
| 288 | 16:15 | -6.5 | | | |
| 288 | 16:30 | -6.8 | | | |
| 288 | 16:45 | -7.1 | | | |
| 288 | 17:00 | -7.3 | | | |
| 288 | 17:15 | -7.4 | | | |
| 288 | 17:30 | -7.5 | | | |
| 288 | 17:45 | -7.6 | | | |
| 288 | 18:00 | -7.6 | | | |
| 288 | 18:15 | -7.5 | | | |
| 288 | 18:30 | -7.4 | | | |
| 288 | 18:45 | -7.3 | | | |
| 288 | 19:00 | -7.0 | | | |
| 288 | 19:15 | -6.8 | | | |
| 288 | 19:30 | -6.5 | | | |
| 288 | 19:45 | -6.1 | | | |
| 288 | 20:00 | -5.8 | | | |
| 288 | 20:15 | | | | |

DIVING OPERATIONS

DATE: 14 OCTOBER 1988

UNIT: NOAA SHIP HECK 5591

AWOIS ITEM # 4405

LOCATION: SOUTHERN NEW ENGLAND COAST

CONTACT # 26

DIVE MASTER: LTJG.A.BEAVER

DIVERS : LT.G.TUELL

TENDERS: ST.W.MORRIS - CB, MIDDLE
AB.M.JONES

: LTJG.A.BEAVER

DIVE PLAN: CIRCLE SEARCH AND ITEM INVESTIGATION. MAX.DEPH: 30 FT.
MAX TIME : 37

DEPTH(1) 26.1 (2) 26.1 (3) 26.3 AVRG.LEAST DEPTH: 26.2
TIME 1015

EQUIPMENT USED: OPEN CIRCUIT SCUBA.

CONDITIONS:
WIND : DIR W KTS 15
SEAS : DIR W FT 2-3
CURRENT: KTS 0.3

VISIBILITY: FT. 10
AIR TEMP. : (C) 6.5°
WATER TEMP: (C) 14.0°

| # | DIVERS NAME | SI | GROUP | RNT | IN | | PRES. CHNG | IN | | BOTTOM TIME | DEPTH | GROUP |
|---|-------------|----|-------|-----|------|------|------------|------|------|-------------|-------|-------|
| | | | | | OUT | OUT | | OUT | OUT | | | |
| 1 | TUELL | - | - | - | 2700 | 1000 | 1700 | 0744 | 1021 | 37 | 30' | C |
| 1 | BEAVER | - | - | - | 2750 | 650 | 2100 | 0744 | 1021 | 37 | 30' | C |
| 2 | TUELL | | | | | | | | | | | |
| 2 | BEAVER | | | | | | | | | | | |
| 3 | TUELL | | | | | | | | | | | |
| 3 | BEAVER | | | | | | | | | | | |
| 4 | TUELL | | | | | | | | | | | |
| 4 | BEAVER | | | | | | | | | | | |

POST DIVE COMMENTS: Dive on the remains of an old wooden wreck. We first found a small pole sticking 2-3' out of the bottom. From this point we conducted a 20 m circle search and found the diesel power plant sticking 7-8' off the bottom. LD and DP taken on the diesel.

Andrew L. Beaver LT(jg) / Was
DIVE MASTER SIGNATURE.

K3. INVESTIGATION REPORT FOR AWOIS ITEMS #4412 AND #4413

AWOIS #4412 HISTORY : H5142/31WD--PROJ. NO. 64; OBSTR, (BOULDER) 34FT (CHARTED AS ROCK CLEARED 32FT). SCALED IN LAT 40-59-13.5N, LONG 73-32-32.5W. (ENTERED 3/86 RWD) (NAD27 position)

AWOIS #4413 HISTORY : H5142/31WD--PROJ. NO. 64; OBSTR, (BOULDER) 34FT, SCALED IN LAT 40-59-16.0N, LONG 73-32-34.0W. NOT CHARTED. (ENTERED 3/86 RWD) (NAD 27 position)

SURVEY REQUIREMENTS : Full, verify or disprove through 200% side scan sonar coverage, 75 meter radius, least depth and position required if found.

METHOD OF INVESTIGATION : 200% side scan sonar coverage was accomplished over the required 75 meter radii with the 100 khz frequency. A total of six mainscheme side scan sonar lines were run at headings of 060-240 and 150-330 over both search areas. Diver investigations were conducted on all significant contacts.

RESULTS OF INVESTIGATION : Due to the close proximity of AWOIS items 4412 and 4413, the two items were treated as one. The reported positions for the items in question fell within a rocky shoal area, where, due to the large amount of boulders, the HECK decided that the best way to resolve the items would be to dive on the shoal and conduct an extensive circle search for the shoalest point. Contacts 19 and 20 were plotted in the area but were deemed insignificant compared to the nearby shoal.

K3.1. CONTACT INVESTIGATION REPORT FOR SHOAL.

DETERMINATION OF DIVE SITE : The shoal was originally identified by side scan sonar. Several passes were made over the area with the side scan sonar and DSF6000N echosounder to locate the shoalest point. Upon locating the highest area of the shoal, a dive buoy was deployed.

SEARCH PROCEDURE : Divers LT(jg) Beaver and LT Tuell descended the buoy line and conducted a 40 meter circle search during which they found a slightly shoaler rocky area. After moving the dive buoy weight to the new shoal point, the divers conducted another 20 meter circle search to locate any shoaler points, finding none.

LEAST DEPTH DATA : After locating the shoalest point of the rock outcrop, the pneumofathometer air line was lowered to the divers via the dive buoy line. The divers held the pneumofathometer orifice over the shoalest boulder while the dive tenders, AB Jones and OS Aldridge, took several readings with both the shallow and deep pneumofathometers.

The dive was performed on October 12 (JD 286). The three readings from the shallow pneumofathometer are as follows :

| | | |
|----------------------|---------------------------------|-------------------------|
| 1) TIME (UTC) : 1600 | RAW LEAST DEPTH READING | (FT) : 40.8 |
| 2) TIME (UTC) : 1600 | RAW LEAST DEPTH READING | (FT) : 40.8 |
| 3) TIME (UTC) : 1600 | <u>RAW LEAST DEPTH READING</u> | <u>(FT) : 40.8</u> |
| | AVERAGE LEAST DEPTH READING | (FT) : 40.8 |
| | <u>TIDE CORRECTOR</u> | <u>(FT) : -7.5 -6.8</u> |
| | ACTUAL LEAST DEPTH | (FT) : 33.39 |
| | <i>pneumo Depth Gauge Corr.</i> | <i>-0.1</i> |

GENERAL STATEMENT OF POSITION QUALITY : The least depth on the shoal was positioned by maneuvering the ship alongside the dive buoy while the buoy was resting near the shoalest point. The detached position, position 738, was taken when the profile of the boulder field appeared on the DSF6000N trace. The fix utilized four LOP's with a maximum residual of 4.7 meters and an ECR value of 4.5 meters. The fix is considered to be of excellent quality.

POSITION OF CONTACT : LAT : 040° 59' 13.7⁵~~47~~ N E : 110481.1
LONG : 073° 32' 31.610 W N : 26343.0

LORAN CHAIN : 9960 RATES : W-15316.6 X-26858.5
Y-43979.4 Z-60020.4 (bad rate)

ITEM DESCRIPTION : The divers found a boulder field extending over a large area of the bottom. Several rock outcrops protruded within one foot of the shoalest depth found during the diver's circle searches. The least depth was taken on what was believed to be the highest point of the shoalest boulder field. Several of the nearby boulders came within six inches of the shoalest point.

RECOMMENDATIONS : The boulders are currently charted as rocks cleared to 32 feet on chart 12367, 17th Edition, November, 1986. The rock outcrop identified as the shoalest point found by the divers lies in the immediate area of the two AWOIS item's in question. *AWOIS item #4413 is not currently charted.*

The boulders pose a hazard to surface navigation in the area. The HECK recommends that the ~~two~~ obstructions^{123.6*} charted as AWOIS items 4412 and ~~4413~~ be removed from the chart and ~~the symbol for an obstruction~~ over which the depth of 32⁴ feet is known be placed at the new location. The detached position for the contact is plotted as CSTN 022 on the smooth contact plot for sheet HE-10-3-88. *Concur. See also section 6.6 of the Evaluation Report.*

AWOIS items 4412 and 4413 are considered resolved. *#4413 is not verified
not disproved.*

AWOIS ITEM 4412 AND 4413
CONTACT NUMBERS 19, 20
CSTN NUMBER 022

DIVERS : LT TUELL, LTJG BEAVER
METHOD OF SEARCH : CIRCLE
LEAST DEPTH DETERMINATION : PNEUMO

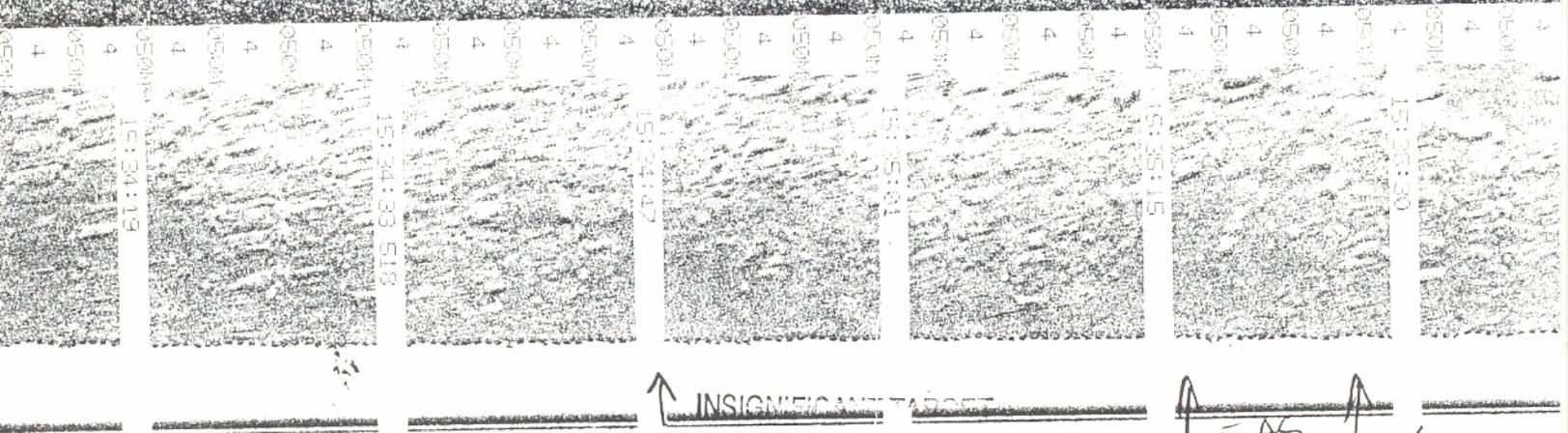
SURFACE

LEAST DEPTH = PNEUMO DEPTH 40.8 FEET
- TIDE VALUE $\frac{-7.5 \text{ FEET}}{33.3 \text{ FEET}}$ $\frac{-6.8}{34.0}$
pneumo Corr. -0.1
Reduced Depth = 33.9

BOULDER FIELD

BOTTOM

AWOIS ITEM #4412, 4413
CONTACT #19, 20, CSTN #022
LEAST DEPTH=~~33.3~~^{33.7}' ON BOULDERS

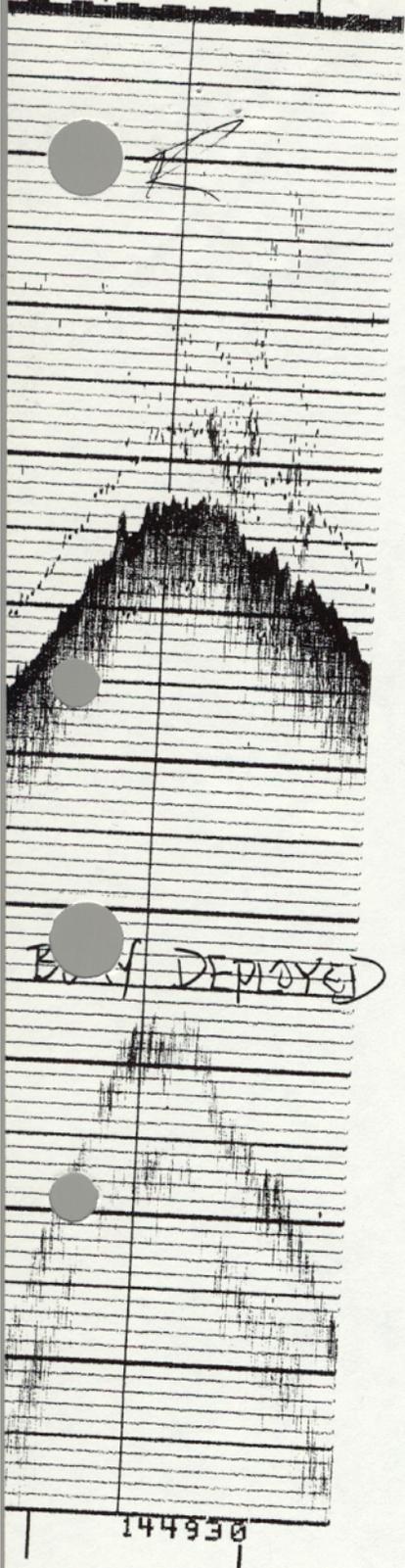


↑ INSIGNIFICANT TARGET

3.7

↑ SAME AS 20 ↑ 10'

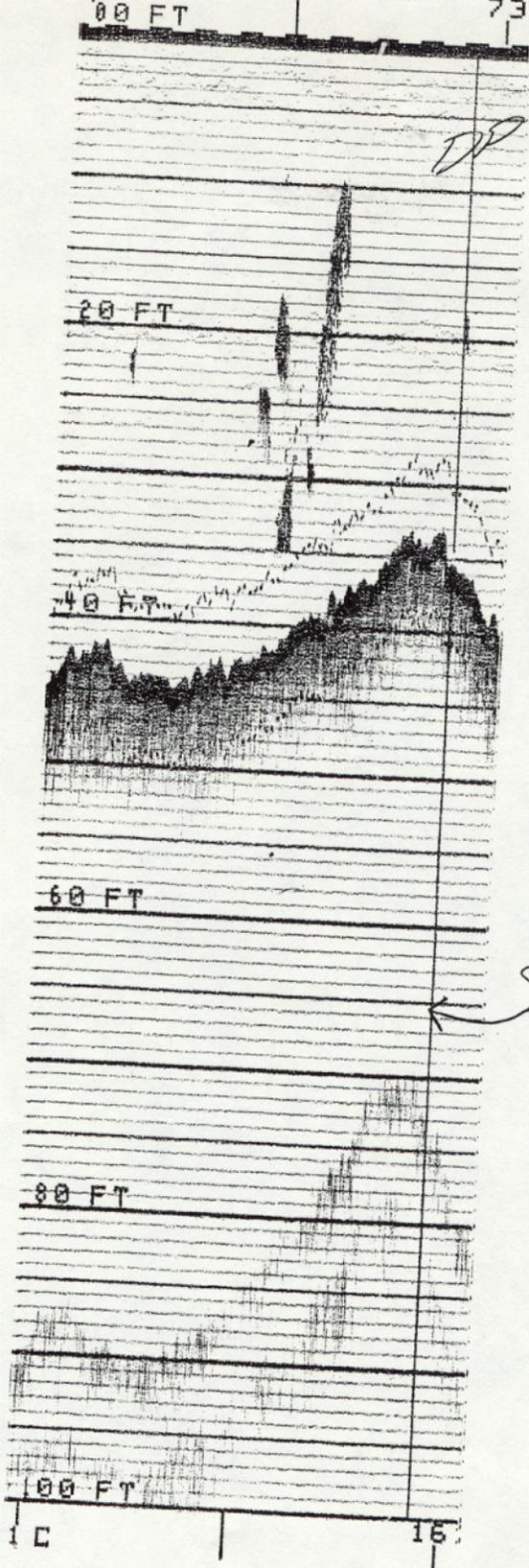
737



144930

00 FT

73



20 FT

40 FT

60 FT

80 FT

100 FT

1 C

16

AWOIS ITEM #4412, 4413
 CONTACT #19, 20, CSTN #022
 LEAST DEPTH=~~33.3~~' ON BOULDERS

34.0

DP
Recon on Target
7023
DP

← *DP*
4412/13

| Day | Time | Tide Corr. | Units | FEET |
|-----|-------|------------|-------|------|
| | 15:00 | -6.5 | | |
| | 15:15 | -6.8 | | |
| 286 | 15:30 | -7.1 | | |
| 286 | 15:45 | -7.3 | | |
| 286 | 16:00 | -7.5 | | |
| 286 | 16:15 | -7.6 | | |
| 286 | 16:30 | -7.7 | | |
| 286 | 16:45 | -7.7 | | |
| 286 | 17:00 | -7.6 | | |
| 286 | 17:15 | -7.5 | | |
| 286 | 17:30 | -7.3 | | |
| 286 | 17:45 | -7.1 | | |
| 286 | 18:00 | -6.8 | | |
| 286 | 18:15 | -6.5 | | |
| 286 | 18:30 | -6.2 | | |
| 286 | 18:45 | -5.8 | | |
| 286 | 19:00 | - | | |

NAVISOFT 300 VER 2.31EX--SURVEY: UTILITIES: MTM -> LAT/LON

13

Oct 01:02:38

Easting.....: 110481.1
 Northing.....: 26343.0
 Latitude.....: 040:59:13.747
 Longitude.....: 073:32:31.610

CSN 022

HELP Dump Dump
 Alpha Graphics

User 1 Caps Running



DIVING OPERATIONS

DATE: 12 OCTOBER 1988

UNIT: NOAA SHIP HECK 5591
AWOIS ITEM # 4412 & 4413

LOCATION: SOUTHERN NEW ENGLAND COAST

DIVE MASTER: LTJG.A.BEAVER
TENDERS: ~~ST.W.MORRIS OS M. ADRIDGE~~
AB.M.JONES

DIVERS : LT.G.TUELL
: LTJG.A.BEAVER

DIVE PLAN: CIRCLE SEARCH AND ITEM INVESTIGATION. MAX.DEPH: 50 FT.

DEPTH(1) 40.8 (2) 40.8 (3) 40.8 MAX TIME : 32
AVRG.LEAST DEPTH: 40.8

@ 1200 LMT 1600Z

EQUIPMENT USED: OPEN CIRCUIT SCUBA.

CONDITIONS:
WIND :DIR NW KTS 15-20
SEAS :DIR NW FT 2-3
CURRENT:KTS 0.5

VISIBILITY:FT. 15
AIR TEMP. : (C) 11°
WATER TEMP: (C) 17°

| # | DIVERS NAME | SI | GROUP | RNT | IN | | PRES. CHNG | IN | | BOTTOM TIME | DEPTH | GROUP |
|---|-------------|----|-------|-----|------|------|------------|------|-----|-------------|-------|-------|
| | | | | | OUT | OUT | | OUT | OUT | | | |
| 1 | TUELL | - | - | - | 0750 | 1130 | 0050 | 1204 | 32 | 50 | F | |
| 1 | BEAVER | - | - | - | 0700 | 1130 | 0050 | 1204 | 32 | 50 | F | |
| 2 | TUELL | | | | | | | | | | | |
| 2 | BEAVER | | | | | | | | | | | |
| 3 | TUELL | | | | | | | | | | | |
| 3 | BEAVER | | | | | | | | | | | |
| 4 | TUELL | | | | | | | | | | | |
| 4 | BEAVER | | | | | | | | | | | |

POST DIVE COMMENTS: Dive on boulder field. Conducted a 40 meter circle search until we found another rocky area which was slightly shallower. We then moved the buoy & weight to the highest point there and conducted another 20 meter circle search. No further high points were found. Least depth taken on large boulder.

Andrew L. Beaver
DIVE MASTER SIGNATURE.

K4. INVESTIGATION REPORT FOR AWOIS ITEM #4414

AWOIS HISTORY : H5142/31WD--PROJ. NO. 64; OBSTR (HARD) 23FT, (CHARTED AS CLEARED 21FT). SCALED IN LAT 40-59-23.3N, LONG 73-34-47.0W. (NAD27 position)

H5402A/33--PROJ. NO. 134; NOT INVESTIGATED, CARRIED FORWARD IN GENERAL DEPTHS OF 35-36FT. (ENTERED 3/86 RWD)

SURVEY REQUIREMENTS : Full, verify or disprove through 400% side scan sonar coverage, 100 meter radius, least depth and position required if found.

METHOD OF INVESTIGATION : 400% side scan sonar coverage was accomplished with the 100 khz frequency over the required 100 meter radius. A total of nine mainscheme side scan sonar lines were run at a headings of 060-240 and 150-330 over the entire search area.

RESULTS OF INVESTIGATION : Only one contact was found during the 400% coverage of the required search area. Contact 6 was found during the first 100% coverage and identified on each successive 100% coverage. Since no other contacts were found in the area, contact 6 is believed to be the item in question. After close examination of the contact, which can be seen on the side scan records from fix 158 through 195 on September 22 (JD 266), the contact was deemed insignificant due to the lack of a shadow. Although the contact appears to be wreckage or an obstruction, the lack of a shadow coupled with the depth of the surrounding bottom make the contact unworthy of further investigation. No evidence of a 21 foot shoal or obstruction was found.

RECOMMENDATIONS : The item in question is currently charted as an ^{dangerous} obstruction cleared to 21 feet on chart 12367, 17th Edition, November, 1986. Since no significant contacts were found in the area, the HECK recommends that the obstruction be removed from the chart. Members of the Greenwich Marine Police advised the HECK that the charted 21 foot obstruction was in error. *Concur.*

AWOIS item 4414 is considered disproved. *Remove from the chart.*

12367 H
12369 H
12364 E
12365 H

12368 H
12367 H

K5. INVESTIGATION REPORT FOR AWOIS ITEM #4452

AWOIS HISTORY : CL1095/86--PRIV. DIVER; BARGE, SCOW TYPE, 20FT OFF BOTTOM, 180FT LONG, REP. IN LAT 40-58-38N, LONG 073-34-03W. (NAD 27 position)
LORAN-C RATE PROVIDED 9960-X-26872.2, Y-43976.5. VESSEL IS INTACT AND SURROUNDING AREA HAS SCOURED TO 85FT; FOR FURTHER INFORMATION, CONTACT MR. LADA SIMEK, 57 SOUTH HIGHLAND AVE., OSSINING, N.Y. 10562, TEL. 914-941-0610. (ENTERED 10/86 RWD)

SURVEY REQUIREMENTS : Full, verify or disprove through 200% side scan sonar coverage, 700 meter radius, least depth and position required if found, salvage documentation acceptable as disapproval.

METHOD OF INVESTIGATION : 100% side scan sonar coverage was accomplished with the 100 khz frequency over the required 700 meter radius. A total of eleven mainscheme side scan sonar lines were run at a heading of 060-240 over the entire search area. Diver investigations were conducted on all significant contacts.

RESULTS OF INVESTIGATION : The AWOIS item in question was located during the initial 100% coverage. Several development side scan sonar lines were run past the item and an accurate position determined from the side scan trace. Contact 2 was the only significant contact found within the search area. Other contacts found in the area but deemed insignificant are listed as contacts 4 and 5 on the target abstract.

K5.1. CONTACT INVESTIGATION REPORT FOR CONTACT 2.

DETERMINATION OF DIVE SITE : The contact was originally identified by side scan sonar. The contact was identified twice and is listed as contacts 2 and 3 on the target abstract. An echosounder line was run directly over the contact and a dive buoy deployed when the wreck was directly beneath the ship as indicated on the DSF6000N.

SEARCH PROCEDURE : Divers LT(jg) Beaver and LT Tuell descended the buoy line and conducted a 20 meter circle search to locate the wreck. The divers then conducted a thorough search of the contact for the shoalest point. Upon locating the shoal point, the dive buoy weight was moved to that point.

LEAST DEPTH DATA : After locating the shoalest point of the wreck, the pneumofathometer air line was lowered to the divers via the dive buoy line. The divers held the pneumofathometer orifice over the shoalest point while the dive tenders, ST Morris and CB Mickle, took several readings with both the shallow and deep pneumofathometers.

The dive was performed on September 22 (JD 266). The three readings from the shallow pneumofathometer are as follows :

| | | |
|----------------------|---------------------------------------|------------------------------------|
| 1) TIME (UTC) : 1903 | RAW LEAST DEPTH READING | (FT) : 61.8 |
| 2) TIME (UTC) : 1903 | RAW LEAST DEPTH READING | (FT) : 61.8 |
| 3) TIME (UTC) : 1903 | <u>RAW LEAST DEPTH READING</u> | <u>(FT) : 61.8</u> |
| | AVERAGE LEAST DEPTH READING | (FT) : 61.8 |
| | <i>Actual</i> - <u>TIDE CORRECTOR</u> | <u>(FT) : -0.4</u> |
| | ACTUAL LEAST DEPTH | (FT) : 61.4 <i>60.9</i> |
| | <i>Pneumo Depth Gauge Corr.</i> | <i>- 0.5</i> |

GENERAL STATEMENT OF POSITION QUALITY : The wreck was positioned by maneuvering the ship alongside the dive buoy while the buoy was tied off to the shoalest point. The detached position, position 240, was taken when the profile of the wreck appeared on the DSF6000N trace. The fix utilized four LOP's with a maximum residual of 1.1 meters and an ECR value of 2.8 meters. The fix is considered to be of excellent quality.

POSITION OF CONTACT : LAT : 040° 58' 34.1⁷~~69~~ N E : 107908.5
LONG : 073° 34' 21.72~~4~~ W N : 25118.9

LORAN CHAIN : 9960 RATES : W-15329.2 X-26872.1
Y-43976.4 Z-60016.4 (bad rate)

ITEM DESCRIPTION : The divers found a large scow type barge approximately 180 feet long by 30 feet wide. The wreck was sitting in a large scour and extended 15 to 20 feet above the immediate bottom. The vessel was still very much intact and sitting upright on the bottom. The highest point on the barge was a item of debris protruding above the deck of the wreck.

RECOMMENDATIONS : The wreck is currently charted as a submerged wreck, not hazardous to surface navigation, on chart 12367, 17th Edition, November, 1986. The wreck found by the divers fits the description of the AWOIS item in question. Although the barge is a large distance from the reported position, the wreck is deemed to be AWOIS 4452. *The wreck is not charted.*

This barge poses no hazard to surface navigation. The HECK recommends that ~~the current wreck symbol be removed and the symbol for a submerged wreck,*~~ ^{submerged} not dangerous to surface navigation, be placed at the new position. The detached position for the contact is plotted as CSTN 020 on the smooth contact plot for sheet HE-10-3-88. *See section 7.a.1) of the Evaluation Report.*

AWOIS item 4452 is considered resolved.

* with a least depth of 61 feet (61wk)

AWOIS ITEM #4452
CONTACTS 2, 3
CSTN NUMBER 020

DIVERS : LT TUELL, LT(jg) BEAVER
METHOD OF SEARCH : CIRCLE
LEAST DEPTH DETERMINATION : PNEUMO

SURFACE

LEAST DEPTH = PNEUMO DEPTH 61.8 FT
- TIDE VALUE -0.4 FT
61.4 FT

Pneumo Depth -0.5
Reduced Depth 60.9 ft

15+ FEET

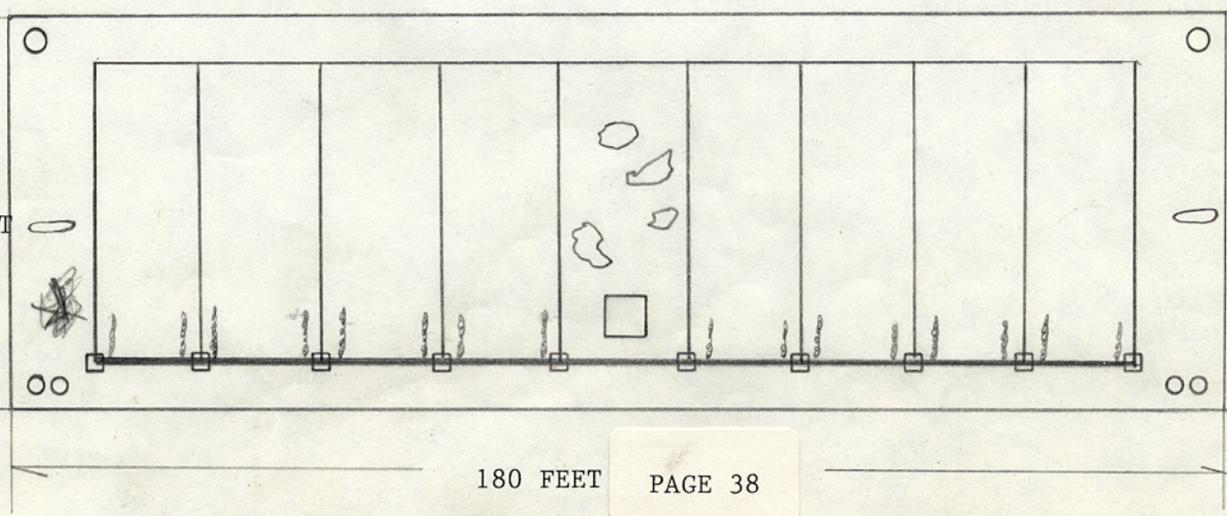
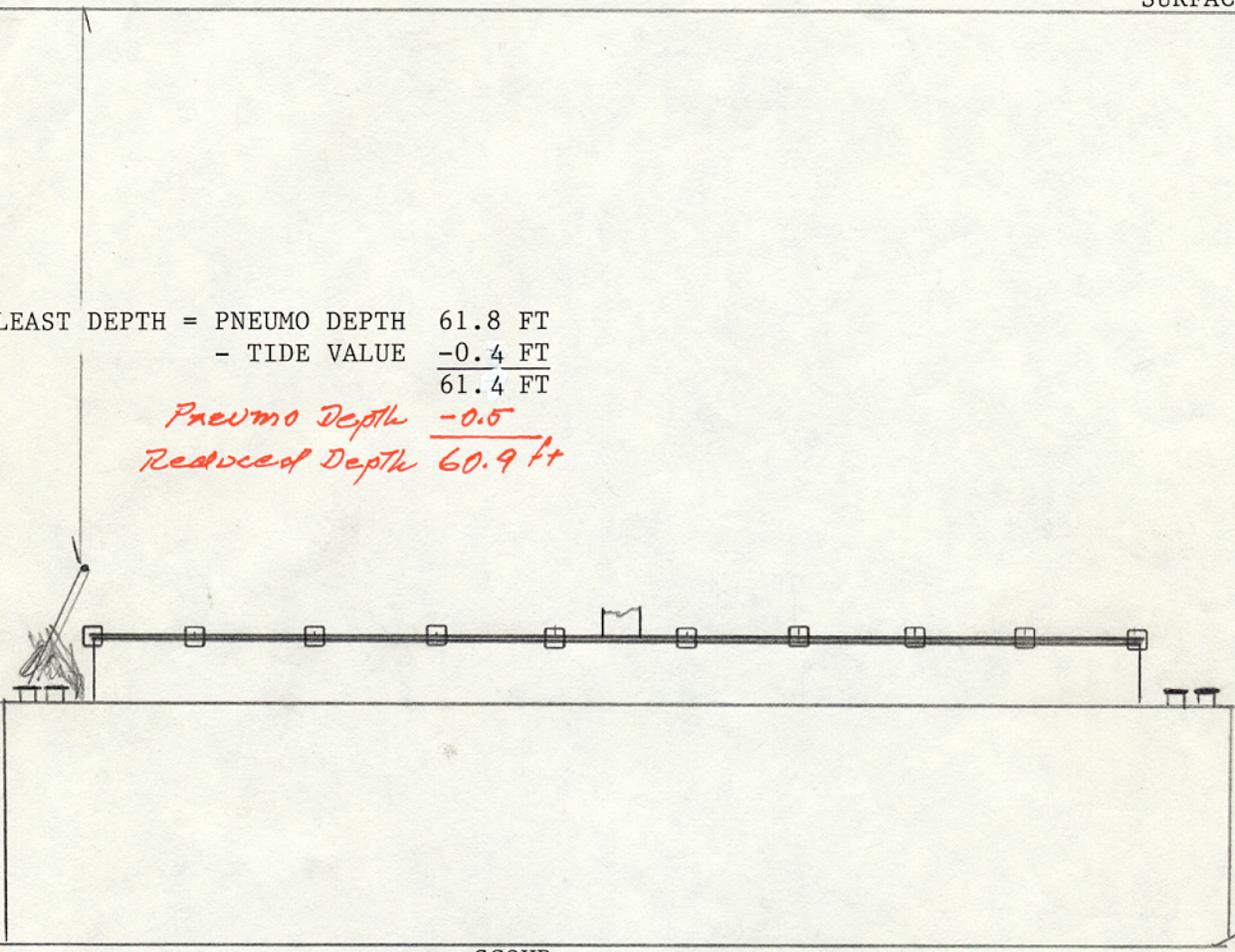
BOTTOM

SCOUR

30 FEET

180 FEET

PAGE 38



AWOIS #4452, CONTACTS #2 AND #3
CSTN #020
LEAST DEPTH = 61.3 FEET ON BARGE

CONFIDENCE
CHECK

SIGNIFICANT TARGET
SAME AS (2)

2 H
132204

00 FT | 00 FT | 00 FT 240

AWOIS #4452, CONTACTS #2 AND #3
CSTN #020
LEAST DEPTH=61.3⁰ FT ON BARGE

20 FT | 20 FT | 20 FT

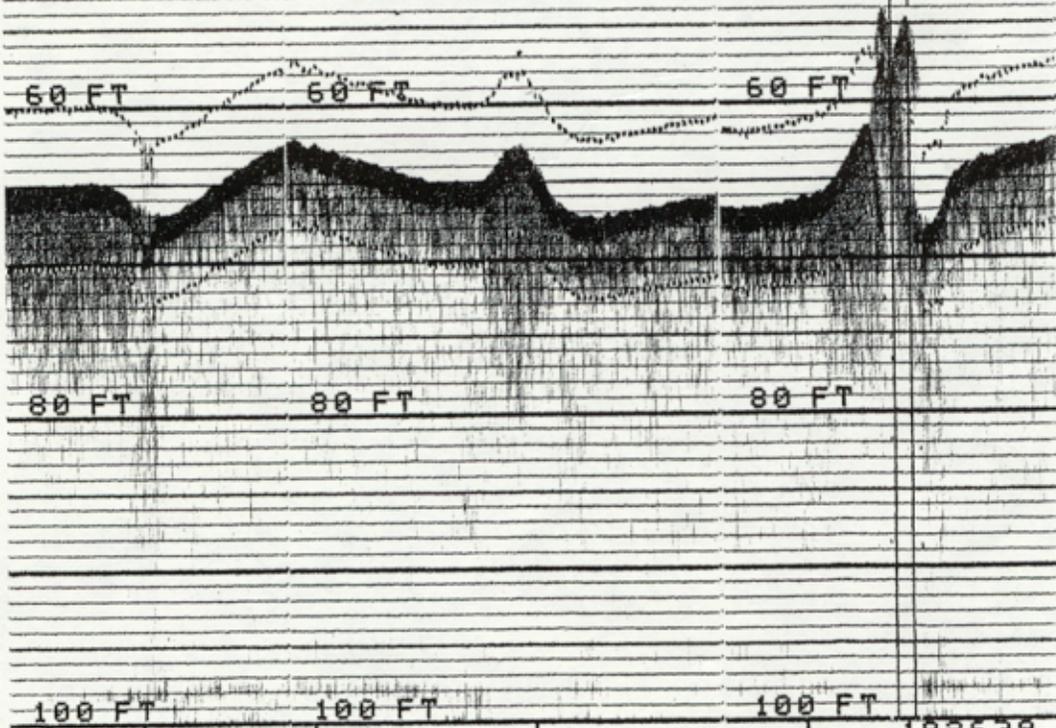
DP 12.3 R
CONTACTS
AWOIS 4452

40 FT | 40 FT | 40 FT

60 FT | 60 FT | 60 FT

80 FT | 80 FT | 80 FT

100 FT | 100 FT | 100 FT
113 | 1 C | 1 C | 1 C | 192639



ing.....: 107908.5
 Northing.....: 25118.9
 Latitude.....: 040:58:34.169
 Longitude.....: 073:34:21.724

CSTN 020

HELP Dump Dump User 1 Caps Running
 Alpha Graphics

| Day | Time | Tide | Corr. | Units | FEET |
|-----|-------|----------------|-------|-------|------|
| 266 | 17:00 | -1.8 | | | |
| 266 | 17:05 | -1.7 | | | |
| 266 | 17:10 | -1.6 | | | |
| 266 | 17:15 | -1.4 | | | |
| 266 | 17:20 | -1.3 | | | |
| | 17:25 | -1.3 | | | |
| 266 | 17:30 | -1.2 | | | |
| 266 | 17:35 | -1.1 | | | |
| 266 | 17:40 | -1.0 | | | |
| 266 | 17:45 | -.9 | | | |
| 266 | 17:50 | -.8 | | | |
| 266 | 17:55 | -.8 | | | |
| 266 | 18:00 | -.7 | | | |
| 266 | 18:05 | -.7 | | | |
| 266 | 18:10 | -.6 | | | |
| 266 | 18:15 | -.6 | | | |
| 266 | 18:20 | -.5 | | | |
| 266 | 18:25 | -.5 | | | |
| 266 | 18:30 | -.5 | | | |
| 266 | 18:35 | -.4 | | | |
| 266 | 18:40 | -.4 | | | |
| 266 | 18:45 | -.4 | | | |
| 266 | 18:50 | -.4 | | | |
| 266 | 18:55 | -.4 | | | |
| 266 | 19:00 | -.4 | | | |
| 266 | 19:05 | -.4 | | | |
| 266 | 19:10 | -.4 | | | |
| 266 | 19:15 | -.5 | | | |
| 266 | 19:20 | -.5 | | | |
| 266 | 19:25 | -.5 | | | |
| 266 | 19:30 | -.6 | | | |

DIVING OPERATIONS

DATE: SEPT 22 1988

UNIT: NOAA SHIP HECK 9591

AWOIS ITEM # 4452

LOCATION: SOUTHERN NEW ENGLAND COAST

TARGET# 263

VE MASTER: LTJG.A.BEAVER
 TENDERS: ST.W.MORRIS
 CBAB.H.JONES MICKLE

DIVERS : LT.G.TUELL
 : LTJG.A.BEAVER

DIVE PLAN: CIRCLE SEARCH AND ITEM INVESTIGATION. MAX.DEPH: 71 FT.
 MAX TIME : 25 MIN (48)
 DEPTH(1) 61.8 (2) 61.8 (3) 61.8 AVRG.LEAST DEPTH: 61.8
 LEAST DEPTH TIME: 15:03 UNT

EQUIPMENT USED: OPEN CIRCUIT SCUBA.

CONDITIONS:

WIND : DIR WNW KTS 10
 SEAS : DIR W FT 1-2'
 CURRENT: KTS 0.165 10.5 kts

VISIBILITY: FT. 67 110 FT.
 AIR TEMP. : (C) 19.1
 WATER TEMP: (C) 20.8

ALL TIMES: (LOCAL)

| # | DIVERS NAME | SI | GROUP | RNT | IN | | PRES. CHNG | IN | | BOTTOM TIME | DEPTH | GROUP |
|---|-------------|------|-------|-----|------|-----|------------|-------|-------|-------------|-------|-------|
| | | | | | OUT | OUT | | OUT | OUT | | | |
| 1 | TUELL | - | - | - | 2650 | 400 | 2250 | 9:38 | 10:01 | 23 | 96 | H |
| 1 | BEAVER | - | - | - | 2650 | 400 | 2250 | 9:38 | 10:01 | 23 | 94 | H |
| | TUELL | 4:38 | C | 13 | 2500 | 550 | 1950 | 14:39 | 15:05 | 25 | 71 | I |
| | BEAVER | 4:38 | C | 13 | 3000 | 700 | 2300 | 14:39 | 15:05 | 25 | 71 | I |
| 3 | TUELL | | | | | | | | | | | |
| 3 | BEAVER | | | | | | | | | | | |
| 4 | TUELL | | | | | | | | | | | |
| 4 | BEAVER | | | | | | | | | | | |

POST DIVE COMMENTS:

Least depth taken on ≈ 30' x 200' barge.

Andrew L. Beaver
 DIVE MASTER SIGNATURE.

K6. INVESTIGATION REPORT FOR AWOIS ITEM #4453

AWOIS HISTORY : CL1095/86--PRIV. DIVER; SCHOONER, LORAN-C RATES PROVIDED AND CONVERTED, 9960 X-26856.4, Y-43979.2, LAT 40-59-18N, LONG 73-31-57W; FOR FURTHER INFORMATION CONTACT MR. LADA SIMEK, 57 S. HIGHLAND AVE., OSSINING, N.Y. 10562, TEL. 914-941-0610. (ENTERED 10/86 RWD) (NAD 27 position)

SURVEY REQUIREMENTS : Full, verify or disprove through 200% side scan sonar coverage, 700 meter radius, least depth and position required if found, salvage documentation acceptable as disapproval.

METHOD OF INVESTIGATION : 100% side scan sonar coverage was accomplished with the 100 khz frequency over the required 700 meter radius. A total of nine mainscheme side scan sonar lines were run at a heading of 060-240 over the entire search area. Diver investigations were conducted on all significant contacts.

RESULTS OF INVESTIGATION : The AWOIS item was located during the initial 100% coverage. Several development side scan sonar lines were run past the item and an accurate position determined from the side scan trace. Contact 8 appeared to be the remains of a severely deteriorated wreck that lay within the search radius for AWOIS 4453 but outside the search area of the other nearby items. Other contacts found in the area but deemed insignificant are listed as contacts 9, 11, 12, 28, and 29 on the target abstract.

K6.1. CONTACT INVESTIGATION REPORT FOR CONTACT 8.

DETERMINATION OF DIVE SITE : The contact was originally identified by side scan sonar. The contact was located twice and is listed as contacts 8 and 24. An echosounder line was run directly over the contact and a dive buoy deployed when the wreck was directly beneath the ship as indicated on the DSF6000N.

SEARCH PROCEDURE : Divers LT(jg) Beaver and LT Tuell descended the buoy line and conducted a 15 meter circle search to find the wreck. Upon locating the wreck, the divers moved the dive buoy weight to the highest point found and conducted another circle search to locate any shoaler points. No higher points were discovered although several other pieces of the wreck protruded to nearly the same depth as the shoalest point.

LEAST DEPTH DATA : After locating the shoalest point of the wreck, the pneumofathometer air line was lowered to the divers via the dive buoy line. The divers held the pneumofathometer orifice over the shoalest point while the dive tenders, ST Morris and OS Aldridge, took several readings with both the shallow and deep pneumofathometers.

The dive was performed on September 30 (JD 274). The three readings from the shallow pneumofathometer are as follows :

| | | |
|----------------------|---------------------------------|--------------------------|
| 1) TIME (UTC) : 1320 | RAW LEAST DEPTH READING | (FT) : 45.8 |
| 2) TIME (UTC) : 1320 | RAW LEAST DEPTH READING | (FT) : 45.8 |
| 3) TIME (UTC) : 1320 | <u>RAW LEAST DEPTH READING</u> | <u>(FT) : 45.8</u> |
| | AVERAGE LEAST DEPTH READING | (FT) : 45.8 |
| | <u>ACTUAL - TIDE CORRECTOR</u> | <u>(FT) : -0.1 - 0.4</u> |
| | ACTUAL LEAST DEPTH | (FT) : 45.84 |
| | <u>PNEUMO DEPTH GAUGE CORR.</u> | <u>- 0.2</u> |

GENERAL STATEMENT OF POSITION QUALITY : The wreck was positioned by maneuvering the ship alongside the dive buoy while the buoy was tied off to the shoalest point. The detached position, position 483, was taken when the profile of the wreck appeared on the DSF6000N trace. The fix utilized four LOP's with a maximum residual of 3.1 meters and an ECR value of 4.6 meters. The fix is considered to be of excellent quality.

POSITION OF CONTACT : LAT : 040° 59' 10.⁷~~067~~ N E : 110848.5
LONG : 073° 32' 15.⁹⁰~~899~~ W N : 26230.0

LORAN CHAIN : 9960 RATES : W-15315.1 X-26856.2
Y-43978.6 Z-60020.5 (bad rate)

ITEM DESCRIPTION : The divers found the remains of a large wooden vessel. The wreckage was so severely deteriorated that a length and width could not easily be determined. Approximate dimensions were 80 feet long by 20 feet wide. The wreckage consisted of several large wooden ribs surrounded by remains of the vessels outer hull and interior compartments. There appeared to be several booms and masts lying about the wreck in a disorganized fashion, probably remnants of the vessels rigging. The least depth was taken on one of these pieces of rigging.

RECOMMENDATIONS : ~~The wreck is currently charted as a submerged wreck not hazardous to surface navigation on chart 12365, 19th Edition, March, 1984.~~ The wreck found by the divers fits the description of the AWOIS item in question with the LORAN coordinates obtained with the detached position closely matching the coordinates used to chart the wreck. *The wreck is NOT presently charted.*

The wreck poses less of a hazard to surface navigation than the nearby shoal. The HECK recommends that the current wreck symbol, not dangerous to surface navigation, be retained and that the wreck be annotated with the least depth of 46⁵ feet. The detached position for the contact is plotted as CSTN 023 on the smooth contact plot for sheet HE-10-3-88. *See section 7.2.2) of the Evaluation Report.*

AWOIS item 4453 is considered resolved.

AWOIS ITEM #4453
CONTACT 8
CSTN NUMBER 023

DIVERS : LT TUELL, LTJG BEAVER
METHOD OF SEARCH : CIRCLE
LEAST DEPTH DETERMINATION : PNEUMO

SURFACE

LEAST DEPTH = PNEUMO DEPTH 45.8 FEET
- TIDE VALUE -0.14 FEET
45.74 FEET
pneumo Corr -0.2
45.2

RIBS

POLE

WRECKAGE

APPROX 20'

APPROX 80'

00 FT | 00 FT | 00 FT | 483

AWOIS ITEM #4453, CONTACT #8
CSTN #023
LEAST DEPTH=45.8' ON SCHOONER

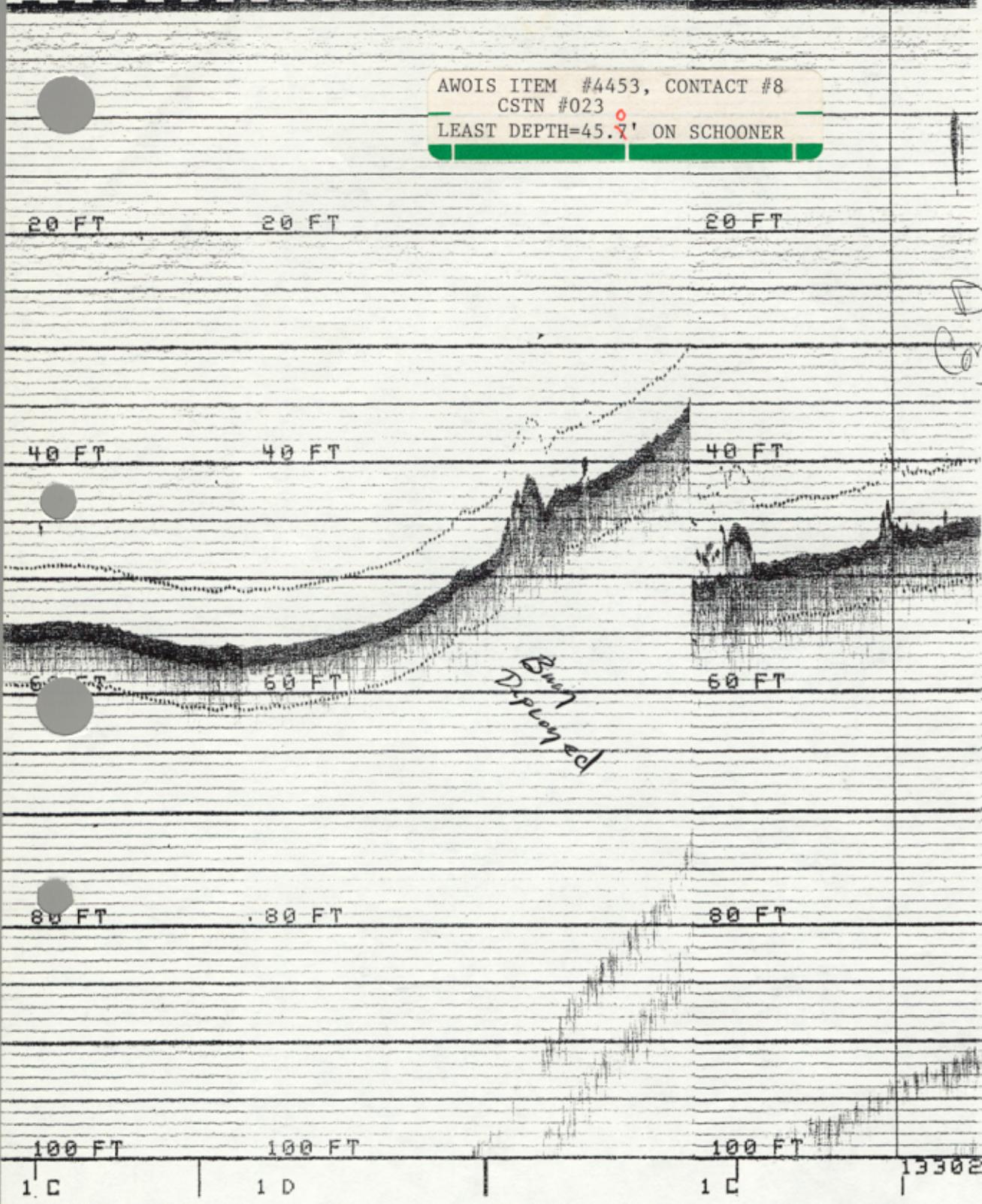
20 FT | 20 FT | 20 FT

40 FT | 40 FT | 40 FT

60 FT | 60 FT | 60 FT

80 FT | 80 FT | 80 FT

100 FT | 100 FT | 100 FT | 13302
1 C | 1 D | 1 C



DP
Contact
#8

Beam
Displayed

ing.....: 110848.5
 N. ching.....: 26230.0

Latitude.....: 040:59:10.067
 Longitude.....: 073:32:15.899

CSTN 023

HELP Dump Dump User 1 Caps Running

 Alpha Graphics

| | Time | Tide | Corr. | Units | FEET |
|-----|-------|------|-------|-------|------|
| 274 | 12:00 | -.7 | | | |
| 274 | 12:10 | -.6 | | | |
| 274 | 12:20 | -.4 | | | |
| 274 | 12:30 | -.3 | | | |
| 274 | 12:40 | -.2 | | | |
| 274 | 12:50 | -.2 | | | |
| 274 | 13:00 | -.1 | | | |
| 274 | 13:10 | -.1 | | | |
| 274 | 13:20 | -.1 | | | |
| 274 | 13:30 | -.1 | | | |
| 274 | 13:40 | -.2 | | | |
| 274 | 13:50 | -.3 | | | |
| 274 | 14:00 | -.4 | | | |
| 274 | 14:10 | -.6 | | | |
| 274 | 14:20 | -.7 | | | |
| 274 | 14:30 | -.9 | | | |
| 274 | 14:40 | -1.1 | | | |
| 274 | 14:50 | -1.3 | | | |
| 274 | 15:00 | -1.6 | | | |
| 274 | 15:10 | -1.9 | | | |
| 274 | 15:20 | -2.1 | | | |
| 274 | 15:30 | -2.4 | | | |
| 274 | 15:40 | -2.7 | | | |
| 274 | 15:50 | -3.0 | | | |
| 274 | 16:00 | | | | |

DIVING OPERATIONS

DATE: SEPT 30 1988

UNIT: NOAA SHIP HECK 5591

LOCATION: SOUTHERN NEW ENGLAND COAST

AWOIS ITEM # 6016 4453

TARGET # 8

DIVE MASTER: LTJG.A.BEAVER

DIVERS : LT.G.TUELL

TENDERS: ST.W.MORRIS

: LTJG.A.BEAVER

AB.M.JONES

OS M.ALDRIE

DIVE PLAN: CIRCLE SEARCH AND ITEM INVESTIGATION.

MAX.DEPH: 60 FT.

MAX TIME : 27

DEPTH(1) 45.8 (2) 45.8 (3) 45.8

AVRG.LEAST DEPTH: 45.8

TIME: 0920 LIGHT

EQUIPMENT USED: OPEN CIRCUIT SCUBA.

CONDITIONS:

WIND : DIR NW KTS 15

VISIBILITY: FT. 5 ft.

SEAS : DIR NW FT 2'

AIR TEMP. : (C) 16.5

CURRENT: KTS 0 KTS

WATER TEMP: (C) 20.5

| # | DIVERS NAME | SI | GROUP | RNT | IN | | PRES. CHNG | IN | | BOTTOM TIME | DEPTH | GROUP |
|---|-------------|----|-------|-----|------|------|------------|-------|------|-------------|-------|-------|
| | | | | | OUT | OUT | | OUT | OUT | | | |
| 1 | TUELL | | | | 2500 | 1800 | 1800 | 08:57 | 9:24 | 27 | 60. | |
| 1 | BEAVER | | | | 2800 | 2000 | 2000 | 08:57 | 9:24 | 27 | 60 | |
| 2 | TUELL | | | | | | | | | | | |
| 2 | BEAVER | | | | | | | | | | | |
| 3 | TUELL | | | | | | | | | | | |
| 3 | BEAVER | | | | | | | | | | | |
| 4 | TUELL | | | | | | | | | | | |
| 4 | BEAVER | | | | | | | | | | | |

POST DIVE COMMENTS:

dove on remains of old wooden schooner boat, several parts protruded to 50', with LD taken on one of these.

Andrew L. Beaver
DIVE MASTER SIGNATURE.

K7. INVESTIGATION REPORT FOR AWOIS ITEM #6716

AWOIS HISTORY : CL426/27--WRECK OF PILE DRIVER SUNK 410 YDS. 126 DEGS. FORM BUOY 17. WRECK WILL BE REMOVED. POS. SCALED FROM CHART 12365 (1:20,000) IN APPROX. POS. LAT 40-55-51.0N, LONG 73-31-31.0W. (NAD 27 position)

NM33/27--PUBLISHES ABOVE INFO.

H5142WD/31--CLEARED TO 17FT. HYDROGRAPHER MADE NO RECOMMENDATION. REVIEWER RECOMMENDED REMOVING WRECK FROM CHART. (ENT 5/88 SJV)

SURVEY REQUIREMENTS : Full, verify or disprove through 200% side scan sonar coverage, 500 meter radius, least depth and position required if found, salvage documentation acceptable as disapproval.

METHOD OF INVESTIGATION : 200% side scan sonar coverage was accomplished with the 100 khz frequency over the portion of the 500 meter search area considered to be safe for the ship's navigation. No lines were run inside a line running from buoy 17 to the seven foot obstruction charted in the southeast quadrant of the search area. The Commanding Officer considered running lines inside the green buoy to be hazardous to the safe navigation of the ship. A total of 16 mainscheme lines were run parallel to the 20 foot shoal to obtain 200% coverage of the area. Diver investigations were conducted on all significant contacts.

RESULTS OF INVESTIGATION : While conducting the search, the ship discovered a large number of boulders within the search area. Several of the larger boulders lying north of the red sector of Cold Spring Harbor Light were closely examined and determined to be minor hazards to navigation in the area. Diver investigations and detached positions were conducted on six of the most significant contacts. Investigation reports for each of these contacts follow. Wreckage found by divers investigating side scan sonar contact number 34 is believed to be the remains of AWOIS Item 6716. Other contacts found in the area but deemed insignificant are listed as contacts 31, 32, and 33 on the target abstract.

K7.1. CONTACT INVESTIGATION REPORT FOR CONTACT 30.

DETERMINATION OF DIVE SITE : The contact was originally identified by side scan sonar and is listed as contact 30 on the target abstract. An echosounder line was run directly over the contact and a dive buoy deployed when the target appeared on the DSF6000N trace.

SEARCH PROCEDURE : Divers LT(jg) Beaver and LT Tuell descended the buoy line and conducted a 20 meter circle search to find the wreck, a small wooden skiff. In the same area as the wreck, the divers also found a very large boulder. The divers then moved the buoy weight to the boulder.

LEAST DEPTH DATA : After locating the shoalest point of the rock, the pneumofathometer air line was lowered to the divers via the dive buoy line. The divers held the pneumofathometer orifice over the shoalest point while the dive tenders, ST Morris and CB Mickle, took several readings with the deep pneumofathometer.

The dive was performed on October 18 (JD 292). The three readings from the deep pneumofathometer are as follows :

| | | |
|----------------------|--------------------------------|----------------------------------|
| 1) TIME (UTC) : 1354 | RAW LEAST DEPTH READING | (FT) : 17.2 |
| 2) TIME (UTC) : 1354 | RAW LEAST DEPTH READING | (FT) : 17.2 |
| 3) TIME (UTC) : 1354 | <u>RAW LEAST DEPTH READING</u> | <u>(FT) : 17.2</u> |
| | AVERAGE LEAST DEPTH READING | (FT) : 17.2 |
| | <u>ACTUAL TIDE CORRECTOR</u> | <u>(FT) : 1.9-2.0</u> |
| | ACTUAL LEAST DEPTH | (FT) : 15.22 |

GENERAL STATEMENT OF POSITION QUALITY : The boulder was positioned by maneuvering the ship alongside the dive buoy while the buoy was resting on the shoalest point of the rock. The detached position, position 791, was taken when the profile of the rock appeared on the DSF6000N trace. The fix utilized two LOP's with a maximum residual of 0.0 meters and an ECR value of 6.9 meters. Although only two LOP's were used, the fix is still considered of adequate quality for charting based on the geometry of the stations used and the low ECR value.

POSITION OF CONTACT : LAT : 040^o 55' 50.49~~7~~ N E : 111845.4
LONG : 073^o 31' 33.6~~76~~ W N : 20075.1
8

LORAN CHAIN : 9960 RATES : W-15315.6 X-26841.2
Y-43947.3 Z-60008.3(bad rate)

ITEM DESCRIPTION : The divers found the remains of a small wooden skiff in close proximity to a large boulder. The skiff was deemed insignificant compared to the nearby boulder. The boulder rises approximately 8 to 10 feet off the bottom and is covered with silt and marine growth. A least depth was taken on the shoalest point of the boulder.

RECOMMENDATIONS : The boulder is not currently charted and lies very close to the reported position of the AWOIS item in question. Chart 12365, 19th Edition, March, 1984 is the largest scale chart of the area.

The large rock poses a definite hazard to surface navigation in the area, particularly any vessel attempting to transit close to buoy "17". The HECK therefore recommends that the rock be charted as a dangerous submerged rock with a known depth of 15 feet. The detached position for the contact is plotted as CSTN 031 on the smooth contact plot for sheet HE-10-5-88. (15 Rk) *Concur*

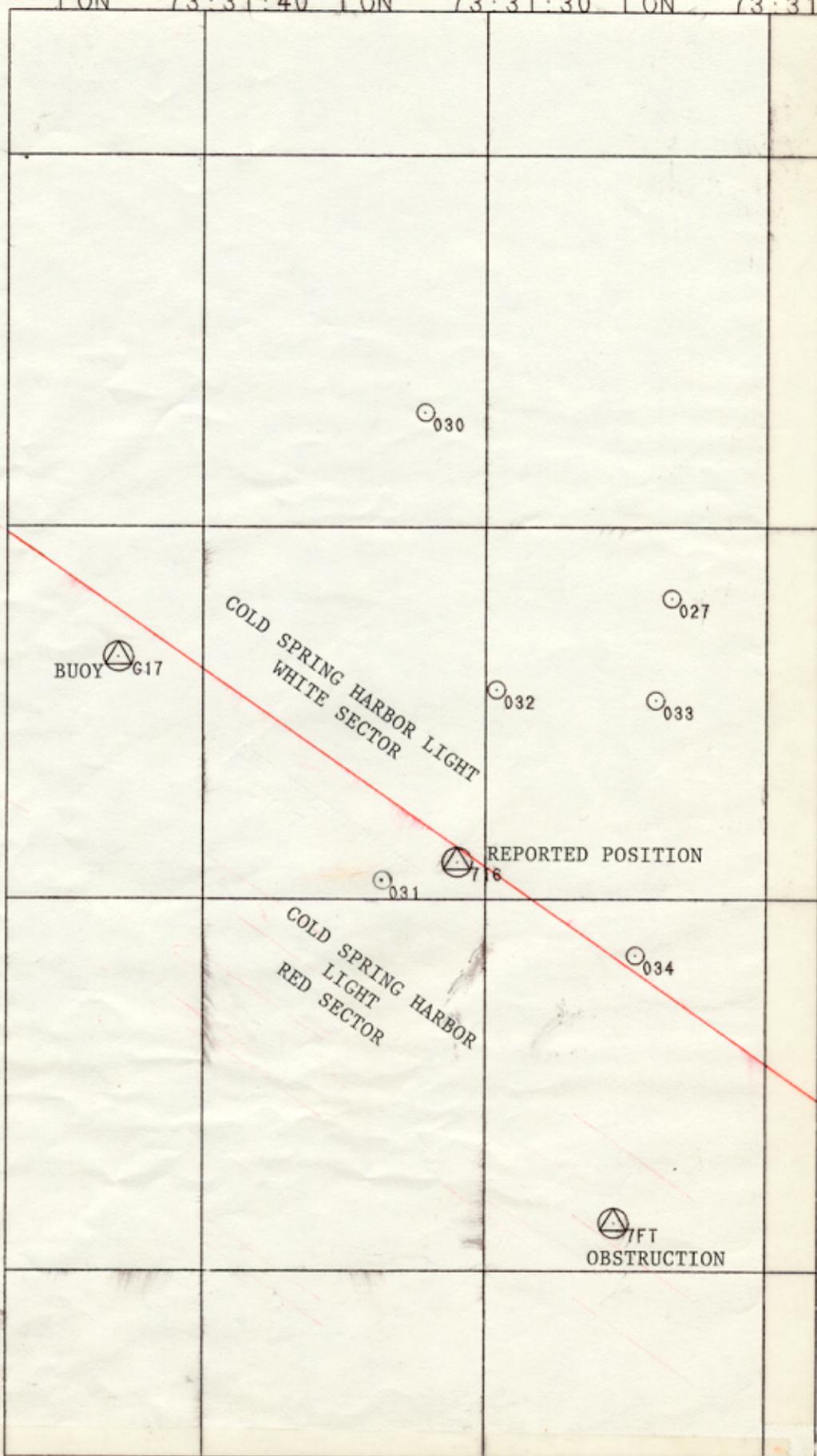
LON 73:31:40 LON 73:31:30 LON 73:31

LAT 40:56:10

LAT 40:56:00

LAT 40:55:50

LAT 40:55:40

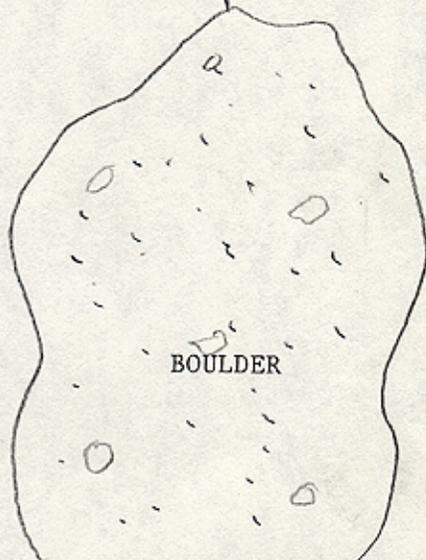


AWOIS ITEM #6716
CONTACT #30
CSTN #031

DIVERS : LT TUELL, LTJG BEAVER
METHOD OF SEARCH : 20 METER CIRCLE
LEAST DEPTH BY : DEEP PNEUMOFATHOMETER

SURFACE

LEAST DEPTH = PNEUMO DEPTH 17.2 FEET
- TIDE VALUE ~~-1.9 FEET~~ -2.0
Redwood Depth 15.32 FEET

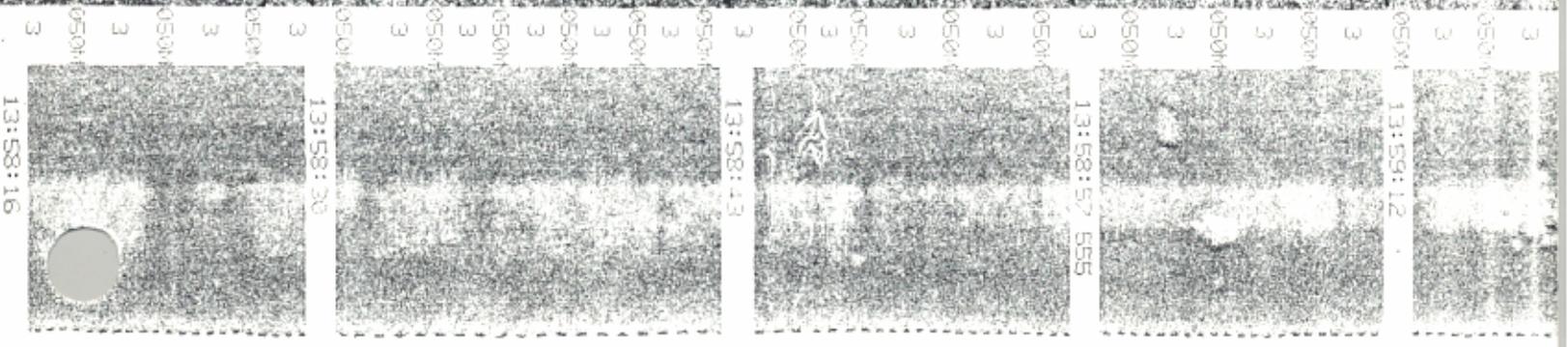
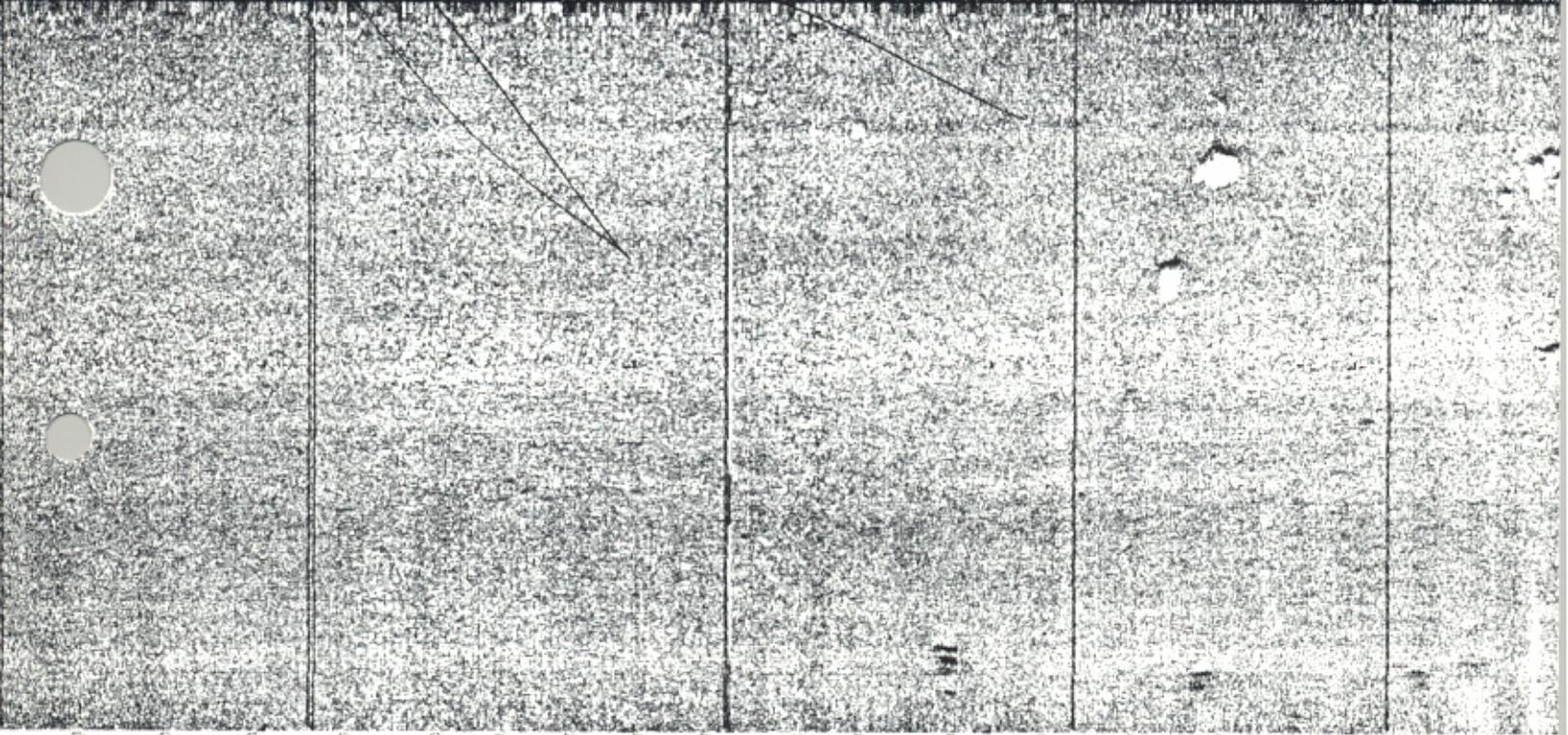


SMALL BOAT

BOTTOM

INSIGNIFICANT TARGET *AB*

AWOIS ITEM #6716, CONTACT #30
CSTN #031
LEAST DEPTH=15.8' ON BOULDER



00 FT

791

AWOIS ITEM #6716, CONTACT #30
 CSTN #031
 LEAST DEPTH=15.3' ON BOULDER

20 FT

40 FT

60 FT

80 FT

100 FT

D.P.
30

1 D

140227

| D | Time | Tide Corr. | Units | FEET |
|-----|-------|------------|-------|------|
| | 13:00 | -2.8 | | |
| 292 | 13:05 | -2.7 | | |
| 292 | 13:10 | -2.6 | | |
| 292 | 13:15 | -2.5 | | |
| 292 | 13:20 | -2.4 | | |
| 292 | 13:25 | -2.4 | | |
| 292 | 13:30 | -2.3 | | |
| 292 | 13:35 | -2.2 | | |
| 292 | 13:40 | -2.1 | | |
| 292 | 13:45 | -2.0 | | |
| 292 | 13:50 | -2.0 | | |
| 292 | 13:55 | -1.9 | | |
| 292 | 14:00 | -1.8 | | |
| 292 | 14:05 | -1.7 | | |
| 292 | 14:10 | -1.7 | | |
| 292 | 14:15 | -1.6 | | |
| 292 | 14:20 | -1.6 | | |
| 292 | 14:25 | -1.5 | | |
| 292 | 14:30 | -1.5 | | |
| 292 | 14:35 | -1.4 | | |
| 292 | 14:40 | -1.4 | | |
| 292 | 14:45 | -1.4 | | |
| 292 | 14:50 | -1.4 | | |
| 292 | 14:55 | -1.3 | | |
| 292 | 15:00 | -1.3 | | |
| 292 | 15:05 | -1.3 | | |
| 292 | 15:10 | -1.3 | | |
| 292 | 15:15 | -1.3 | | |
| 292 | 15:20 | -1.3 | | |
| 292 | 15:25 | - | | |

Oct 12:01:37 NAVISOFT 300 VER 2.31EX-SURVEY: UTILITIES: MTM -> LAT/LON 20

Easting.....: 111845.4_
 Northing.....: 20075.1
 Latitude.....: 040:55:50.491
 Longitude.....: 073:31:33.676

HELP

Dump
Alpha

Dump
Graphics

PAGE 57

User 1 Caps Running

2 CB

DIVING OPERATIONS

DATE: 10-10 1988

UNIT: NOAA SHIP HECK S591

LOCATION: SOUTHERN NEW ENGLAND COAST

AWOIS ITEM # 6716

TARGET# 30

DIVE MASTER: LTjg BEAVER

DIVERS : LT. TUELL

TENDERS: ST. MORRIS

: LTjg. BEAVER

CB MICKLE

DIVE PLAN: CIRCLE SEARCH AND ITEM INVESTIGATION. MAX DEPTH: 28 FT.

MAX TIME : 17

DEPTH(1) 17.2 (2) 17.2 (3) 17.2

AVRG. LEAST DEPTH: 17.2

LEAST DEPTH TIME: 9:54

EQUIPMENT USED: OPEN CIRCUIT SCUBA.

CONDITIONS:

WIND : DIR SW KTS 15

VISIBILITY: FT. 5

SEAS : DIR SW FT 2-3

AIR TEMP. : (C) 16.0

CURRENT: KTS .5

WATER TEMP: (C) 15.5

ALL TIMES: (LOCAL)

| # | DIVERS NAME | SI | GROUP | RNT | IN | | PRES. CHNG | IN | | BOTTOM TIME | DEPTH | GROUP |
|---|-------------|------|-------|-----|------|-----|------------|------|------|-------------|-------|-------|
| | | | | | OUT | | | OUT | | | | |
| 1 | TUELL | 0113 | C | 25 | 1400 | 650 | 750 | 9:39 | 9:56 | 17m | 28' | F |
| 1 | BEAVER | 0113 | C | 25 | 1400 | 550 | 850 | 9:39 | 9:56 | 17m | 28' | F |
| 2 | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | |

POST DIVE COMMENTS: *Dive on what we thought was wreckage while conducting our circle search, we found both a very small wooden pulled skiff that was insignificant, and a very large rock. LD & TD taken on rock.*

Andrew L. Beaver (signature)
DIVE MASTER SIGNATURE.

K7.2. CONTACT INVESTIGATION REPORT FOR CONTACT 34.

DETERMINATION OF DIVE SITE : The contact was originally identified by side scan sonar and is listed as contact 34 on the target abstract. An echosounder line was run directly over the contact and a dive buoy deployed when the target appeared on the DSF6000N record.

SEARCH PROCEDURE : Divers LT(jg) Beaver and LT Tuell descended the buoy line to find that the buoy anchor weight had fallen within the wreckage identified on the side scan record. A 20 meter circle search was conducted to locate any shoal points among the wreckage.

LEAST DEPTH DATA : The wreckage was lying in a slight scour on the bottom and may be the remains of AWOIS 6716. Since there were no shoal points rising more than two feet above the bottom, no least depth measurements were taken. The dive was performed on October 14 (JD 288).

GENERAL STATEMENT OF POSITION QUALITY : The wreckage was positioned by maneuvering the ship alongside the dive buoy while the buoy was resting within the wreckage. The detached position, position 804, was taken when the profile of the wreckage appeared on the DSF6000N trace. The fix utilized three LOP's with a maximum residual of 2.1 meters and an ECR value of 5.0 meters. The fix is considered of good quality.

POSITION OF CONTACT : LAT : 040° 55' 58.092 N E : 112085.2
LONG : 073° 31' 23.409 W N : 20310.0

LORAN CHAIN : 9960 RATES : W-15314.3 X-26840.1
Y-43948.2 Z-60009.0(bad rate)

ITEM DESCRIPTION : The divers found a large area of scattered debris in a shallow scour on the bottom. The wreckage consisted of several pieces of pipe, a diesel engine on it's side, several wooden items and other various debris. The debris extended no more than two feet above the surrounding bottom. The divers believe that the wreckage may be all that remains of AWOIS 6716 following the pile drivers salvage.

RECOMMENDATIONS : The wreck is currently charted as a dangerous submerged wreck on chart 12365, 19th Edition, March, 1984. Contact 34 is believed to be the remains of AWOIS 6716 and is also the only wreckage found during coverage of the search area. The scour and extent of debris indicate that there had been a much larger submerged object there at one time.

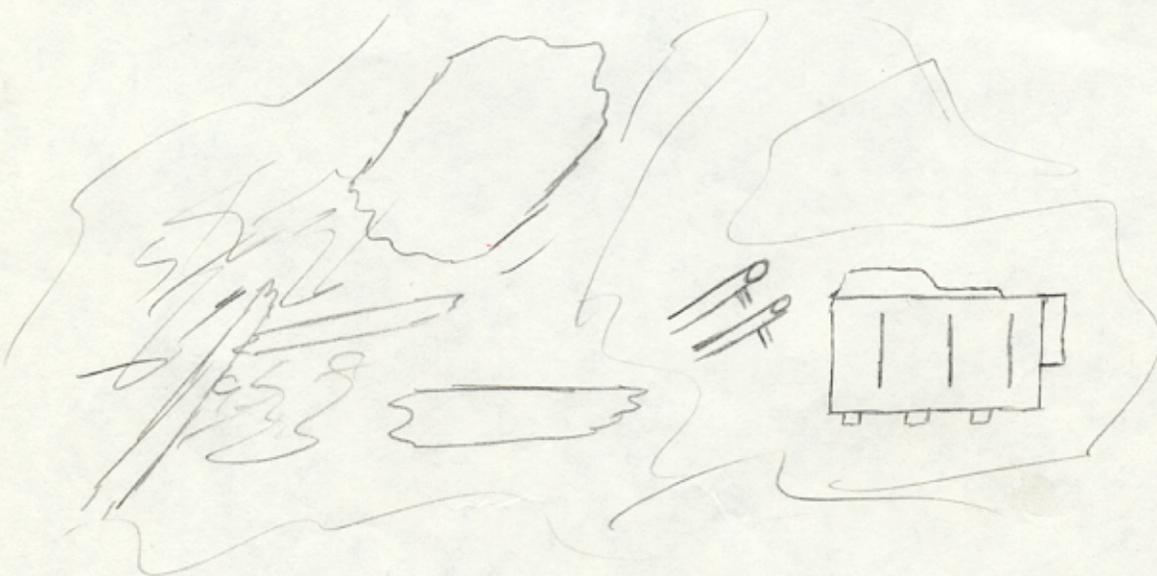
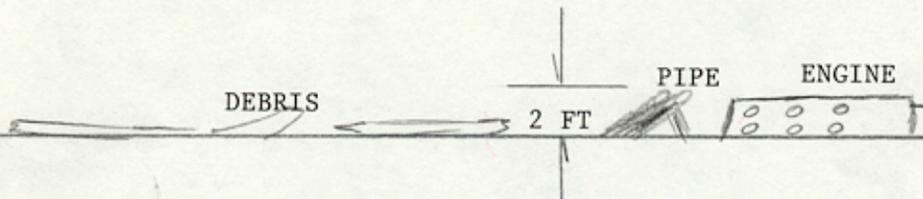
The wreckage does not pose a threat to surface navigation in the area and is less significant than the nearby rock, contact 30. The HECK therefore recommends that the current wreck symbol be removed from the chart. The detached position for contact 34 is plotted as CSTN 027 on the smooth contact plot for sheet HE-10-5-88. *See section 7.2.3) of the Evaluation Report.*

AWOIS item 6716 is considered resolved.

AWOIS ITEM #6716
CONTACT #34
CSTN #027

DIVERS : LT TUELL, LTJG BEAVER
METHOD OF SEARCH : 20 METER CIRCLE
LEAST DEPTH BY : ~~NONE~~ *fathometer*

fathometer
~~NO~~ LEAST DEPTH TAKEN



00 FT | 804 | 00

AWOIS ITEM #6716, CONTACT #34
CSTN #027
~~NO LEAST DEPTH TAKEN ON DEBRIS~~

Fathometer

20 FT | 20

40 FT | 40

60 FT | 60

F 34

80 FT | 80

100 FT | 100
185019
1 D

07+ 12:10:40

Easting.....: 112085.2_
 Northing.....: 20310.0
 Latitude.....: 040:55:58.093
 Longitude.....: 073:31:23.409

CSTN 027

HELP

Dump
Alpha

Dump
Graphics

User 1

Caps

Running

DIVING OPERATIONS

DATE: 14 OCTOBER 1988

UNIT: NOAA SHIP HECK 5591

LOCATION: SOUTHERN NEW ENGLAND COAST

AWOIS ITEM # 6716

CONTACT # 34

DIVE MASTER: LTJG.A.BEAVER

DIVERS : LT.G.TUELL

TENDERS: ST.W.MORRIS CB, MCKLE

: LTJG.A.BEAVER

AB.M.JONES

DIVE PLAN: CIRCLE SEARCH AND ITEM INVESTIGATION. MAX.DEPH: 40 FT.

MAX TIME : 15

DEPTH(1) — (2) — (3) — AVRG.LEAST DEPTH: —

EQUIPMENT USED: OPEN CIRCUIT SCUBA.

CONDITIONS:

WIND : DIR W KTS 10

VISIBILITY: FT. 5'

SEAS : DIR W FT 1-2

AIR TEMP. : (C) 9°

CURRENT: KTS 0

WATER TEMP: (C) 14°

| # | DIVERS NAME | SI | GROUP | RNT | IN | | PRES. CHNG | IN | | BOTTOM TIME | DEPTH | GROUP |
|---|-------------|------|-------|-----|------|------|------------|------|------|-------------|-------|-------|
| | | | | | OUT | OUT | | OUT | OUT | | | |
| 1 | TUELL | 0:56 | C | 25 | 2750 | 1000 | 1750 | 1117 | 1132 | 15 | 40' | E |
| 1 | BEAVER | 0:56 | C | 25 | 2750 | 1000 | 1750 | 1117 | 1132 | 15 | 40' | E |
| 2 | TUELL | | | | | | | | | | | |
| 2 | BEAVER | | | | | | | | | | | |
| 3 | TUELL | | | | | | | | | | | |
| 3 | BEAVER | | | | | | | | | | | |
| 4 | TUELL | | | | | | | | | | | |
| 4 | BEAVER | | | | | | | | | | | |

POST DIVE COMMENTS: Dove on the remains of an old wreck. All that remained was a lot of scattered wreckage and a diesel engine lying on it's side. Nothing protruded beyond 2' from the surrounding bottom, therefore, no LD or DP taken.

Andrew C. Beaver (LTJG) NOAA
DIVE MASTER SIGNATURE.

K7.3. CONTACT INVESTIGATION REPORT FOR CONTACT 39.

DETERMINATION OF DIVE SITE : The contact was originally identified by side scan sonar and is listed as contacts 39 and 40 on the target abstract. An echosounder line was run directly over the contact and a dive buoy deployed when the target appeared on the DSF6000N trace.

SEARCH PROCEDURE : Divers LT(jg) Beaver and LT Tuell descended the buoy line to the bottom and conducted a 20 meter circle search to locate the object. The dive buoy anchor weight was then moved to the boulder and another 20 meter circle search conducted to locate any boulders shoaling higher than the first. No other contacts were found.

LEAST DEPTH DATA : After locating the shoalest point of the boulder, the pneumofathometer air line was lowered to the divers via the dive buoy line. The pneumofathometer orifice was then held over the shoalest point and several readings were taken by the surface tenders, ST Morris and CB Mickle, utilizing the deep pneumofathometer.

The dive was performed on October 18 (JD 292). The three readings from the deep pneumofathometer are as follows :

| | | |
|----------------------|--------------------------------|--------------|
| 1) TIME (UTC) : 1816 | RAW LEAST DEPTH READING | (FT) : 25.8 |
| 2) TIME (UTC) : 1816 | RAW LEAST DEPTH READING | (FT) : 25.8 |
| 3) TIME (UTC) : 1816 | RAW LEAST DEPTH READING | (FT) : 25.8 |
| | AVERAGE LEAST DEPTH READING | (FT) : 25.8 |
| | <i>Actual</i> - TIDE CORRECTOR | (FT) : -4.22 |
| | ACTUAL LEAST DEPTH | (FT) : 21.76 |

GENERAL STATEMENT OF POSITION QUALITY : The boulder was positioned by maneuvering the ship alongside the dive buoy while the buoy was resting on the boulder. The detached position, position 802, was taken when the profile of the boulder appeared on the DSF6000N trace. The fix utilized three LOP's with a maximum residual of 0.8 meters and an ECR value of 5.1 meters.

POSITION OF CONTACT : LAT : 040° 55' 48.492 N E : 112056.9
LONG : 073° 31' 24.640 W N : 20013.8

LORAN CHAIN : 9960 RATES : W-15314.8 X-26840.0
Y-43946.8 Z-60008.3(bad rate)

ITEM DESCRIPTION : The divers found a large boulder protruding approximately 5 feet off the bottom. The boulder is the largest one found within the 20 meter circle search area. The boulder is resting in a small scour in the bottom and is covered with marine growth and silt.

RECOMMENDATIONS : The boulder is not charted but lies within a rocky area extending from nearby Rocky Point as depicted on chart 12365, 19th Edition, March, 1984. Contact 39 is one of several of the prominent boulders that fell within the search area. The contact is plotted as CSTN 034 on the smooth contact plot for sheet HE-10-5-88. The HECK recommends that this rock be charted as a dangerous submerged rock with a known depth of 21 feet. (21Rk)

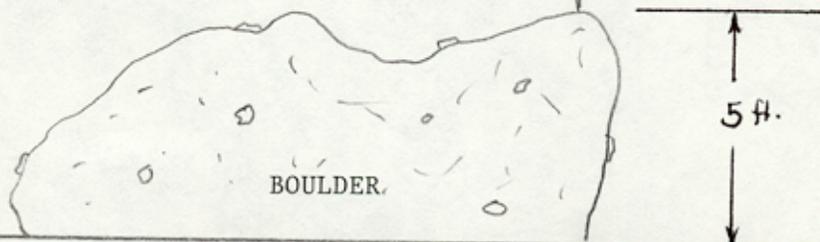
CONCDR

AWOIS ITEM #6716
CONTACT #39/40
CSTN #034

DIVERS : LT TUELL, LTJG BEAVER
METHOD OF SEARCH : 20 METER CIRCLE
LEAST DEPTH BY : DEEP PNEUMOFATHOMETER

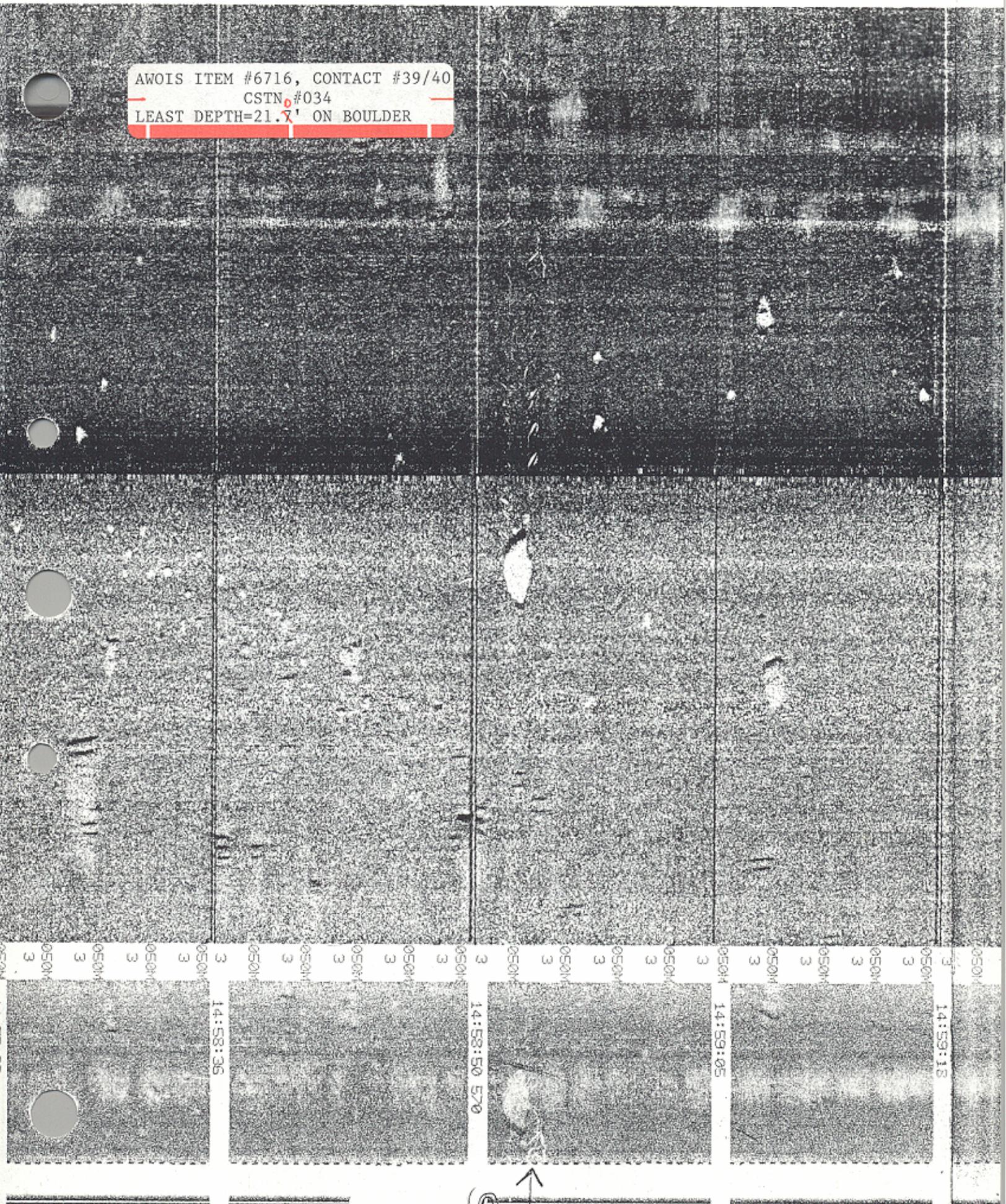
SURFACE

LEAST DEPTH = PNEUMO DEPTH 25.8 FEET
- TIDE VALUE ~~-4.1²~~ FEET
Reduced - 21.76 FEET



BOTTOM

AWOIS ITEM #6716, CONTACT #39/40
CSTN #034
LEAST DEPTH=21.8' ON BOULDER



14:58:35

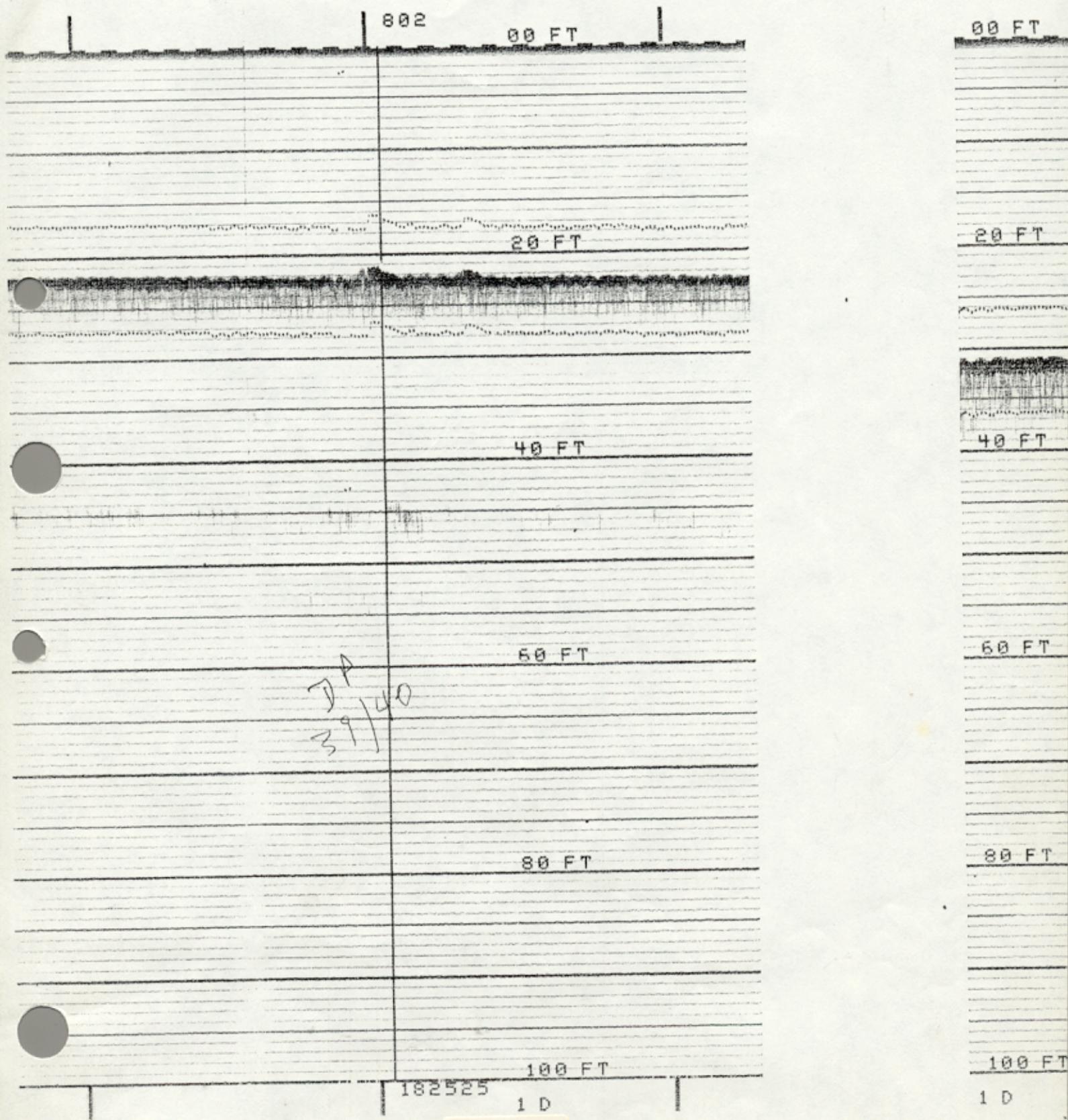
14:58:50 570

14:59:05

14:59:15

50
↑
8.2'

AWOIS ITEM #6716, CONTACT #39/40
CSTN #034
LEAST DEPTH=21.8' ON BOULDER



```

ing.....:      112056.9
No.thing.....:    20013.8

Latitude.....:    040:55:48.492
Longitude.....:    073:31:24.640

```

User 1 Caps Running

```

HELP      Dump      Dump
          Alpha    Graphics

```

| | Time | Tide | Corr. | Units | FEET |
|-----|-------|------|-------|-------|------|
| 292 | 17:00 | -2.4 | | | |
| 292 | 17:15 | -2.7 | | | |
| 292 | 17:30 | -3.0 | | | |
| 292 | 17:45 | -3.3 | | | |
| 292 | 18:00 | -3.7 | | | |
| 292 | 18:15 | -4.1 | | | |
| 292 | 18:30 | -4.4 | | | |
| 292 | 18:45 | -4.8 | | | |
| 292 | 19:00 | -5.2 | | | |
| 292 | 19:15 | -5.5 | | | |
| 292 | 19:30 | -5.8 | | | |
| 292 | 19:45 | -6.1 | | | |
| 292 | 20:00 | -6.4 | | | |
| 292 | 20:15 | -6.6 | | | |
| 292 | 20:30 | -6.8 | | | |
| 292 | 20:45 | -6.9 | | | |
| 292 | 21:00 | -7.0 | | | |
| 292 | 21:15 | -7.1 | | | |
| 292 | 21:30 | -7.1 | | | |
| 292 | 21:45 | -7.1 | | | |
| 292 | 22:00 | -7.0 | | | |
| 292 | 22:15 | -6.9 | | | |
| 292 | 22:30 | -6.7 | | | |
| 292 | 22:45 | -6.5 | | | |
| 292 | 23:00 | | | | |

CE

DIVING OPERATIONS

⑤ DATE: 10-18 1988
LOCATION: SOUTHERN NEW ENGLAND COAST

UNIT: NOAA SHIP HECK 5591
AWOIS ITEM # 6716
TARGET# 242 #3940

DIVE MASTER: LTJ BEAVER
TENDEKS: ST. MARIS
CRITCHE

DIVERS : LT. TWELL
: LTJ. BEAVER

DIVE PLAN: CIRCLE SEARCH AND ITEM INVESTIGATION. MAX. DEPTH: 30 FT.
MAX TIME : 31 min.
DEPTH(1) 25.8 (2) 25.8 (3) 25.8 AVRG. LEAST DEPTH: 25.8
LEAST DEPTH TIME: 14:16

EQUIPMENT USED: OPEN CIRCUIT SCUBA.

CONDITIONS:
WIND : DIR SW KTS 18
SEAS : DIR SW FT 2-3
CURRENT: KTS 0

VISIBILITY: FT. 2
AIR TEMP. : (C) 16.0
WATER TEMP: (C) 15.0

ALL TIMES: (LOCAL)

| # | DIVERS' NAME | SI | GROUP | RNT | IN | | PRES. CHNG | IN | | BOTTOM TIME | DEPTH | GROUP |
|---|--------------|------|-------|-----|------|------|------------|-------|-------|-------------|-------|-------|
| | | | | | OUT | OUT | | OUT | OUT | | | |
| 1 | TWELL | 0:16 | G | 73 | 2700 | 1100 | 1600 | 13:47 | 14:16 | 31 min | 30' | J |
| 1 | BEAVER | 0:16 | G | 73 | 2700 | 900 | 1800 | 13:47 | 14:16 | 31 min | 30' | J |
| 2 | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | |

POST DIVE COMMENTS: Another rock, it took a 20 meter circle search to find it. From there we did another one at 20 meters, didn't find any shoaler rocks. LD and DP taken as highest point of rock.

Andrew L. Beaver LTJ NOAA
DIVE MASTER SIGNATURE.

ITEM DESCRIPTION : The divers found a large boulder protruding approximately 4 feet off the bottom. The boulder is the largest item found within the 30 meter circle search area. The boulder is sitting in a small scour in the bottom and is covered with marine growth and silt.

RECOMMENDATIONS : The boulder is not charted but lies within a rocky area extending from nearby Rocky Point as depicted on chart 12365, 19th Edition, March, 1984. Contact 41 is one of several prominent boulders that fell within the search area. Since the rock shoals about 4 feet above the surrounding bottom and is about ⁵/₈ feet shoaler than surrounding charted depths, the HECK recommends that the boulder be charted as a dangerous submerged rock with a known depth of 2⁵/₈ feet. The contact is plotted as CSTN 032 on the smooth contact plot for sheet HE-10-5-88. (25 RK)

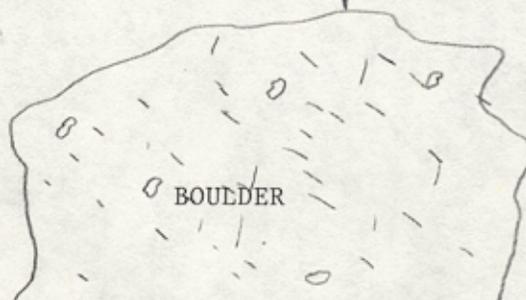
CONCVR

AWOIS ITEM #6716
CONTACT #41
CSTN #032

DIVERS : LT TUELL, LTJG BEAVER
METHOD OF SEARCH : 30 METER CIRCLE
LEAST DEPTH BY : DEEP PNEUMOFATHOMETER

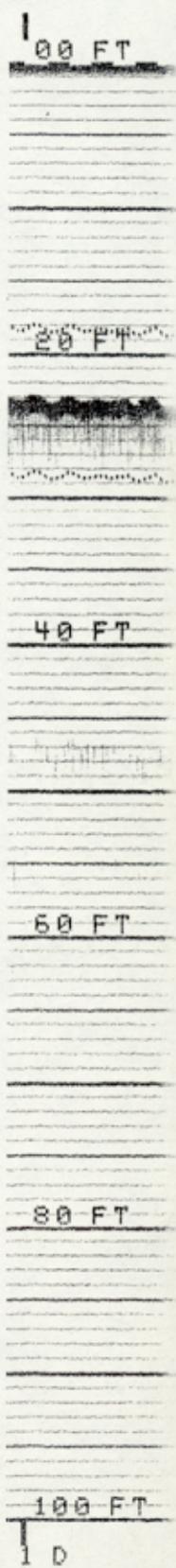
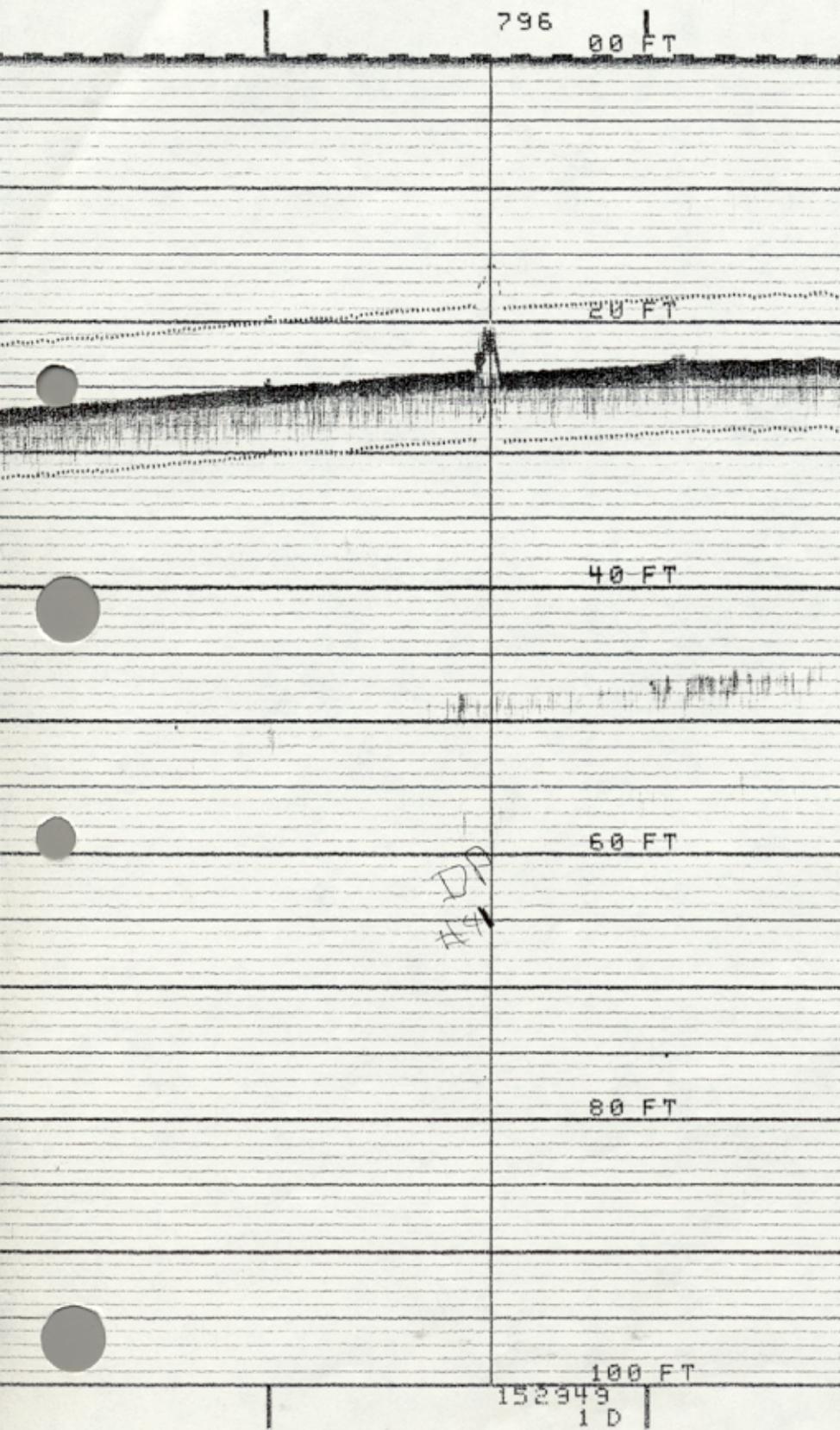
SURFACE

LEAST DEPTH = PNEUMO DEPTH 26.2 FEET
Actual - TIDE VALUE $\frac{-1.8^2}{24.98}$ FEET



BOTTOM

AWOIS ITEM #6716, CONTACT #41
CSTN #032
LEAST DEPTH=~~24.9'~~ ^{25.4'} ON BOULDER



ing.....: 111939.8
 _hing.....: 20233.7
 Latitude.....: 040:55:55.627
 Longitude.....: 073:31:29.630

HELP

Dump
Alpha

Dump
Graphics

User 1

Caps

Running

| | Time | Tide | Corr. | Units | FEET |
|-----|-------|------|-------|-------|------|
| 2.. | 14:00 | -1.8 | | | |
| 292 | 14:05 | -1.7 | | | |
| 292 | 14:10 | -1.7 | | | |
| 292 | 14:15 | -1.6 | | | |
| 292 | 14:20 | -1.6 | | | |
| 292 | 14:25 | -1.5 | | | |
| 292 | 14:30 | -1.5 | | | |
| 292 | 14:35 | -1.4 | | | |
| 292 | 14:40 | -1.4 | | | |
| 292 | 14:45 | -1.4 | | | |
| 292 | 14:50 | -1.4 | | | |
| 292 | 14:55 | -1.3 | | | |
| 292 | 15:00 | -1.3 | | | |
| 292 | 15:05 | -1.3 | | | |
| 292 | 15:10 | -1.3 | | | |
| 292 | 15:15 | -1.3 | | | |
| 292 | 15:20 | -1.3 | | | |
| 292 | 15:25 | -1.3 | | | |
| 292 | 15:30 | -1.3 | | | |
| 292 | 15:35 | -1.3 | | | |
| 292 | 15:40 | -1.4 | | | |
| 292 | 15:45 | -1.4 | | | |
| 292 | 15:50 | -1.4 | | | |
| 292 | 15:55 | -1.5 | | | |
| 292 | 16:00 | -1.5 | | | |
| 292 | 16:05 | -1.6 | | | |
| 292 | 16:10 | | | | |

3 CB

DIVING OPERATIONS

DATE: 10-18 1988

UNIT: NOAA SHIP HECK S591

AWOIS ITEM # 6716

LOCATION: SOUTHERN NEW ENGLAND COAST

TARGET# 41'

DIVE MASTER: LTjg BEAVER

DIVERS : LT. TUELL

TENDERS: ST. MORRIS

: LTjg. BEAVER

CB MICKLE

DIVE PLAN: CIRCLE SEARCH AND ITEM INVESTIGATION. MAX. DEPTH: 31 FT.

MAX TIME : 18 min.

DEPTH(1) 26.2 (2) 26.2 (3) 26.2 AVRG. LEAST DEPTH: 26.2

LEAST DEPTH TIME: 11:24

EQUIPMENT USED: OPEN CIRCUIT SCUBA.

CONDITIONS:

WIND : DIR SW KTS 18

VISIBILITY: FT. 5

SEAS : DIR SW FT 2-3

AIR TEMP. : (C) 16.0

CURRENT: KTS 1.0

WATER TEMP: (C) 15.5

ALL TIMES: (LOCAL)

| # | DIVERS NAME | SI | GROUP | RNT | IN | | PRES. CHNG | IN | | BOTTOM TIME | DEPTH | GROUP |
|---|-------------|------|-------|-----|------|------|------------|-------|-------|-------------|-------|-------|
| | | | | | OUT | OUT | | OUT | OUT | | | |
| 1 | TUELL | 1:10 | E | 49 | 2750 | 1500 | 1250 | 11:06 | 11:25 | 18m | 31' | G |
| 1 | BEAVER | 1:10 | E | 49 | 2800 | 1500 | 1300 | 11:06 | 11:25 | 18m | 31' | G |
| 2 | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | |

POST DIVE COMMENTS: Dive on boulder, found it right away. A 30 meter circle search was conducted around shoal rock, no other shoaler rocks found. LD and DP taken on highest point of rock.

Andrew L. Beaver LTjg NOAA
DIVE MASTER SIGNATURE.

K7.5. CONTACT INVESTIGATION REPORT FOR CONTACT 42.

DETERMINATION OF DIVE SITE : The contact was originally identified by side scan sonar and is listed as contact 42 on the target abstract. An echosounder line was run directly over the contact and a dive buoy deployed when the target appeared on the DSF6000N trace.

SEARCH PROCEDURE : Divers LT(jg) Beaver and LT Tuell descended the buoy line where they found the dive buoy weight lying next to the contact. From that point, the divers conducted a 30 meter circle search of the area for shoaler rocks. No other contacts were found.

LEAST DEPTH DATA : After locating the shoalest point of the boulder, the pneumofathometer air line was lowered to the divers via the dive buoy line. The pneumofathometer orifice was held over the shoalest point and several readings were taken by the surface tenders, ST Morris and CB Mickle, utilizing the deep pneumofathometer.

The dive was performed on October 18 (JD 292). The three readings from the deep pneumofathometer are as follows :

| | | |
|----------------------|--------------------------------|--------------------|
| 1) TIME (UTC) : 1729 | RAW LEAST DEPTH READING | (FT) : 30.4 |
| 2) TIME (UTC) : 1729 | RAW LEAST DEPTH READING | (FT) : 30.4 |
| 3) TIME (UTC) : 1729 | <u>RAW LEAST DEPTH READING</u> | <u>(FT) : 30.4</u> |
| | AVERAGE LEAST DEPTH READING | (FT) : 30.4 |
| | <i>Actual</i> - TIDE CORRECTOR | (FT) : -3.0 |
| | ACTUAL LEAST DEPTH | (FT) : 27.4 |

GENERAL STATEMENT OF POSITION QUALITY : The boulder was positioned by maneuvering the ship alongside the dive buoy while the buoy was resting on the boulder. The detached position, position 801, was taken when the profile of the boulder appeared on the DSF6000N trace. The fix utilized two LOP's with a maximum residual of 0.0 meters and an ECR value of 7.1 meters. Although only two LOP's were used, the fix is considered of adequate quality for charting based on the geometry of the stations used and the low ECR value.

POSITION OF CONTACT : LAT : 040° 55' 55.35~~X~~ N E : 112072.4
LONG : 073° 31' 23.96~~Z~~ W N : 20225.4

LORAN CHAIN : 9960 RATES : W-15314.4 X-26840.1
Y-43947.8 Z-60008.7

ITEM DESCRIPTION : The divers found a large boulder protruding approximately 5 feet off the bottom. The boulder is the largest item found within the 30 meter circle search area. The boulder is sitting in a small scour in the bottom and is covered with marine growth and silt.

RECOMMENDATIONS : The boulder is not charted but lies within a rocky area extending from nearby Rocky Point as depicted on chart 12365, 19th Edition, March, 1984. Contact 42 is one of several prominent boulders that fell within the search area. Since the rock shoals about 5 feet above the surrounding bottom and is shoaler than the nearest charted depths by about ⁴5 feet, the HECK recommends that the boulder be charted as a dangerous submerged rock with a known depth of 27 feet. The contact is plotted as CSTN 033 on the smooth contact plot for sheet HE-10-5-88.

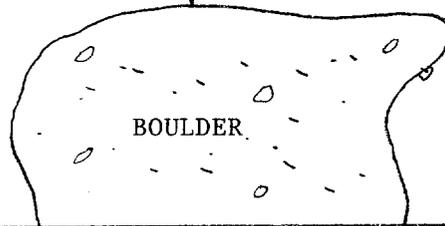
(27 Rk) Concor

AWOIS ITEM #6716
CONTACT #42
CSTN #033

DIVERS : LT TUELL, LTJG BEAVER
METHOD OF SEARCH : 30 METER CIRCLE
LEAST DEPTH BY : DEEP PNEUMOFATHOMETER

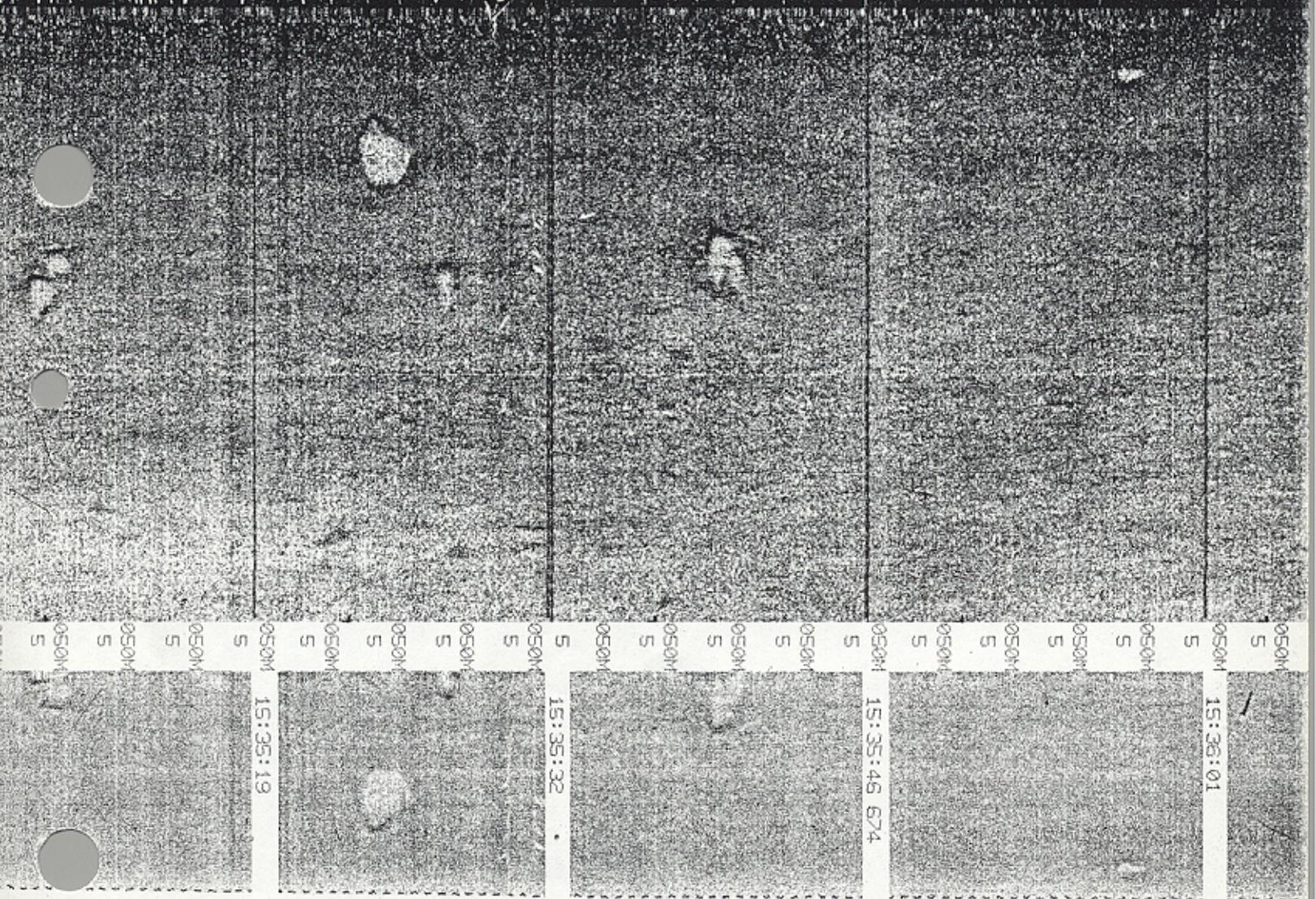
SURFACE

LEAST DEPTH = PNEUMO DEPTH 30.4 FEET
- TIDE VALUE -3.0 FEET
27.4 FEET



BOTTOM

AWOIS ITEM #6716, CONTACT #42
CSTN #033
LEAST DEPTH=27.4' ON BOULDER



↑
(42)
60

INSIGNIFICANT TARGET

PAGE 83

743
5875P
5782P
5842P

00 FT

00 FT

AWOIS ITEM #6716, CONTACT #42
CSTN #033
LEAST DEPTH=27.4' ON BOULDER

20 FT

20 FT

40 FT

40 FT

Handwritten scribbles

FT

60 FT

80 FT

80 FT

100 FT

100 FT

1 D

1 D

173728

| Day | Time | Tide Corr. | Units | FEET |
|-----|-------|------------|-------|------|
| | 16:00 | -1.5 | | |
| 2 | 16:30 | -1.9 | | |
| 292 | 17:00 | -2.4 | | |
| 292 | 17:30 | -3.0 | | |
| 292 | 18:00 | -3.7 | | |
| 292 | 18:30 | -4.4 | | |
| 292 | 19:00 | -5.2 | | |
| 292 | 19:30 | -5.8 | | |
| 292 | 20:00 | -6.4 | | |
| 292 | 20:30 | -6.8 | | |
| 292 | 21:00 | -7.0 | | |
| 292 | 21:30 | -7.1 | | |
| 292 | 22:00 | -7.0 | | |
| 292 | 22:30 | -6.7 | | |
| 292 | 23:00 | -6.3 | | |
| 292 | 23:30 | - | | |

NAVISOFT 300 VER 2.31EX-SURVEY: UTILITIES: MTM -> LAT/LON

20

Oct 12:05:16

Easting.....: 112072.4
 Northing.....: 20225.4
 Latitude.....: 040:55:55.351
 Longitude.....: 073:31:23.962

User 1 Caps Running

HELP Dump Dump
 Alpha Graphics

CB

DIVING OPERATIONS

DATE: 10-18 1988

UNIT: NOAA SHIP HECK S591

LOCATION: SOUTHERN NEW ENGLAND COAST

AWOIS ITEM # 6216
TARGET# 39/40-42

DIVE MASTER: LTJg BEAVER

DIVERS : LT. TUELL

TENDERS: ST. MORRIS

: LTJg. BEAVER

CB MICKLE

DIVE PLAN: CIRCLE SEARCH AND ITEM INVESTIGATION. MAX. DEPTH: 36 FT.

MAX TIME : 17 min

DEPTH(1) 30.4 (2) 30.4 (3) 30.4 AVRG. LEAST DEPTH: 30.4

LEAST DEPTH TIME: 13:29

EQUIPMENT USED: OPEN CIRCUIT SCUBA.

CONDITIONS:

WIND : DIR SOUTH KTS 25

VISIBILITY: FT. 2-5

SEAS : DIR SOUTH FT 2-3

AIR TEMP. : (C) 16.0

CURRENT: KTS 0

WATER TEMP: (C) 15.5

ALL TIMES: (LOCAL)

| # | DIVERS NAME | SI | GROUP | RNT | IN | | PRES. CHNG | IN | | BOTTOM TIME | DEPTH | GROUP |
|---|-------------|------|-------|-----|------|-----|------------|-------|-------|-------------|-------|-------|
| | | | | | OUT | OUT | | OUT | OUT | | | |
| 1 | TUELL | 1:48 | E | 49 | 1600 | 700 | 900 | 13:13 | 13:31 | 17m | 36' | G |
| 1 | BEAVER | 1:48 | E | 49 | 1500 | 300 | 1200 | 13:13 | 13:31 | 17m | 36' | G |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

POST DIVE COMMENTS: Dive on rock, found it on bottom near buoy weight. From there we conducted a 30 meter circle search, but did not find any shoaler rocks. LD and DP taken on shallowest point of rock.

Andrew L. Beaver LTJg NOAA
DIVE MASTER SIGNATURE.

K7.6. CONTACT INVESTIGATION REPORT FOR CONTACT 43.

DETERMINATION OF DIVE SITE : The contact was originally identified by side scan sonar and is listed as contact 43 on the target abstract. An echosounder line was run directly over the contact and a dive buoy deployed when the target appeared on the DSF6000N trace.

SEARCH PROCEDURE : Divers LT(jg) Beaver and LT Tuell descended the buoy line and conducted a 20 meter circle search to locate the contact. The dive buoy weight was then moved to the contact and another 20 meter circle search conducted to locate any shoaler rocks. No other contacts were found.

LEAST DEPTH DATA : After locating the shoalest point of the boulder, the pneumofathometer air line was lowered to the divers via the dive buoy line. The pneumofathometer orifice was then held over the shoalest point and several readings were taken by the surface tenders, ST Morris and CB Mickle, utilizing the deep pneumofathometer.

The dive was performed on October 18 (JD 292). The three readings from the deep pneumofathometer are as follows :

| | | |
|----------------------|-----------------------------|--------------------|
| 1) TIME (UTC) : 1326 | RAW LEAST DEPTH READING | (FT) : 31.2 |
| 2) TIME (UTC) : 1326 | RAW LEAST DEPTH READING | (FT) : 31.2 |
| 3) TIME (UTC) : 1326 | RAW LEAST DEPTH READING | (FT) : <u>31.2</u> |
| | AVERAGE LEAST DEPTH READING | (FT) : 31.2 |
| | TIDE CORRECTOR | (FT) : <u>-2.4</u> |
| | ACTUAL LEAST DEPTH | (FT) : 28.8 |

GENERAL STATEMENT OF POSITION QUALITY : The boulder was positioned by maneuvering the ship alongside the dive buoy while the buoy was resting on the boulder. The detached position, position 790, was taken when the profile of the boulder appeared on the DSF6000N trace. The fix utilized three LOP's with a maximum residual of 0.2 meters and an ECR value of 6.5 meters. The fix is considered of good quality.

POSITION OF CONTACT : LAT : 040^o 56' 03.⁹~~089~~ N E : 111881.0
LONG : 073^o 31' 32.³~~127~~ W N : 20463.8

LORAN CHAIN : 9960 RATES : W-15315.2 X-26841.6
Y-43949.2 Z-60009.2(bad rate)

ITEM DESCRIPTION : The divers found a large boulder protruding approximately 5 feet off the bottom. The boulder is the largest one found within the 20 meter circle search area. The boulder is sitting in a small scour in the bottom and is covered with marine growth and silt.

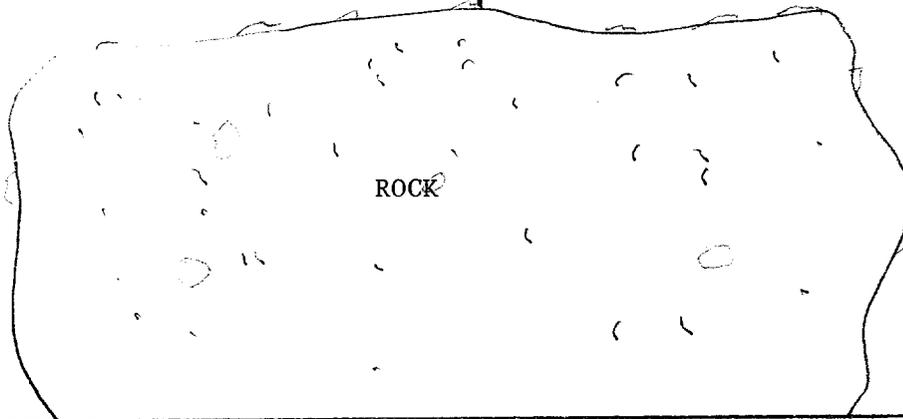
RECOMMENDATIONS : The boulder is not charted but lies within a rocky area extending from nearby Rocky Point as depicted on chart 12365, 19th Edition, March, 1984. Contact 43 is one of several prominent boulders that fell within the search area. Since the rock shoals about 4 feet above the surrounding charted depths and is in the white sector of Cold Springs Harbor Light, the HECK recommends that the rock be charted as a dangerous submerged rock with a known depth of 28⁹ feet. The contact is plotted as CSTN 030 on the smooth contact plot for sheet HE-10-5-88. (29 RK) *Concur*

AWOIS ITEM #6716
CONTACT #43
CSTN #030

DIVERS : LT TUELL, LTJG BEAVER
METHOD OF SEARCH : 20 METER CIRCLE
LEAST DEPTH BY : DEEP PNEUMOFATHOMETER

RFACE

LEAST DEPTH = PNEUMO DEPTH 31.2 FEET
- TIDE VALUE -2.4 FEET
28.8 FEET



BOTTOM

AWOIS ITEM #6716, CONTACT #43
CSTN #030
LEAST DEPTH=^{28.7}28.8' ON BOULDER

050M S 16:08:14
050M S 16:08:29
050M S 16:08:42
050M S 16:08:56
050M S 16:09:10 695
050M S 16:09:25

00 FT

790

AWOIS ITEM #6716, CONTACT #43
CSTN #030
LEAST DEPTH = 28.8' ON BOULDER

20 FT

40 FT

60 FT

80 FT

100 FT

3

2.5
3

1242

1 D

132921

Easting.....: 111881.0
 Northing.....: 20463.8
 Latitude.....: 040:56:03.089
 Longitude.....: 073:31:32.127

User 1 Caps Running

HELP Dump Dump
 Alpha Graphics



| | Time | Tide | Corr. | Units | FEET |
|-----|-------|------|-------|-------|------|
| 1 | 12:00 | -4.1 | | | |
| 292 | 12:05 | -4.0 | | | |
| 292 | 12:10 | -3.9 | | | |
| 292 | 12:15 | -3.8 | | | |
| 292 | 12:20 | -3.7 | | | |
| 292 | 12:25 | -3.6 | | | |
| 292 | 12:30 | -3.5 | | | |
| 292 | 12:35 | -3.4 | | | |
| 292 | 12:40 | -3.3 | | | |
| 292 | 12:45 | -3.1 | | | |
| 292 | 12:50 | -3.0 | | | |
| 292 | 12:55 | -2.9 | | | |
| 292 | 13:00 | -2.8 | | | |
| 292 | 13:05 | -2.7 | | | |
| 292 | 13:10 | -2.6 | | | |
| 292 | 13:15 | -2.5 | | | |
| 292 | 13:20 | -2.4 | | | |
| 292 | 13:25 | -2.4 | | | |
| 292 | 13:30 | -2.3 | | | |
| 292 | 13:35 | -2.2 | | | |
| 292 | 13:40 | -2.1 | | | |
| 292 | 13:45 | -2.0 | | | |
| 292 | 13:50 | -2.0 | | | |
| 292 | 13:55 | -1.9 | | | |
| 292 | 14:00 | | | | |

CB

DIVING OPERATIONS

DATE: 10-18- 1988

UNIT: NOAA SHIP HECK S591

AWOIS ITEM # 6716

TARGET# 3043

LOCATION: SOUTHERN NEW ENGLAND COAST

DIVE MASTER: LTjg BEAVER

DIVERS : LT. TUELL

TENDERS: ST. MORRIS

: LTjg. BEAVER

CE MICKLE

DIVE PLAN: CIRCLE SEARCH AND ITEM INVESTIGATION. MAX. DEPTH: 38 FT.

MAX TIME : 18min

DEPTH(1) 31.2 (2) 31.2 (3) 31.2

AVRG. LEAST DEPTH: 31.2

LEAST DEPTH TIME: 9:26

EQUIPMENT USED: OPEN CIRCUIT SCUBA.

CONDITIONS:

WIND : DIR SW KTS 15

VISIBILITY: FT. 5

SEAS : DIR SW FT 1-2

AIR TEMP. : (C) 16.0

CURRENT: KTS .5

WATER TEMP: (C) 15.5

ALL TIMES: (LOCAL)

| # | DIVERS NAME | SI | GROUP | RNT | IN | | PRES. CHNG | IN | | BOTTOM TIME | DEPTH | GROUP |
|---|-------------|----|-------|-----|------|------|------------|------|------|-------------|-------|-------|
| | | | | | OUT | OUT | | OUT | OUT | | | |
| 1 | TUELL | - | - | - | 2800 | 1700 | 1400 | 9:07 | 9:26 | 18m | 38' | C |
| 1 | BEAVER | - | - | - | 2800 | 1400 | 1400 | 9:07 | 9:26 | 18m | 38' | C |
| 2 | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | |

POST DIVE COMMENTS: Dive on boulder, found by circle search, circle search conducted around the highest point. LD & DP taken on rock

Andrew L. Beaver LT(jg) NOAA
DIVE MASTER SIGNATURE.

K8. INVESTIGATION REPORT FOR AWOIS ITEM #6801

AWOIS HISTORY : H5142/31WD--39 FT SOUNDING IDENTIFIED AS SMALL BOULDERS WITH 36 FT CLEARED DEPTH IN LAT 40-59-50.00N, LONG 73-30-51.00W. SCALED FROM CHART 12365 (1:20,000) (ENT MSM 5/88) (NAD27 position)

SURVEY REQUIREMENTS : Full, verify or disprove through 200% side scan sonar coverage, 75 meter radius, least depth and position required if found.

METHOD OF INVESTIGATION : 200% side scan sonar coverage was accomplished with the 100 khz frequency over the entire search area. A total of five mainscheme lines were run at headings of 060-240 and 150-330 over the entire search area to obtain the required 200% coverage. Diver investigations were conducted on all significant contacts.

RESULTS OF INVESTIGATION : AWOIS 6801 was located throughout side scan sonar coverage of the area although no prominent boulders were located. Due to the large amount of boulders in the area, the HECK decided that the best way to resolve the items would be to dive on the shoal and conduct an extensive circle search for the shoalest point. Contact 14 was considered the most significant rocky area. Other contacts found in the area but deemed insignificant are listed as contacts 15, 16, and 17 on the target abstract.

K8.1. CONTACT INVESTIGATION REPORT FOR CONTACT 14.

DETERMINATION OF DIVE SITE : The contact was originally identified by side scan sonar and is listed as contact 14 on the target abstract. An echosounder line was run directly over the contact and a dive buoy deployed when the target appeared on the DSF6000N trace.

SEARCH PROCEDURE : Divers LT(jg) Beaver and LT Tuell descended the buoy line and conducted a 20 meter circle search in which the divers found a large boulder field. From the shoalest point in the boulder field, another 30 meter circle search was conducted during which a shoaler boulder field was found. The buoy weight was moved to the shoaler of the two boulder fields where the least depth was taken.

LEAST DEPTH DATA : After locating the shoalest point of the boulder field, the pneumofathometer air line was lowered to the divers via the dive buoy line. The divers held the pneumofathometer orifice over the shoalest point while the dive tenders, ST Morris and CB Mickle, took several readings with the deep pneumofathometer.

The dive was performed on October 17 (JD 291). The three readings from the deep pneumofathometer are as follows :

| | | |
|----------------------|------------------------------|--------------------|
| 1) TIME (UTC) : 1648 | RAW LEAST DEPTH READING | (FT) : 43.2 |
| 2) TIME (UTC) : 1648 | RAW LEAST DEPTH READING | (FT) : 43.2 |
| 3) TIME (UTC) : 1648 | RAW LEAST DEPTH READING | <u>(FT) : 43.2</u> |
| | AVERAGE LEAST DEPTH READING | (FT) : 43.2 |
| | <i>Actual</i> TIDE CORRECTOR | (FT) : -3.84 |
| | ACTUAL LEAST DEPTH | (FT) : 39.58 |

GENERAL STATEMENT OF POSITION QUALITY : The boulder field was positioned by maneuvering the ship alongside the dive buoy while the buoy was resting on the shoalest point of the contact. The detached position, position 771, was taken when the profile of the rock appeared on the DSF6000N trace. The fix utilized three LOP's with a maximum residual of 0.5 meters and an ECR value of 5.1 meters. The fix is considered of excellent quality.

POSITION OF CONTACT : LAT : 040° 59' 50.590 N E : 112806.2
LONG : 073° 30' 52.055 W N : 27483.2

LORAN CHAIN : 9960 RATES : W-15305.3 X-26846.4
Y-43982.4 Z-60024.2 (bad rate)

ITEM DESCRIPTION : The divers found a large boulder field with no prominent boulders shoaling above the rest. The point where the least depth was taken consisted of several large boulders in a pile sitting on a small shoal. All the boulders rose to approximately the same depth and extended 2 to 4 feet off the bottom. The least depth was taken on the shoalest point of the boulder pile.

RECOMMENDATIONS : The boulder field is currently charted on chart 12368, 19th Edition, August, 1986. The contact found matches the description and position of AWOIS 6801, a large boulder field.

The boulder field poses a hazard to surface navigation for deep *Concert* draft vessels transiting the area. The HECK therefore recommends that the existing rock symbol be moved to the new location and shown as a rock over which the depth of ~~39~~⁴⁴ feet is known. The detached position of the contact is plotted as CSTN 028 on the smooth contact plot for sheet HE-10-3-88.

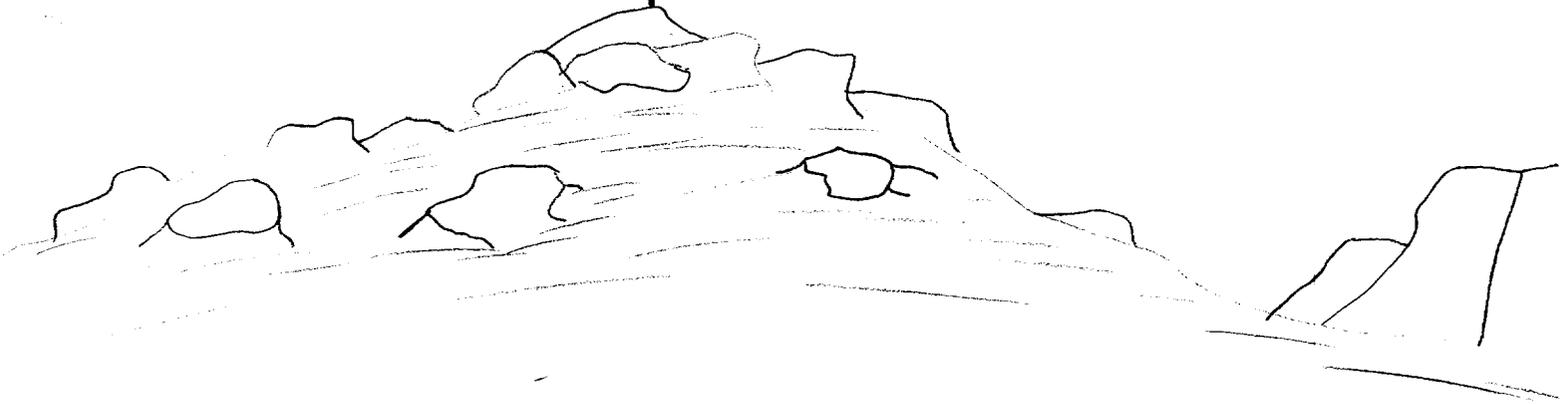
See Section 6.6. of The Evaluation Report.
AWOIS item 6801 is considered resolved.

AWOIS ITEM #6801
CONTACT #14
CSTN #028

DIVERS : LT TUELL, LTJG BEAVER
METHOD OF SEARCH : 30 METER CIRCLE
LEAST DEPTH BY : PNEUMOFATHOMETER (DEEP)

SURFACE

LEAST DEPTH = PNEUMO DEPTH 43.2 FEET
- TIDE VALUE -3.74 FEET
39.5 FEET

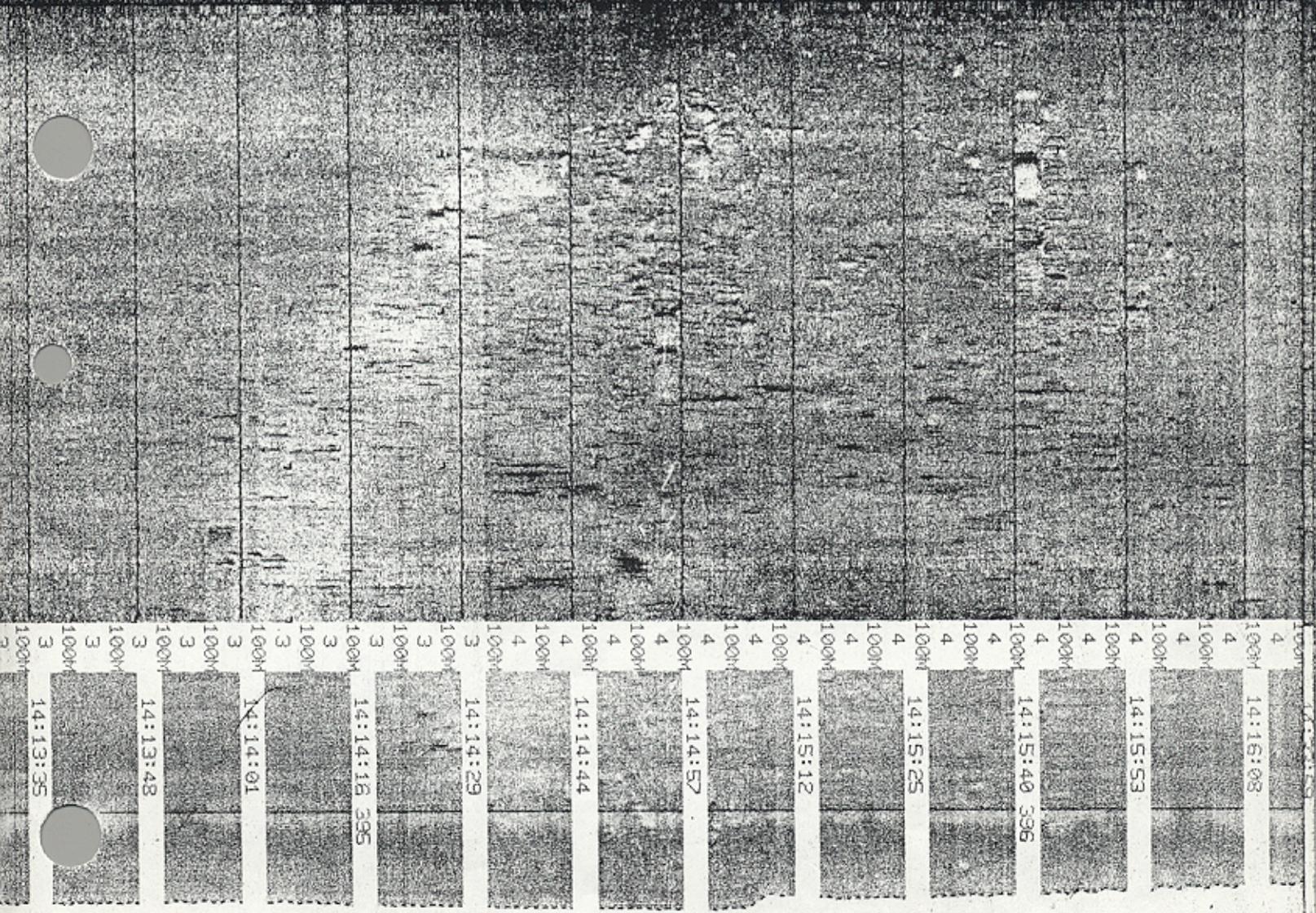


SIGNIFICANT TARGET

CONFIDENCE CHECK

8.2
14

AWOIS ITEM #6801, CONTACT #14
CSTN #028 ⁴⁰
LEAST DEPTH=~~39.5~~ FEET ON ROCKS



| | |
|------|--------------|
| 100M | 14:13:35 |
| 100M | 14:13:48 |
| 100M | 14:14:01 |
| 100M | 14:14:16 395 |
| 100M | 14:14:29 |
| 100M | 14:14:44 |
| 100M | 14:14:57 |
| 100M | 14:15:12 |
| 100M | 14:15:25 |
| 100M | 14:15:40 395 |
| 100M | 14:15:53 |
| 100M | 14:16:08 |

CONFIDENCE CHECK

SIGNIFICANT TARGET

15

00 FT

771

00 FT

00 FT

AWOIS ITEM #6801, CONTACT #14
CSTN #028 *40 ft*
LEAST DEPTH=*39.5'* ON ROCKS

20 FT

20 FT

20 FT

40 FT

40 FT

40 FT

60 FT

60 FT

60 FT

80 FT

80 FT

80 FT

100 FT

100 FT

100 FT

*D.P. CONTACT
AWOIS # 6801
MIN 39.5'*

*HOLD ON
CBDB
30-40m
ENG*

1 D

171408

1 C

1 D

0401

ing.....: 112806.2_
 K ching.....: 27483.2
 Latitude.....: 040:59:50.590
 Longitude.....: 073:30:52.055

CSTN 028

User 1 Caps Running

HELP Dump Dump
 Alpha Graphics

| | Time | Tide | Corr. | Units | FEET |
|-----|-------|------|-------|-------|------|
| 291 | 16:00 | -2.5 | | | |
| 291 | 16:10 | -2.7 | | | |
| 291 | 16:20 | -3.0 | | | |
| 291 | 16:30 | -3.2 | | | |
| 291 | 16:40 | -3.4 | | | |
| 291 | 16:50 | -3.7 | | | |
| 291 | 17:00 | -3.9 | | | |
| 291 | 17:10 | -4.2 | | | |
| 291 | 17:20 | -4.4 | | | |
| 291 | 17:30 | -4.6 | | | |
| 291 | 17:40 | -4.9 | | | |
| 291 | 17:50 | -5.1 | | | |
| 291 | 18:00 | -5.4 | | | |
| 291 | 18:10 | -5.6 | | | |
| 291 | 18:20 | -5.8 | | | |
| 291 | 18:30 | -6.0 | | | |
| 291 | 18:40 | -6.2 | | | |
| 291 | 18:50 | -6.4 | | | |
| 291 | 19:00 | -6.5 | | | |
| 291 | 19:10 | -6.7 | | | |
| 291 | 19:20 | -6.8 | | | |
| 291 | 19:30 | -6.9 | | | |
| 291 | 19:40 | -7.0 | | | |
| 291 | 19:50 | - | | | |

CB

DIVING OPERATIONS

DATE: 10-17-88 1988

UNIT: NOAA SHIP HECK S591
 AWOIS ITEM # 4453 6801
 TARGET# 38 41 14

LOCATION: SOUTHERN NEW ENGLAND COAST

DIVE MASTER: LTJ. BEAVER
 TENDERS: B. MORRIS
Z. MUCKE

DIVERS : LT. TUELL
LTJ. BEAVER.

DIVE PLAN: CIRCLE SEARCH AND ITEM INVESTIGATION. MAX. DEPTH: 55 FT.
 MAX TIME : 32 min
 DEPTH(1) 43.2 (2) 43.2 (3) 43.2 AVRG. LEAST DEPTH: 43.2
 LEAST DEPTH TIME: 12:48

EQUIPMENT USED: OPEN CIRCUIT SCUBA.

CONDITIONS:
 WIND : DIR SE KTS 25
 SEAS : DIR - FT 11
 CURRENT: KTS 0.5

VISIBILITY: FT. 10-15
 AIR TEMP. : (C) 18°
 WATER TEMP: (C) 17.2°

ALL TIMES: (LOCAL)

| # | DIVERS NAME | SI | GROUP | RNT | IN | | PRES. CHNG | IN | | BOTTOM TIME | DEPTH | GROUP |
|---|-------------|----|-------|-----|------|-----|------------|------|------|-------------|-------|-------|
| | | | | | OUT | OUT | | OUT | OUT | | | |
| 1 | BEAVER | - | - | - | 2700 | 100 | 2800 | 1250 | 1250 | 32 | 55 | G |
| 1 | TUELL | - | - | - | 2800 | 200 | 2600 | 1250 | 1250 | 32 | 55 | G |
| 2 | BEAVER | | | | | | | | | | | |
| 2 | TUELL | | | | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | |

POST DIVE COMMENTS: Dive on another pile of rocks.
Two separate piles were identified w/ the
DSE. We dove right on top of one, then
moved to the shoaler pile where we
conducted a 30 meter circle search. The
LD and DP was taken on the shallowest
point found

Andrew L. Beaver LTJ/NOAA
 DIVE MASTER SIGNATURE.

K9. INVESTIGATION REPORT FOR AWOIS ITEM #6814

AWOIS HISTORY : CL64/39--CGS; LIST OF CRITICAL SHOALS FROM H5142WD AND H5143WD; SMALL BOULDERS LOCATED IN LAT 40-58-39.13N, LONG 73-32-24.16W (CONVERTED FROM METERS TO SECONDS); 34 FT. SOUNDING CLEARED BY 30 FEET. (MAD 27 position)

H5142/31WD-- VERIFIED SURVEY CONFIRMS ABOVE INFORMATION.
(ENTERED MSM 6/88)

SURVEY REQUIREMENTS : Full, verify or disprove through 200% side scan sonar coverage, 100 meter radius, least depth and position required if found.

METHOD OF INVESTIGATION : 200% side scan sonar coverage was accomplished with the 100 khz frequency over the entire search area. A total of four mainscheme lines were run at headings of 060-240 and 150-330 to obtain the required 200% coverage. Diver investigations were conducted on all significant contacts.

RESULTS OF INVESTIGATION : AWOIS 6814 was located during the initial 100% coverage. Contact 18 was the only significant contact found.

K9.1. CONTACT INVESTIGATION REPORT FOR CONTACT 18.

DETERMINATION OF DIVE SITE : The contact was originally identified by side scan sonar and is listed as contact 13, 18, 21 and 22 on the target abstract. An echosounder line was run directly over the contact and a dive buoy deployed when the target appeared on the DSF6000N trace.

SEARCH PROCEDURE : Divers LT(jg) Beaver and LT Tuell descended the buoy line and conducted a 15 meter circle search in which the divers found a large boulder. The buoy weight was moved to the shoalest point of the rock.

LEAST DEPTH DATA : After locating the shoalest point of the rock, the pneumofathometer air line was lowered to the divers via the dive buoy line. The divers held the pneumofathometer orifice over the shoalest point while the dive tenders, ST Morris and OS Aldridge, took several readings with both the deep and shallow pneumofathometers.

The dive was performed on September 29 (JD 273). The three readings from the shallow pneumofathometer are as follows :

| | | |
|----------------------|---------------------------------|--------------|
| 1) TIME (UTC) : 2008 | RAW LEAST DEPTH READING | (FT) : 38.2 |
| 2) TIME (UTC) : 2008 | RAW LEAST DEPTH READING | (FT) : 38.2 |
| 3) TIME (UTC) : 2008 | RAW LEAST DEPTH READING | (FT) : 38.2 |
| | AVERAGE LEAST DEPTH READING | (FT) : 38.2 |
| | <i>Actual</i> TIDE CORRECTOR | (FT) : -6.84 |
| | ACTUAL LEAST DEPTH | (FT) : 31.48 |
| | <i>pneumo depth gauge Corr.</i> | -0.1 |
| | | <u>31.7</u> |

GENERAL STATEMENT OF POSITION QUALITY : The boulder was positioned by maneuvering the ship alongside the dive buoy while the buoy was resting on the shoalest point of the contact. The detached position, position 480, was taken when the profile of the rock appeared on the DSF6000N trace. The fix utilized four LOP's with a maximum residual of 2.0 meters and an ECR value of 4.5 meters. The fix is considered of excellent quality.

POSITION OF CONTACT : LAT : 040° 58' 38.3²~~15~~ N E : 110689.9
LONG : 073° 32' 22.7⁵~~45~~ W N : 25250.3

LORAN CHAIN : 9960 RATES : all rates bad

ITEM DESCRIPTION : The divers found a large boulder protruding approximately 10 to 12 feet off the bottom. The rock is very large and is the only prominent one in the area. There is marine growth and silt covering the entire boulder except for the shoalest point which has been scraped by a passing vessel or some other object.

RECOMMENDATIONS : The boulder is currently charted as AWOIS 6814 on chart 12365, 19th Edition, March, 1984. The contact found matches the description of the item in question and is very near the reported position.

The large boulder poses a hazard to surface navigation in the area, particularly deep draft vessels transiting the area. The HECK therefore recommends that the existing symbol be ~~moved to deleted and the new location and shown as~~ a rock over which the depth of 31 feet is known*. The detached position of the contact is plotted as CSTN 024 on the smooth contact plot for sheet HE-10-3-88.

AWOIS item 6814 is considered resolved. *Concur. See also section 6.6. of the Evaluation Report.*

* be charted in the survey location.

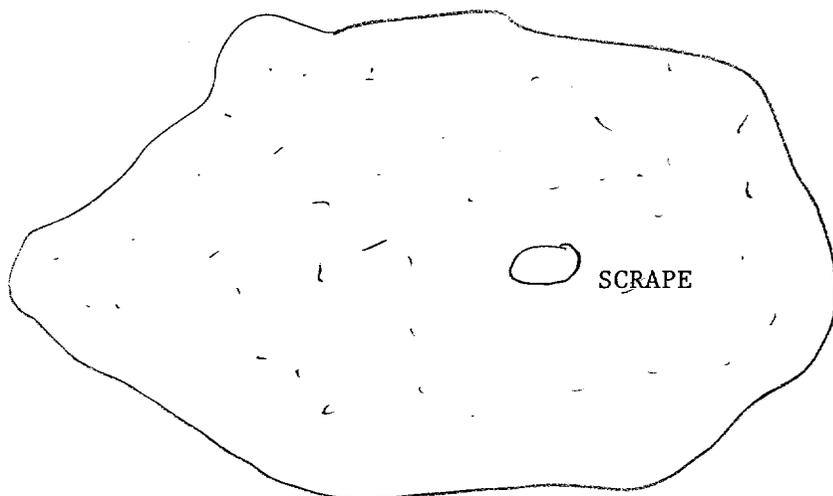
AWOIS ITEM #6814
CONTACT 18
CSTN 024

DIVERS : LT TUELL, LTJG BEAVER
METHOD OF SEARCH : CIRCLE
LEAST DEPTH DETERMINATION : PNEUMO

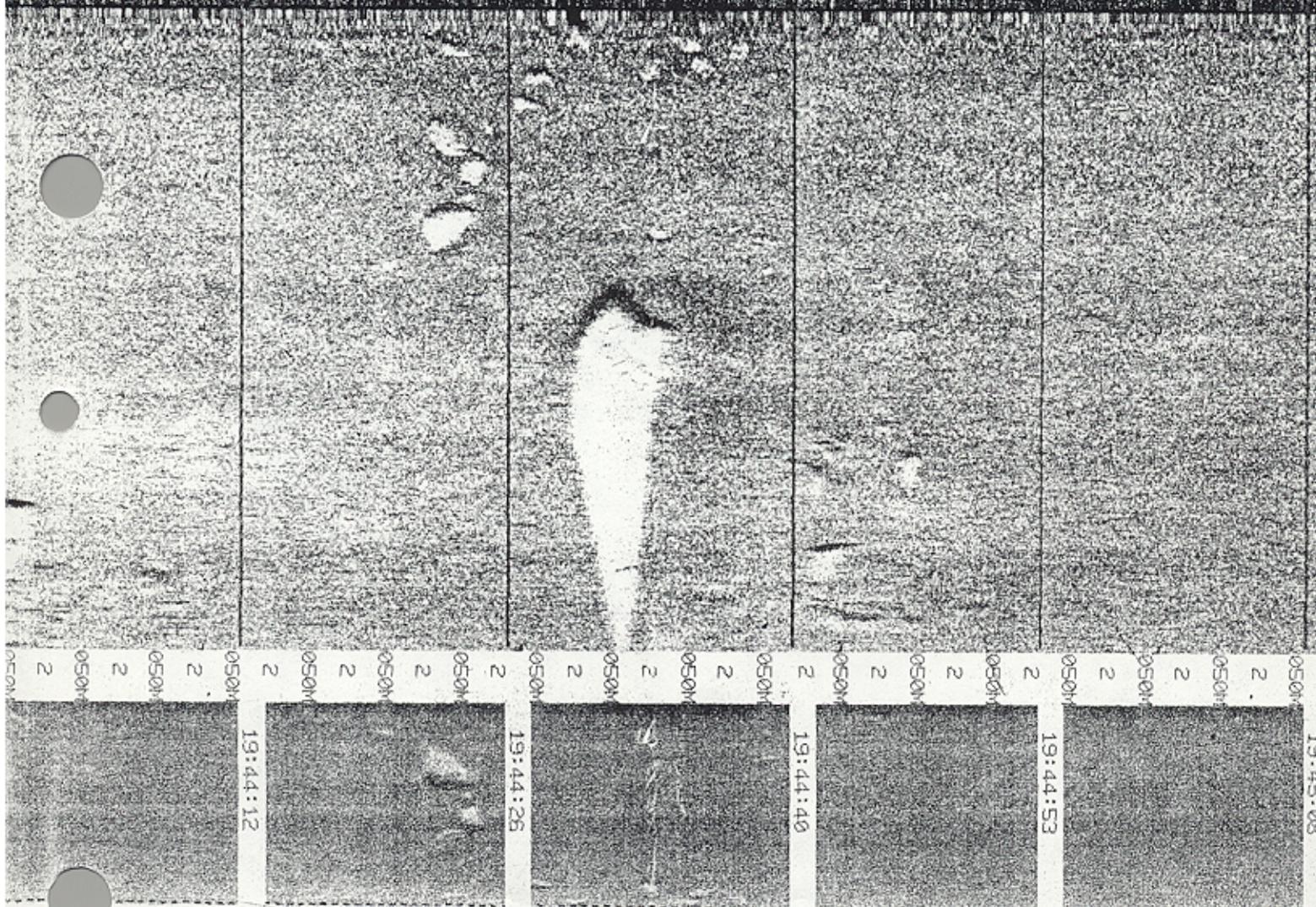
RFACE

LEAST DEPTH = PNEUMO DEPTH 38.2 FEET
Actual - TIDE VALUE -6.8⁴ FEET
31.4⁸ FEET
pneumo corr -0.1
31.7

BOTTOM



AWOIS ITEM #6814, CONTACT #18
CSTN #024
LEAST DEPTH=31.8' ON BOULDER



19:44:12

19:44:25

19:44:40

19:44:53

19:45:08

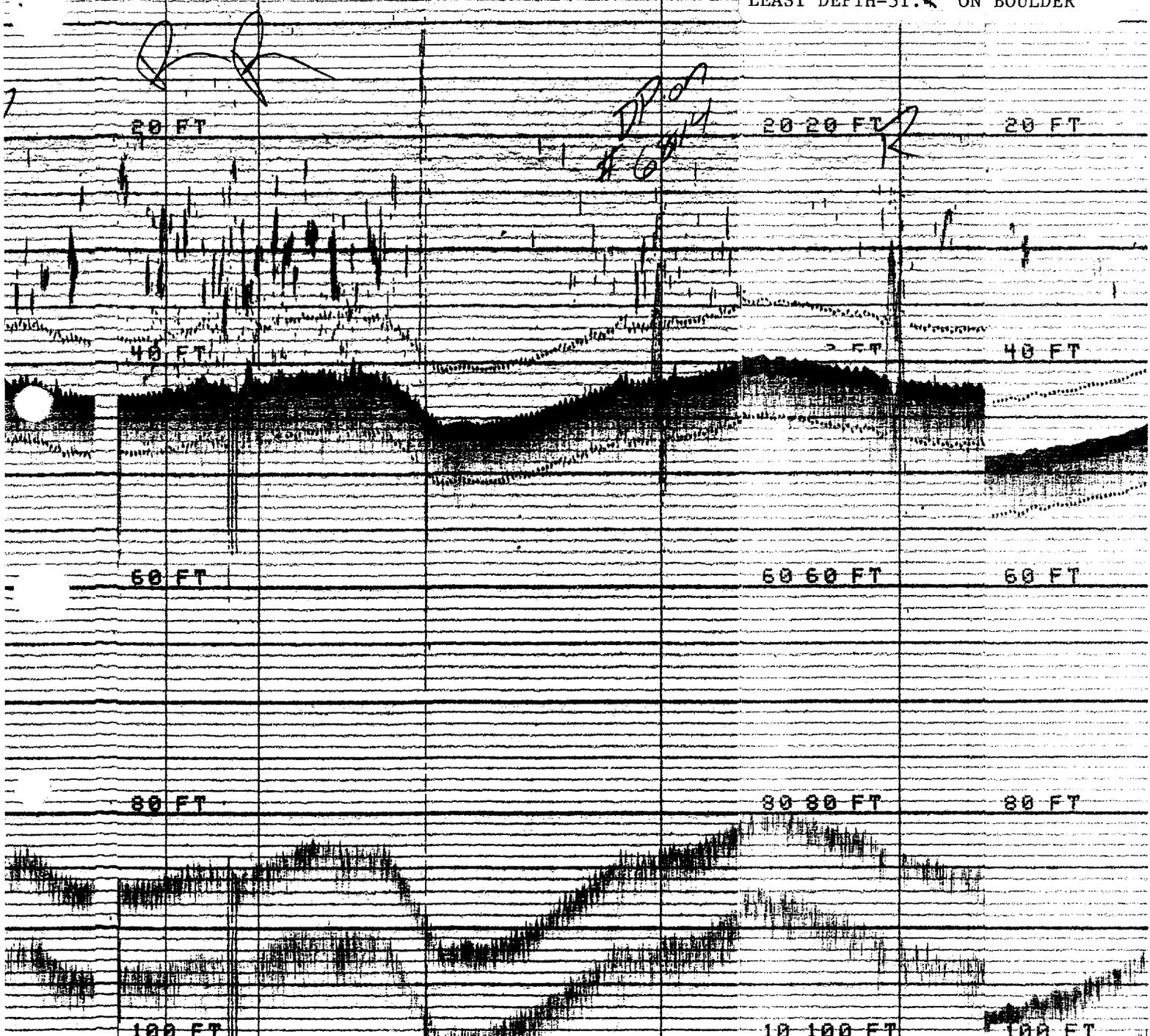
SIGNIFICANT TARGET

SAME AS 13/146

8
SIG
13

176 | 00 FT | 478 | 480 | 00 00 FT | 481 | 00 FT

AWOIS ITEM #6814, CONTACT #18
CSTN #024
LEAST DEPTH=31.4' ON BOULDER



05356 | 1 B | 205606 | 210213 | 1 D 1 C | 210435 | 1 D

0-+ 22:38:05

Easting.....: 110689.9_
 Northing.....: 25250.3
 Latitude.....: 040:58:38.315
 Longitude.....: 073:32:22.745

CSTN 004

User 1 Caps Running

HELP Dump Dump
 Alpha Graphics



| L | Time | Tide | Corr. | Units | FEET |
|-----|-------|------|-------|-------|------|
| 273 | 19:00 | -8.1 | | | |
| 273 | 19:10 | -8.0 | | | |
| 273 | 19:20 | -7.9 | | | |
| 273 | 19:30 | -7.7 | | | |
| 273 | 19:40 | -7.5 | | | |
| 273 | 19:50 | -7.3 | | | |
| 273 | 20:00 | -7.1 | | | |
| 273 | 20:10 | -6.8 | | | |
| 273 | 20:20 | -6.6 | | | |
| 273 | 20:30 | -6.3 | | | |
| 273 | 20:40 | -6.0 | | | |
| 273 | 20:50 | -5.7 | | | |
| 273 | 21:00 | -5.3 | | | |
| 273 | 21:10 | -5.0 | | | |
| 273 | 21:20 | -4.6 | | | |
| 273 | 21:30 | -4.3 | | | |
| 273 | 21:40 | -3.9 | | | |
| 273 | 21:50 | -3.6 | | | |
| 273 | 22:00 | -3.2 | | | |
| 273 | 22:10 | -2.9 | | | |
| 273 | 22:20 | -2.5 | | | |
| 273 | 22:30 | -2.2 | | | |
| 273 | 22:40 | -1.8 | | | |
| 273 | 22:50 | -1.5 | | | |
| 273 | 23:00 | -1.2 | | | |
| 273 | 23:10 | -.9 | | | |
| 273 | 23:20 | -.7 | | | |
| 273 | 23:30 | | | | |

DIVING OPERATIONS

DATE: SEPT 29 1988

UNIT: NOAA SHIP HECK 5591
 AWOIS ITEM # 6814
 TARGET # 18

LOCATION: SOUTHERN NEW ENGLAND COAST

DIVE MASTER: LTJG.A.BEAVER
 TENDERS: ST.W.MORRIS
AB.M.JONES
OS M.ALDRIDGE

DIVERS : LT.G.TUELL
 : LTJG.A.BEAVER

DIVE PLAN: CIRCLE SEARCH AND ITEM INVESTIGATION. MAX.DEPH: 60 FT.
 MAX TIME : 30
 DEPTH(1) 38.2 (2) 34.2 (3) 38.2 AVRG.LEAST DEPTH: 38.2
 LEAST DEPTH TIME: 16:08

EQUIPMENT USED: OPEN CIRCUIT SCUBA.

CONDITIONS:
 WIND : DIR NE KTS 5
 SEAS : DIR NE FT 1-2
 CURRENT: KTS 0-1

VISIBILITY: FT. 5 FT.
 AIR TEMP. : (C) 16.3
 WATER TEMP: (C) 20.1

| # | DIVERS NAME | SI | GROUP | RNT | IN | | PRES. CHNG | IN | | BOTTOM TIME | DEPTH | GROUP |
|---|-------------|------|-------|-----|------|-----|------------|-------|-------|-------------|-------|-------|
| | | | | | OUT | OUT | | OUT | OUT | | | |
| 1 | TUELL | | | | 2750 | 700 | 2050 | 14:49 | 15:15 | 26 | 60' | F |
| 1 | BEAVER | | | | 2800 | 700 | 2100 | 14:49 | 15:15 | 26 | 60' | F |
| 2 | TUELL | 0:55 | E | 30 | 2800 | 800 | 2000 | 16:09 | 16:40 | 30 | 55 | J |
| 2 | BEAVER | 0:55 | E | 30 | 2900 | 400 | 2500 | 16:09 | 16:40 | 30 | 57 | J |
| 3 | TUELL | | | | | | | | | | | |
| 3 | BEAVER | | | | | | | | | | | |
| 4 | TUELL | | | | | | | | | | | |
| 4 | BEAVER | | | | | | | | | | | |

POST DIVE COMMENTS:

*LD taken on large rock found on second
 dive. Suggest going back and forth on top
 line if not the end man to clear it
 of every small rock it catches.*

Andrew L. Beaver
 DIVE MASTER SIGNATURE.

K10. INVESTIGATION REPORT FOR AWOIS ITEM #6816

AWOIS HISTORY : H5142/31WD--29 FT. SOUNDING ON LARGE BOULDERS IN LAT 40-59-13.8N, LONG 73-32-14.7W (SCALED FROM SURVEY AT 1:20,000); CLEARED BY 28 FT. (ENTERED MSM 6/88) (*NAD 27 position*)

SURVEY REQUIREMENTS : Full, verify or disprove through 200% side scan sonar coverage, 75 meter radius, least depth and position required if found.

METHOD OF INVESTIGATION : 200% side scan sonar coverage was accomplished with the 100 khz frequency over the entire search area. A total of seven mainscheme lines were run at headings of 060-240 and 150-330 to obtain the required 200% coverage. Diver investigations were conducted on all significant contacts.

RESULTS OF INVESTIGATION : AWOIS 6816 was located during the initial 100% coverage. Two significant contacts were located during coverage of the item. The AWOIS item in question, a rocky shoal, is listed as contact 38. Another contact, an old barge, was also located within the item's search area and is listed as contacts 10 and 25. Other contacts found in the area but deemed insignificant are listed as contacts 23, 35, 36, and 37 on the target abstract.

K10.1. CONTACT INVESTIGATION REPORT FOR CONTACT 38.

DETERMINATION OF DIVE SITE : The contact was originally identified by side scan sonar and is listed as contact 38 on the target abstract. An echosounder line was run directly over the contact and a dive buoy deployed when the target appeared on the DSF6000N trace.

SEARCH PROCEDURE : Divers LT(jg) Beaver and LT Tuell descended the buoy line and conducted a 40 meter circle search to locate the highest point of the rocky shoal. The dive buoy weight was then moved to the shoalest point.

LEAST DEPTH DATA : After locating the shoalest point of the boulder field, the pneumofathometer air line was lowered to the divers via the dive buoy line. The divers held the pneumofathometer orifice over the shoalest point while the dive tenders, ST Morris and CB Mickle, took several readings with the deep pneumofathometer.

The dive was performed on October 17 (JD 291). The three readings from the deep pneumofathometer are as follows :

| | | |
|----------------------|------------------------------|---------------------|
| 1) TIME (UTC) : 2000 | RAW LEAST DEPTH READING | (FT) : 37.2 |
| 2) TIME (UTC) : 2000 | RAW LEAST DEPTH READING | (FT) : 37.2 |
| 3) TIME (UTC) : 2000 | RAW LEAST DEPTH READING | <u>(FT) : 37.2</u> |
| | AVERAGE LEAST DEPTH READING | (FT) : 37.2 |
| | <u>ACTUAL TIDE CORRECTOR</u> | <u>(FT) : -7.20</u> |
| | ACTUAL LEAST DEPTH | (FT) : 30.02 |

GENERAL STATEMENT OF POSITION QUALITY : The contact was positioned by maneuvering the ship alongside the dive buoy while the buoy was resting on the shoalest point of the contact. The detached position, position 787, was taken when the profile of the rock appeared on the DSF6000N trace. The fix utilized four LOP's with a maximum residual of 0.6 meters and an ECR value of 5.0 meters. The fix is considered of excellent quality.

POSITION OF CONTACT : LAT : 040° 59' 13.2⁹ N E : 110910.7
LONG : 073° 32' 13.23² W N : 26329.4

LORAN CHAIN : 9960 RATES : W-15314.8 X-26856.1
Y-43978.9 Z-60020.7 (bad rate)

ITEM DESCRIPTION : The divers found a large boulder field with several rocks protruding 3 to 4 feet off the bottom. The least depth was taken on one of these rocks that protruded approximately one half foot over the rest. All the rocks are covered with marine growth and silt.

RECOMMENDATIONS : The boulder is currently charted as AWOIS #6816 on chart 12365, 19th Edition, March, 1984. The contact found matches the description of the item in question and is very near the reported position.

The shoal poses a hazard to surface navigation in the area, particularly deep draft vessels transiting the area. The HECK therefore recommends ~~that the existing symbol be moved to the new location and shown as a rock over which the depth of 30 feet is be shown known.~~ The detached position of the contact is plotted as CSTN 30RA 029 on the smooth contact plot for sheet HE-10-3-88.

AWOIS item 6816 is considered resolved. *Concur. see also section 6.6. of the Evaluation Report.*

AWOIS ITEM #6816
CONTACT #38
CSTN #029

DIVERS : LT TUELL, LTJG BEAVER
METHOD OF SEARCH : 40 METER CIRCLE
LEAST DEPTH BY : DEEP PNEUMOFATHOMETER

URFACE

LEAST DEPTH=PNEUMO DEPTH 37.2'
Actual - TIDE VALUE -7.8'
30.8'
2

BOTTOM

↓ (38) 6.9'

CONFIDENCE CHECK

AWOIS ITEM #6816, CONTACT #38
CSTN #029
LEAST DEPTH=30.0' ON ROCKS

050M 4 17:23:20
 050M 4 17:23:34
 050M 4 17:23:48
 050M 4 17:24:02
 050M 4 17:24:17
 050M 4 17:24:31
 050M 4 17:24:45 747

SIGNIFICANT TARGET

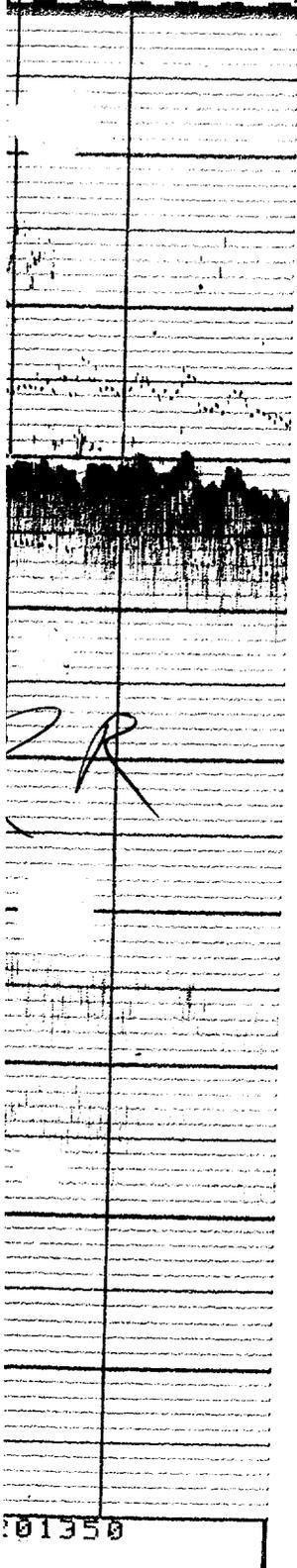
CONFIDENCE CHECK

SIGNIFICANT TARGET

(SAME AS 10)

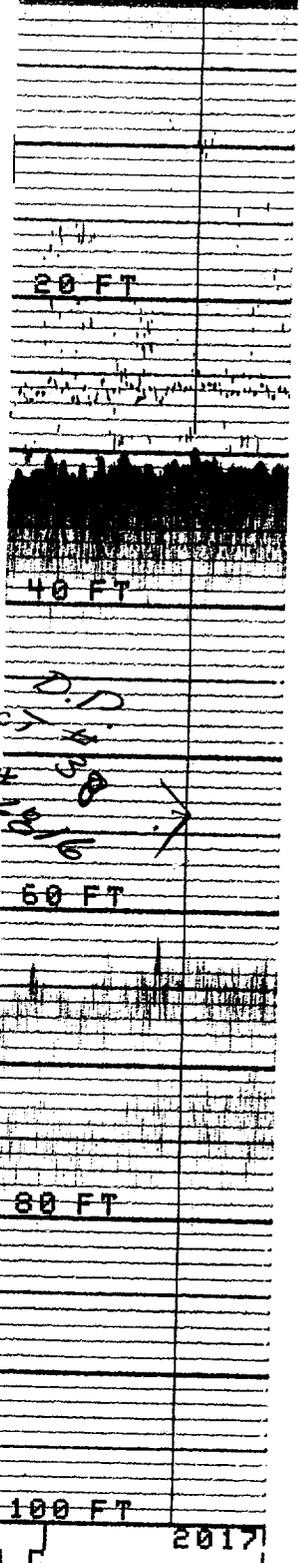
(SAME AS B)

785 786



01350

00 FT 787



100 FT 2017
1 C

D.P.
CONTACT # 38
AWDIS # 6816

AWOIS ITEM #6816, CONTACT #38
 CSTN #029
 LEAST DEPTH=30.0' ON ROCKS

| Point | Time | Tide Corr. | Units | FEET |
|-------|-------|------------|-------|------|
| | 19:00 | -6.5 | | |
| 291 | 19:15 | -6.7 | | |
| 291 | 19:30 | -6.9 | | |
| 291 | 19:45 | -7.1 | | |
| 291 | 20:00 | -7.2 | | |
| 291 | 20:15 | -7.2 | | |
| 291 | 20:30 | -7.2 | | |
| 291 | 20:45 | -7.1 | | |
| 291 | 21:00 | -7.1 | | |
| 291 | 21:15 | -6.9 | | |
| 291 | 21:30 | -6.7 | | |
| 291 | 21:45 | -6.5 | | |
| 291 | 22:00 | -6.3 | | |
| 291 | 22:15 | -6.0 | | |
| 291 | 22:30 | -5.7 | | |
| 291 | 22:45 | -5.3 | | |
| 291 | 23:00 | -5.0 | | |
| 291 | 23:15 | -4.6 | | |
| 291 | 23:30 | -4.2 | | |
| 291 | 23:45 | -3.9 | | |
| 292 | 00:00 | | | |

NAVISDFT 300 VER 2.31EX--SURVEY: UTILITIES: MTM -> LAT/LON

20

12:18:14

Easting.....: 110910.7_
 Northing.....: 26329.4
 Latitude.....: 040:59:13.286
 Longitude.....: 073:32:13.232

HELP

Dump
Alpha

Dump
Graphics

User 1 Caps Running



DIVING OPERATIONS

CB

DATE: 17 OCT 1988
 LOCATION: SOUTHERN NEW ENGLAND COAST

UNIT: NOAA SHIP HECK S591
 AWOIS ITEM # 6816
 TARGET# 38

DIVE MASTER: LT(jg) Beaver
 TENDERS: CB Fackler
ST Morris

DIVERS : LT(jg) Beaver
LT Tuell

DIVE PLAN: CIRCLE SEARCH AND ITEM INVESTIGATION. MAX.DEPH: 45 FT.
 MAX TIME : 34 min.
 DEPTH(1) 37.2 (2) 37.2 (3) 37.2 AVRG.LEAST DEPTH: 37.2
 LEAST DEPTH TIME: 1600

EQUIPMENT USED: OPEN CIRCUIT SCUBA.

CONDITIONS:
 WIND :DIR SE KTS 5-10
 SEAS :DIR - FT 1'
 CURRENT:KTS 0.5

VISIBILITY:FT. 15
 AIR TEMP. : (C) 19.0
 WATER TEMP: (C) 17.2

ALL TIMES: (LOCAL)

| # | DIVERS NAME | SI | GROUP | RNT | IN | | PRES. CHNG | IN | | BOTTOM TIME | DEPTH | GROUP |
|---|-------------|-----|-------|-----|------|-----|------------|------|-----|-------------|-------|-------|
| | | | | | IN | OUT | | IN | OUT | | | |
| 1 | Beaver | 044 | D | 29 | 2900 | 400 | 2500 | 1536 | 160 | 34 | 45 | I |
| 1 | Tuell | 044 | D | 29 | 2900 | 800 | 2100 | 1536 | 160 | 34 | 45 | I |
| 2 | Beaver | | | | | | | | | | | |
| 2 | Tuell | | | | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | |

POST DIVE COMMENTS: Charlie Brown cruise 1988, "i got a rock!" Another pile of them. We did a 40 meter circle search to find the highest bunch. LD & DP taken on that boulder.

Andrew L. Beaver LT(jg) NOAA
 DIVE MASTER SIGNATURE.

K10.2. CONTACT INVESTIGATION REPORT FOR CONTACT 10.

DETERMINATION OF DIVE SITE : The contact was originally identified by side scan sonar and is listed as contact 10 and 25 on the target abstract. An echosounder line was run directly over the contact and a dive buoy deployed when the target appeared on the DSF6000N trace.

SEARCH PROCEDURE : Divers LT(jg) Beaver and LT Tuell descended the buoy line to find the dive buoy lodged in the wreckage of a large wooden barge. The divers conducted a thorough search of the wreck to locate any protrubences and to get a general idea of the type and size of barge. Upon location of the shoalest point, the divers moved the dive buoy anchor weight to that point.

LEAST DEPTH DATA : After locating the shoalest point of the wreck, the pneumofathometer air line was lowered to the divers via the dive buoy line. The divers held the pneumofathometer orifice over the shoalest point while the dive tenders, ST Morris and AB Jones, took several readings with the deep and shallow pneumofathometers.

The dive was performed on October 12 (JD 286). The three readings from the shallow pneumofathometer are as follows :

| | | |
|----------------------|-----------------------------|-------------|
| 1) TIME (UTC) : 1845 | RAW LEAST DEPTH READING | (FT) : 43.4 |
| 2) TIME (UTC) : 1845 | RAW LEAST DEPTH READING | (FT) : 43.2 |
| 3) TIME (UTC) : 1845 | RAW LEAST DEPTH READING | (FT) : 43.5 |
| | AVERAGE LEAST DEPTH READING | (FT) : 43.4 |
| | <u>TIDE CORRECTOR</u> | (FT) : -5.8 |
| | ACTUAL LEAST DEPTH | (FT) : 37.6 |

GENERAL STATEMENT OF POSITION QUALITY : The contact was positioned by maneuvering the ship alongside the dive buoy while the buoy was resting on the shoalest point of the contact. The detached position, position 759, was taken when the profile of the rock appeared on the DSF6000N trace. The fix utilized four LOP's with a maximum residual of 3.1 meters and an ECR value of 4.6 meters. The fix is considered of excellent quality.

POSITION OF CONTACT : LAT : 040^o 59' 12.469 N E : 110845.8
LONG : 073^o 32' 16.010 W N : 26304.1

LORAN CHAIN : 9960 RATES : W-15315.1 X-26856.4
Y-43978.9 Z-60020.4(bad rate)

ITEM DESCRIPTION : The divers found the relatively intact remains of a large wooden barge. Approximate dimensions of the wreck are 100 feet long by 30 feet wide by 20 feet deep. The main structural members and hull planking are made of wood and showed a moderate amount of deterioration. The barge is lying capsized on the bottom in close proximity to the shoal identified as AWOIS item 6816. One side of the barge is obliterated with several large pieces of the hull planking and structural members lying about. One end of the barge is also severely damaged in the same manner as the damaged side. No evidence of a cargo was found.

RECOMMENDATIONS : The wreck is currently uncharted. The barge lies in very close proximity to the shoal identified as AWOIS 6816 and shoals to a depth seven feet deeper than the least depth obtained on the shoal. The largest scale chart of the area is chart 12365, 19th Edition, March, 1984.

This wreck lies in close proximity (i.e. 70 meters) to the shoal identified as AWOIS Item 6816; however, the wrecks shoalest point lies seven feet deeper than the shoal. Due to the large size of this wreck and it's height above the bottom, the HECK recommends that the contact be charted as a wreck, dangerous to surface navigation, at the position determined by this survey. If, at the scale of charting, the least depth cannot be clearly displayed without detracting from the charted least depth on the nearby shoal, then the least depth should be placed on the chart with a leader. The detached position of the contact is plotted as CSTN 025 on the smooth contact plot for sheet HE-10-3-88.

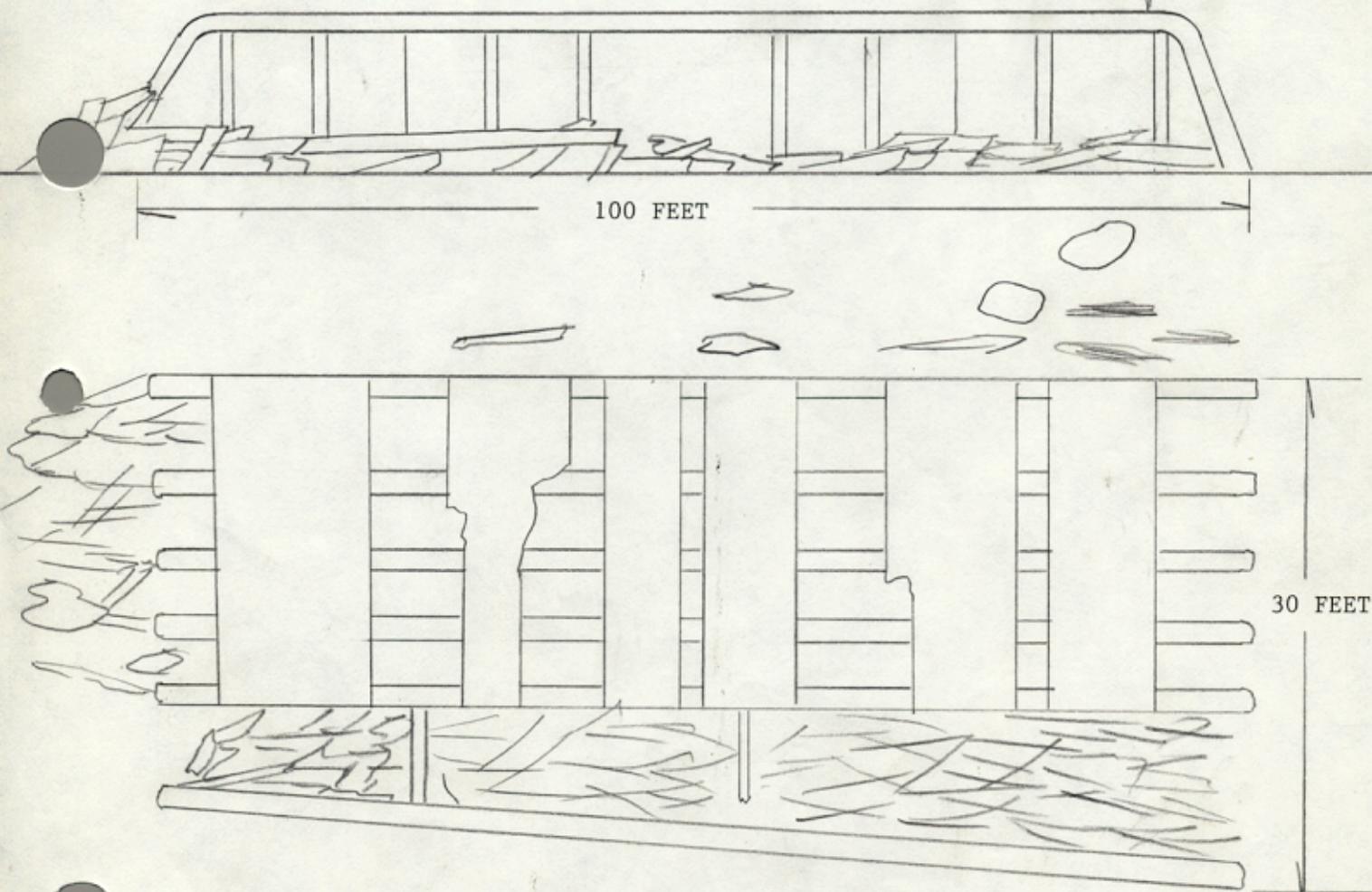
See Section 7.a.4) of the Evaluation Report.

AWOIS ITEM #6816
CONTACT 10, 25
CSTN 025

DIVERS : LT TUELL, LTJG BEAVER
METHOD OF SEARCH : CIRCLE
LEAST DEPTH DETERMINATION : PNEUMO

SURFACE

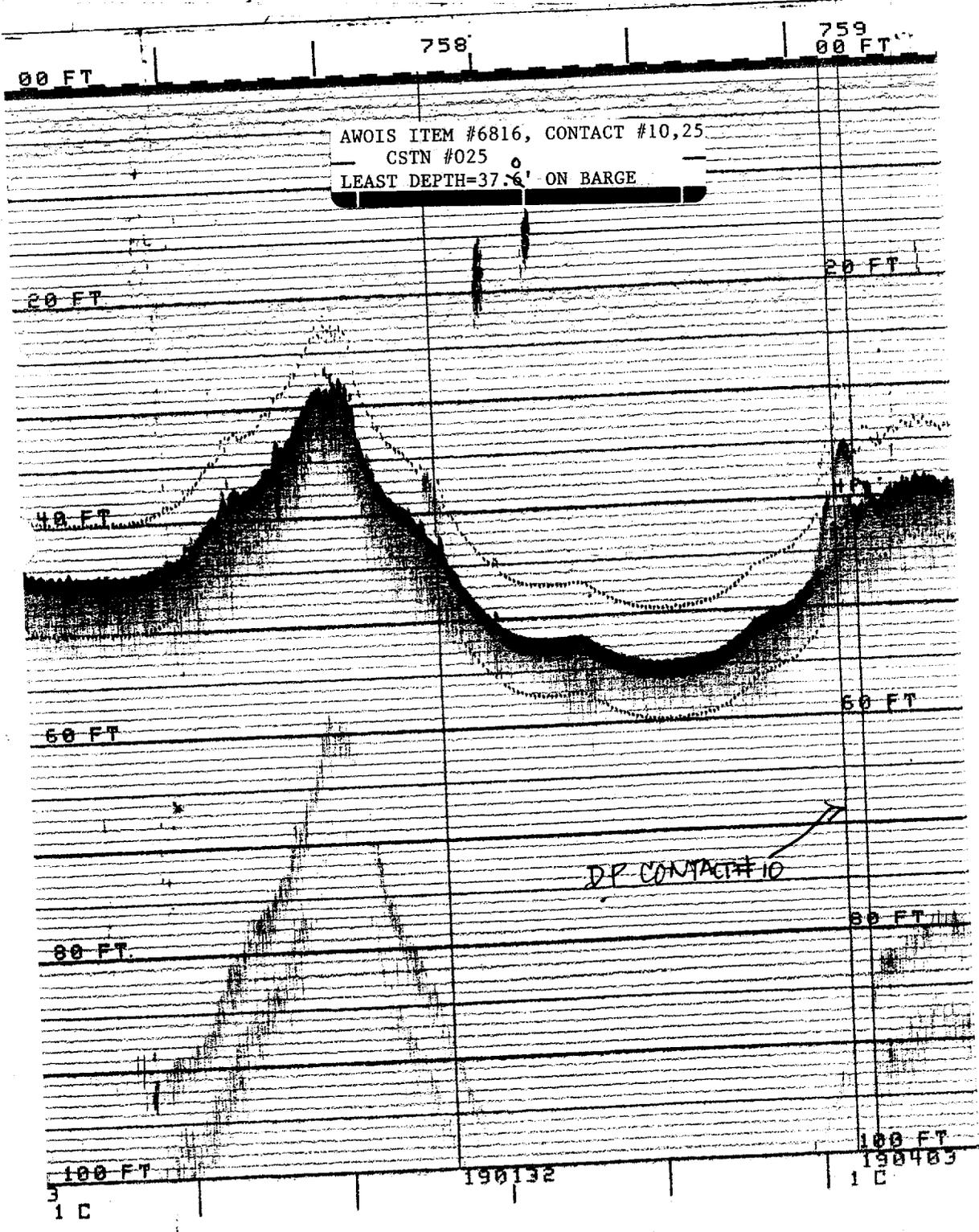
LEAST DEPTH = PNEUMO DEPTH 43.4FT
- TIDE VALUE -5.8FT
37.6FT



AWOIS ITEM #6816, CONTACT #10,25
CSTN #025
LEAST DEPTH=37.6' ON BARGE

10

4
100M
4 19:03:07
100M
4
100M
4
100M 19:02:52
4
100M
4
100M 19:02:39
4
100M
4
100M 19:02:24 363
4
100M
4
100M 19:02:11
4
100M
4
100M 19:01:56
4
100M
4
100M 19:01:43
4
100M
4
100M 19:01:28
4
100M
4
100M 19:01:15
4
100M
4
100M 19:01:00 367
4
100M
4
100M 19:00:47
4
100M
4



07:22:54:44

Easting.....: 110845.8
 Northing.....: 26304.1
 Latitude.....: 040:59:12.469
 Longitude.....: 073:32:16.010

CSTN 025

User 1 Caps Running

| HELP | Dump | Dump | | | |
|------|-------|----------|-------|-------|------|
| | Alpha | Graphics | | | |
| 286 | Time | Tide | Corr. | Units | FEET |
| 286 | 17:00 | -7.6 | | | |
| 286 | 17:15 | -7.5 | | | |
| 286 | 17:30 | -7.3 | | | |
| 286 | 17:45 | -7.1 | | | |
| 286 | 18:00 | -6.8 | | | |
| 286 | 18:15 | -6.5 | | | |
| 286 | 18:30 | -6.2 | | | |
| 286 | 18:45 | -5.9 | | | |
| 286 | 19:00 | -5.3 | | | |
| 286 | 19:15 | -4.9 | | | |
| 286 | 19:30 | -4.4 | | | |
| 286 | 19:45 | -3.9 | | | |
| 286 | 20:00 | -3.4 | | | |
| 286 | 20:15 | -3.0 | | | |
| 286 | 20:30 | -2.5 | | | |
| 286 | 20:45 | -2.0 | | | |
| 286 | 21:00 | -1.6 | | | |
| 286 | 21:15 | -1.2 | | | |
| 286 | 21:30 | -.9 | | | |
| 286 | 21:45 | -.6 | | | |
| 286 | 22:00 | -.4 | | | |
| 286 | 22:15 | -.2 | | | |
| 286 | 22:30 | | | | |

DIVING OPERATIONS

DATE: 12 OCT 1988

UNIT: N. SHIP HECK 5591

LOCATION: SOUTHERN NEW ENGLAND COAST

AWOIS ITEM # 6816

TARGET# 10125

VE MASTER: LTJG.A.BEAVER
 ENDERS: ST.W.MORRIS
 AB.M.JONES

DIVERS : LT.G.TUELL
 : LTJG.A.BEAVER

DIVE PLAN: CIRCLE SEARCH AND ITEM INVESTIGATION.

MAX.DEPH: 60 FT.

MAX TIME: 37

DEPTH(1) 43.4 (2) 43.2 (3) 43.5

AVRG.LEAST DEPTH: 43.4

LEAST DEPTH TIME: 1445

EQUIPMENT USED: OPEN CIRCUIT SCUBA.

CONDITIONS:

WIND :DIR NW KTS 15

SEAS :DIR NW FT 2-3

CURRENT:KTS 0

VISIBILITY:FT. 10

AIR TEMP. : (C) 11°

WATER TEMP: (C) 15°

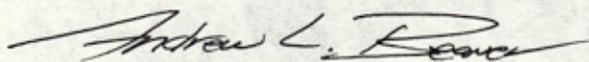
ALL TIMES: (LOCAL)

| # | DIVERS NAME | SI | GROUP | RNT | IN / OUT | | PRES. CHNG | IN / OUT | | BOTTOM TIME | DEPTH | GROUP |
|---|-------------|------|-------|-----|----------|-----|------------|----------|------|-------------|-------|-------|
| | | | | | IN | OUT | | IN | OUT | | | |
| 1 | TUELL | 0100 | B | 24 | 2550 | 500 | 2050 | 1418 | 1451 | 32 | 60' | J |
| 1 | BEAVER | 0100 | D | 24 | 2700 | 500 | 2200 | 1419 | 1451 | 32 | 60' | J |
| 2 | TUELL | | | | | | | | | | | |
| 2 | BEAVER | | | | | | | | | | | |
| 3 | TUELL | | | | | | | | | | | |
| 3 | BEAVER | | | | | | | | | | | |
| 4 | TUELL | | | | | | | | | | | |
| 4 | BEAVER | | | | | | | | | | | |

POST DIVE COMMENTS: Dove on the remains of a wooden
hulled barge. The wreck was lying capsize in
± 60 feet of water and rose an average of
15 feet off the bottom. There were no
protrubances extending above the keel. The sides
and bottom were deteriorated with most of
the barge's structure still well intact. Least
depth taken on one corner that showed above the 157.

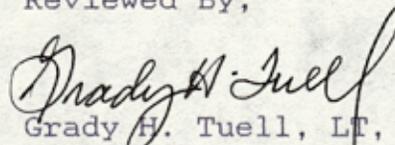
Andrew L. Beaver (Signature)
 DIVE MASTER SIGNATURE.

Respectfully Submitted,



Andrew L. Beaver, LT(jg), NOAA
Operations Officer
NOAA Ship HECK

Reviewed By,



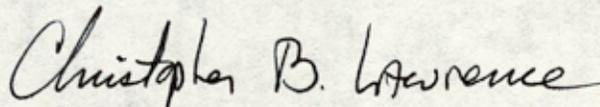
Grady H. Tuell, LT, NOAA
Executive Officer
NOAA Ship HECK

L. LETTER OF APPROVAL

Field NO. HE 10-3-88

OPR-B660-RU/HE-88

Field operations contributing to the accomplishment of this survey were conducted under my direct supervision with frequent personal checks of progress and data quality. This report, the field sheets and the data records have been closely reviewed and are considered complete and adequate for charting.



Christopher B. Lawrence, LCDR, NOAA
Commanding Officer
NOAA Ship HECK

APPENDIX IIA

STATION INFORMATION

The following are the horizontal control and visual control stations used during work on this survey.

| HDAS CSTN | STATION NAME | LATITUDE LONGITUDE | EASTING NORTHING | USE |
|--------------|------------------------|----------------------------------|---------------------|------|
| 117 | CAPTAIN 1967 | 040°58'57.549" 073°37'22.023" | 103693.0 25836.8 | PC |
| 118 | FOX ECCENTRIC | 040°54'31.265" 073°35'14.215" | 106688.1 17624.7 | PC |
| 119 | LLOYD POINT 1882 | 040°56'41.568" 073°29'14.429" | 115099.8 21656.7 | PC |
| 120 | STAMFORD LIGHTHOUSE | 041°00'49.147" 073°32'33.277" | 110437.9 29285.8 | PC/V |
| 113 | CAPTAIN LIGHTHOUSE | 040°58'57.043" 073°37'24.955" | 103624.4 25821.1 | V |
| 213 | BAYVILLE TANK | 040°54'22.762" 073°34'00.340" | 108417.3 17364.2 | V |
| 216 | GREENS LEDGE LH | 041°02'29.936" 073°26'37.872" | 118734.3 32411.4 | V |

USE - PC - POSITION CONTROL
V - VISUAL CONTROL

SIDE SCAN

ET ABSTRACT

NOAA SHIP CHECK

PROJECT NUMBER: OPR-B660-RU/HE-88

AWOIS NO. _____

SHEET NO. HE-10-3-88

| BOY | TARGET NO. | REF. LINE | FIX NO. | TIME | COORDINATES | HGT | SURND DEPTH | REFERENCE CONTACT NO. | RECON IMAGE | STATUS: |
|------------|------------|-----------|---------|--------|---|------|-------------|-----------------------|---|---|
| | | | | | E: N: | | | | POS. NO. | |
| BOY 258 | 1 | 260 | 13 | 172656 | E: <u>108582.1</u> N: <u>24717.7</u> | 9.8' | 65' | SEE #7 | 20+4 144 116+4 212+5 132+1 207+1 136+1 | D; LEAST DEPTH = 54.7; FIX 463 |
| BOY 258 | 2 | 780 | 54+1 | 184917 | E: <u>107903.3</u> N: <u>25128.0</u> | ? | 68' | SEE #3 | 129+4 | D; LEAST DEPTH = 61.4; FIX 240 |
| BOY 258 | 3 | 940 | 60+5 | 190744 | E: <u>107893.7</u> N: <u>25118.7</u> | 3 | 80' | SAME AS #2 | | (SEE #2) |
| BOY 258 | 4 | 440 | 29+2 | 180650 | E: <u>108660.0</u> N: <u>25030.0</u> | ? | 72' | | 110 | I |
| BOY 258 | 5 | 780 | 50+4 | 184419 | E: <u>108450.0</u> N: <u>25410.0</u> | ? | 89' | | 107+3 | I |
| BOY 266 | 6 | 2380 | 158+1 | 143750 | E: <u>107400.3</u> N: <u>26625.2</u> | 0 | 80' | | 106+5 193+5 176+3 185+4 | I |
| BOY 266 | 7 | 220 | 212+5 | 171039 | E: <u>108581.0</u> N: <u>24719.2</u> | 7' | 60' | SAME AS #1 | 225 | (SEE #1) |
| BOY 267 | 8 | 320 | 296 | 150318 | E: <u>110860.1</u> N: <u>26243.6</u> | 3' | 33' | SEE #24 | 367+2 741+2 746+4 | D; LEAST DEPTH = 45.7; FIX 483 |
| BOY 267 | 9 | 480 | 304+5 | 151818 | E: <u>111853.6</u> N: <u>26939.5</u> | 5' | 113' | | | I |
| BOY 267 | 10 | 480 | 313 | 152943 | E: <u>110840.8</u> N: <u>26307.9</u> | 10' | 65' | SEE #25 | 367+1 486+4 742+1 | D; LEAST DEPTH = 30.0 37.6; FIX 759 FIX 784 |
| BOY 270 | 11 | 80 | 374+4 | 191626 | E: <u>111384.8</u> N: <u>26152.2</u> | 2.5' | 86' | | | I |
| BOY 270 | 12 | 80 | 376+1 | 191840 | E: <u>111187.5</u> N: <u>26081.0</u> | 8.7' | 67' | | 503+1 505+3 | I |

LEGEND: I=INSIGNIFICANT
 D=DIVE
 H=HYDRO RESOLVED
 R=RECON IMAGERY REQUIRED

SIDE SCAN

NET ABSTRACT

NOAA SHIP HECK

PROJECT NUMBER: OPR-B660-RU/HE-88

AWOIS NO. _____

SHEET NO. HE-10-3-88

| BOY | TARGET NO. | REF. LINE | FIX NO. | TIME | COORDINATES | | HGT | SURND DEPTH | REFERENCE CONTACT NO. | RECON IMAGE POS. NO. | STATUS: |
|------------|------------|-----------|---------|--------|---|----------|-------|-------------|----------------------------------|----------------------|-------------------------------------|
| | | | | | E: _____ | N: _____ | | | | | |
| BOY 271 | 13 | -480 | 389+4 | 134403 | E: <u>110702.5</u> N: <u>25259.2</u> | | 13.8' | 44' | SEE # 18 SEE # 22 SEE # 21 | 467+2 | D; LEAST DEPTH = 31.4; FIX 480 |
| BOY 271 | 14 | 480 | 396 | 141541 | E: <u>112837.4</u> N: <u>27559.5</u> | | 7.7' | 57' | SEE # 14 17 | 452+2 | D; LEAST DEPTH = 32.5; FIX 771 |
| BOY 271 | 15 | 480 | 396 | 141540 | E: <u>112863.1</u> N: <u>27522.4</u> | | 7.1' | 61' | SEE # 16 | | I |
| BOY 272 | 16 | 1340 | 409 | 150436 | E: <u>112872.6</u> N: <u>27514.7</u> | | 8.3' | 65' | SAME AS # 15 | | I |
| BOY 271 | 17 | 1340 | 409+2 | 150510 | E: <u>112851.1</u> N: <u>27562.9</u> | | 8.9' | 63' | SAME AS # 14 | | (SEE # 14) |
| BOY 272 | 18 | 4460 | 432+4 | 153848 | E: <u>110696.1</u> N: <u>25245.8</u> | | 10.8' | 48' | SAME AS # 13 | | (SEE # 13) |
| BOY 272 | 19 | 3980 | 441 | 160715 | E: <u>110470.0</u> N: <u>26570.0</u> | | 9' | 65' | | 520+4 | } D; LEAST DEPTH = 33.3; FIX 738 |
| BOY 272 | 20 | 3980 | 442+4 | 160935 | E: <u>110570.0</u> N: <u>26400.0</u> | | 6' | 37' | | 518+3 | |
| BOY 273 | 21 | — | 466+4 | 193921 | E: <u>110637.9</u> N: <u>25314.5</u> | | ? | 51' | SAME AS # 13 | | (SEE # 13) BAD POSITION (REJECT) |
| BOY 273 | 22 | — | 470+2 | 194432 | E: <u>110705.2</u> N: <u>25204.0</u> | | 14' | 49' | SAME AS # 13 | | (SEE # 13) BAD POSITION (REJECT) |
| BOY 274 | 23 | 3780 | 489+5 | 142800 | E: <u>110860.0</u> N: <u>26200.0</u> | | 6.1' | 52' | | | I |
| BOY 274 | 24 | 3780 | 490+2 | 142838 | E: <u>110846.8</u> N: <u>26229.9</u> | | 5.7' | 50' | SAME AS # 8 | | (SEE # 8) |

LEGEND: I=INSIGNIFICANT
 D=DIVE
 H=HYDRO RESOLVED
 R=RECON IMAGERY REQUIRED

SIDE SCAN

NET ABSTRACT

NOAA SHIP HECK

PROJECT NUMBER: OPR-B660-RU/HE-88

AWOIS NO. _____

SHEET NO. HE-10-3-88

| BOY | TARGET NO. | REF. LINE | FIX NO. | TIME | COORDINATES | HGT | SURROUND DEPTH | REFERENCE CONTACT NO. | RECON IMAGE POS. NO. | STATUS: |
|------------|------------|-----------|---------|--------|---|------|----------------|-----------------------|----------------------|--|
| | | | | | E: _____ N: _____ | | | | | |
| BOY 274 | 25 | 3780 | 490+5 | 142910 | E: <u>110834.6</u> N: <u>26289.0</u> | 10' | 50' | SAME AS #10 | | (SEE #25) ¹⁰ |
| BOY 277 | 26 | — | 524+5 | 161604 | E: <u>110236.3</u> N: <u>18488.6</u> | 3.4' | 28' | SEE #27 | 540+3 544+2 | D; LEAST DEPTH = 22.9; FIX 764 |
| BOY 277 | 27 | -80 | 530+4 | 162340 | E: <u>110231.9</u> N: <u>18474.1</u> | 4.9' | 22' | SAME AS #26 | | (SEE #26) |
| BOY 267 | 28 | 0 | 288 | 144956 | E: <u>111240.0</u> N: <u>26225.0</u> | 5' | 55' | | 375+3 | I |
| BOY 267 | 29 | — | 310+4 | 152622 | E: <u>111120.0</u> N: <u>26500.0</u> | 6' | 60' | | | I |
| BOY 279 | 30 | 0 | 554+5 | 135850 | E: <u>111860.4</u> N: <u>20088.7</u> | ? | — | | | D; LEAST DEPTH = 15.3; FIX 791 (REJECT) |
| BOY 279 | 31 | -80 | 560+3 | 141252 | E: <u>111669.8</u> N: <u>20446.5</u> | ? | — | | | (REJECT) |
| BOY 279 | 32 | 0 | 569+2 | 145759 | E: <u>112112.9</u> N: <u>19892.4</u> | 4.4' | 28' | | | I |
| BOY 279 | 33 | 80 | 576+2 | 150827 | E: <u>111678.2</u> N: <u>20436.6</u> | 4.4 | 34' | | 677+3 | I |
| BOY 279 | 34 | 320 | 609 | 180442 | E: <u>112081.4</u> N: <u>20315.8</u> | 0' | 35' | | | D; NO DEPTH TAKEN ON WRECK; FIX 804 |
| BOY 286 | 35 | 3780 | 740+3 | 171306 | E: <u>110887.2</u> N: <u>26164.0</u> | 6.8' | 68' | | | I- DIVE SHAL |
| BOY 286 | 36 | 3780 | 742+5 | 171619 | E: <u>110762.2</u> N: <u>26349.8</u> | 7.8' | 60' | | | I- DIVE SHAL |

LEGEND: I=INSIGNIFICANT

D=DIVE

H=HYDRO RESOLVED

R=RECON IMAGERY REQUIRED

SIDE SCAN

JET ABSTRACT

NOAA SHIP HECK

PROJECT NUMBER: OPR-B660-RU/HE-88

AWOIS NO. _____

SHEET NO. HE-10-3-88

| DOY | TARGET NO. | REF. LINE | FIX NO. | TIME | COORDINATES | HGT | SURND DEPTH | REFERENCE CONTACT NO. | RECON IMAGE POS. NO. | STATUS: |
|------------|------------|-----------|---------|--------|---------------------------|------|-------------|-----------------------|----------------------|--------------------------------|
| | | | | | | | | | | |
| DOY 286 | 37 | 3710 | 745+4 | 172258 | E: 110837.2 N: 26351.4 | 7.3' | 48' | | | I-DIVE SHOAL |
| DOY 286 | 38 | 3710 | 746+1 | 172335 | E: 110877.0 N: 26318.8 | 7.0' | 48' | | 486+4.5 | D; LEAST DEPTH = 30.0; FIX 787 |
| DOY 280 | 39 | 40 | 652+2 | 142045 | E: 112031.2 N: 19999.3 | 6.9' | 32' | SEE # 40 | | D; LEAST DEPTH = 21.7; FIX 802 |
| DOY 279 | 40 | 0 | 570 | 145850 | E: 112040.9 N: 19990.9 | 7' | 31' | SAME AS #39 | | (SEE #39) |
| DOY 279 | 41 | 160 | 587 | 172145 | E: 111941.5 N: 20235.1 | 5' | 33' | | 663+2 674+4 | D; LEAST DEPTH = 24.9; FIX 796 |
| DOY 280 | 42 | 200 | 673+4 | 153526 | E: 112068.0 N: 20222.0 | 6' | 36' | | 684+3 | D; LEAST DEPTH = 27.4; FIX 801 |
| DOY 279 | 43 | 240 | 601 | 174740 | E: 111875.7 N: 20463.2 | 5.6' | 35' | | 695+4 | D; LEAST DEPTH = 28.8; FIX 790 |
| DOY | | | | | E: _____ N: _____ | | | | | |
| DOY | | | | | E: _____ N: _____ | | | | | |
| DOY | | | | | E: _____ N: _____ | | | | | |
| DOY | | | | | E: _____ N: _____ | | | | | |
| DOY | | | | | E: _____ N: _____ | | | | | |

LEGEND: I=INSIGNIFICANT
 D=DIVE
 H=HYDRO RESOLVED
 R=RECON IMAGERY REQUIRED



**UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration**

NATIONAL OCEAN SERVICE
NOAA Ship HECK
439 West York Street
Norfolk, VA. 23510
(804) 441-6679

December 8, 1988

TO: N/MOA12 - Chief, Sea and Lake Levels Branch
FROM: HECK - *Christopher B. Lawrence*
SUBJECT: Request for Approved Tides/Water Levels

Please provide the following data:

1. Approved Tides/Water Level Note
2. Approved Hourly Heights for Days of Hydrography
3. Hourly Heights on Magnetic Tape

Transmit the data to the following marine center:

Hydrographic Surveys Branch (N/MOA23X1)
Atlantic Marine Center

This data is required for the processing of hydrographic surveys:

Registry No.: FE-319-SS
Field No.: HE-10-3-88
Project No.: OPR-B660-RU/HE-88
Locality: Southern New England Coast,
Connecticut and New York

A Chartlet showing the area and Abstract of Times of Hydrography/
Shoreline are included with this request.

Tides/Water level data are required within 90 days of receipt of
this request. If this schedule cannot be met, please advise:
Chief, Hydrographic Surveys Processing Section, N/MOA232, telephone
FTS 827-6319.



U.S. DEPARTMENT OF COMMERCE
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
 NATIONAL OCEAN SERVICE

ABSTRACT OF TIMES OF HYDROGRAPHY/SHORELINE VERIFICATION

DATE: December 8, 1988

PROJECT No. OPR-B660-RU/HE-88 VESSEL: NOAA Ship HECK

DATES OF SURVEY: September 14 - October 18, 1988

FIELD SHEET No.: HE-10-3-88

REGISTRY No.: FE-319-SS

FIELD SHEETS ARE COMPLETE

| 1988 | | to | 1988 | | |
|------------------|--------|----|---------------|--------|----------|
| DAY/TIME(UTC) | | | DAY/TIME(UTC) | | |
| SHEET HE-10-3-88 | | | | | COMMENTS |
| 258 | 150413 | | 258 | 222050 | |
| 259 | 102828 | | 259 | 171438 | |
| 266 | 123453 | | 266 | 212643 | DIVE |
| 267 | 104857 | | 267 | 183116 | |
| 270 | 160552 | | 270 | 214529 | |
| 271 | 113540 | | 271 | 205316 | DIVE |
| 272 | 132954 | | 272 | 203300 | DIVE |
| 273 | 173704 | | 273 | 231429 | DIVE |
| 274 | 105700 | | 274 | 173859 | DIVE |
| 277 | 141338 | | 277 | 185654 | |
| 279 | 115331 | | 279 | 222234 | |
| 280 | 121444 | | 280 | 201004 | |
| 286 | 124930 | | 286 | 210411 | DIVE |
| 288 | 110740 | | 288 | 170004 | DIVE |
| 291 | 125856 | | 291 | 221701 | DIVE |
| 292 | 103658 | | 292 | 205019 | DIVE |

NOTE: All times on each day are two hours before and after actual times of hydrography or dive operations where a least depth was obtained.

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: January 19, 1989

MARINE CENTER: Atlantic

OPR: B660

HYDROGRAPHIC SHEET: FE-319-SS (HE-10-3-88)

LOCALITY: Southern New England Coast, Connecticut and New York

TIME PERIOD: September 14 - October 18, 1988

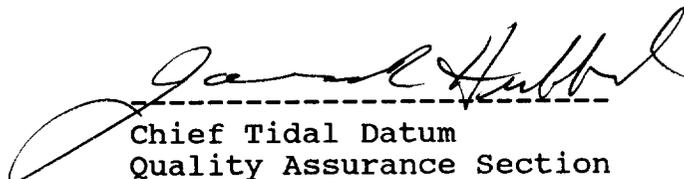
TIDE STATION(S) USED: 846-7150 Bridgeport, CT

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 1.81 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 7.0 ft.

REMARKS: RECOMMENDED ZONING

1. For AWOIS items 1749, 4405, 4412, 4413, 4414, 4452, 4453, 6716, 6801, 6814, 6816, zone direct.



Chief Tidal Datum
Quality Assurance Section

GEOGRAPHIC NAMES

FE-319SS

| Name on Survey | | | | | | | | | | |
|---------------------------|--------------|------------------------|-------------------------|------------------------|---------------|-------------------|--------------------|-----------------|---|----|
| | A | B | C | D | E | F | G | H | K | |
| | ON CHART NO. | ON PREVIOUS SURVEY NO. | ON U.S. QUADRANGLE MAPS | FROM LOCAL INFORMATION | ON LOCAL MAPS | P.O. GUIDE OR MAP | RAND McNALLY ATLAS | U.S. LIGHT LIST | | |
| CONNECTICUT (title) | | | | | | | | | | 1 |
| GREENWICH POING (title) | | | | | | | | | | 2 |
| LONG ISLAND SOUND (title) | | | | | | | | | | 3 |
| OAK NECK POINT (title) | | | | | | | | | | 4 |
| NEW YORK (title) | | | | | | | | | | 5 |
| | | | | | | | | | | 6 |
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09/25/89

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: FE-319SS

| | |
|----------------------------|------|
| NUMBER OF CONTROL STATIONS | 4 |
| NUMBER OF POSITIONS | 667 |
| NUMBER OF SOUNDINGS | 3185 |

| | TIME-HOURS | DATE COMPLETED |
|-----------------------------|------------|----------------|
| * PREPROCESSING EXAMINATION | 35 | 01/23/89 |
| VERIFICATION OF FIELD DATA | 87 | 07/11/89 |
| QUALITY CONTROL CHECKS | 48 | |
| EVALUATION AND ANALYSIS | 75 | 09/25/89 |
| FINAL INSPECTION | 26 | 09/14/89 |
| TOTAL TIME | 236 | |
| MARINE CENTER APPROVAL | | 09/25/89 |

*Preprocessing time is not considered as part of total survey time.

REFERENCE NO.
N/CG244-87-89

LETTER TRANSMITTING DATA

DATA AS LISTED BELOW WERE FORWARDED TO YOU BY (Check):

- ORDINARY MAIL AIR MAIL
- REGISTERED MAIL EXPRESS
- GBL (Give number) _____

TO:

Chief, Data Control Branch, N/CG243
Room 151, WSC-1
Hydrographic Surveys Branch
Rockville, MD 20852

DATE FORWARDED
13 October 1989

NUMBER OF PACKAGES
1 tube, 1 box

NOTE: A separate transmittal letter is to be used for each type of data, as tidal data, seismology, geomagnetism, etc. State the number of packages and include an executed copy of the transmittal letter in each package. In addition the original and one copy of the letter should be sent under separate cover. The copy will be returned as a receipt. This form should not be used for correspondence or transmitting accounting documents.

FE-319SS

Connecticut, New York, LI Sound, Between Oak Neck Pt and Greenwich Pt

1 Tube (pkg #1) containing the following final smooth field sheets:

- *1 HE-10-5-88, AWOIS 4405 & 6716, 1st 100% smooth swathplot
- *1 HE-10-5-88, AWOIS 4405 & 6716, 2nd 100% smooth swathplot
- *1 HE-10-3-88, 1st 100% smooth swathplot
- *1 HE-10-3-88, 2nd 100% smooth swathplot
- *1 HE-10-3-88, 3rd 100% smooth swathplot
- *1 HE-10-3-88, 4th 100% smooth swathplot
- 1 HE-10-5-88 DP and reported position plot
- 1 HE-10-5-88 Depthplot for prior comparison
- 1 HE-10-3-88 DP and reported position plot
- 1 HE-10-3-88 Depthplot for prior comparison

* note: to be retained in the archives.

1 box (pkg #2) containing:

- 1 Original Descriptive Report
- 1 Cahier with final sounding printout, position printout and control listing
- 1 Envelope with supplemental data removed from printouts

page 1 of 2

FROM: (Signature)

Richard H. Whitfield
Richard H. Whitfield

RECEIVED THE ABOVE
(Name, Division, Date)

Return receipted copy to:

Chief, Hydrographic Surveys Branch,
N/CG244
Atlantic Marine Center
439 W. York Street
Norfolk, VA 23510-1114

REFERENCE NO.
N/CG244-87-89

LETTER TRANSMITTING DATA

DATA AS LISTED BELOW WERE FORWARDED TO YOU
BY (Check):

- ORDINARY MAIL AIR MAIL
- REGISTERED MAIL EXPRESS
- SBL (Give number) _____

TO:

Chief, Data Control Branch, N/CG243
Room 151, WSC-1
Hydrographic Surveys Branch
Rockville, MD 20852

DATE FORWARDED
13 October 1989

NUMBER OF PACKAGES
1 tube, 1 box

NOTE: A separate transmittal letter is to be used for each type of data, as tidal data, seismology, geomagnetism, etc. State the number of packages and include an executed copy of the transmittal letter in each package. In addition the original and one copy of the letter should be sent under separate cover. The copy will be returned as a receipt. This form should not be used for correspondence or transmitting accounting documents.

- 1 box, (Pkg #2) continued:
 - 1 Envelope with miscellaneous data removed from the original Descriptive Report
 - 1 Envelope with 5 position overlays and 2 excess sounding overlays
 - 14 Envelopes with sonargrams from:
 - VESNO 9140 for JD's: 258, 259, 266, 267, 270, 271, 272, 273, 274, 277, 279, 280, 286, and 291
 - 1 Accordion file with fathograms, master and corrector printouts from:
 - VESNO 9140 for JD's: 258, 259, 266, 267, 270, 271, 272, 273, 274, 277, 279, 280, 286, 288, 291, and 292

page 2 of 2

FROM: (Signature) *R. H. Whitfield*
Richard H. Whitfield

RECEIVED THE ABOVE
(Name, Division, Date)

Return receipted copy to:

Chief, Hydrographic Surveys Branch,
N/CG244
Atlantic Marine Center
439 W. York Street
Norfolk, VA 23510-1114

ATLANTIC MARINE CENTER
EVALUATION REPORT

SURVEY NO.: FE-319SS

FIELD NO.: HE-10-3-88

Connecticut, New York, Long Island Sound, Between Oak Neck
and Greenwich Point

SURVEYED: September 9 through October 19, 1988

SCALE: 1:10,000

PROJECT NO.: OPR-B660-RU/HE-88

SOUNDINGS: RAYTHEON DSF-6000N Fathometer, EG&G Side Scan
Sonar, and Pneumatic Depth Gauge

CONTROL: MOTOROLA Falcon 484 Mini Ranger (Range/Range)

Chief of Party.....C. B. Lawrence

Surveyed by.....G. H. Tuell
.....A. L. Beaver
.....W. R. Morris

Automated Plot by.....XYNETICS 1201 Plotter (AMC)

1. INTRODUCTION

a. This is primarily a side scan sonar survey. A Raytheon DSF-6000N fathometer was operated concurrently with the side scan sonar. The hydrography is considered reconnaissance hydrography and is not to be charted except for the shoalest soundings and least depths determined. Pneumatic depth gauges were used to determine least depths. No wire drag was accomplished during this survey.

b. Nine (9) 1:10,000 scale page size smooth sheets for six (6) AWOIS items were generated during office processing, and are attached to this report. Sheet 4 of 6 has four pages, (1) to (4), showing the area of the 400% side scan sonar investigation by the field unit. These pages are copies of the final field plots. Sheets 1 through 3 and 4 through 6 of 6 show the items found by the field unit. These plots are considered the final plots or smooth sheets for this survey.

c. No unusual problems were encountered during office processing.

d. Notes in the Descriptive Report were made in red during office processing.

2. CONTROL AND SHORELINE

a. Control is adequately discussed in section H. of the Descriptive Report.

b. There is no shoreline within the limits of this survey.

c. Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD83). Office processing of this survey is based on these values. The smooth sheets have been annotated with ticks showing the computed mean shift between the survey datum and the North American Datum of 1927 (NAD27). To place this survey, sheets 1 through 6, on the NAD27 datum, move the projection lines 0.350 seconds (10.8 meters or 1.08 mm at the scale of the survey) north in latitude, and 1.560 seconds (36.5 meters or 3.65 mm at the scale of the survey) east in longitude.

All geographic positions listed from sources other than the present survey, are on the NAD27 unless otherwise specified. All inverse distance computations are made after geographic positions have been converted to the survey datum, NAD83.

3. HYDROGRAPHY

a. The hydrography collected on this survey, sheets 1 through 4 and 6 of 6, during side scan sonar operations is of reconnaissance value only and was not verified. This does not pertain to the pneumatic depth gauge depths of AWOIS and additional items shown on the smooth plots, sheets 1 through 3 and 6 of 6, included in this report. The hydrography shown on sheet 5 of 6 was verified during office processing.

b. Development of bottom configuration and determination of least depths is considered adequate.

4. CONDITION OF SURVEY

The smooth sheets and accompanying overlays, hydrographic records and reports are adequate and conform to the requirements of the HYDROGRAPHIC MANUAL and the SIDE SCAN SONAR MANUAL.

5. JUNCTIONS

There are no contemporary junctional surveys. There are no junctional requirements in the Project Instructions.

6. COMPARISON WITH PRIOR SURVEYS

a. Hydrographic

H-1732a (1914) 1:20,000

H-5402a (1933) 1:10,000
 H-5222 (1932) 1:10,000
H-5544 (1934) 1:10,000

The prior surveys listed above are common to the entire present survey. Comparisons between present and prior hydrography were not made since all present hydrography, except the detached soundings on items located, is considered reconnaissance hydrography. Hydrography shown on the present survey is in good agreement with the prior surveys. Adequate comparisons between present hydrography and the prior surveys have been made by the hydrographer in section J. of the Descriptive Report, and need no further discussion in this report.

b. Wire Drag

H-5142WD (1931) 1:20,000

AWOIS items #1749, #4405, #4412, #4413, #4414, #6801, #6814, and #6816 originate with the prior wire drag survey.

A discussions and charting recommendation for AWOIS item #4414 is found in section K4. page 35, of the Descriptive Report.

AWOIS item #1749 is a charted dangerous submerged obstruction with a wire drag clearance depth of 40 feet in Latitude 40°58'18.0"N, Longitude 73°33'55.0"W originating with the prior wire drag survey. Wreckage was located by the hydrographer in Latitude 40°58'21.48"N, Longitude 73°33'53.40"W, and a pneumatic depth gauge least depth of 54 feet was obtained. This depth agrees with the actual sounding of 54 feet found at the time of the prior survey. The wreck is 97 meters north of the charted AWOIS position in prior survey depths of 56 to 60 feet and is not considered a danger to navigation. The wreck found by the field unit is considered to be AWOIS item #1749. It is recommended that this wreck be charted in the position determined by the present survey as a sunken wreck with a least depth of 54 feet (54 Wk). The presently charted dangerous obstruction with a cleared wire drag depth of 40 feet should be deleted from the chart. See sheet 1 of 6.

AWOIS item #4405 is a charted dangerous submerged wreck with a depth of 21 feet in Latitude 40°54'58.2"N, Longitude 73°32'44.2"W originating with the prior wire drag survey as a 21 foot hang on wreckage. Wreckage was located by the hydrographer in Latitude 40°54'58.93"N, Longitude 73°32'42.35"W and pneumatic depth gauge least depth of 23 feet was obtained. The wreckage found by the field unit is 14 meters NNE of the AWOIS position, and is considered to be AWOIS item #4405. It is recommended that the wreckage be charted in the position determined by the present survey as a

dangerous sunken wreck with a least depth of 23 feet (23 Wk). The presently charted dangerous sunken wreck with a least depth of 21 feet should be removed from the chart. See sheet 2 of 6.

AWOIS item #4412 is a charted dangerous submerged rock with a wire drag clearance depth of 32 feet in Latitude 40°59'13.5"N, Longitude 73°32'32.5"W. AWOIS item #4413 is an uncharted obstruction (boulder) hung at 34 feet in Latitude 40°59'16.0"N, Longitude 73°32'34.0"W. Both items originate with the prior wire drag survey. The area was developed with side scan sonar and a shoal area was located in the vicinity of the AWOIS items. Due to the close proximity of the two AWOIS items (78 meters), they were treated as one item by the hydrographer. A diver least depth of 34 feet was found on the shoalest rock in a field of boulders in Latitude 40°59'13.75"N, Longitude 73°32'31.61"W. The circle search completed by the divers had a 40 meter radius and is 38 meters short of covering the area of the second shoal depth of 34 feet. Because of the possibility there are two shoal depths of 34 feet, the uncharted 34 foot hang depth (AWOIS #4413) was brought forward from the prior survey to supplement the present survey in Latitude 40°59'16.35"N, Longitude 73°32'32.44"W (NAD83). It is recommended that the dangerous submerged rock with a wire drag clearance depth of 32 feet, AWOIS #4412, be removed from the chart and a dangerous submerged rock with a least depth of 34 feet (34 Rk) be charted in the position determined by the present survey. It is also recommended that the uncharted rock with a hang depth of 34 feet, AWOIS item #4413, be charted as a dangerous submerged rock with a wire drag clearance depth of 32 feet (cleared by 32 feet, 1931) in the position shown on the present survey. See sheet 3 of 6.

AWOIS item #6801 is a charted dangerous submerged rock with a wire drag clearance depth of 36 feet in Latitude 40°59'50.0"N, Longitude 73°30'51.0"W originating with the prior wire drag survey as a 39 foot hang. An actual least depth of 39.8 feet was obtained by a pneumatic depth gauge on the shoalest rock in a boulder field in Latitude 40°59'50.59"N, Longitude 73°30'52.06"W. Due to rounding of depths, a 40-ft depth is shown on the present survey. Because of more sophisticated surveying techniques, the present survey depth is considered to be accurate. It is recommended that a dangerous submerged rock with a least depth of 40 feet (40 Rk) be charted in the position determined by the present survey. The presently charted dangerous submerged rock with a cleared depth of 36 feet should be removed from the chart. See sheet 6 of 6.

AWOIS item #6814 is a charted dangerous submerged rock with a wire drag clearance depth of 30 feet in Latitude 40°58'39.13"N, Longitude 73°32'24.16"W originating with the prior wire drag survey as a 31 foot hang. A pneumatic depth

gauge least depth of 31 feet was obtained on a boulder in Latitude 40°58'38.32"N, Longitude 73°32'22.75"W. The rock found by the field unit is 36 meters south of the charted AWOIS position. It is recommended that a dangerous submerged rock with a least depth of 31 feet (31 Rk) be charted in the position determined by the present survey. The presently charted dangerous submerged rock with a cleared depth of 30 feet should be removed from the chart. See sheet 3 of 6.

AWOIS item #6816 is a charted dangerous submerged rock with a wire drag clearance depth of 28 feet in Latitude 40°59'13.8"N, Longitude 73°32'14.7"W originating with the prior wire drag survey as a 29 foot hang. A pneumatic depth gauge least depth of 30 feet was obtained on a boulder in Latitude 40°59'13.29"N, Longitude 73°32'13.23"W. The rock found by the field unit is 27 meters south of the charted AWOIS position. The present survey sounding is also in agreement with a 30-ft shoal sounding shown on prior survey H-1732a (1914). It is recommended that a dangerous submerged rock with a least depth of 30 feet (30 Rk) be charted in the position determined by the present survey. The presently charted dangerous submerged rock with a cleared depth of 28 feet should be removed from the chart. See sheet 3 of 6.

7. COMPARISON WITH CHART 12365 (19th Ed., Mar. 10/84)

a. Hydrography

The charted hydrography originates with the previously discussed prior surveys and sources not readily ascertainable. The previously discussed prior surveys require no further consideration. Attention is directed to the following:

1) AWOIS item #4452 is an uncharted sunken wreck (barge), in Latitude 40°58'38.0"N, Longitude 73°34'03.0"W, originating with Chart Letter 1095 of 1986 (CL1095/86). A pneumatic depth gauge least depth of 61 feet was obtained on a wreck that matched the description of the AWOIS item in Latitude 40°58'34.17"N, Longitude 73°34'21.72"W in prior depths of 61 to 64 feet. The wreck found by the field unit is 491 meters WSW of the AWOIS position and is considered to be AWOIS item #4452. It is recommended that the wreck be charted in the position determined by the present survey as a sunken wreck (barge) not dangerous to navigation with a least depth of 61 feet (61 Wk). See sheet 1 of 6.

2) AWOIS item #4453 is an uncharted sunken wreck (schooner) in Latitude 40°59'18.0"N, Longitude 73°31'57.0"W, originating with Chart Letter 1095 of 1986 (CL1095/86). A sunken wreck was located by the hydrographer 542 meters WSW of the AWOIS position in Latitude 40°59'10.07"N, Longitude 73°32'15.90"W with a pneumatic depth gauge least depth of 45 feet. The wreck is considered to be AWOIS item #4453 and is

not a hazard to navigation. It is recommended that this wreck be charted in the position determined by the present survey as a sunken wreck (schooner) not dangerous to navigation with a least depth of 45 feet (45 Wk). See sheet 3 of 6.

3) AWOIS item #6716 is a charted dangerous sunken wreck (clear at 17 feet) in Latitude 40°55'51.0"N, Longitude 73°31'31.0"W, originating with Chart Letter 426 of 1927 (CL426/27). A sunken wreck was located by the hydrographer 251 meters northeast of the AWOIS position in Latitude 40°55'58.09"N, Longitude 73°31'23.42"W with a fathometer least depth of 33 feet. The wreck is considered to be AWOIS item #6716 and is not a hazard to navigation. It is recommended that this wreck be charted in the position determined by the present survey as a sunken wreck not dangerous to navigation with a least depth of 33 feet (33 Wk). The presently charted dangerous sunken wreck (Cleared at 17 feet) should be deleted from the chart. See sheet 5 of 6.

Five (5) additional uncharted contacts (rocks), noted by the hydrographer and considered significant, are shown on the present survey. Adequate discussions and charting recommendations can be found in section K7., pages 50 through 93, of the Descriptive Report. See sheet 5 of 6.

4) An additional uncharted dangerous sunken wreck (barge) was located during the investigation of AWOIS item #6816 in Latitude 40°59'12.46"N, Longitude 73°32'16.01"W with a pneumatic depth gauge least depth of 38 feet. The wreck lies between the present survey position of AWOIS items #4453 and #6816; 73 meters north of item #4453 and 85 meters southwest of item #6816. It is recommended that a dangerous sunken wreck (barge) with a least depth of 38 feet (38 Wk) be charted in the position determined by the present survey should the scale of the chart allow. See sheet 3 of 6.

b. Dangers to Navigation

Several dangers to navigation were located during the survey and were recommended for charting. No Danger to Navigation reports were submitted to the Coast Guard by the field unit as required by section 7.11 of the Project Instructions. During office processing, two dangers to navigation were submitted to Commander, First Coast Guard District, Boston Massachusetts and to N/CG222, Chart Information Section for inclusion in the Local Notice to Mariners. The dangers to navigation have been checked during office processing and found to be correct.

c. Aids to Navigation

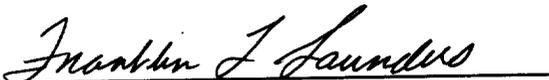
There are no fixed or floating aids to navigation within the limits of this survey.

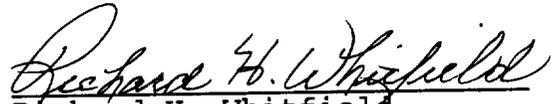
8. COMPLIANCE WITH INSTRUCTIONS

This survey adequately complies with the Project Instructions except a noted in this report.

9. ADDITIONAL FIELD WORK

This is a good side scan sonar survey; no additional field work is recommended.


Franklin L. Saunders
Cartographic Technician
Verification of Field Data


Richard H. Whitfield
Cartographer
Evaluation and Analysis


Leroy G. Cram
Supervisory Cartographic Technician
Verification Check

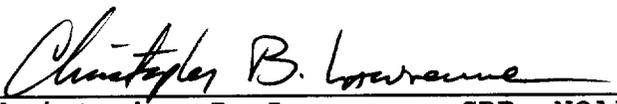
INSPECTION REPORT
FE-319SS

The data that make up this Side Scan Sonar survey have been inspected to gain insight into its overall completeness regarding survey coverage, presentation of survey results, and the verification or disproof of charted data. This survey, except as noted in the Evaluation Report, is considered complete and adequate to meet National Ocean Service standards. Processing is considered complete. The survey records comply with NOS requirements except as noted in the Evaluation Report.

Inspected

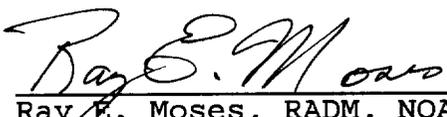


Robert G. Roberson
Chief, Evaluation and Analysis
Team
Hydrographic Processing Unit



Christopher B. Lawrence, CDR, NOAA
Chief, Atlantic Hydrographic
Section

Approved: 25 September 1989



Ray E. Moses, RADM, NOAA
Director, Atlantic Marine Center

73° 34' 30"

73° 34' 00"

73° 33' 30"

40° 59' 00"

4458

61 Wk (barge)

40° 58' 30"

1749

54 Wk

FE-319 SS
 CONNECTICUT -- NEW YORK
 LONG ISLAND SOUND
 BETWEEN OAK NECK POINT AND GREENWICH POINT
 SEPT 14-28, 1988
 SCALE 1:10,000
 SOUNDINGS IN FEET AT MLLW
 SHEET 1 OF 6
 AWOIS NUMBERS 1749, 4452

73° 34' 00"

NAD 27
 XYNETICS 1201
 LGC 6/16/89

40° 58' 00"

40° 58' 00"

73° 33' 00"

73° 32' 30"

40° 55' 30"

4405

40° 55' 00"

23 ~~W~~

FE-319SS
 CONNECTICUT--NEW YORK
 LONG ISLAND SOUND
 BETWEEN OAK NECK POINT AND GREENWICH POINT
 OCT 3-14, 1988
 SCALE 1:10,000
 SOUNDING IN FEET AT MLLW
 SHEET 2 OF 6
 AWOIS NUMBER 4405

73° 32' 30"

NAD 27

40° 54' 30"

40° 54' 30"

XYNETICS 1201
 ✓FLS 07/7/89

73° 33' 00"

73° 32' 30"

73° 32' 00"

40° 59' 30"

*Hung at 34 ft
Cleared by 32 ft
From H-5142WD (1931)*

34 Rk

4412
4413

34 Rk

30 Rk
38 Wk (barge)

45 Wk (schooner)

40° 59' 00"

31 Rk

73° 32' 00"

NAD 27

40° 58' 30"

40° 58' 30"

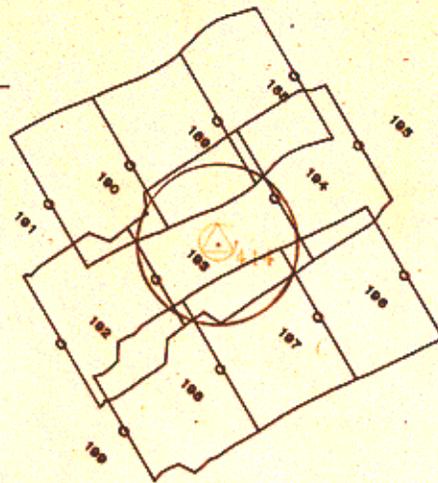
XYNETICS 1201
FLS 7/3/89

FE-319 SS
CONNECTICUT--NEW YORK
LONG ISLAND SOUND
BETWEEN OAK NECK POINT AND GREENWICH POINT
SEPT 23 - OCT 19, 1988
SCALE 1:10,000
SOUNDINGS IN FEET AT MLLW
SHEET 3 OF 6
AWOIS NUMBERS 4412,4413,4453,6814 & 6816

73° 35' 00"

73° 34' 30"

41° 00' 00"



40° 59' 30"

40° 59' 00"

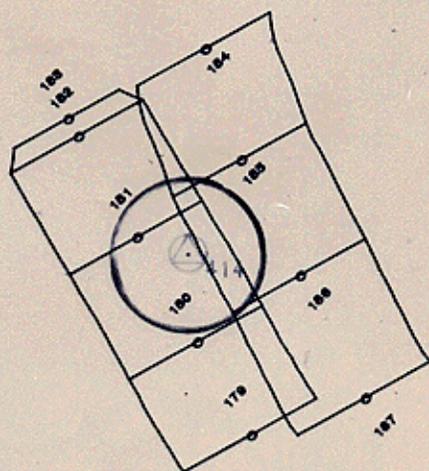
FE-319 SS
CONNECTICUT -- NEW YORK
LONG ISLAND SOUND
BETWEEN OAK NECK POINT AND
GREENWICH POINT
SEPT 22, 1988
SCALE: 1:10,000
HORIZONTAL DATUM: NAD 1983
SHEET 4 OF 6 (1)
AWOIS NUMBER 4414 P-35



73° 35' 00"

73° 34' 30"

41° 00' 00"



40° 59' 30"

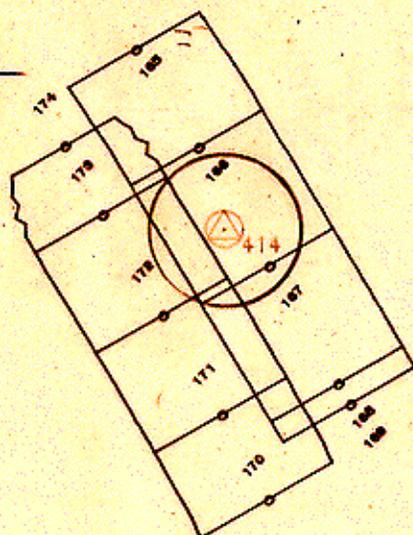
40° 59' 00"

FE-319 SS
SHEET 4 OF 6 (2)
AWOIS NUMBER 4414
NAD83

73° 35' 00"

73° 34' 30"

41° 00' 00"



40° 59' 30"

40° 59' 00"

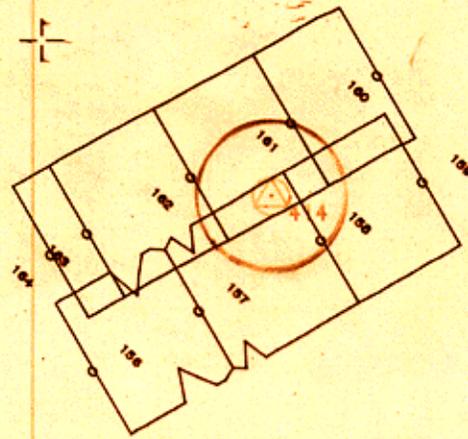
FE-319 SS
SHEET 4 OF 6 (3)
AWOIS NUMBER 4414
NAD83



73° 35' 00"

73° 34' 30"

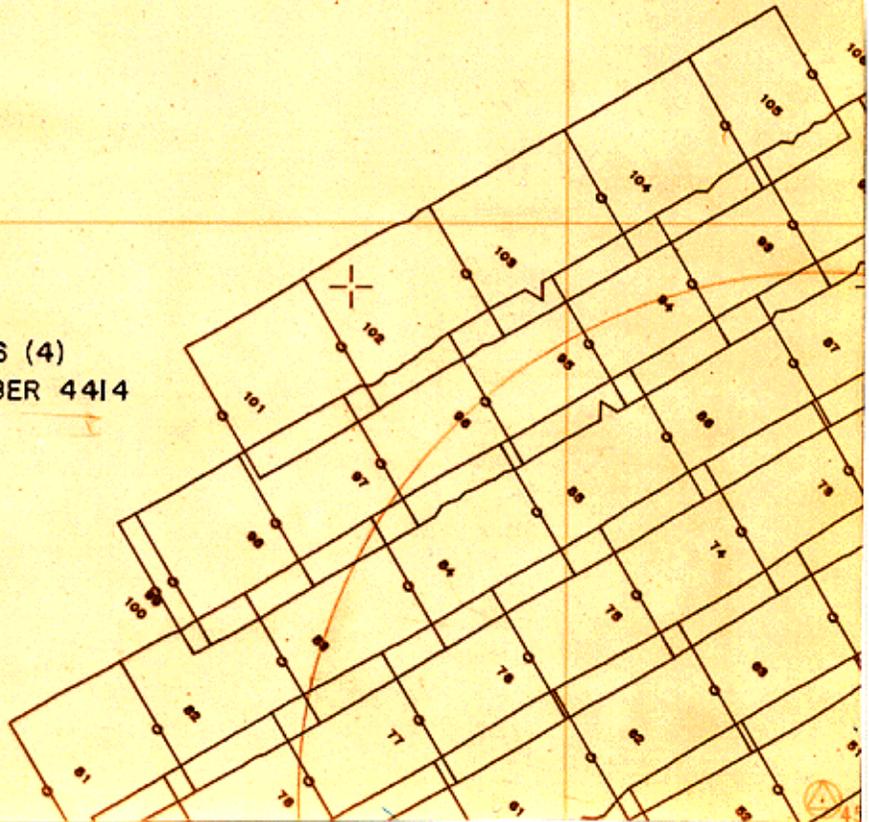
41° 00' 00"



40° 59' 30"

40° 59' 00"

FE-319 SS
SHEET 4 OF 6 (4)
AWOIS NUMBER 4414
NAD83



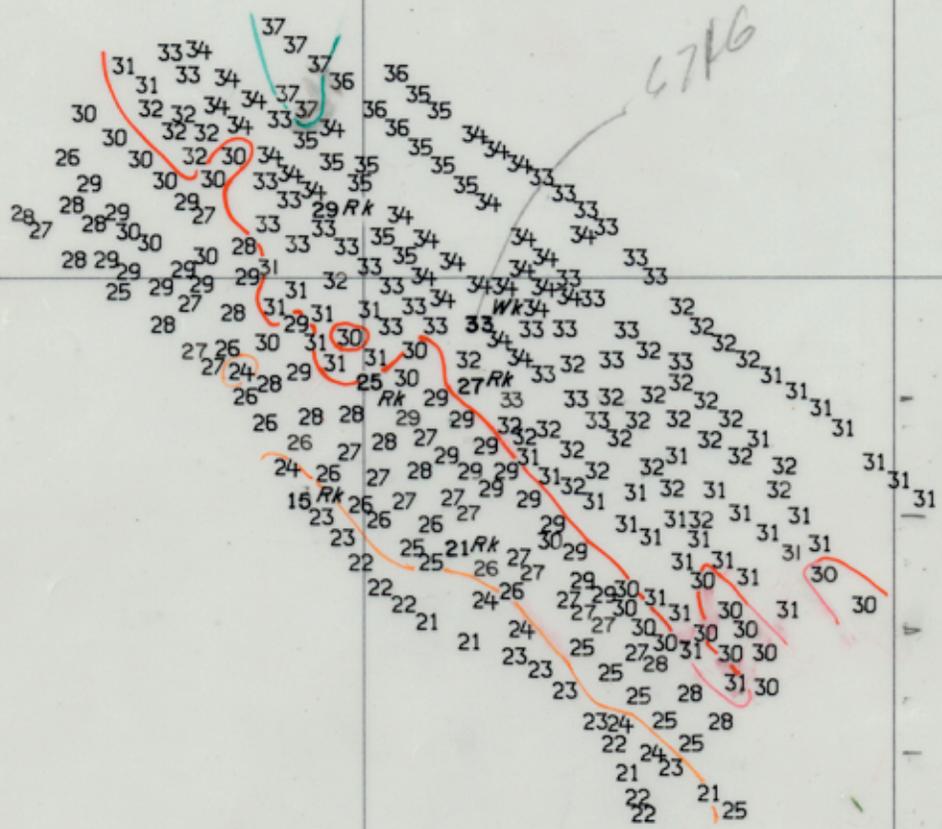
73° 32' 00"

73° 31' 30"

73° 31' 00"

40° 56' 30"

40° 56' 00"



73° 31' 00"

NAD 27
 XYNETICS 1201
 FLS 07/7/89

40° 55' 30" 40° 55' 30"

FE-319 SS
 CONNECTICUT -- NEW YORK
 LONG ISLAND SOUND
 BETWEEN OAK NECK POINT AND GREENWICH POINT
 OCT 5-6, 1988
 SCALE 1:10,000
 SOUNDINGS IN FEET AT MLLW
 SHEET 5 OF 6
 AWOIS NUMBER 6716

73° 31' 30"

73° 31' 00"

73° 30' 30"

41° 00' 30"

41° 00' 00"

40Rk

73° 30' 30"

NAD 27

40° 59' 30" 40° 59' 30"

XYNETICS 1201

✓ FLS 07/7/89

FE-319 SS
 CONNECTICUT--NEW YORK
 LONG ISLAND SOUND
 BETWEEN OAK NECK POINT AND GREENWICH POINT
 SEPT 27-OCT 17, 1988
 SCALE 1:10,000
 SOUNDINGS IN FEET AT MLLW
 SHEET 6 OF 6
 AWOIS NUMBER 6801

CONNECTICUT
SIDE

Noroton Heights

Glenbrook

STAMFORD

GREENS LIDGE
STA 216
VISUAL

Mianus

Riverside

Old Greenwich

STAMFORD LH
STA 120
CODE 8

WICH

Cos Cob

CAPTAIN 21HR

CAPTAIN '67
STA 117
CODE 7

CAPTAIN LTH
STA 113
VISUAL

STAMFORD HARBOR

41° 00.0' NORTH

73° 30.0' WEST

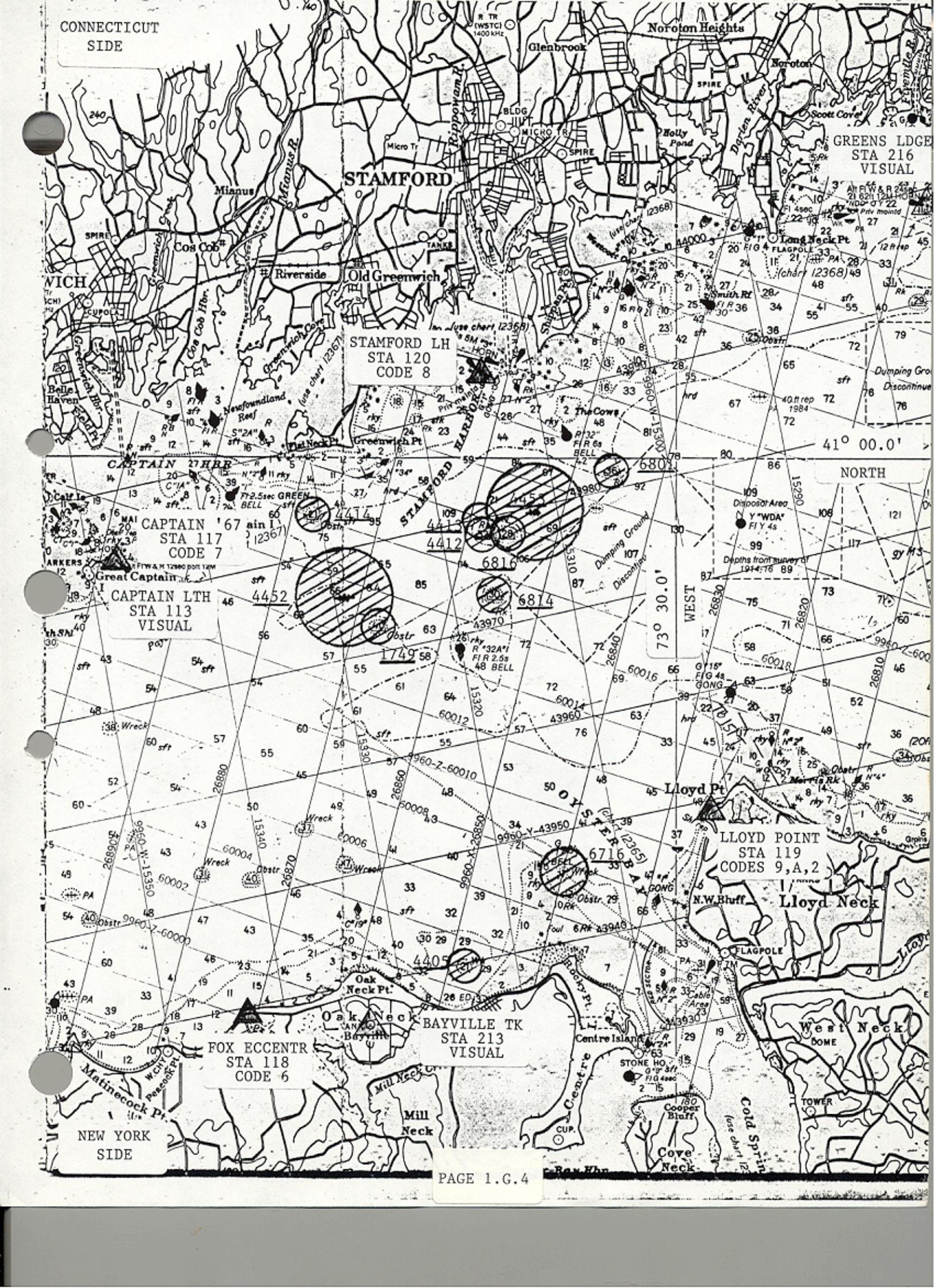
LLOYD POINT
STA 119
CODES 9, A, 2

Lloyd Neck

BAYVILLE TK
STA 213
VISUAL

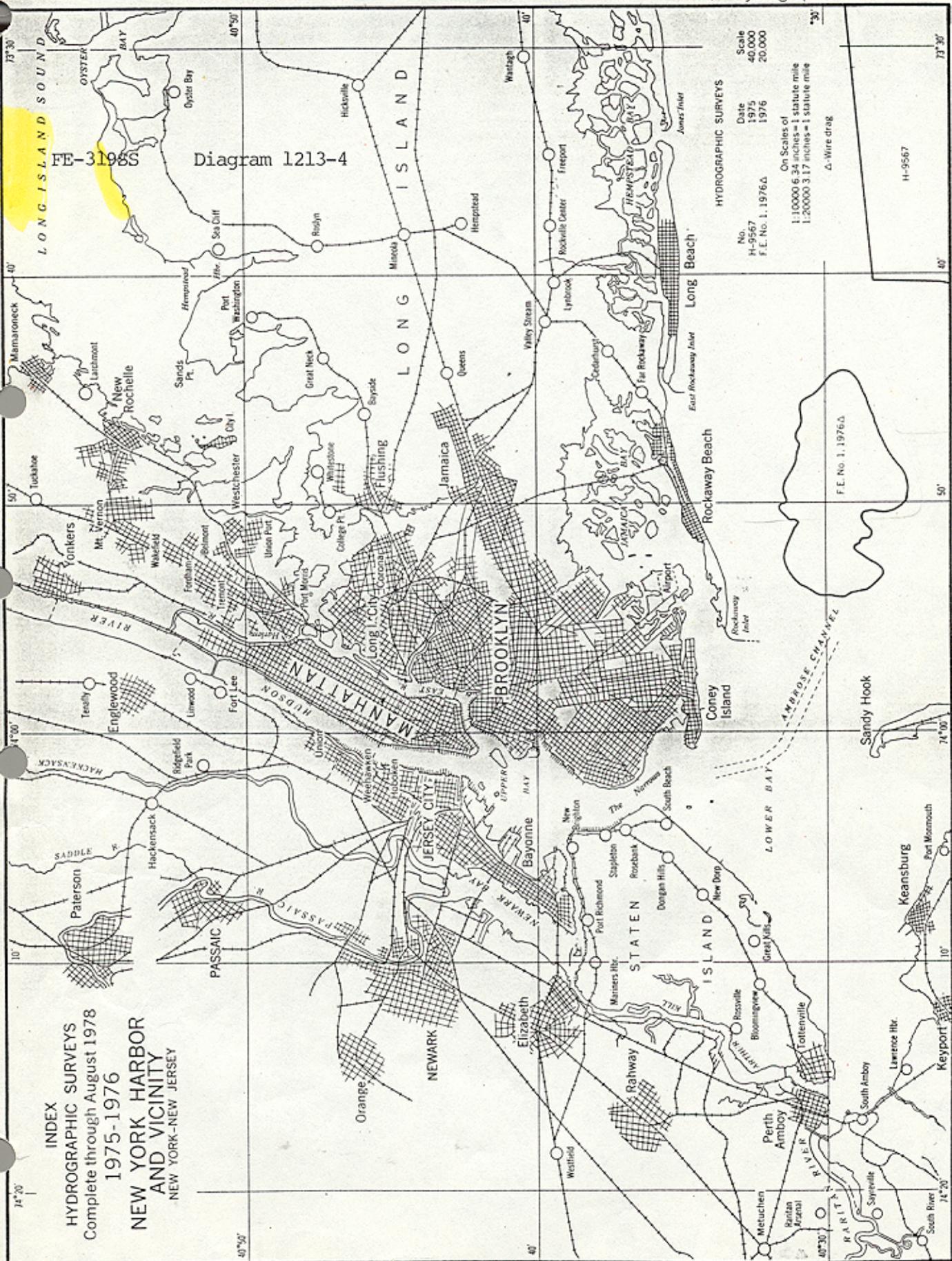
FOX ECCENTR
STA 118
CODE 6

NEW YORK
SIDE



DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Survey
Rockville, Maryland

Hydrographic Index No. 65 L



INDEX
HYDROGRAPHIC SURVEYS
Complete through August 1978
1975-1976
NEW YORK HARBOR
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NEW YORK-NEW JERSEY

Diagram 1213-4

HYDROGRAPHIC SURVEYS
No. H-9567
F.L. No. 1, 1976Δ

Scale
1975 40,000
1976 20,000

Date
1975
1976

On Scales of
1:100,000 5 34 inches = 1 statute mile
1:200,000 3 17 inches = 1 statute mile

Δ-Wire drag

F.L. No. 1, 1976Δ

H-9567

FE-3198S

