FE215
WIRE DRAG

FILE IN TUBE NO. H-9362

Diagram No. 1215-3

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT
(HYDROGRAPHIC)

Type of Survey Wire Drag

Field No. 20-3-75

Office No. FE-215

LOCALITY

State New York

General Locality East Coast Investigations

Locality New York Bight

1975

CHIEF OF PARTY
CDR R.A. Ganse

LIBRARY & ARCHIVES

DATE July 12, 1976

☆U.S. GOV. PRINTING OFFICE: 1976—669-441

FE215
WIRE DRAG

FILE IN TUBE NO. H-9362

NOTE: A new system for registering Field Examinations (FE's) was established in 1980. All FE's are now consecutively numbered as shown hereon. The date shown in the new format is the actual date of survey. This material was previously registered as: FE No.1 1976WD

Area 1 & 2
Chart
70 - D.A.
369 - RLH
1000 -
1708 - RLH
1215 - RLH 8/18/76 Fully Applied
542
824 SC / N.C.

F E No. 1 1976

WIRE DRAG

FILE IN TUBE NO. H-9362

FE-215 (1975)

Dig. Cht. No. 1215-3.

FORM C&GS-504

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey WIRE DRAG

Field No. 20-3-75 Office No. FE 1 (1976)

LOCALITY

State NEW YORK

General locality EAST COAST INVESTIGATIONS

Locality NEW YORK BIGHT

19 75

CHIEF OF PARTY

CDR R. A. GANSE

LIBRARY & ARCHIVES

DATE 7/12/76

USCOMM-DC 37022-P66

F E NO. 1 1976
WIRE DRAG
FILE IN TUBE NO. H-9362

Areas 1+2
Chart.
70 DA.
369 RLH
1000
1108 RLH
1215 RLH 8/18/76 Fully Applied
542
8235

FORM C&GS-537
(5-66)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

REGISTER NO.

HYDROGRAPHIC TITLE SHEET

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.
RU/HE 20-3-75

State NEW YORK

General locality EAST COAST INVESTIGATION

Locality NEW YORK BIGHT

Scale 1:20,000 Date of survey 05 Sept. - 11 Nov. 1975

Instructions dated 11 AUGUST 1975 Project No. OPR-515

Vessel RUDE (ASV-90) & HECK (ASV-91)

Chief of party CDR R.A. GANSE

Surveyed by CDR R.A. GANSE, LCDR BUSH, LTJG ALBERTSON, ENS RENNINGER, ENS VADNAIS

Soundings taken by echo sounder, hand lead, pole

Graphic record scaled by

Graphic record checked by

Protracted by Automated plot by CALCOMP PLOTTER

Soundings penciled by inked by M.B. HICKSON, B.J. STEPHENSON verified by M.B. HICKSON, B.J. STEPHENSON

Soundings in ~~fathoms~~ feet at MLW ~~MLLW~~ ~~USING PREDICTED~~ Smooth TIDES

REMARKS:

Applied to stds 8/5/76
CB

DESCRIPTIVE REPORT
TO ACCOMPANY
WIRE DRAG FIELD NO. RU-20-3-75
PROJECT OPR-515-RU/HE-75

A. AUTHORITY

This project was authorized under project instructions OPR-515-RU/HE-75. East Coast Investigations, dated 11 August 1975 as ammended by Change No. 1 dated 22 August 1975 and Change No. 2 dated 23 September 1975.

B. CHARACTER AND LIMITS OF THE WORK

The purpose of this project was to investigate two rectangular areas and 12 specific items in the New York Bight area. This report covers the completion of rectangular area 1A and the beginning of Item No. 3. The report is being sent in now as the 1975 Field Season is completed. The area is covered by C&GS Chart 1215. The boatsheet layout is from latitude 40 22'N to 40 31'N longitude 73°43'W to 74°1'W. A 1:20,000 scale was used for this survey.

C. CONTROL

1. Raydist Stations - Raydist DR-S Range-Range control was used operating on a frequency of 3300.4 KHZ, giving a lane width of 45.39904 meters. Two Raydist shore stations, Sandy Hook and H-AMC-3-NJ were utilized for control. Sandy Hook located at latitude 40°27' 34.3847"N and longitude 73°59'41.0121" served as the Red station. H-AMC-3-NJ located at latitude 40°07'18.3363"N and longitude 74°02'11.2167" served as the Green station.

2. Radar - Radar ranges between the vessels were recorded each fix. Coupled with bearings to the ships this puts a limit on any lane ambiguity, if one vessel Raydist control remains good. These radar ranges were interpolated between quarter mile rings. Their accuracy is considered to about 0.05 nautical miles.

3. Problems With Raydist - From the beginning of this project up to 4 November 1975 there was an interference problem with the Raydist. We believe this problem stemmed from Raydist units used by other NOAA vessels in the area. This is substantiated by the fact that on 4 November 1975, when the other ships left the area, no further interference was noticed. Two specific problems were encountered with the Raydist.

a. The green arc was shakey west of longitude 73°51'W. Overlap was increased in this region.
b. <u>One half lane shifts (evidenced by calibration) were noted in the green arc at times. For that reason all green positions must be considered subject to at least a .5 lane ambiguity.</u>

[illegible] at 1:20,000

20-3-75

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These problems disappeared after 4 November 1975.

See Attachment V on Shore Stations.
See Attachment I on Circle Calibration.

D. DATE OF SURVEY

Work on boatsheet 20-3-75 commenced on 5 September 1975 and was ended on 11 November 1975.

E. TIDE REDUCERS

Tide reduction of each days data was done using predicted tides. The reference station was Sandy Hook, New Jersey. The correctors applied to that reference station for the area we work in was: Time -20 minutes, Ratio, .96.

F. JUNCTIONS

There were no junctions on this boatsheet,

G. SPLITS

There were no splits on this boatsheet.
Note: On the smooth plots there were three(3) splits in the item area of 2A and one(1) split in the item 3 area.

H. CURRENTS

Currents appeared to be primarily tidal. Currents were not effected very much by winds under 20 knots. Wind driven currents were less than predicted by the table on page 181 of the Tidal Current Tables. At times current was of the magnitude of one knot.

I. WAVES

1. Waves were uniform in height in this region. The wave heights reported in the drag information stamps correspond roughly to the average of the upper third waves. There were few rogue waves, and the reported height is not far from average of the upper 5%.

2. Several times large period swell that would affect the entire system (both the wire and tester at the same time) was encountered. This was handled individually in each case by adding a new corrector to the effective drag depth. That figure was one half the amount of the large period swell. This large period swell only affected a few drags, and they are noted in the section titled Noted Occurances During Survey.

J. DIVING PROCEDURES

1. Diving procedures were somewhat different for this project due to the lengthy time required to put on a dry suit. A possible procedure was having 2 divers always suited up but this was unsatisfactory due to the discomfort of being suited up. We therefore broke away from the normal procedure of investigating each hang with divers on the first hang. For this project we had diving days where two divers were suited up at the start of the work day, and known uninvestigated hangs were hung again. The second hangs were done with small drags and short sections. Short sections decrease the amount of time the divers have to search for an obstruction. Short sections also give a better indication of a double hang.

2. There were over 31 hangs during this survey. Many were not investigated. A series of eight around buoy "WRR" were not investigated because this area had been dived on by the Corp of Engineers. (See attachment No. VII). We knew that the wreckage in this area was the scattered remains of the TURNER. We were more interested in clearing the area than diving on known debris. Many hangs were outside the area. Those were not investigated by divers but they were cleared in one direction. Any hang that occurred in the mine field was not diver investigated for safety reasons. Many hangs were temporary giving us no opportunity to dive. The bottom of Item 1A in some areas was pretty much scattered with small debris. This debris caused temporary hangs that in most cases were cleared close to the bottom. During dragging operations two old style anchors, lines, and some sheet metal were recovered with the ground wire. That probably gives a good indication of the type of smaller debris on the bottom.

3. Information about dives logged in diving stamps in the volumes have not been corrected for tides.

K. TESTING

1. Results of the tests are recorded in both the rough and smooth tester record volumes. There is one difference in how these values were recorded. In the rough tester records the actual height of the mark on the tester pole was recorded. No attention was paid to the depth of the tester. In the smooth tester record the test was recorded corrected to the wire depth. The smooth test record shows the actual lift and sag.

2. In the smooth test record an askerist (*) next to the section refers to the fact that the test came from the HECK's launch 20.

3. Definition of sag miss: A test in which the tester rod has definitely been thrown in ahead of the ground wire, and picked up after the ground wire has passed yet has no marks on the pole. The wire has passed underneath the tester rod.
Note: This is considered as a valid test with a lift of 0.0 feet.

4. Definition of TOB: TOB refers to "tester on bottom".. It is a test result that occurs when the tester rod shows signs of having touched the ocean floor. Lifts associated with the type test generally are not accepted because of the uncertainty as to where the ground wire struck the rod. It is likely that if the tester rod is stuck in the ocean floor the ground wire might first ride up the rod until enough force was generated to push the rod away.

L. GENERAL NOTES

1. Saw Tooth Record -
   a. It is important to know that the ships are moving properly at the close of a drag. Before Raydist it was difficult to see if the ships were moving without taking a complete fix. The Raydist's saw tooth recorder gives a permanent record of movement of the ship at all times. The Raydist strip chart was checked at the end of each drag to ascertain proper ship movement before the drag was aborted.

   b. By use of the saw tooth strip chart one can tell the path of the ships between fixes. This fact may be important in specific cases where it is possible that between fixes the proper overlap may not have been met.

   c. Relative Pen Lengths - In most cases the three pens were not exactly the same length. This means that you cannot read the strip chart properly without adjusting for the relative pen lengths. On each days strip chart the relative pen lengths are marked. Relative pen lengths entered on the strip charts by means of completing a rubber stamp were (for the survey only) reconstructed after the fact from other notation.

2. Clearing Strips - The clearing strips on some obstructions have been drags of non-uniform depth. That is, drags that contain inclined sections conforming to the bottom. This is not considered a preferred practice for clearing strips. These clearing strips resulted when a drag intended to hang the obstruction passed over instead. Such strips have generally only been in one direction for a given obstruction and individually considered have been found to be adequate.

3. 400 Foot Sections - When this item was started typically 800 foot sections were used. 400 foot sections were first used on diving days to help locate the obstruction faster. After this it was decided to exclusively use 400 foot sections to give greater weight on the ground wire, plus more support from the buoys. This is discussed in Attachment IX.

M. DISCREPANCIES AND COMPARISONS WITH RECENT SURVEYS AND CHARTS

There were no discrepancies found with any C&GS Charts used in this area. A Corp of Engineers boatsheet was found not to show a 40 foot shoal .25 miles NW of Ambrose Light. This shoal is shown on C&GS Chart 1215. The boatsheet in question is the Hydrographic Survey of New York Bight Apex (approach to New York Harbor). New York District Corp of Engineers, Date: December 1973, sheet 2 of 6.

N. PERSONNEL AND EQUIPMENT

During this survey the RUDE & HECK acted as guide and end vessel respectively. Both vessels are equipped with Raytheon DE-723 fathometers. Both launches were utilized as drag tenders. Bearings to the end buoys and opposite vessels were made on Sperry gyro repeaters. Standard wire drag equipment (see Attachment IX for differences from Wire Drag Manual) was used throughout this survey. The officers aboard this survey were CDR R.A. Ganse, LCDR Y.A. Bush, LTJG G.M. Albertson, ENS T.L. Renninger, and ENS K.G. Vadnais.

O. GYRO ERROR

At the beginning of the project the HECK's gyro was working well. The RUDE's gyro had a large variable error. From M1 until W3 both the RUDE's and HECK's gyro appeared to be working well. On about Z day a small (approximately 2°) variable gyro error began with the HECK's gyro. A similar error started to appear on the RUDE gyro on AC1. These errors are all documented on the parameter sheets, column 69. Below is a key for the coding (letter code A-E).

LETTER	MEANING	STRIPS INVOLVED
A	Use both bearings as given.	M1-Y3
B	Use the bearing of the HECK as given, adjusting the RUDE bearing to fit the plot.	B1-E2 and G1-L5
C	Use the HECK bearing as given, adjusting the RUDE bearing to fit the reciprocal of the HECK bearing.	F1-F4
D	Use the bearing of the RUDE as given adjusting the HECK bearing to fit the plot.	Z1-AB2
E	Adjust both the RUDE and HECK bearing to fit the plot.	AC1-AL1

III. ITEM 1A

A. SENSITIVITY

1. As a measure of the care appropriate for this survey of 1A it is pointed out that the AEOLIS, a vessel drawing 44 feet 4 inches aft struck an obstruction with a least depth of about 38 feet (since lowered 2 ft.) in ambient depth of 46 feet. The grounding occured at low tide. The vessels insurers are suing the government for damages of $10,000,000, siting the fact that since the area was designated as an anchorage, it was reasonable to assume it clear of obstruction.

2. Because of the sensitivity of Item 1A the entire area is covered in two directions. NE to SW and SW to NE were used following along the depth contours. Standard overlap criteria were not applied independently to the two sets of data. See letter regarding this fact in Attachment VIII.

B. GROUNDINGS AND HANGS

Hangs on Set Out - During set out (before tension is applied) the wire in many cases sags between the toggles below the desired dragging depth. At these times the wire can hang on the smallest obstruction. A hang on set out gives information as to an obstruction below but gives no information on the depth of hanging. In this area a hang on set out indicates some man made obstruction.

HANG NO. 1 - The drag B1 was run in a NE direction. Its purpose was to cover the SE corner of the area. A hang occured between buoys 5-6. <u>Divers investigated</u>. They reported a metal structure <u>10' x 10'x 7'</u>. The structure looked somewhat like a cage. Least depth reported was an average of 73 feet. This hang was cleared by drags H5 (NE direction - 72.0 feet) and B2 (SW direction - 75.5 feet) (s1 @ 73.0 feet). It is possible this item is the remains of a large condenser lost in this area by the Corp of Engineers.

HANG NO. 2 - Strip D-1 was run in a SW direction. The purpose being to sweep a SE part of Item 1A. A hang occured between buoy 2-3. <u>This hang wasn't investigated</u>. It was cleared by three strips in the NE direction, C1 (67.5 feet), H1 (68.0 feet), and U1 (71.0 feet). It was cleared by H2 (70.0 feet) in a SW direction. After U1 cleared this obstruction at 71.0 feet there were no further plans to investigate this hang.

HANG NO. 3 - D-2 & N-2 strips ~~was~~ were run in a SW direction. A hang occured at buoy 3-4 on position #41. No investigation was done at the time. The obstruction was hung again on strips G3 and G5. Divers investigated on strip G3. The obstruction was made of 6 foot wheels connected to a shaft which lead to the major wreckage that contained one shaft rising up to a least depth of 53 feet by divers gage reduced for predicted tides. See journal of drag G3 for better description. This obstruction was cleared by drags H4 (NE direction 49.5° feet) and G4 (SW direction 58.0 feet).

HANG NO. 4 - C1 drag was run in a NE direction, purpose to cover part of Item 1A. A hang occured between sections 8-9. Divers did not investigate at this time, but they did on strip G2. They found a 3' x 5' cylindrical shaped block with an eye on top which probably was a Coast Guard buoy weight. Least depth over hang was 61.0. This hang was cleared by drags L1 (NE direction at 60.5° feet) and G1 (SW direction at 58.5° feet) & D3 (at 58.0 feet).

HANG NO. 5 - Drag D-3 ran in a SW direction to sweep part of 1A. The drag hung between buoys 6-7 at position #65. The hang was not investigated at that time but was on H3 and S4 drags. The obstruction was a large old style stock anchor. Least depth read on gauge was 47 feet by divers report corrected for tides (46.5 feet). The obstruction was cleared by drags K4 (43.0 feet) and U3 (45.0 feet) in a NE direction. In a SE direction they were cleared by K5 (41.5° feet) and S5 (43.5° feet). Since this item was hung from opposite directions by drags set close to the bottom and verified by divers as being the same object each time and since the portion of this item with least depth (the stock) protrudes near vertically it is reasonable to accept the 45.0 clearing depth.

HANG NO. 7 and 27 - There are no records of hang No. 7 or No. 27 except for the marks on the boatsheet. In all probability when putting hangs 11 and 10 on the boatsheet a 1' error in longitude was made, thereby showing two additional hangs on the boatsheet. Rather than try to remove all record of these misplots, and run the risk of having one record of it slip through, the misplots are simply being shown as misplots.

Never found
Does not exist

HANG NO. 8 - Drag F2 ran in NE direction to pick up the NW corner of Item 1A. There was a double hang starting at position #12. The hangs were No. 9 and No. 8. There was no diving investigation of these hangs. Hang No. 8 was cleared in a NE direction by drags Z1 (32.0 feet) and Z3 (36.5° feet). The obstruction was cleared in a SW direction by Z2 (33.5° feet), and Z4 (35.5° feet) & A J1 (39.0 feet) & F4 (38.0 feet).

HANG NO. 9 - Drag F2 ran in a NE direction F4 in a SE direction to pick up the NW corner of Item 1A. There was a double hang starting at position No. 12. The hangs were No. 9 and No. 8. There was no diving investigations of these hangs. Hang No. 9 was cleared in a NE direction by drags Z1 (31.0 feet), and Z3 (36.5 feet). The obstruction was cleared in a SW direction by drags Z2 (33.5 feet) and Z4 (35.5 feet).

HANG NO. 10 - Drag F1 was run in a NE direction to pick up the NW corner of Item 1A. There were 2 hangs at the beginning of the drag. (No. 10 and No. 11). Hang No. 10 was outside the area. No investigation was done. The drag was cleared by strips AC1 (NE direction at 42.5 feet) ~~and AA3 (SW direction at 44.0 feet).~~ Note RUDE had a 2 lane ambiguity on this drag. Estimated depth of hang is 42.0 feet.

HANG NO. 11 - Drag F1 was run in a NE direction to pick up the NW corner of Item 1A. There were 2 hangs at the beginning of the drag. (NO. 10 and NO. 11) Hang No. 11 was outside the area. As no tests were made the grounding depth is unknown. This hang was not investigated. It was cleared by strip F2 at 34.5 feet. Estimated depth of hang is 38.0 feet.

HANG NO. 12 - Drag J2 ran in a SW direction to pick up an area between drags run on D-day strips 1 and 2. A hang occured between buoys 3 and 4 on position number 20. There was no investigation of this hang. This drag was cleared in a NE direction by strips L2 (61.0 feet) and U2 (64.0 feet). Drag L5 covered it in a SW direction at 61.5 feet.

HANG NO. 13 - Drag N1 ran in a NE direction to pick up an area in 1A. At position No. 9 a hang occured between buoys 7-F. Buoy No. 7 was parted and stayed suspended to the wreckage. It was found on "P" day. No investigation was done on this hang. This drag was cleared in a SW direction by strips T3 (47.5 feet), E2 (46.0 feet, and W1 (50.5 feet). The hang was cleared in a NE direction by P1 (46.0 feet).

GENERAL NOTES ON HANGS NO. 16, 18, 19, 20, 21, 34A, 36, 37 - These hangs all occured in the vicinity of "WRR" buoy which marked the wreckage of the TURNER. We were told that wreckage of the TURNER was scattered about in this area. These eight hangs substantiate this fact. These hangs were not investigated by divers due to the number of hangs, and the fact that the Corp of Engineers had done diving investigations in this area. There were more clearing strips done in this area than necessary. The first set of clearing strips were done in case the Coast Guard could not remove buoy "WRR". The second set was completed when the Coast Guard did remove the "WRR" buoy.

HANG NO. 14 - Drag R4 went in a NE direction to pick up an area in Item 1A between longitude 73°53' and 73°51'. The drag went aground at position #30. The drag came to a stop, with a hang occuring between buoys 3-4. The hang was well outside Item 1A. The hang was not diver investigated as it was a grounding. The hang was cleared in a SW direction by R5 (41.0 feet), and cleared in a NE direction by T1 (43.0 feet).

HANG NO. 15 - Drag W2 went in a SW direction. The drag was aground in section 6-F the entire drag. That section was voided. The RUDE stopped engines and reversed in drag mode briefly to avoid traffic. After this maneuver the drag hung between buoys 5-6. This hang was not investigated as it was felt the hang was caused by backing of engines. Momentary loss of tension on bottom wire results in sags between toggles. The hang was cleared in a NE direction by P1 (44.5 feet) and in a SW direction by AA2 (45.5 feet) & T2 (48.0 feet).

HANG NO. 16 - Drag W3 ran in a ~~SW~~ NE direction to clear the SE corner of 1A. At position #18 a hang occured between buoys 4-5. This hang was not investigated. Hang #16 was cleared by these strips.

AD2 - 34.0 feet NE direction
AF3 - 40.5 feet NE direction
AJ3 - 40.0 feet SW direction
AE3 - 38.0 feet NW direction
AJ1 - 40.0 feet NW direction
AE2 - 37.5 feet NW direction
AJ2 - 38.5 feet SE direction
AF4 - 36.0 feet SE direction

HANG NO. 17 - Drag X1 went in a NE direction to clear the SE area of 1A. ~~The drag hung at the same place as hang No. 16.~~ During pick up two additional hangs, No. 17 and No. 18 were discovered. These were in the general area around buoy "WRR". Hang #17 was not investigated. It was cleared by strips Y2 (41.0 feet - NE direction), AD1 (35.0 feet - SW direction), AF2 (40.0 feet - S direction).

HANG NO. 18 - Drag XI went in a NE direction to clear the SE area of 1A. The drag hung at hang #16. During pick up two new hangs occured (No. 17 and No. 18). These were in the general area around buoy "WRR". Hang #18 was so close to buoy "WRR" it is possible that the obstruction is the buoy anchor. This hang was not investigated. Hang No 18 was cleared by these strips.

~~AD2 - 34.0 feet NE direction~~
AJ3 - 40.0 feet SW direction
AJ1 - 40.0 feet NW direction
AJ2 - 38.5 feet SE direction

Note: Hang #18 is the "WRR" Navigation Buoy Hang. Other "WRR" Hangs are:
R5
AD1
AD2
AE2
AE3
AF2
AF3
AF4

HANG NO. 19 - Drag AA1 ran in a SW direction. It hung at position No. 5 between buoys 2 and 3. This hang was in the general area of the wreckage of the TURNER. No investigation was done. This hang was cleared by strips:

AD2 - 34.0 feet NE direction
AF1 - 41.5 feet NE direction
AJ3 - 40.0 feet SW direction
AE3 - 39.0 feet - NW direction
AJ1 - 40.0 feet NW direction
AJ2 - 38.5 feet SE direction
AE2 - 37.5 feet NW direction

HANG NO. 20 - Drag AA2 ran in a SW direction. It hung at position #12 between buoys 2 and 3 very close to the position of hang No. 19. This hang was in the general area of buoy "WRR" and the wreckage of the TURNER. No investigation was done on this hang. This hang was cleared by strips:

AD2 - 34.0 feet NE direction
AF1 - 41.5 feet NE direction
AJ3 - 40.0 feet SW direction
AE3 - 39.0 feet NW direction
AJ2 - 38.5 feet SE direction
AE2 - 37.5 feet NW direction
AA1 - 45.0 feet SW direction

HANG NO. 21 - Drag AJ4 ran in a NW direction. The purpose was to clear the SE corner of 1A. The drag hung near set out. The hang was temporary and number 21. This hang was in the area of the TURNER wreckage. This drag was not investigated. This drag was cleared by strips:

AD2 - 34.0 feet NE direction
AE1 - 41.0 feet NE direction
AG4 - 39.5 feet SW direction
AJ3 - 40.5 feet SW direction
AF3 - 40.5 feet SW direction
X1 - 41.0 feet NE direction

HANG NO. 22 - Drag AA3 ran in a SW direction. The drag had a temporary hang, No. 21, then another temporary hang No. 22. Hang No. 22 was outside the area. It was not investigated. From the charted bottom, the wire should have been on the ocean floor. Hang No. 22 was clean in only one direction as it was outside the area. AC1 drag (46.0 feet - NE direction) W3 drag (44.0 feet - NE direction).

HANG NO. 25 - Drag AC3 ran in a NE direction and was a reverse of AC2 drag. The drag hung at position No. 27 between buoys N and 1. This hang was in the area of the wreckage of the TURNER. No investigation was done. This hang was cleared by strips: Same as Hang No. 20

AD2 - 34.0 feet NE direction
AE3 - 39.0 feet NW direction
AD1 - 35.0 feet SW direction
AJ3 - 40.0 feet SW direction

AE2 - 37.5 feet NW direction
AF1 - 41.5 feet NW direction
AJ1 - 40.0 feet NW direction
AJ2 - 38.5 feet SE direction
AA1 - 45.0 feet SW direction
R5 - 44.0 feet SW direction

Note ~~AA2 and~~ AA1 ~~both~~ went over hang 25 with insufficient overlap. ~~AA2 at 45.5 feet, and~~ AA1 at 46.5 feet.

HANG NO. 26 - Drag E1 ran in a SW direction. The strip hung about 3/4 of a mile north of Item 1A. The drag was very close to the charted bottom. This ~~drag~~ hang was not investigated as it was outside the area. The hang was overlaped by 300 feet by drag P1 at 42.0 feet. Outside hangs were not extensively cleared.

HANG NO. 27 - See note for hang No. 7. *Does not exist*

HANG NO. 28 - Drag W3 ran in a ~~SE~~ NE direction picking up the SW corner of Item 1A. At position No. 24 there was a hang between buoys No 2-3. There was no investigation of this hang as it was outside item 1A. ~~This hang was cleared by strip AG1 (45.5 feet - NE direction) and strip AA3 (48.0 feet - SW direction).~~ *Same as Hang No. 16*

HANG NO. 29 - Drag D2 ran in a SW direction. A temporary hang occured at position #32 between buoys 5-6. The ~~drag~~ *hang* wasn't investigated as it was outside the area. This hang was cleared by strip AG2 (50.0 feet - E direction) and strip AG3 (52.0 feet - E direction).

HANG NO. 30 - This drag ran in a SW direction. Its purpose was to clear an area north of buoy "WRR" then hang the buoy. At position No. 10 the drag hung the buoy or an object extremely close to it. This hang was not investigated. Hang No. 30 was cleared by strips AJ1 (38.0 feet - NW direction) AJ2 (38.5 feet - SW direction) and AJ3 (40.0 feet SE direction). *Same as Hang No. 18*

HANG NO. 31 - Drag U4 ran in a NE direction. At position No. 32 the drag had a temporary hang. The hang slipped off before a good "V" up had occured. As a result the position of the obstruction is only approximate. This temporary hang was not investigated. It was cleared by drags V1 (49.5 feet in a NE direction) and T2 (50.0 feet in a SW direction).

HANG NO. 32 - Drag R3 ran in a SW direction. Its purpose was to cover a holiday on the south edge of item 1A. The drag ended with hang No. 32 outside item 1A. As it was outside 1A it was not investigated. The hang was cleared by S4 (50.5 feet) in a NE direction. *by S5 (43.0 feet) in a SW direction.*

* Hang No. 34A

Hang at 40.0 ft. on Strip AF-2

Cleared by 40.0 ft. on strips AF-3 and AJ-3

Additionally cleared by strips: AJ-1 @ 39.0 ft.
AJ-2 @ 38.0 ft.
AE-3 @ 38.0 ft.
AE-2 @ 36.0 ft.
AD-2 @ 33.0 ft.

HANG NO. 33 - Drag T2 ran in a SW direction with the purpose to cover an area in the SW corner of item 1A. At position #22 a hang occured between buoys 1-2. Hang No. 33 was well outside item 1A and was in the mine field. No investigation was done on this hang. It was cleared by strips AH3 (47.0 feet) in an easterly direction and AH2 (43.0 feet) in a NW direction.

HANG NO. 34 - Drag U4 ran in a NE direction. At position No. 29 the drag had a temporary hang. The hang slipped off before a good "V" up had occured. As a result the position of the obstruction is only approximate. This temporary hang was not investigated. It was cleared by drags V2 (47.5 feet NE direction). ~~and T2 (48.5 feet - SW direction).~~

* Hang No. 34A

HANG NO. 35 - Drag AF1 went in a NW direction towards buoy "WRR". At position No. 6 a hang occurred between buoys 6-7. ~~This hang was close to hang #16 but is being considered a seperate hang.~~ This hang is the closest to the plotted position of the TURNER from the diving information given by the Corps of Engineers. No investigation of this hang was done. This hang was cleared by strips: Same as Hang No. 16

AD2 - 34.0 feet NE direction
AJ3 - 40.0 feet NE direction
AE3 - 39.0 feet NW direction
AJ1 - 40.0 feet NW direction
AE2 - 37.5 feet NW direction
AJ2 - 38.5 feet SE direction

HANG NO. 36 - This drag (AG1) ran in a NW direction; at position No. 5 the drag hung between N and 1 buoys breaking No. 1 buoy free. It is likely that the breaking of buoy #1's upright happened before the hang and caused the hang. This hang was not investigated as it was in the area of the Turner wreckage. This hang was cleared by strips;

AD2 - 34.0 feet NE direction
~~AE1 - 41.0 feet NE direction~~
AJ1 - 40.0 feet NW direction
AJ2 - 38.5 feet SE direction
AF3 - 40.5 feet NE direction
AF1 - 41.5 feet NE direction
AJ3 - 40.0 feet SW direction
X1 - 43.0 feet NE direction

HANG NO. 37 - This drag (AH1) ran in a NW direction. The drag began going aground then hung very shortly after. At position No. 6 there was a hang between buoys 2 and 3. 5 - F was aground. This hang was not investigated. This hang was cleared by strips: Same as Hang No. 8

Z1 - 32.0 feet NE direction
Z3 - 36.5 feet NE direction
AE1 - 36.5 feet NE direction
Z2 - 33.5 feet SW direction
Z4 - 37.5 feet SW direction
AJ1 - 39.0 feet NW direction

HANG NO. 38 - This drag (AH Day) was rejected as it hung on set out. A hang on set out is probably caused by the wire sagging down before tension is put on the drag. The hanged spot was kept and numbered 38. This was outside the area 1A. This hang was cleared by strips V2 (48.0 feet - NE direction) and AH3 (46.0 feet - E direction). (Note: Depth of Hang estimated at 47.0 feet.)

HANG NO. 39 - Drag A1 ran in a NE direction to cover the SE corner of item 1A. At position No. 3 it was noticed that buoy F was aground. A hang occured between buoys 9-F at position No. 5. At position No. 8 buoy F broke loose and on the next fix cuts to all buoys were taken. As this hang was outside the area it wasn't investigated by divers. This obstruction was cleared by strips U1 (73.0 feet in a NE direction) and D1 70.0 feet in a SW direction) & C1 (73.0 feet in a SW direction).

C. NOTED OCCURENCES DURING SURVEY

1. "A" day Strip 1 - HECK's repeaters were down. HECK used bearings based on ships head plus relative bearing. Drag grounded out before entering area. Drag not worked up, but saved to show grounding (hang #39). Plotted by RMC for Hang and grounding only.

2. "A" day Strip 2 - Drag hung on set out probably on lobster pots. Drag saved but not worked up. Not plotted, Area covered by other strips.

3. "B" day Strip 2 - Drag is questionable from position 50 on due to high lifts. Since area is covered in two directions this is considered sufficient.

4. "E" day Strip 2 - Drag ran till position #40, however due to excessive lift the drag was only used for effective depth purposes till position #26.

5. "F" day Strip 1 - Drag had two hangs soon after set out, hangs No. 10 and No. 11. Drag was kept to position hangs but the drag was not worked up. The RUDE had a lane loss on both red and green values (see journal). The loss was 2 lanes. All of RUDE's positions are subject to a 2 lane ambiguity. Plotted by RMC for Hangs and grounding only.

6. "F" day Strip 2 - Drag had a double hang. As with drag F1 RUDE had a 2 lane ambiguity on both the red and green Raydist values. See journal for drag F1.

7. "F" day Strips 3 and 4 - RUDE experienced a lane loss on both the red and green Raydist values. From viewing the strip chart it seems the loss occurred after fix number 19. A corrector of +.61 on red and +.52 on the green will be added to strip 3 up to position No. 19. After that the correctors are 1.2 on the red and 1.0 on the green up to and including Strip 4.

8. "H" day Strip 6 - Drag grounded out. Saved but not worked up. *Plotted by AMC to show groundings*

9. "M" day Strip 1 - Drag started at 70% effective, then changed during drag to 75% effective. This was done to miss a known obstruction.

10. "N" day Strip 1 - Buoy #7 lost when fouled in obstruction.

11. "P" day Strip 1 - This drag covered a large area in item 1A in a NE direction. Two crankings occurred in this drag to clear an obstruction. At position #17 the end vessel reduced speed to allow the guide vessel to sweep more area before the end vessel hung. The expected hang did not occur so at position #24 the end vessel resumed normal speed.

12. *"Q" day Strip 1 - Violation of Section 3-26 of the Manual ... the strip was adjusted accordingly by AMC.*

12a. "Q" day Strip 1[2] - This strip went in a SW direction. This drag had Raydist problems. At first the red Raydist was questionable on both ships. At position #14 the end vessel was noticing problems with the green Raydist. At position #15 the ships went to single vessel control. At position #16 the end vessels green Raydist looked better. Both ships recorded their red and green values but took "A" and "S" angles. The drag was discontinued at position #17 so the ships could go calibrate. Both ships closed out on calibration. The HECK's (end vessel) sawtooth was questionable. The end vessels values must be considered questionable to a 1-3 lane ambiguity. The drag was worked up for the overlap on the guide vessels side. See journal for further information.

Strip not saved by AMC.

Area sufficiently covered by other strips.

13. "U" day Strip 1 - *Lift correctly applied by AMC.* ~~An unusual method of applying lift occurred here. See journal.~~ U1 was a clearing strip over hang #2. At position #4 a 3.5 ft. lift test came in on section N-1. That was the first test from N-1, normally that would be carried back to the beginning of the drag, *and was by AMC.* ~~Because this was the end section and due to ample tests in the other sections showing a 1-2 ft. lift, plus the fact those sections continued to have 1-2 ft. lifts, the 3.5 ft. lift was not applied until position #4.~~

14. "U" day Strip 4 - This drag ran in a NE direction. The drag had two temporary hangs. This was likely caused by small obstructions. Unfortunately in both cases only approximate locations can be given as the hangs slipped off before a "V" up. The hangs were numbered ~~40~~[31] and ~~41~~[34]. It was found after the drag that buoy #6 had slipped it's upright. It is uncertain if the upright slipped causing a hang or if the hang caused the upright to slip. The drag was voided from the first temporary hang on. (Position No. 29).

15. "V" day Strip 1 - Drag had high lifts in section 9-10. For that reason sections 9-F were voided for the entire drag. Buoys 9-F were checked once onboard, they were correctly set. It is possible that the current which hit the drag broadside caused the lift. Section 1-2 was never tested. The drag is being retained as tests from both adjacent sections were satisfactory.

16. "W" day Strip 2 - 6-F aground entire drag, section voided. Drag was stopped for breif time to avoid traffic, hung shortly after. It is likely that stopping the drag caused this hang No. 15.

17. "W" day Strip 3 - Drag W3 had two hangs. The first a temporary one. This caused the drag to be voided from sections #18-#20 as the wire was readjusting during and after the hang. Section N-3 was voided before the first hang because of lack of tests in that area. Due to the second hang the drag was voided after position #24.8 *The voided area has been adequately covered by other strips.*

18. "Y" day Strips 1-2-and 3 - A large long period swell effected these drags. It was obvious from the test results that the swell was effecting both the wire and tester at the same time. Thus the test results were not depicting accurately the depth of the wire. A new corrector was used. The corrector was 1/2 the amount of swell, and it was subtracted from the drag depth.

19. "Y" day Strip 3 - Most of this drag was rejected due to problems with the current. Position 16-20 were rejected. Sections N-3 were rejected the entire drag due to lack of tests.

20. "AA" day Strip 3 - This drag had two temporary hangs. The first hang No. 21 occurred near set out. The drag was voided until position #19 when the drag had stabilized. At position #25 the second hang occurred (No. 22). The drag was voided after position No. 24.7 ~~Note in journal method used to accept tests.~~ Sections 1-2 and 3-4 were not tested between positions #19 and #25. They were tested before and the adjacent sections were tested during the good part of the drag. This was considered sufficient in this case. *Lift correctly applied by AMC.*

21. "AB" day Strip 1 - A long period swell of the type on "Y" day affected the drag. As on "Y" day a new corrector, 1/2 the height of the swell, was subtracted from the drag depth.

22. "AF" day Strip 4 - Most of drag rejected. Buoys N-4 were set wrong. As a result the entire drag was rejected until position #27. Strong winds were encountered. Section N-1 never received a good test, and that section was rejected the entire drag. This drag is being kept to show that buoy "WRR" was hung in a SE direction.

23. "AG" day Strip 1 - There is a good chance the hang on this drag was caused by parting of buoy No. 1's upright. This parting seems to have been caused by fatiguing of the upright. Once parted the bottom weight would soon cause a hang. It is impossible to be sure of this so the hang will be counted.

24. "AH" day Strip 1 - This strip grounded out at position No. 6. As the HECK could not see the buoys due to glare a launch was run by the buoys with both ships taking cuts to the buoys simultaneously. Fixes were taken every other minute during this process of getting a cut to each buoy.

25. "AH" day Strip 1 and 2 - After drag AH2 it was discovered that buoy No. 6 was 5 feet short for both AH1 and AH2. This fact caused a deeper section between two shoaler ones for drag AH1. This was allowed as the difference in height was small, and the test results were typically sags. The rule governing this in the manual is concerned on the deep section being pulled up by the tension on the wire. With sags for test results, obviously this isn't happening. *Violation of section 3-20 of the Manual ... The strip was adjusted accordingly by RMC.*

26. "AK" day Strip 1 - This drag was grounded out as it was going into shallower water. Due to this sections 6-F and N-1 were never tested before the grounding. They were rejected the entire drag.

D. SUMMARY

Item 1A is bounded by the coordinates:

40° 30' 24"N	73° 53' 12"W
40° 30' 24"N	73° 46' 48"W
40° 29' 12"N	73° 46' 48"W
40° 29' 12"N	73° 53' 12"W

Because of the sensitivity in the proposed anchorage area, stemming from the incident with the AEOLIS, the area was dragged in two directions. The area was completed.

E. RECOMMENDATIONS

It is recommended that this survey be completely processed and that the total results (two A&D sheets - one showing NE to SW drags and one showing SW to NE drag, and a list of all obstructions and the effective depth at which they had been cleared) be furnished to the cartographer. It is our recommendation that the processing of this survey of the proposed anchorage be expediated. The results should be made available to the Captain of the Port of New York as soon as possible. Obstructions in the area that might not prove a hazard to navigation but will prove a hazard to anchor fouling should be marked on the chart or in some form be made available to the mariner. Isolated hangs No. 1, 3, and 5 should definitely be considered hazards to navigation as they all protrude 10 feet or more from the bottom. The group of hangs No. 16, 18, 19, 20, 21, 34, and 36 might be considered a single hazard to navigation as they consist of the scattered remains of the TURNER.

IV. ITEM 3

A. STATEMENT ON ITEM 3

Item 3 was a reported submerged dangerous wreck at position latitude 40°28'00"N, longitude 73°51'00"W. The wreck is a 51 foot fishing vessel ZEPHER II. The sinking occurred near Ambrose Light and is located in the New York Harbor Precautionary Area and Danger Area.

B. GROUNDINGS AND HANGS

HANG NO. 24 - Drag AB2 was the second drag over Item 3. It was intended to clear with considerable ease the bottom as it was 10 feet from the charted bottom on our Corp of Engineers boatsheet, (see Section M). The hang hung near set out on a 40 foot shoal as shown on C&GS Chart No. 1215. This was shown to our satisfaction by later running over the area with the fathometer and recording a 43 foot shoal. This was not diver investigated, nor was it cleared as it was outside the 1/2 mile circle for Item #3. Fishing boats were normally over this shoal area. They informed us the shoal was a rock pile.

This hydrography was not included in the survey records.

C. NOTED OCCURENCES DURING SURVEY

See Section B - HANG NO. 24.

D. SUMMARY

Due to the termination of the field season the circle dragged around Item #3 was not expanded from 1/2 mile to 1 mile. Most of the area within the 1 mile circle are deep enough that a 51 foot vessel would have to stand on end to extend above the 43 foot level. The one area where this doesn't hold true is on the 40 foot shoal .25 mile NW of Ambrose Light.

E. RECOMMENDATIONS

This field unit has no recommendations concerning item No. 3.

APPROVAL SHEET

All records of this survey prior to smooth plotting are hereby approved. The field work was personally supervised by the undersigned. The boatsheet and records were inspected daily. The survey is considered complete and adequate for charting.

Submitted by:

T.L. Renninger

T.L. Renninger
Ass't. FOO
ENS NOAA

Approved by:

R.A. Ganse

R.A. Ganse
Commanding Officer
NOAA Ships RUDE & HECK

V. LIST OF ATTACHMENTS

I. Circle Calibration Data
II. Daily Raydist Correctors
III. List of Grounding and Hangs
IV. Statistics
V. Parameters
  A. Boatsheet Overlay Request
  B. Electronic Control Parameters
~~VI. Predicted Tides~~ Removed VI Tide Note
VII. Corps of Engineers Diving Report
VIII. Letter to CAM Regarding Sensitivity of Area 1A
IX. Letter to CAM Regarding New Wire Drag Methods and Equipment
~~X. Project Instructions~~ Removed.
X. Verifier's Addendum

ATTACHMENT I

G.P.'S OF TRIANGULATION FOR AMBROSE LIGHT:

LAT. 40° 27′ 34.939″

LONG. 73° 49′ 51.432″

RED STATION: 305.98 LANES

ANGLES: 000° and 180°

GREEN STATION: 911.78 LANES

ANGLES: 115° and 295°

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ATTACHMENT II

RAYDIST DAILY CORRECTORS

		RUDE			HECK				
DATE	DAY	STRIPS	RED	GREEN	STRIPS	RED	GREEN		
SEPT. 5	A		+.095	-.03		-.31	+.14		
SEPT. 8	B		+.08	+.22		-.21	-.06		
SEPT. 9	C		+.13	+.33		+.24	-.19		
SEPT. 10	D		-.02	+.11		+.25	-.26		
SEPT. 11	E		-.10	+.18		+.19	-.33		
SEPT. 15	F	1-2	+1.01	+1.04	ALL	+.03	+.09		
	F Up To Pos. 19		+.61	+.52					
	F Pos. 19-53		1.20	1.0					
SEPT. 16	G		+.16	+.11		-.09	-.08		
SEPT. 17	H		+.18	+.14		-.21	-.04		
SEPT. 18	J		+.16	+.06		-.12	-.01		
SEPT. 22	K		+.15	-.03		-.06	-.10		
SEPT. 23	L		+.02	-.11		-.27	+.01		
SEPT. 30	M		-.04	-.13		+.05	-.12		
OCT. 1	N		-.04	-.21		+.07	-.08		
OCT. 2	P		-.04	-.23		+.08	+.03		
OCT. 6	Q		+.12	+.15		-.10	-.20		
OCT. 7	R		+.17	+.01		-.09	-.25		
OCT. 8	S		+.15	+.03		-.16	-.34		
OCT. 14	T		+.10	-.15		-.20	-.01		
OCT. 15	U		+.08	-.44		-.25	+.03		
OCT. 16	V		+.08	-.43		-.22	+.11		
OCT. 17	W		+.08	-.61		-.15	+.07		
OCT. 21	X		+.21	+.04		-.11	+.19		
OCT. 22	Y		+.19	+.49		-.09	+.17		
OCT. 23	Z		+.22	-.27		-.14	+.17		
OCT. 24	AA		+.16	+.09		-.11	+.12		
OCT. 28	AB		+.20	-.36		+.16	+.06		
OCT. 29	AC		+.18	+.23		+.11	+.09		
OCT. 31	AD		-.08	+.19		+.31	+.05		
NOV. 3	AE		+.08	+.13		+.04	+.07		
NOV. 4	AF		+.09	+.17		-.03	+.08		
NOV. 5	AG		+.12	+.10		-.02	-.01		
NOV. 6	AH		+.20	-.04		.00	-.06		
NOV. 7	AJ		+.03	-.14		-.14	-.06		
NOV. 10	AK		-.11	+.04		+.08	-.08		
NOV. 11	AL		+.16	+.20		-.21	-.06		

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ATTACHMENT III

This attachment has not been corrected. A revised tabulation of Hangs and groundings is included in the Verifier's Addendum.

HANG ~~OBSTRUCTION~~ NO. DAY LETTER	BUOY NO.	LAT.	LONG.	GROUNDED EFF. DEPTH	CLEARED BY DAY STRIP NO.	CLEARED EFF. DEPTH	SOUNDING	CHARTED DEPTH	DIRECTION OF STRIP	REMARKS
1 B-1	5-6	40°29.55'	73°47.34'	75.0	H5	73.0		79.8	NE	Metal Cage 10'x10'x7'
					B2	75.5			SW	
4 C-1	8-9	40°29.85'	73°49.29'	62.0	G1	58.5		64.0	SW	3'x5' block possible buoy ~~w~~ weight
					L1	60.5			NE	
2 D-1	2-3	40°29.19'	73°48.95'	70.0	C1	67.5		76.0	NE	No investigation.
					U1	73.0			NE	
					H1	68.0			NE	
					H2	70.0			SW	
3 D-2	3-4	40°30.28' 16.8	73°~~49~~.24' 14.4	55.5	H4	49.5		58.0	NE	Possible turbine wheel
					G4	50.0			SW	
5 D-3	6-7	40°29.34	73°51.37'	55.0	K4	43.0		57.0	NE	Anchor
					U3	45.0			NE	
					K5	41.5			SW	
					S5	43.5			SW	
10 F-1	N-1	40°29.29'	73°53.40'	NA	AC1	42.5		47.0	NE	Outside area
					AA3	44.0			SW	
11 F-1	6-7	40°30.09'	73°53.73'	NA	F2	34.5			NE	Outside area
8 ?	5-6	40°29.95'	73°52.82'	39.5	Z1	32.0		42.0	NE	
					Z3	36.5			NE	
					Z2	33.5			SW	
					Z4	35.5			SW	
					AE1	36.5			NE	
9 F-2	6-7	40°30.01'	73°53.09'	39.5	Z1	32.0		41.0	NE	
					Z3	36.5			NE	
					Z2	33.5			SW	
					Z4	35.5			SW	
9 F-4	5	SAME AS #9								SAME AS #9
4 G-2	3-4	SAME AS #4								
3 G-3	4-5	SAME AS #3								
3 G-5	5	SAME AS #3								
5 H-3	4	SAME AS #5								Diver went down on this ~~han~~ hang

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HANG ~~OBSERVATION~~ NO.

DAY	LETTER	BUOY NO.	LAT.	LONG.	GROUNDED EFF. DEPTH	CLEARED BY DAY STRIP NO.	CLEARED EFF. DEPTH	SOUNDING	CHARTED DEPTH	DIRECTION OF STRIP	REMARKS
12	J-2	3-4	40°30.27'	73°48.19'	65.5	L-2	61.0		66	NE	
						U2	64.0			NE	
						L5	61.5			SW	
5	K1	2-3			48.5			SAME AS #5			
5	K2	2-3			47.5			SAME AS #5			
5	K3	2-3			46.0			SAME AS #5			
12	L3	1-2			67.0			SAME AS #12			
4	L4	2-3			62.0			SAME AS #4			
13	N1	7-F	40°30.05'	73°50.66'	51.5	P1	46.0		51.5	NE	
						T3	47.5			SW	
						E2	46.0			SW	
						W1	50.5			SW	
14	R4	3-4	40°30.50'	73°51.30'	73°51	T1	43.0			NE	Outside 1A
						R5	41.0			SW	
5	S4	6-7			51.0			SAME AS #5			
15	W2	5-6	40°29.78'	73°51.85'	49.0	P1	44.5		49.0	NE	
						AA2	45.5			SW	
16	W3	4-5	40°29.78'	73°52.44'	NA	AD2	34.0		45.0	NE	
						AF3	40.5			NE	
						AJ3	40.0			SW	
						AE3	39.0			NW	
						AJ1	40.0			NW	
						AE2	37.5			NW	
						AJ2	38.5			SE	
17	X1	N-1	40°30.10'	73°52.24'	41.0	Y2	41.0		44.0	NE	
						AD1	36.0			SW	
						AF2	40.0			S	
18	X1	at 5	40°29.88	73°52.34	43.5	AD2	34.0		45.0	NE	
						AJ3	40.0			SW	
						AJ1	40.0			NW	
						AJ2	38.5			SE	
16	X1	6-7	SAME AS #16								

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HANG ~~POSITION~~ NO. DAY LETTER	BUOY NO.	LAT.	LONG.	GROUNDED EFF. DEPTH	CLEARED BY DAY STRIP NO.	CLEARED EFF. DEPTH	SOUNDING	CHARTED DEPTH	DIRECTION OF STRIP	REMARKS
19 AA1	2-3	40°29.76'	73°52.25'	46.5	AD2	34.0		46.2	NE	
					AF1	41.5			NE	
					AJ3	40.0			SW	
					AE3	39.0			NW	
					AJ1	40.0			NW	
					AJ2	38.5			SE	
					AE2	37.5			NW	
20 AA2	2-3	40°29.72'	73°52.22'	45.5	AD2	34.0		46.3	NE	
					AF1	41.5			NE	
					AJ3	40.0			SW	
					AE3	39.0			NW	
					AJ2	38.5			SE	
					AE2	37.5			NW	
21 AA3	6-7	40°29.70'	73°52.65'	NA	AD2	34.0		45.0	NE	Hang near set out
					AE1	41.0			NE	
					AG4	39.5			SW	
					AJ3	40.5			SW	
					AF3	40.5			SW	
22 AA3	5-6	40°29.08'	73°53.37'	48.5	AC1	47.0		46.0	NE	Hang outside 1A
23 X1	6-7	40°29.76'	73°52.43'				SAME	AS #16		
24	5	40°27.77'	73°50.06'	NA				46.5		ITEM #3
25 AC3	N-1-	40°29.73'	73°52.16'	45.5	AD2	34.0	NE	47.5		
					AE3	39.0	NW			
					AD1	36.0	SW			
					AJ3	40.0	SW			
					AE2	37.5	NW			
					AF1	41.5	NW			
					AJ1	40.0	NW			
					AJ2	38.5	SE			
26 E1		40°30.80'	73°50.43'	46.5	P1	43.0	NE	46.1		Outside Area 1A Short Overlap
	5	40°29.77'	73°52.43'							

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HANG ~~POSITION~~ NO. DAY LETTER	BUOY NO.	LAT.	LONG.	GROUNDED EFF. DEPTH	CLEARED BY DAY STRIP NO.	CLEARED EFF. DEPTH	SOUNDING	CHARTED DEPTH	DIRECTION OF STRIP	REMARKS
28 W3	2-3	40°29.14'	73°53.00'	45.5	AC1	45.5		49.0	NE	Outside area
					AA3	48.0			SW	
29 D2	5-6	40°30.96'	73°48.90'	52.5	AG2	50.0		51.5	E	Outside area - Temp.
					AG3	52.0			E	
30 AD1	5-6	40°29.89'	73°52.31'	36.0	AJ1	40.0		45.0	NW	Buoy "WRR"
					AJ2	38.5			SW	
					AJ3	40.0			SE	
30 AD2	5-6	40°29.94'	73°52.30'	34.0				SAME AS #30		
30 AE2	4-5	40°29.93'	73°52.35'	37.5				SAME AS #30		
30 AE3	4-5	40°29.90'	73°52.34'	39.0				SAME AS #30		
31 U4	5-7	40°29.35'	73°51.95'	48.0	V1	49.5		51	NE	Temp. Position Approximate
					T2	50.0			SW	
34 U4	9	40°29.3'	73°52.3'	NA	V2	47.5		52	NE	Temp. Position Approximate
					T2	48.5			SW	
32 R3	1-2	40°28.88'	73°51.26'	56.5	S4	50.5		59.5	NE	Outside Area 1A
33 T2	1-2	40°28.69	73°52.30'	53.0	AH3	47.0		56.5	E	Outside Area 1A
					AH2	43.0			NW	
35 [illegible]1	6-7	40°29.77'	73°52.34'	41.5	AD2	34.0		45.5	NE	
					AJ3	40.0			NE	
					AE3	39.0			NW	
					AJ1	40.0			NW	
					AE2	37.5			NW	
					AJ2	38.5			SE	
16 AF2	2-3	40°29.77'	73°52.34'					SAME AS #16		
30 AF3	2-3	40°29.90'	73°52.29'					SAME AS #30		
30 AF4	5-6	40°29.93'	73°52.34'					SAME AS #30		
36 AG1		40°29.68'	73°52.49'	43.0	AD2	34.0		46.0	NE	
					AE1	41.0			NE	
					AJ1	40.0			NW	
					AJ2	38.5			SE	
					AF3	40.5			NE	
					AF1	41.5			NE	
					AJ3	40.0			SW	

HANG ~~STATION~~ NO. / AY LETTER	BUOY NO.	LAT.	LONG.	GROUNDED EFF. DEPTH	CLEARED BY DA STRIP NO.	CLEARED EFF. DEPTH	SOUNDING	CHARTED DEPTH	DIRECTION OF STRIP	REMARKS
37 AH1	2-3	40°29.95'	73°52.89'	43.0	Z1	32.0		42.0	NE	Possible grounding
					Z3	36.5			NE	
					AE1	36.5			NE	
					Z2	33.5			SW	
					Z4	35.5			SW	
38 AH3 (Rejected)		40°28.87'	73°52.90'	NA	V2	48.0		51.0	NE	Note this from the AH3
					AH3	47.0			E	rejected drag. Outside area.
21 AJ4	1								SAME AS #21.	
39 A1	9-F	40°29.18'	73°48.86'	NA	U1	73.0		76	NE	Outside Area
					D1	70.0			SW	

(4-30-57)
COMM-DC 28424

ATTACHMENT IV

DATE	DAY LETTER	STRIP	VOL. #	POSITIONS	L.N.M.	S.N.M.	RED CORR.	GREEN CORR.	LENGTH OF DRAG	SMOOTH PLOT	REMARKS
SEPT. 5	A	1	I	8					8000	✓ Hang only	Hung in mud. Item 1A Hang #39
SEPT. 5	A	2	I	4					2600		Not processed by A.M.C. Hung junk. Saved but not worked up.
SEPT. 8	B	2	I	3	2.1	2.1			8000	✓	Item 1A. SE corner
SEPT. 8	B	1	I	2	1.8	1.62			8000	✓	Hang #1
SEPT. 9	C	1	I	18	1.5	1.5			8000		Hang #4
SEPT. 10	D	1	I	2	2.5	2.0			6400	✓	Hang #2
SEPT. 10	D	2	I	1	.9	.72			6400	✓	Hang #2
SEPT. 10	D	3	II	2	1.6	1.28			6400	✓	Hang #5
SEPT. 11	E	1	II	1	.8	.64			6400	✓	Hang #26 - Outside area.
SEPT. 11	E	2	II	14	2.0	1.6			6400		Sweep area in Item 1A
SEPT. 15	F	1	II	4					6400	✓ Hang only	Hang #10 - Outside area.
SEPT. 15	F	2	II	9	.7	.56			6400	✓	Con't. NE of Strip I Hang #9
SEPT. 15	F	3	II	16	1.2	.96			6400	✓	Con't. NE of Strip II
SEPT. 15	F	4	II	8	1.45	.94			6400	✓	Hang #9
SEPT. 16	G	1	II	08	.8	.32			3200		Cleared hang #4
SEPT. 16	G	2	III	10	.5	.20			3200	✓	Hang #4
SEPT. 16	G	3	III	06	.45	.18			3200	✓	Hang #3
SEPT. 16	G	4	III	07	.7	.28			3200		Cleared hang #3
SEPT. 16	G	5	III	13	.65	.26			3200		Hang #3
SEPT. 17	H	1	III	07	.6	.24			3200		Cleared hang #2
SEPT. 17	H	2	III	09	.82	.328			3200	✓	Cleared hang #2
SEPT. 17	H	3	III	06	.48	.152			3200	✓	Hang #5 - In opposite direction.
SEPT. 17	H	4	III	07	.75	.29			3200	✓	Cleared hang #2
SEPT. 17	H	5	III	09	.8	.32			3200		Cleared hang #1
SEPT. 17	H	6	III	4						✓	Saved - Not worked up. Processed by A.M.C.
SEPT. 18	J	1	IV	13	1.05	.57			4800		Sweep SE corner 1A
SEPT. 22	K	1	IV	6	.4	.16			4000	✓	Hung #12
SEPT. 22	K	2	IV	5	.4	.16			3200		Hang #5
SEPT. 22	K	3	IV	4	.35	.14			3200		Hang #5
SEPT. 22	K	4	IV	7	.85	.34			3200		Hang #5
SEPT. 22	K	5	IV	14	1.15	.46			3200		Cleared hang #5
SEPT. 23	L	1	IV	9	.75	.30			3200		Reverse of Strip #4 Cleared Hang #5
SEPT. 23	L	2	IV	15	1.3	.71			3200	✓	Cleared hang #4
SEPT. 23	L	3	IV	9	.6	.30			4000		Cover 1A and cleared hang #12
SEPT. 23	L	4	V	12	.92	.46			4000		Hang #12
SEPT. 23	L	5	V	8	.73	.32			4000	✓	Hang #4
SEPT. 30	M	1	V	26	2.65	1.98			3200		Cleared hang #12
OCT. 1	N	1	V	10	.65	.52			5600		Sweep area in Item 1A
OCT. 1	N	2	V	18	1.5	1.08			6400	✓	Hang #13
OCT. 2	P	1	V	26	1.88	1.31			5600	✓	Hang previous hang in 1A Hang #3
OCT. 6	O	1	V	09	1.15	.46			6400	✓	Cover area in Item 1A
OCT. 6	O	2	V	08	.54	.35			3200		Pick up holiday in 1A
									5600		Pick up holiday in 1A Not Processed by A.M.C.

(4-30-57)
MM-DC 28424

DATE	DAY LETTER	STRIP	VOL. #	POSITIONS	L.N.M.	S.N.M.	RED CORR.	GREEN CORR.	LENGTH OF DRAG	SMOOTH PLOT	REMARKS
OCT. 7	R	1	VI	10	1.0	.7			✓	6400	Picked up holiday in 1A
OCT. 7	R	2	VI	06	.55	.22				3200	Covered area in 1A
OCT. 7	R	3	VI	07	.35	.15			✓	3200	Covered holiday in 1A
OCT. 7	R	4	VI	10	.76	.42			✓	4800	Covered area 1A - Hang #14
OCT. 7	R	5	VI	14	1.26	.567				3200	Covered area 1A - Hang "WRR" buoy Hang #18
OCT. 8	S	1	VI	07	.80	.336				3200	Clearing strip on hang #1
OCT. 8	S	2	VI	09	.85	.51			✓	4800	Picked up holiday 1A
OCT. 8	S	3	VI	07	.55	.22				3200	Picked up holiday 1A
OCT. 8	S	4	VI	06	.30	.135			✓	3200	Hang #5
OCT. 8	S	5	VI	11	.70	.35				3200	Cleared hang #5
OCT. 14	T	1	VII	06	.65	.227			✓	3200	Picked up holiday in 1A
OCT. 14	T	2	VII	20	1.7	.98			✓	4800	Picked up area SW in 1A - Hang #33
OCT. 14	T	3	VII	08	.75	.337				3200	Cleared hang #13
OCT. 15	U	1	VII	07	.77	.27				3200	Lower effective depth over hang #2
OCT. 15	U	2	VII	07	.93	.37			✓	3200	Lower effective depth over hang #12
OCT. 15	U	3	VII	08	.70	.315			✓	3200	Lower effective depth over hang #5
OCT. 15	U	4	VII	~~16~~ 17	1.15	.69			✓ Hang only	4800	Covered once in 1A - temporary hang
OCT. 16	V	1	VII	10	.93	.47				4800	Covered once in 1A
OCT. 16	V	2	VII VIII	15	1.25	.50			✓	3200	Covered once in 1A
OCT. 17	W	1	VIII	07	.65	.273			✓	3200	Clearing over obstruction hung on #13
OCT. 17	W	2	VIII	08	.4	.180			✓	3200	Cover area in 1A - hang #15
OCT. 17	W	3	VIII	13	.72	.288			✓	3200	Cover area in 1A - hang #28 outside
OCT. 21	X	1	VIII	~~18~~ 17	.70	.315			✓ Hang only	3200	Hang #16, 17, 18
OCT. 22	Y	1	VIII	9	1.05	.42				3200	Finished NW end of anchorage
OCT. 22	Y	2	VIII	6	.65	.26			✓	3200	NE direction near buoy "WRR"
OCT. 22	Y	3	VIII	8	.62	.30			✓	3200	Picked up SW corner anchorage
OCT. 23	Z	1	VIII	14	1.17	.58				4000	Cleared hangs ~~7~~, 8, and 9
OCT. 23	Z	2	VIII	10	1.0	.51				4000	Reverse of Z-1
OCT. 23	Z	3	IX	14	1.30	.65			✓	4000	Reverse of Z-2
OCT. 23	Z	4	IX	13	1.20	.60				4000	Reverse of Z-3
OCT. 24	AA	1	IX	6	.48	.144			✓	2400	Hang #19
OCT. 24	AA	2	IX	8	.70	.21			✓	2400	Hang #20 cleared #15
OCT. 24	AA	3	IX	~~18~~ 19	.88	.62			✓	5600	SE part of anchorage - Hang #21
OCT. 28	AB	1	IX	14	1.7	1.2				5600	Cleared item #3
OCT. 28	AB	2	IX	5	.2	0			✓	4800	Hang #24
OCT. 29	AC	1	IX	12	.95	.57			✓	4800	Clear SW corner of 1A
OCT. 29	AC	2	IX	9	.85	.25				2400	Picked up small area south of buoy "WRR"
OCT. 29	AC	3	IX	~~8~~ 6	.85	.25				2400	Reverse of AC-2 Hang #20
OCT. 31	AD	1	X	~~12~~ 10	.80	.44				4800	Cleared area north of buoy "WRR" Hang #18 "WRR"
OCT. 31	AD	2	X	~~8~~ 8	.60	.36				4800	Cleared area south of buoy + hung "WRR" Hang #18

STOCK NO. 57
(4-30-57)
CMM-DC 28424

DATE	DAY LETTER	STRIP	VOL. #	POSITIONS	L.N.M.	S.N.M.	RED CORR.	GREEN CORR.	LENGTH OF DRAG	SMOOTH PLOT	REMARKS
NOV. 3	AE	1	X	8	.90	.36			3200		Cleared hang #7, 8
NOV. 3	AE	2	X	87	.70	.35			4000		Hung "WRR" - NW direction
NOV. 3	AE	3	X	8	.68	.34			4000		Hung "WRR" - NW direction
NOV. 4	AF	1	X	7	.55	.27			4000	✓	Hang #35 (TURNER) NW direction Same as Hang #16
NOV. 4	AF	2	X	109	.57	.23			3600	✓	Hang #34A SE direction
NOV. 4	AF	3	X	75	.70	.35			4000		Hung "WRR" E direction
NOV. 4	AF	4	X	115	.80	.36			3600		Hung "WRR" SE direction
NOV. 5	AG	1	X	85	.70	.35			4000	✓	Hang #36
NOV. 5	AG	2	XI	6	.70	.28			3200		Cleared hang #29
NOV. 5	AG	3	XI	6	.70	.28			3200	✓	Cleared hang #29
NOV. 5	AG	4	XI	121	.80	.32			4000		NW direction - clear area south of WRR
NOV. 6	AH	1	XI	137	1.0	.5			4000	✓	Area south of buoy "WRR" - NW directi
NOV. 6	AH	2	XI	11	.80	.40			4000		NW direction - cleared hang #33
NOV. 6	AH	3	XI	8	.90	.36			4000	✓	SW direction - cleared hang #33, and #38
NOV. 7	AJ	1	XI	9	1.0	.5			4000	✓	NE direction over removed buoy "WRR"
NOV. 7	AJ	2	XI	109	1.0	.5			4000		Reverse of AJ1
NOV. 7	AJ	3	XI	127	1.0	.5			4000	✓	SW - over removed buoy "WRR"
NOV. 7	AJ	4	XI	10	.4	.13			2800	✓	Hang #21
NOV. 10	AK	1	XII	6	.6	.2			2800	✓	Picked up holiday left by AJ4
NOV. 11	AL	1	XII	17	1.6	.96			4800		Clear Item #3
					16.1	7.54					
NOV. 6	AH	Rejected 3	XI	1	–	–			–	✓ Hang only	Hang #38
Detatched Positions		-		2	–	–			–	✓	–

Total Survey Positions for both vessels = 2108

CAM3-1
1/31/74

Attachment V. A.

ATLANTIC MARINE CENTER

PROJECTION PARAMETERS

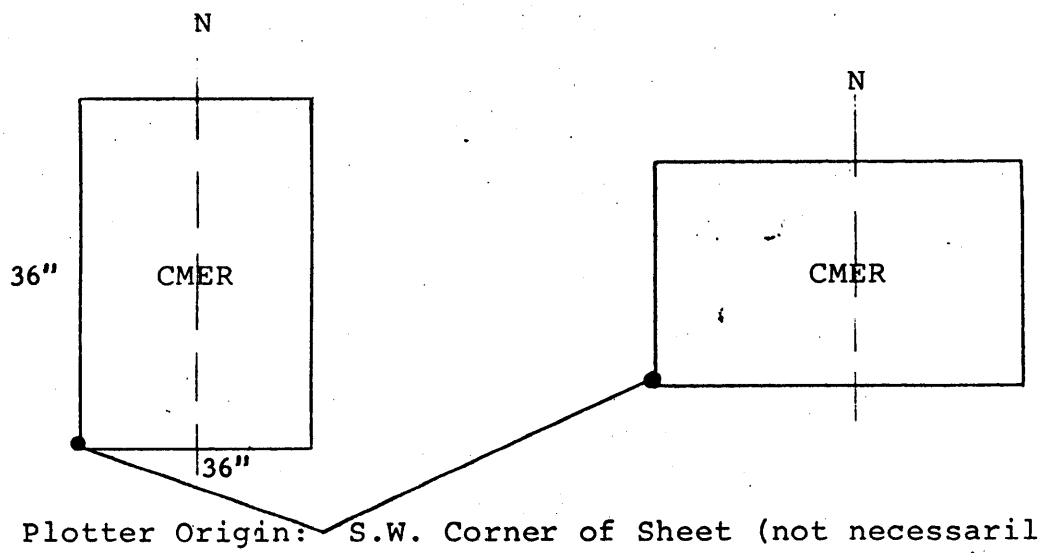
POLYCONIC OR MODIFIED TRANSVERSE MERCATOR

1. Project No. OPR-515-75
2. Reg. No. NONE
3. Field No. R/H-20-3-75
4. Requested By AMC
5. Ship or Office Verification Branch
6. Date Required A.S.A.P.
7. Polyconic [X] Modified Transverse Mercator [ ]
8. Central Meridian of Projection 73 ° 50 ' 00 "
9. Survey Scale: 1: 20,000
10. Size of Sheet (check one):

    36 x 54 [ ] 36 x 60 [ ] Other [X] Specify 36" x 36"

11. Sheet Orientation (check one):

    NYX = 1 [1] NYX = Ø [ ]



12. Plotter Origin: S.W. Corner of Sheet (not necessarily a grid intersection)

    Latitude 40 ° 24 ' 30 "

    Longitude 73 ° 56 ' 30 "

13. G.P.'s of triangulation and/or signals attached [ ]
14. Material Desired: Tracing Paper [ ] Mylar [X]

    Smooth Sheet [X] Other [ ] Specify _____

15. Remarks: _____

Attachment V B.

CAM3-2
1/31/74

ATLANTIC MARINE CENTER

ELECTRONIC CONTROL PARAMETERS

1. Project # OPR-515 2. Reg. # H-------- 3. Field # R/H-20-3-75

4. Type of Control: RAYDIST (Hi-Fix, Raydist, EPI, etc.)

5. Frequency 3300.4 (for conversion of electronic lanes to meters)

6. Mode of Operation (check one):

Range-Range [ ] Range-Visual [ ]

Range One (R_1) Station I.D. Sandy Hook	Lat.	40°	27'	34.3847"
	Long.	73°	59'	41.0121"
Range Two (R_2) Station I.D. H-AMC-3-NJ (Sea Grid)	Lat.	40°	07'	18.3363"
	Long.	74°	02'	11.2167"

Hyperbolic (3-station) [ ] Hyper-Visual [ ]

Slave One Station I.D. _____	Lat.	°	'	"
	Long.	°	'	"
Master Station I.D. _____	Lat.	°	'	"
	Long.	°	'	"
Slave Two Station I.D. _____	Lat.	°	'	"
	Long.	°	'	"

7. Location of Survey:

Range-Range [X] Imagine an observer is standing at R_1 Station and looking directly at R_2 (check one):

Survey area is to observer's Right [ ] A=Ø

Survey area is to observer's Left [X] A=1

Hyperbolic [ ] Looking from survey area toward Master Station:

Slave One must be to observer's Left;

Slave Two must be to observer's Right.

8. [X] This form is submitted as an aid in preparing a boat sheet.

[X] This form applies to all data on this survey.

[ ] This form applies to part of the data on this survey.

Vessel EDP #	From Time	From Day	To Time	To Day	Position Numbers (inclusive)
					to
					to
					to

9. Remarks: _____

Attachment VI

1/8/76

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Atlantic Marine Center:

Hourly heights are approved for

Tide Station Used (NOAA Form 77-12): Sandy Hook

Period: September 4 - November 12, 1975

~~HYDROGRAPHIC SHEET:~~ Wire Drag Survey RU/HK-20-3-75

OPR: 515

Locality: New York Bight

Plane of reference (mean ~~lower~~ low water): 2.26 ft.

Height of Mean High Water above Plane of Reference:
Sandy Hook 4.6 ft.

Remarks: Recommended zoning:

Time Correction	Range Ratio
-35 min.	x0.98

James R Hubbard
for Chief, Tides Branch

ATTACHMENT VII

RIKE DIVING UNDERWATER SALVAGE & RESEARCH 24 HOUR SERVICE

771 - 47TH ST., BROOKLYN, N. Y. 11220 GEDNEY 8-1952 GEDNEY 9-8325

DIVERS REPORT

Dive Performed on THURS. JULY 3, 1975 Time of Day 12 NOON TO 2:30 P.M.

Location AMBROSE ANCHORAGE NEW YORK HARBOR

Name of Vessel U.S.S. TURNER

Dive requested by MR. ANDREWS

Company requesting dive U.S.A. CORPS OF ENGINEERS

Dive witnessed by MR. J. WILLIAMS

Weather Conditions SUNNY AND WARM

Tidal Conditions FLOOD TIDE

Divers visibility at survey depth with the aid of light 8 FEET

Depth of water at survey level 50 TO 60 FEET

Type of diving equipment used for dive ~~XXXXXXXXXXXXXXXX~~ SCUBA ~~XXXXXXXXXXXX~~

Name of vessel dive conducted from DIVE LAUNCH THUNDER REEF

Results of Underwater Survey:

Dive was made to identify a valve which was involved in grounding. Identification of the valve was made which to the best of my knowledge and memory was the valve involved in the grounding and the contractor removed same.

Soundings were taken of the two high points of the wreck. Readings were as follows:

Over boiler at 2P.M. 44 ft. which would be 39.6 feet at mean low water

Over turbine at 2:30 P.M. 46 feet which would be 41.4 feet at m.l.w.

Dive performed by RANDOR ERLANDSON Report Submitted by RANDOX ERLANDSON

Dive tended by ROBERT R[illegible]

DATE: 16 October 1975

TO: CGD - 3 - COTP

1. Inclosed is Map #53, New York Harbor, which shows soundings taken on 1 February 75 in the vicinity of the TURNER wreckage.

2. Location of TURNER Wreckage:

40° 29' 44.882" N.
73° 52' 21.867" W.

3. Also inclosed is divers report of dive made on 3 July 1975. The report indicates that the depth over the boiler was 39.6 feet mlw. However, from other sources, the least depth over the Wreckage was reported to be less (in the neighborhood of 36 feet mlw).

T.R. Clark

T.R. CLARK
Chief, Navigation Branch

ATTACHMENT VIII

5 September 1975

Director, Atlantic Marine Center
Attn: CAM

CDR Robert A. Ganse
Commanding Officer
NOAA Ships RUDE & HECK

Proposed extra (time consuming) care to be taken with Item, OPR-515

It is my impression that the work in Item 1 is of an extremely sensitive nature, both because of pending litigation in the AEOLUS matter and because of the proposed use of the areas. For this reason it is my intention (unless directed otherwise) to;

1. Cover the entire area by two drag strips in opposing directions (routine wire drag requires strips in one direction only),

2. Clear the site of the AEOLUS grounding by up to four strips,

3. Use only relatively small bite drags which allow for continual direct observation of the intermediate buoys from the ships,

4. Do no work on Item 1 when seas exceed 3 feet.

Unfortunately these strips cannot be accomplished without at least doubling the time required to complete the item.

My judgement in this matter has been influenced by a chance meeting with Mr. Robert J. Shourot a consultant employed by the insurers of the AEOLUS who described to me:

1. The difference of opinion which apparently still existing between his organization and the United States Justice Department concerning the hazard presented by the remains of the USS TURNER,

2. The almost demon designed configuration of the wreck site with a pyramidal (difficult to hang) obstruction resting in a hollow within a mound which rises above the normal sea floor.

Attachment IX

17 October 1975

Director, Atlantic Marine Center
Attn: CAM1

CDR Robert A. Ganse
Commanding Officer
NOAA Ships RUDE & HECK

Wire Drag Manual, Corrections To and Suggestion For Documentation of Revisions

Many of the present procedures and much of the equipment used on the RUDE & HECK deviate from that described in the Wire Drag Manual. Some of these changes I was informed about word-of-mouth when I came on-board, some I stumbled across, and a few I've initiated myself. It is my opinion that all such changes should be documented (perhaps in the AMC OP-ORDERS) pending revision of the manual.

The bulk of these changes stem from the same thing, the large relative weight of the RUDE & HECK (190 tons versus 45 for the WAINWRIGHT & HILGARD -- I'm told the PBS boats while long were also light) results in larger stresses on the wire.

1. The ground wire has been increased in size to 1/4 inch diameter. This was necessitated because the lighter wire parted too easily (breaking strength increased to 8400 lbs from 3700 lbs). It is probable that much of the parting experienced with the lighter (old heavy) wire occurred upon hanging. Toggle spacing has been doubled to one every 50 feet (this was necessitated by the increased weight of wire. Each toggle now has two large (1/2 inch) shackles added to adjust the buoyancy (maybe the toggles should be made smaller next production?) The toggle in the center of each section is kept in place by two 1/4" nicro sleeve fittings spaced about six inches apart. When upright lengths exceed 50 feet the first toggle is omitted to avoid fouling the upright on set out. These changes were made c1970.

2. It is my opinion that increased stress are encountered not only upon hanging but transiently throughout the drag. Admittedly if the exact same paths were travelled by a set of large and small vessels the stress history in the drag would be the same in both cases. But stress also alters the vessels courses (more so with lighter vessels) alleviating itself by pulling the vessels inward or impeding their progress. A second increase of stress results from the increased water resistance resulting from the changes outlined in paragraph 1 above. Unfortunately the size of the

weights (limited by the size of the buoys) was not increased. Perhaps some thought should be given to a new set of weights and buoys (this would also necessitate a new buoy rack). Living with what we've got, many rules based on the old stresses (if not extravagant then) are inadequate now.

A. The length of the towline has been increased from that specified in section 3-19 of the Manual. This was done c1970 when frequent higher lifts were noted in the end sections. It is my understanding that this was attributed to the increase in height from which the towline was pulled. While this certainly contributes some extra lift, I suspect that increased strain is the real culprit. Presently used towlines are as follows:

UPRIGHTS	TOWLINE
up to 30'	600'
30' to 60'	800'
60' to 85'	1000'

Even this increase probably isn't sufficient to produce a balance similar the the old system, but managability of the drag is also a consideration.

B. One way of placing additional weight on the wire is to use short sections. While it is operationally difficult to shorten the sections much less than those recommended in section 3-18, I inherited a policy which dates back to c1970 of using much longer sections. I have (at least temporarily) abandoned this practice as of October 1975 to see if it has any effect on lift.

C. The maximum slope criterian given in section 3-20 would have to be reduced to be compatible with the old system. Another alternative would be to continually test the deeper adjacent section. Change cSeptember 1975.

D. Despite adjustments made as per A, B, and C above lifts greater than the three feet mentioned as the normal maximum (for depths less than 60 feet) in section 4-15 are encountered, and lifts change radically with very subtle changes in conditions. The only solution is to continually test the drag. Present practice is to generally use two launches and always at least one. The more I test the more I realize the need to test. Unfortunately this cuts into production because high lifts that would otherwise be undetected are detected and numerous strips have to be rejected as a result.

The method of marking uprights (also drag testers and leadlines) is not that detailed in section 2-7 (it is my understanding that the present system goes back to the WAINWRIGHT & HILGARD days. It does not parallel the standard lead line (green yellow versus yellow green) but somehow is easier to say and thus remember (red white blue green yellow). Since there is but one Wire Drag unit it seems easier to change the instructions than confuse the crew. Present method uses bunting only and is as follows:

DEPTH	FLAG
2	Red
4	White
6	Blue
8	Green
10	Yellow
12	Red
14	White
16	Blue
18	Green
20	Yellow-Red
22	Red
24	White
26	Blue
28	Green
30	Yellow-White
32	Red
34	White
36	Blue
38	Green
40	Yellow-Blue
50	Yellow-Green
60	Yellow-Yellow

If documentation of changes is made as I suggest, C-3 alternate criteria for end-lap (received via CAM1 this summer) and any changes resulting from my recent inquiry on side-lap should be included. Further a copy of my standard diving procedures unique to wire drag is enclosed. These are the results of years of evolution and were documented for me by LCDR William M. Noble upon my request shortly after I joined the vessels. Finally, this letter is not complete and I expect to submit subsequent pages from time to time.

ENCLOSURE (1)

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

F. E. No.1-1976
WIRE DRAG

Name on Survey	A ON CHART NO.	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H U.S. LIGHT LIST	K	
										1
										2
										3
										4
										5
										6
										7
										8
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NOAA FORM 77-27
(9-72)
(PRESC. BY
HYDROGRAPHIC
MANUAL 20-2,
6-94, 7-13)

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

WIRE DRAG ~~HYDROGRAPHIC~~ SURVEY STATISTICS

WIRE DRAG ~~HYDROGRAPHIC~~ SURVEY NO. R/H-20-3-75

RECORDS ACCOMPANYING SURVEY: To be completed when survey is registered.

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET & Final A&Dsheet	~~1~~ 1	BOAT SHEETS	1
DESCRIPTIVE REPORT	1	OVERLAYS	~~1~~ 6

DESCRIPTION	Wire Drag ~~DEPTH~~ RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES	~~3-in box with Misc. data~~					
CAHIERS	~~XXXX~~					
VOLUMES	18					
BOXES			1-box of sawtooth records			

T-SHEET PRINTS *(List)* 1-box of B/S ovlys.,Drag strips & misc. data

SPECIAL REPORTS *(List)*

~~1-Seasons report~~

RUDE/HECK Seasons Report, 1975

OFFICE PROCESSING ACTIVITIES

The following statistics will be submitted with the cartographer's report on the survey

PROCESSING ACTIVITY	AMOUNTS			
	PRE-VERIFICATION	VERIFICATION	REVIEW	TOTALS
POSITIONS ON SHEET				2108
POSITIONS CHECKED		2108		
POSITIONS REVISED		256		
DEPTH SOUNDINGS REVISED				
DEPTH SOUNDINGS ERRONEOUSLY SPACED				
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED				
	TIME (MANHOURS)			
TOPOGRAPHIC DETAILS				
JUNCTIONS				
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS				
SPECIAL ADJUSTMENTS				
ALL OTHER WORK	78	829		907
TOTALS	78	829		

PRE-VERIFICATION BY	BEGINNING DATE	ENDING DATE
M.W. Johnson	01/02/76	01/15/76
VERIFICATION BY	**BEGINNING DATE**	**ENDING DATE**
B.J. Stephenson, M.B. Hickson	02/13/76	06/10/76
REVIEW BY	**BEGINNING DATE**	**ENDING DATE**

FORM C&GS-946A
(REV. 11-65)
(PRES. BY HYDROGRAPHIC MANUAL, 6-94)

U.S. DEPARTMENT OF COMMERCE
ESSA
COAST AND GEODETIC SURVEY

VERIFIER'S REPORT

HYDROGRAPHIC SURVEY, H F.E. No. 1 (1976) W.D.

INSTRUCTIONS - This form serves to identify items of a check list in verification together with items which are separately reported to the Reviewer. The form is not to be forwarded to the Reviewer. A report, which is prepared for the Reviewer, should identify items by number and letter and will be filed in the Descriptive Report until the survey is reviewed.

CL - Check List Items: should be checked as having been completed during the verification processes.

R - Report Item: This column refers to those items reported to the reviewer and is used to indicate the items discussed.

Part I - DESCRIPTIVE REPORT	CL	R
Note: The verifier should first read the Descriptive Report for general information and problems.		
1. The Descriptive Report was consulted, paragraphs checked if found satisfactory, and notations were made in soft black pencil regarding action taken. Remarks Required: -- None		
2. Soundings originating with the survey and mentioned in the Descriptive Report have been verified and checked in soft black pencil, including latitude and longitude, together with position identification. Remarks Required: --None		
3. All reference to survey sheets mentioned in the Descriptive Report should include registry number and year. Remarks Required: -- None		
Part II - SHORELINE AND SIGNALS		
4. Source of shoreline signals Remarks Required: -- List all surveys a. Give earliest and latest dates of photographs b. Field inspection date c. Field Edit date d. Reviewed-Unreviewed		
5. The transfer of contemporary topographic information was carefully examined and reconciled with the hydrography. Remarks Required: -- Discuss remaining differences.		
6. The plotting of all triangulation stations, topographic stations and hydrographic signals has been checked and noted in processing stamp No. 42 on the smooth sheet. Remarks Required: -- None		
7. Objects on which signals are located and which fall outside of the high-water line have been described on the sheet. Remarks Required: -- List those signals still unidentified.		
Part III - JUNCTIONS		
Note: Make a cursory comparison preliminary to inking soundings in area of overlap.		
8. All junctions of contemporary or overlapping sheets were transferred in colored ink and overlapping curves were made identical. Remarks Required: -- None		
9. The notation in slanted lettering "JOINS H---- (19)" was added in colored ink for all verified contemporary adjoining or overlapping sheets. Those not verified are shown in pencil. Remarks Required: -- None		

Part III - JUNCTIONS (Continued)	CL	R
10. Junctions with contemporary surveys were satisfactory except as follows: Remarks Required: -- Consider conditions after adjustments have been made; note adjustments made. Make special notes of **Butt** junctions and areas which are **SUPERSEDED.**		
Part IV - VOLUMES		
11. All items affecting the plotting of the survey which are entered in the remarks columns of the sounding records were noted and check marked. In all cases appropriate action was taken and exceptions noted in the volumes. Remarks Required: -- None		
12. Condition of sounding records was satisfactory except as follows: Remarks Required: -- Mention deficiencies in completeness of notes or actions for the following: (a) rocks (b) line turns (c) position values of beginning and ending of lines (d) bar check or velocity correctors (e) time recording (f) notes or markings on fathograms (g) was reduction of soundings accurately done? (h) was scanning accurate? (i) were peaks at uneven intervals missed? (j) were stamps completed? (k) references to adjacent features		
Part V - PROTRACTING		
13. All positions verified instrumentally were check marked in color in the sounding records, and verifier initialed the processing stamp. Remarks Required: -- None		
14. The protracting and plotting of all unsatisfactory crossings were verified. Remarks Required: -- None		
15. All detached positions locating critical soundings, rocks, buoys, breakers, obstructions, kelp, etc., were verified and the position numbers are legible. Remarks Required: -- None		

Part V - PROTRACTING (Continued)	CL	R
16. The protracting was satisfactory except as follows: Remarks Required: -- Refers to protracting in general except for specific faults repeated often, or faults in control information, which required considerable replotting or adjustments.		
17. The protractor has been checked within the last three months. Remarks Required: -- Date of check, type of protractor and number.		
Part VI - SOUNDINGS		
18. All soundings are clear and legible, and critical soundings are a little larger than adjacent soundings. Remarks Required: -- None		
19. Sounding line crossings were satisfactory except as follows: Remarks Required: -- Discuss adjustments.		
20. The spacing of soundings as recorded in the records was closely followed; Remarks Required: -- None		
21. The scanning, reduction, spacing, plotting of questionable soundings have been verified. Remarks Required: -- None		
22. The smooth plotting of soundings was satisfactory except as follows: Remarks Required: -- Refer to legibility, errors in spacing, and errors in numbers - but not to errors in scanning.		
Part VII - CURVES		
23. The depth curves have been inspected **before** inking. Remarks Required: -- By whom was the penciled curves inspected.		
24. The low-water line and delineation of shoal areas have been properly shown in accordance with the following: a. From T-Sheet in dotted black lines b. From soundings in orange c. Approximate position of sketched curve is dashed orange d. Approximate position of shoal area **not sounded** in black dashed Remarks Required: -- None		
25. Depth curves were satisfactory except as follows: (This statement should not refer to the manner in which the curves were drawn). Remarks Required: -- Indicate areas where curves could not be drawn completely because of lack of soundings. For some inshore areas a general statement is sufficient.		

Part VIII - AIDS TO NAVIGATION	CL	R
26. All fixed aids located together with those on the contemporary topographic sheets, have been shown on the survey. Remarks Required: -- Conflicts of any nature listed.		
27. All floating aids listed in the Descriptive Report should be verified and checked in soft black pencil, including latitude and longitude and position identification. Remarks Required: -- None		
Part IX - BOATSHEET		
28. The boat sheet was constantly compared with the smooth sheet with reference to notes, position of sounding lines and supplemental information. Remarks Required: -- None		
29. Heights of rocks awash were correctly reduced and compared with topographic information. Remarks Required: -- Note excessive conflicts with topographic information.		
Part X - GENERAL		
30. All information on the sheet is shown in accordance with figures 82 and 83 in the Hydrographic Manual (Pub. 20-2). Remarks Required: -- None		
31. Unnecessary pencil notes have been removed from the sheet. Remarks Required: -- None		
32. Degree, minute values and symbols have been checked; also electronic distance arcs have been properly identified and checked on the smooth sheet. Remarks Required: -- None		
33. The bottom characteristics are adequately shown. Remarks Required: -- None		
Part XI - NOTES TO THE REVIEWER		
34. Unresolved discrepancies and questionable soundings.		
35. Notation of discrepancies with photogrammetric survey inserted in report of unreviewed photogrammetric survey or on copy.		
36. Supplemental information.		

Verified by	Date

Verification Branch, AMC
Addendum to Accompany
Wire Drag Investigation
(RU/HE-20-3-75)

General

Field work for this investigation was plotted on individual mylar strips utilizing predicted tides for the effective depths.

Field A&D sheets were plotted by the field on mylar, but they were not plotted in accordance with the Wire Drag Manual. (Chapter 5, Section 9)

The Smooth plot of the investigation was plotted on 7mil mylar and the Smooth A&D sheet was plotted on 3mil mylar.

There were approximately 104 drag strips run on this investigation. Two of these strips were rejected and not processed, fifty-seven strips were plotted on the smooth sheet, and only the hangs were taken from five of these strips.

It was necessary for this office to plot all strips on rough plotting overlays so that each strip could be properly evaluated. The rough overlays contain notes by the smooth plotter/verifier listing the problems encountered.

The fifty-seven drag strips plotted on the smooth sheet cover all thirty-one hangs and twenty-four groundings with maximum clearance on those hangs and groundings cleared.

It was impractical to plot more than fifty-seven on the smooth sheet because the area was too small to maintain legibility with all investigation strips at this scale. Even with fifty-seven strips on the smooth sheet the area is considered conjested. The smooth A&D sheet is a composite of all plotted and verified strips depicting the greatest effective depths derived by the investigation over the entire investigated area. The smooth A&D sheet had to cover Item IA completely due to the considered area to be used as an outside holding anchorage. All individual verified strips have been zeroxed and placed in a binder, which is included in the investigation records as a part of the investigation.

An attachment of tabulated hangs and groundings is included. This listing will furnish the hang or grounding no.; buoys hung or grounded; strip no.'s position; hang or grounded effective depth; strip no. clearing hang or grounding; strips plotted, not plotted or hang only plotted on smooth sheet, charted depth, direction of strip and remarks.

There were four small areas that are indicated as splits on the A&D sheet. These splits are outside the limits of Item IA; however, they were included to show the areas were not covered by a drag strip.

The following hangs were not cleared within two feet:

Hang No.	Strip No.	Hang Depth (Feet)	Clearing Depth (Feet)
11	F-1	38.0 (est.)	35.0
19	AA-1	45.0	41.0
21	AJ-4	44.0	41.0
24	AB-2	48.0	not cleared
26	E-1	46.0	42.0
31	U-4	52.0 (est.)	49.0
32	R-3	57.0	51.0
39	A-1	76.0 (est.)	73.0

The following groundings were not cleared within two feet:

Grounding No.	Strip No.	Grounding Depth (Feet)	Clearing Depth (Feet)
2	H-6	61.0	54.0
4	H-6	61.0	54.0
5	R-1	63.0	60.0
8	E-1	45.0	not cleared
9	R-4	43.0	38.0
11	W-2	53.0	48.0
12	H-3	54.0	49.0
13	R-3	57.0	52.0
15	W-3	50.0	47.0
20	AK-1	44.0	39.0
21	F-2	34.0	not cleared
22	AH-1	44.0	40.0
23	F-2	35.0	not cleared
24	F-1	38.0	not cleared

HANG ~~or GRD.~~ NO.	STRIP NO.	BUOY NO.	LAT.	LONG.	GROUNDED EFF. DEPTH	CLEARED BY STRIP NO.	CLEARED EFF. DEPTH	SS PLOTTED (P) NOT PLOTTED (NP) HANG ONLY [H-O]	CHARTED DEPTH	DIRECTION OF STRIP	REMARKS
1	B1	5-6	40 30.05	73 47.34	75.0	B2	75.0	P/P	76.0	SW	Metal Cage 10'x10'x7'
						S1	73.0	NP		SW	
						H5	72.0	NP		NE	
2	D-1	2-3	40 29.18	73 48.95	72.0	H2	72.0	P/P	74.0	SW	No investigation
						B1	71.0	P		NE	
						U1	71.0	NP		NE	
						H1	70.0	NP		NE	
						C1	68.0	NP		NE	
	G5	4-5	16.8 40 30.28	14.4 73 49.24	50.0	G4	49.0	NP/NP	58.0	SE	Possible turbine wheel
	N2	3-4			52.0	H4	49.0	P/P		NE	
	D2	3-4			53.0			P			
	G3	5-6			57.0			P			
4	G-2	4	51 40 29.85	17.4 73 49.29	61.0	G1	59.0	P/NP	64.0	SE	3'x5' poss. block buoy sinker
	C-1	8-9			62.0	D3	58.0	NP/P		SE	
	L-4	2-3			63.0	L1	60.0	P/P		NE	
5	K3	4-5	20.4 40 29.34	22.2 73 51.37	46.0	U3	44.0	NP/P	56.0	NE	Old Stock Anchor
	K1	2-3			48.0	K4	43.0	NP/NP		NE	
	K2	2-3			48.0	S5	43.0	NP/NP		SW	
	S4	6-7			51.0	K5	42.0	P/NP		SW	
	D3	7-8			54.0			P			
	H3	4			54.0			P			
8	F-2	7-8	57 40 29.95	19.2 73 52.82	39.0	AJ1	39.0	P/P	42.0	NW	
	AH1	2-3			40.0	F4	38.0	P/P		SE	
						Z4	37.0	NP		SW	
						Z3	36.0	P		NE	
						AE1	36.0	NP		NE	
						Z2	33.0	NP		SW	
						AD2	33.0	NP		NE	
						Z1	31.0	NP		NE	
9	F4	5	1.2 40 30.02	3.6 73 53.06	36.0	Z3	36.0	P/P	41.0	NE	
	F2	5-6			39.0	Z4	35.0	P/NP		SW	
						Z2	33.0	NP		SW	
						Z1	31.0	NP		NE	

HANG ~~or GRD.~~ NO.	STRIP NO.	BUOY NO.	LAT.	LONG.	GROUNDED EFF. DEPTH	CLEARED BY STRIP NO.	CLEARED EFF. DEPTH	SS PLOTTED (P) NOT PLOTTED (NP) HANG ONLY [H-O]	CHARTED DEPTH	DIRECTION OF STRIP	REMARKS
10	F1	N-1	40 29.29	73 53.40	est. 42.0	AC1	42.0	P(H-O)/P	47.0	NE	Outside area IA
11	F1	6-7	40 30.05	73 53.73	est. 38.0	F2	35.0	P(H-O)/P	35.0	NE	Outside area IA
12	J2	3-4	40 30.25	73 48.15	63.0	U2	63.0	P/P	66.0	NE	Hang Inclined section
	L3	1-2			63.0	L5	61.0	NP/NP		SW	
						L2	60.0	NP		NE	
13	N1	6-7	40 30.00	73 50.66	50.0	W1	50.0	P/P	52.0	SW	
						T3	47.0	NP		SW	
						E2	45.0	NP		SW	
						P1	45.0	P		NE	
14	R4	3-4	40 30.46	73 51.28	45.0	T1	43.0	P/P	46.0	NE	Outside area IA
						R5	41.0	NP		SW	
15	W2	5-6	40 29.78 46.8	73 51.80 48	49.0	T2	48.0	P/P	50.0	SW	
						P1	48.0	P		NE	48 over ✓
						AA2	45.0	P		SW	
16	W3	4-5	40 29.76 45.6	73 52.41 46	41.0	AJ3	40.0	P/P	46.0	SW	
	AF1	6-7			41.0	AF3	40.0	P/NP		ENE	
	X1	6-7			43.0	AJ1	39.0	P(H-O)/P		NW	40 wh ✓
						AJ2	38.0	NP		SE	
						AE3	38.0	NP		NW	
						AF4	36.0	NP		SE	
						AE2	36.0	NP		NW	
						AD2	33.0	NP		NE	
17	X1	N-1	40 30.09 5.8	73 52.22 13.2	41.0	Y2	41.0	P(H-O)/P	44.0	NE	
						R5	41.0	NP		SE	
						AF2	40.0	P		SE	41 over ✓
						AJ1	39.0	P		NW	
						AE3	38.0	NP		NW	
						AE2	37.0	NP		NW	
						AF4	36.0	NP		SE	
						AD1	35.0	NP		SE	

HANG ~~or GRD.~~ NO.	STRIP NO.	BUOY NO.	LAT.	LONG.	GROUNDED EFF. DEPTH	CLEARED BY STRIP NO.	CLEARED EFF. DEPTH	SS PLOTTED (P) NOT PLOTTED (NP) HANG ONLY [H-O]	CHARTED DEPTH	DIRECTION OF STRIP	REMARKS
			55.2	19.2							
18	AF2	2-3	40 29.92	73 52.32	----	AJ3	40.0	P/P	45.0	SW	Hang on Nav. buoy
	AE3	4-5				AJ1	39.0	NP/P		NW	
	AE2	4-5				AJ2	38.0	NP/NP		SE	
	AD2	5-6						NP		NE	
	R5	4						NP			
	AD1	5-6						NP			
	AF4	5-6						NP			
	AF3	4-5						NP			
			45.6	15							
19	AA1	2-3	40 29.76	73 52.25	45.0	AF1	41.0	P/P	46.0	NE	
						AJ3	40.0	P		SW	
						AJ1	39.0	P		NW	
						AJ2	38.0	NP		SE	WK 25.
						AE3	38.0	NP		NW	
						AE2	36.0	NP		NW	
						AD1	35.0	NP		SW	
						AD2	33.0	NP		NE	
			43.8	09.6							
20	AA2	2-3	40 29.73	73 52.16	45.0	AA1	45.0	P/P	46.0	SW	
	AC3	N-1			45.0	R5	44.0	NP/NP		SW	
						AC2	44.0	NP		NE	
						AF1	41.0	P		NW	
						AJ3	40.0	P		SW	
						AJ1	39.0	P		NW	
						AE3	38.0	NP		NW	
						AJ2	38.0	NP		SE	
						AE2	37.0	NP		NW	
						AD1	35.0	NP		SW	
						AD2	33.0	NP		NE	
			42	39							
21	AJ4	N-1	40 29.70	73 52.65	44.0	X1	41.0	P/P(HO)	45.0	NE	Temporary
						AE1	40.0	NP		NE	
						AF3	40.0	NP		ENE	
						AH1	40.0	P		NW	
						AJ3	40.0	P		SW	
						AJ1	39.0	P		NW	
						AG4	39.0	NP		SW	
						AE3	38.0	NP		NW	
						AD2	33.0	NP		NE	
			09.6	07.2							
22	AA3	5-6	40 29.16	73 53.12	48.0	AC1	46.0	P/P	46.0	NE	Temporary (Outside area)
						W3	44.0	P		NE	

HANG ~~or GRD.~~ NO.	STRIP NO.	BUOY NO.	LAT.	LONG.	GROUNDED EFF. DEPTH	CLEARED BY STRIP NO.	CLEARED EFF. DEPTH	SS PLOTTED (P) NOT PLOTTED (NP) HANG ONLY [H-O]	CHARTED DEPTH	DIRECTION OF STRIP	REMARKS
23	(Same as Hang #16)										
24	AB2	5	40 27.75	73 50.05	est. 48.0	NONE		P	46.0		Item #3 (sand shoal) (not cleared)
25	(Same as Hang #20)										
26	E1	5-6	40 30.80	73 50.43	46.0	P1	42.0	P/P	45.0	NE	Outside area IA
28	(Same as Hang #~~18~~ 16) ~~Nav. buoy~~										
29	D2	5-6	40 30.96	73 48.90	52.0	AG2	52.0	P/NP	51.0	E	(Temporary)
						AG3	52.0	P		E	
30	(Same as Hang #18) Nav. buoy										
31	U4	5-7	40 29.31	73 51.95	est. 52.0	T2	49.0	P(H-O)/P	53.0	SW	(Temporary)
						V1	49.0	NP		NE	(Pos. approx.)
						V2	48.0	P		NE	
32	R3	1-2	40 29.06	73 51.20	57.0	S4	51.0	P/P	59.0	NE	Outside area IA
						S5	43.0	NP		SW	
33	T2	1-2	40 28.69	73 52.28	46.0	AH3	46.0	P/P	55.0	E	Outside area IA
						AH2	42.0	NP		NW	
34	U4	9	40 29.30	73 52.30	est. 47.0	V2	47.0	P(H-O)/P	49.0	NE	
						AC3	45.0	NP		NE	
						AC2	44.0	NP		SW	
						AG1	43.0	P		NW	
						AG4	41.0	NP		NW	
						AH1	40.0	P		NW	
34A	AF2	N-1	40 29.76	73 52.68	40.0	AJ3	40.0	P/P	43.0	SW	
						AF3	40.0	NP		ENE	
						AJ1	39.0	P		NW	
						AJ2	38.0	NP		SE	
						AE3	38.0	NP		NW	
						AE2	36.0	NP		NW	
						AD2	33.0	NP		NE	

HANG ~~or SRD.~~ NO.	STRIP NO.	BUOY NO.	LAT.	LONG.	GROUNDED EFF. DEPTH	CLEARED BY STRIP NO.	CLEARED EFF. DEPTH	SS PLOTTED (P) NOT PLOTTED (NP) HANG ONLY (H-O)	CHARTED DEPTH	DIRECTION OF STRIP	REMARKS
35	(Same as Hang #16)										
36	AG1	N-1	40 29.73	73 52.49	43.0	X1	43.0	P/(H-O)	46.0	NE	
						AF1	41.0	P		NE	
						AF3	40.0	NP		ENE	
						AJ3	40.0	P		SW	
						AJ1	39.0	P		NW	
						AJ2	38.0	NP		SE	
						AE3	38.0	NP		NW	
						AE2	36.0	NP		NW	
						AD2	33.0	NP		NE	
37	(Same as Hang #8)										
38	AH3	NA	40 28.86	73 52.90	est. 47.0	V2	47.0	P(H-O)/P	50.0	NE	Hang position (Outside
(rejected strip)						AH3	46.0	P		E	approximate area IA)
39	A-1	9-F	40 29.10	73 48.86	est. 76.0	C1	73.0	P(H-O)/NP	76.0	SW	Outside area IA
						H2	72.0	P		SW	
						B1	71.0	P		NE	
						U1	71.0	NP		NE	
						D1	70.0	P		SW	
						H1	70.0	NP		NE	

~~HANG~~ or GRD. NO.	STRIP NO.	BUOY NO.	LAT.	LONG.	GROUNDED EFF. DEPTH	CLEARED BY STRIP NO.	CLEARED EFF. DEPTH	SS PLOTTED (P) NOT PLOTTED (NP) HANG ONLY [H-O]	CHARTED DEPTH	DIRECTION OF STRIP	REMARKS
1	B3	F	40 30.22	73 49.35	53.0	N2	52.0	P/P	58.0	NE	
						G5	50.0	NP		NE	
						G4	49.0	NP		SE	
						H4	49.0	P		NE	
2	H6	N	40 29.95	73 49.82	61.0	D3	54.0	P/P	59.0	SW	
						N2	52.0	P		NE	
						G5	50.0	NP		NE	
3	H6	5-6	40 29.83	73 49.80	61.0	L1	60.0	P/P	60.0	NE	
						N2	54.0	P		NE	
						D3	54.0	P		SW	
						G5	50.0	NP		NE	
4	H6	6	40 29.81	73 48.90	61.0	N2	54.0	P/P	59.0	NE	
						B3	53.0	P		SW	
						G5	50.0	NP		NE	
5	R1	F	49 29.63	73 50.00	63.0	G2	60.0	P/P	61.0	NE	
						N2	55.0	P		NE	
						D3	54.0	P		SW	
						N1	50.0	P		NE	
	D3	F	40 30.33	73 50.00	53.0	S2	51.0	P/P	51.0	SW	
						E1	49.0	P		SW	
						P1	46.0	P		NE	
7	A1	F	40 29.15	73 48.97	NONE	H2	71.0	P(H-O)/P	74.0	SW	Outside Area IA
						U1	71.0	NP		NE	
						B1	71.0	P		NE	
						D1	70.0	P		SW	
						H1	70.0	NP		NE	
						C1	68.0	NP		NE	
8	E1	F	40 31.15	73 50.30	45.0	NONE		P	43.0		Grd not cleared Outside Area IA
9	R4	F	40 30.80	73 51.49	43.0	F3	38.0	P/P	42.0	NE	Outside Area IA
10	R4	4	40 30.45	73 51.62	43.0	T1	43.0	P/P	44.0	NE	Outside Area IA
						R5	41.0	NP		SW	
11	W2	6	40 30.07	73 51.42	53.0	T2	48.0	P/P	49.0	SW	
						P1	44.0	P		NE	

~~HANG OR~~ GRD. NO.	STRIP NO.	BUOY NO.	LAT.	LONG.	GROUNDED EFF. DEPTH	CLEARED BY STRIP NO.	CLEARED EFF. DEPTH	SS PLOTTED (P) NOT PLOTTED (NP) HANG ONLY (H-O)	CHARTED DEPTH	DIRECTION OF STRIP	REMARKS
12	H3	6-F	40 29.47	73 51.56	54.0	T2	49.0	P/P	54.0	SW	
						P1	48.0	P		NE	
						K5	41.0	NP		SW	
13	R3	N	40 29.10	73 51.43	57.0	H3	52.0	P/P	57.0	NE	Outside Area IA
						S4	51.0	P		NE	
						K1	48.0	NP		NE	
						K2	47.0	NP		NE	
						K3	46.0	NP		NE	
						U3	45.0	P		NE	
						K4	43.0	NP		NE	
						S5	43.0	NP		SW	
14	AK1	N	40 29.57	73 52.67	44.0	AJ4	44.0	P/P	46.0	NW	
						X1	41.0	P(H-O)		NE	
						AF3	40.0	NP		ENE	
						AH1	40.0	P		NW	wk
						AG4	39.0	NP		SW	
						AD2	33.0	NP		NE	
15	W3	7	40 29.33	73 52.53	50.0	Y3	47.0	P/P	50.0	NE	
						V2	47.0	P		NE	
						AC3	45.0	NP		NE	
						AC2	44.0	NP		SW	
						AJ4	44.0	P		NW	
						AG1	43.0	P		NW	
						AG4	41.0	NP		NW	
16	W3	4	40 29.40	73 52.67	47.0	Y3	47.0	P/P	48.0	NE	
						AJ4	45.0	P		NW	
						AC3	45.0	NP		NE	
						AC1	44.0	P		NE	
						AC2	44.0	NP		SW	
						X1	43.0	P(H-O)		NE	
						AG1	43.0	P		NW	
						AF3	40.0	NP		ENE	
						AG4	39.0	NP		NW	

~~HANG~~ ~~or~~ GRD. NO.	STRIP NO.	BUOY NO.	LAT.	LONG.	GROUNDED EFF. DEPTH	CLEARED BY STRIP NO.	CLEARED EFF. DEPTH	SS PLOTTED (P) NOT PLOTTED (NP) HANG ONLY (H-O)	CHARTED DEPTH	DIRECTION OF STRIP	REMARKS
17	Y3	N	40 29.47	73 52.85	46.0	W3	45.0	P/P	46.0	NE	
						AC1	45.0	P		NE	
						AA3	44.0	P		SW	
						AJ4	44.0	P		NW	
						AK1	44.0	P		NW	
						X1	40.0	P(H-O)		NE	
						AF3	40.0	NP		ENE	
18	AK1	F	40 29.40	73 53.00	44.0	AC1	44.0	P/P	46.0	NE	
						AA3	44.0	P		SW	
19	AJ4	F	40 29.55	73 53.02	44.0	AA3	44.0	P/P	45.0	SW	
						AH1	44.0	P		NW	
						AK1	44.0	P		NW	
						X1	41.0	P(H-O)		NE	
20	AK1	1	40 29.90	73 53.07	44.0	F2	39.0	P/P	42.0	NE	
						F4	38.0	P		SE	
						Z3	36.0	P		NE	
						Z4	36.0	NP		SW	
						Z2	33.0	NP		SW	
						Z1	31.0	NP		NE	
2	F2	N	40 30.55	73 53.27	34.0	NONE		P	35.0		Grd not cleared
											Outside Area IA
22	AH1	F	40 29.80	73 53.40	44.0	F2	40.0	P/P	42.0	NE	Outside Area IA
						Z4	37.0	NP		SW	
						Z3	36.0	P		NE	
						Z2	34.0	NP		SW	
						Z1	31.0	NP		NE	
23	F2	N	40 30.06	73 54.03	35.0	NONE		P	34.0		Grd not cleared
											Outside Area IA
24	F1	N	40 29.99	73 54.04	38.0	NONE		(H-O)	34.0		Grd not cleared
											Outside Area IA

INFO ONLY Please Return to Verification for filing with Desc. Report.

★ **43(4147T)74. (12) NEW YORK HARBOR APPROACH—Buoy temporarily established.**—"WRR", red and black banded, *Int. Qk. Fl. R., GONG*, in 40°29.9′ N., 73°52.3′ W. to mark reported obstructions. At least 500 yard berth recommended.

(See N.M. 42(4050)74.)

(L.N.M. 42, C.G., New York, 25 Sept. 74.)

Charts 12326 (C &GS 1215), 12300 (C &GS 1108).

C.G. Light List, Vol. I, 1974, No. 94.10.

★ **43(4148)74. (13) RHODE ISLAND—Point Judith—Buoy relocated.**—Whistle Buoy "2", about 0.8 mile S., to 4,900 yards (2.45 miles) 173° from light (41°21.6′ N., 71°28.9′ W.).

(L.N.M. 40, C.G., Boston, 25 Sept. 74.)

Charts **13218** (C &GS **1210**), **13205** (C &GS **1211**), 12300 (C &GS 1108), 13003 (C &GS 1000).

C.G. Light List, Vol. I, 1974, No. **799.**

★ **43(4149)74. (13) RHODE ISLAND—Narragansett Bay—Providence River—Light changed.**—Conimicut Light (41°43.0′ N., 71°20.7′ W.) nominal visibility (range) to *7 miles white, 6 miles red.* Fog signal changed to *BELL.*

(L.N.M. 39, C.G., Boston, 18 Sept. 74.)

Charts **13224** (C &GS **278**), **13221** (C &GS **353**), 13222 (C &GS 353SC).

C.G. Light List, Vol. I, 1974, No. **747.**

★ **43(4150)74. (18) NORTH PACIFIC OCEAN—Cobb Seamount Foul Area, Caution.**—

1. Add *Foul Area,* 0.5 mile in radius, centered in 46°45.2′ N., 130°49.6′ W.
2. Due to a system of anchors, chains and sinkers placed to assist in the scientific research and exploration of Cobb Seamount, mariners are cautioned against anchoring or dragging within the area above.

(RS 3718/74.)

Charts **18007** (C &GS **505** [illegible] 530 (C &GS 9000).

43(4152)74. (24) SURINAM—Su
exists in 5°59′19″ N., 55°07′51″ W

Chart **24351.**

43(4153)74. (25) WEST INDIES
ment.—

1. Delete F.R. light (13°09′07″ N
NE. from it.
2. Amend legend "Lights in line
3. Add legend "*Works in Progress*

Chart **25483.**
Pub. 111A, 1974, Nos. **19740, 1974**
Pub. 22, 1963, page 165.

★ **43(4154)74. (25) WEST IND**
Bay Channel—Lights temporarily
N., 64°44′58″ W.) and Rear Lights
(Supersedes N.M. 28(2693T)74.)

Chart 25641 (Inset) (C&GS 905).
C.G. Light List, Vol. II, 1974, No

★ **43(4155)74. (25) WEST IN**
Anchorage buoy removed.—"A" fr

Chart **25670** (C&GS **908**).
C.G. Light List, Vol. II, 1974, pa

★ **43(4156)74. (25) WEST IN**
Light permanently changed.—To
N., 66°07.4′ W. (Obscured sector

★ 42(4046)74. (12) **CHESAPEAKE BAY—Hampton Roads—Elizabeth River—Town Point—Daybeacon established.**—White, marked "Danger Submerged Piles" in 36°50′51.2″ N., 76°17′48.2″ W.

(L.N.M. 38, C.G., Portsmouth, 17 Sept. 74.)

Charts 12253 (C&GS 452), 12206 (C&GS 829SC).

C.G. Light List, Vol. I, 1974, page 359.

★ 42(4047T)74. (12) **CHESAPEAKE BAY—Baltimore Harbor—Buoys temporarily established.**—

1. "A", orange and white banded, *F.*, in 39°17′04.5″ N., 76°36′34.0″ W.
2. "B", orange and white banded, in 39°17′05″ N., 76°36′37″ W.

Note.—Private aids marking channelward end of pier being removed.

(L.N.M. 38, C.G., Portsmouth, 17 Sept. 74.)

Charts 12281(C&GS 545), 12278(C&GS 549), 12279(C&GS 549SC).

★ 42(4048T)74. (12) **CHESAPEAKE BAY—Potomac River—Mooring buoy temporarily established.**—White, *Qk. Fl.*, in 38°17′18″ N., 76°57′55″ W.

(L.N.M. 38, C.G., Portsmouth, 17 Sept. 74.)

Charts 12286(C&GS 558), 12285(C&GS 101SC).

★ 42(4049)74. (12) **DELAWARE BAY—Delaware River—Smyrna River—Wreck.**—23 foot cabin cruiser sunk in 39°22′35″ N., 75°29′00″ W.

(L.N.M. 41, C.G., New York, 18 Sept. 74.)

Charts 12311 (C&GS 294), 12304 (C&GS 1218).

★ 42(4050)74. (12) **NEW YORK HARBOR APPROACH—Obstructions.**—Reported in:

1. 40°30.0′ N., 73°52.2′ W.
2. 40°29.5′ N., 73°52.3′ W.

(L.N.M. 41, C.G., New York, 18 Sept. 74.)

Charts 12326(C&GS 1215), 12300(C&GS 1108).

Chart 12300(C&GS 1108).

★ 42(4053)74. (13) **MASSACHUSETTS—Cape Cod—Long Point—changed.**—At light (42°02.0′ N., 70°10.1′ W.) to *BELL.*

(L.N.M. 38, C.G., Boston, 11 S

Charts 13249 (C&GS 580), 13246 (C&GS 1208), 13267 (C&GS 12 (C &GS 1107).

C.G. Light List, Vol. I, 1974, No. 529.

★ 42(4054)74. (13) **MASSACHUSETTS—Boston Approach—Bu lished—Erratum N.M. 33(3172)74.**—To list of charts affected, add C

(L.N.M. 38, C.G., Boston, 11 S

Chart 12300 (C&GS 1108) (1e).

★ 42(4055)74. (13) **MASSACHUSETTS—Boston Harbor—Dee Chart amendment.**—Amend Deer Island Directional Light (4 70°57.3′ W.) from "Occ. 6 sec." to *Occ. 4 sec.*

Note.—Sectors unchanged.

(See N.M. 38(3667)74.)

(L.N.M. 34, C.G., Boston, 14 A

Charts 13272(C&GS 248), 13273(C&GS 248SC).

★ 42(4056)74. (13) **MASSACHUSETTS—Marblehead Neck—(Rocks—Chart amendment.**—Add radar reflector to Buoy "4" (42 70°50.2′ W.).

(See N.M. 37(3582)74.)

(L.N.M. 33, C.G., Boston, 7 A

Chart 13200 (C&GS 1107).

ATLANTIC MARINE CENTER

WIRE DRAG SURVEY REVIEW

FIELD INVESTIGATION

DATE: FIELD NO.: RU/HE-20-3-75WD

GENERAL LOCALITY and SPECIFIC LOCATION:

New York, New York Bight Area

SURVEYED: September 5, 1975 through November 11, 1975

PROJECT NO.: OPR-515 SCALE: 1:20,000

SOUNDINGS BY: Wire Drag CONTROL: Raydist Range-Range

Chief of Party ..... CDR Ganse
Surveyed by ..... LCDR Bush
..... LTJG Albertson
..... ENS Renninger
..... ENS Vadnais
Automated Plot of Preliminary plotter strips by Calcomp Plotter #618 (AMC)
Inked by ..... M.B. Hickson, B.J. Stephenson
Verified by ..... M.B. Hickson, B.J. Stephenson

A. Purpose of the Investigation

The purpose of this investigation is to locate and clear reported wrecks and obstructions that are a hazard to navigation in an area, north of Ambrose Tower, bounded by lines connected by the following coordinates: (Item IA)

40° 30' 24"N, 73° 53' 12"W
40° 30' 24"N, 73° 46' 48"W
40° 29' 12"N, 73° 46' 48"W
40° 29' 12"N, 73° 53' 12"W

Locate and clear a charted submerged dangerous wreck reported at latitude 40° 28' 00"N, longitude 73° 51' 00"W (Item #3).

B. Shoreline and Control

There was no shoreline available for this investigation.

Raydist electronic control, utilizing range-range mode, on frequency 3300.4 KHz, was used for position control throughout the investigation.

C. Junctions

No other wire drag surveys junction with the present survey.

D. Comparison With Hydrographic Survey

Effective depths on this wire drag investigation do not conflict with depths on hydrographic survey H-6190 (1936).

E. Comparison With Chart 12326 (formerly chart 1215), 29th edition, dated September 6, 1975

1. Hydrography

Except as noted below, there is only one minor conflict between the charted depths and the effective wire drag depths on the present investigation. (minor conflict is disagreement of charted depth explained on bottom of page)

Attention is directed to the following:

a. The reported obstructions charted at latitude 40° 30' 00"N, longitude 73° 52' 12"W and latitude 40° 29' 30"N, longitude 73° 52' 18"W (source: NM 42 of 1974) were not found as charted.

b. The 32 foot reported wreck charted at latitude 40° 29' 51"N, longitude 73° 52' 15"W was not found as charted.

c. This wire drag investigation has 31 hangs and 24 groundings. The majority of the hangs were on the wreckage of the USS TURNER and trash on the bottom and presents no hazard to navigation. There were several objects located that should be charted as obstructions, because they are metal or solid objects which protrude from the bottom.

1. Hang No. 1, a metal cage 10'x10'x7' located at latitude 40° 30.05'N, longitude 73° 47.34'W (cleared by 75 feet).

2. Hang No. 3, a metal object resembling a turbine wheel located at latitude 40° 30.28'N, longitude 73° 49.24'W (cleared by 49 feet).

3. Hang No. 5, a large stock Anchor located at latitude 40° 29.34'N, longitude 73° 51.37'W (cleared by 44 feet).

The groundings do not present any problems, with the exception of ~~was~~ grounding No. 1, which does not agree with the charted depth of 58 ft. ~~and is~~ This grounding was cleared by 52 feet. All other groundings have a grounded ~~effected~~ depth deeper or are within two feet of the charted depth. The charted depths were taken from chart 1215, and supplemented by soundings from prior survey H-6190 (1936).

2. Aid to Navigation

The floating aid to navigation on the present investigation is in agreement with the charted position. The charted obstructions for which the buoy was established was not found. (New York Harbor Approach LGB "WRR" L.L. No. 94.10)

F. Condition of Survey

1. Field Work Discrepancies Encountered

a. Insufficient test

b. Raydist control ambiguities were a problem on several strips and the entire investigation was subject to a ± 0.5 lane ambiguity. All control problems of this type should be resolved by the field.

c. General Lack of hang information (cuts to hangs, D.P.s, etc.)

d. Violation of section 3-20 Wire Drag Manual (Deep section between two shoaler sections)

e. No leadline soundings taken on hangs

f. Many hangs were not investigated

2. Records

a. New effective depth diagrams were made up for each strip by the verifier.

b. Lift applied incorrectly on some strips

c. Fathograms for hydrography run over shoal (Hang #24) not included in records

3. Descriptive Report

a. Several hangs were multi-designated and often the survey records and the Descriptive Report did not agree on hang designations

b. There were no tabulated lists of groundings in Descriptive Report

c. No mention of aids to navigation in Descriptive Report

4. Field Plotting

a. Field A&D sheet was not in accordance with Wire Drag Manual. All the items mentioned under the Condition of Survey did not reduce the accuracy of the investigation. The area was covered by 102 strips and the strips with the strongest hangs and greatest clearing depths were plotted on Smooth Sheet.

G. Compliance With Project Instructions

1. Some hangs were not investigated

2. No leadline soundings taken on hangs

3. Some hangs and groundings not cleared, other hangs and groundings not cleared within two feet

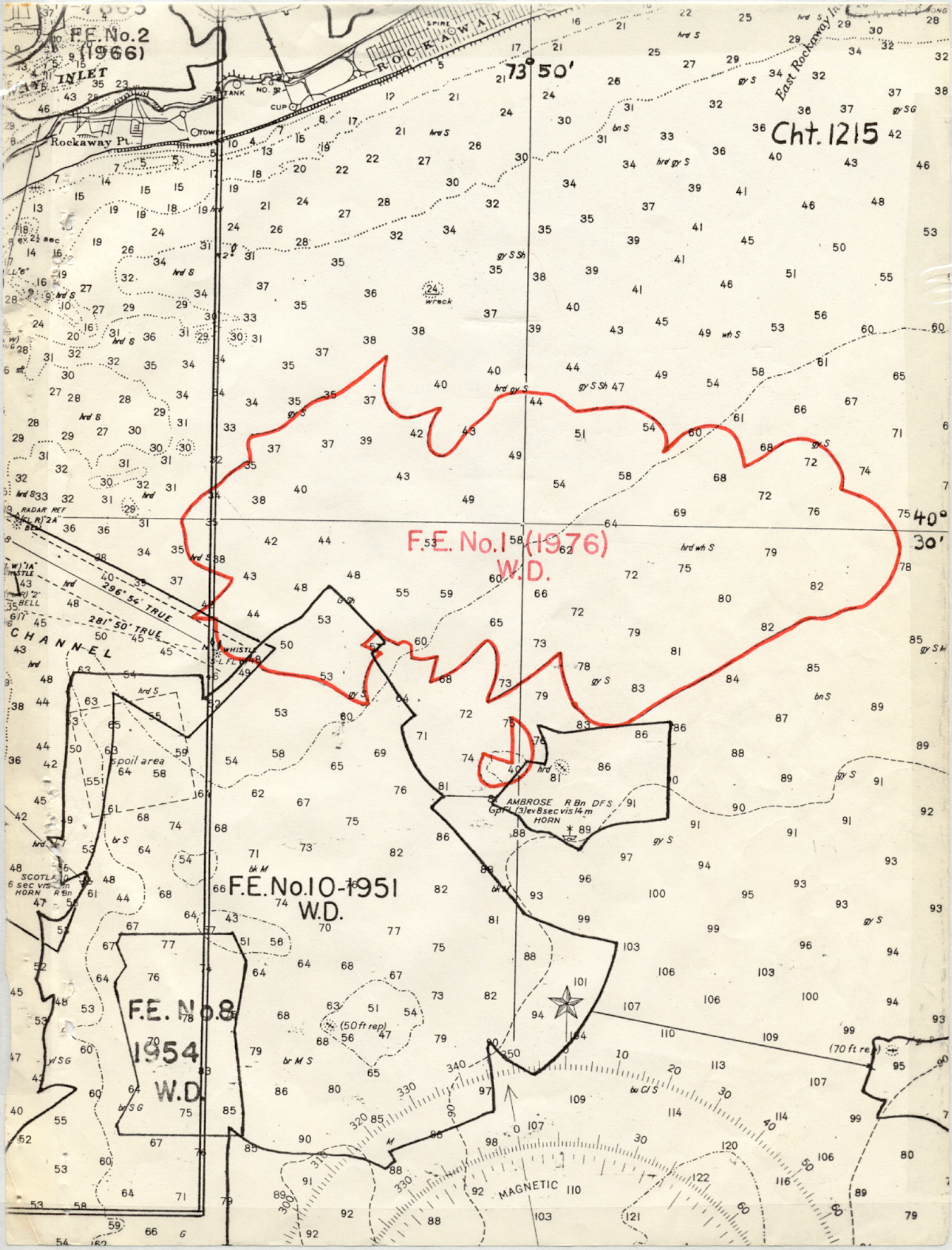
H. Additional Field Work

This wire drag investigation is considered adequate, and serves the intended purpose. No additional field work is recommended.

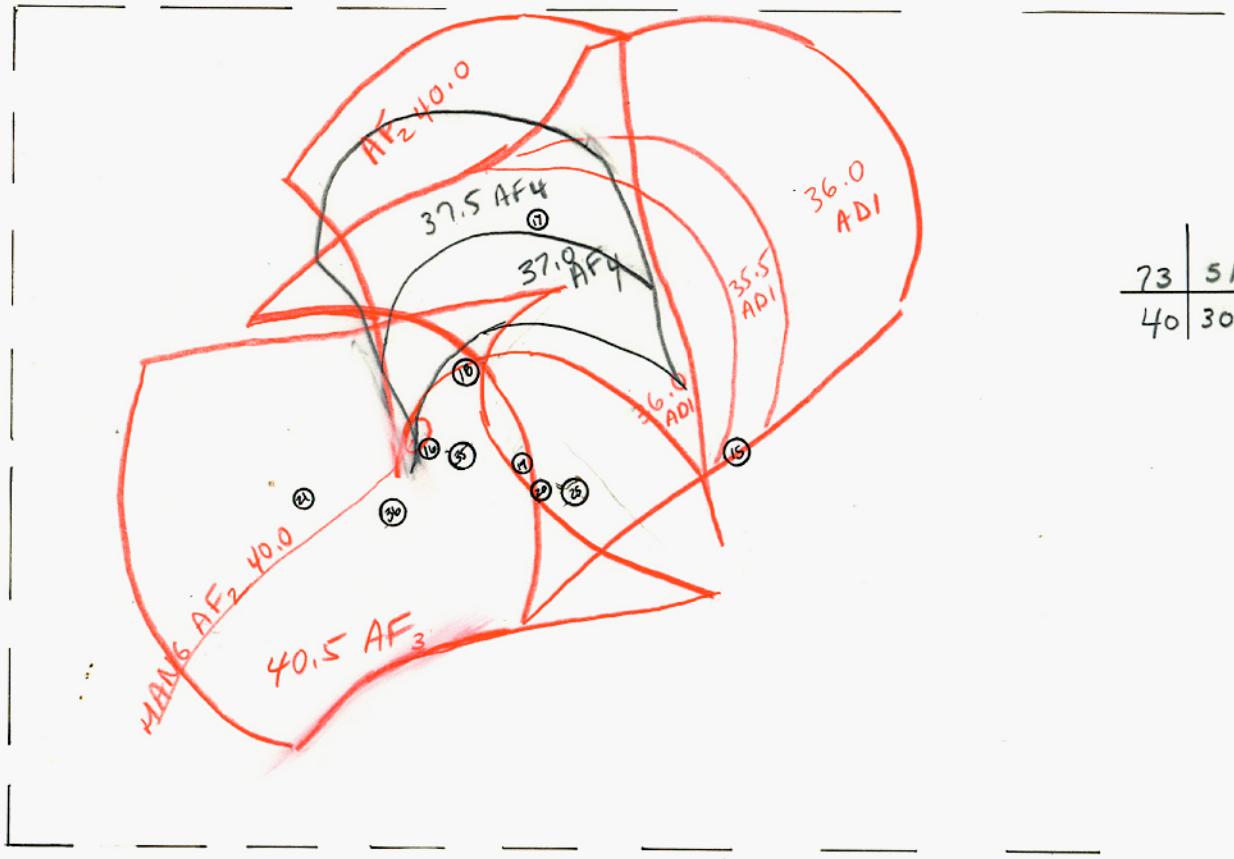
Respectfully Submitted,

William L Jonns

William L. Jonns
Chief, Verification Branch,
AMC


F.E. No.2 (1966)
INLET
ROCKAWAY
Rockaway Pt.
Towers
TANK
NO. 32
CUP
SPIRE
73° 50'
East Rockaway In
Cht. 1215
wreck
RADAR REF
296° 54' TRUE
281° 50' TRUE
CHANNEL
WHISTLE
BELL
spoil area
AMBROSE R Bn DFS
Gp Fl (3) ev 8 sec vis 14 m
HORN
F.E. No.1 (1976) W.D.
40° 30'
F.E. No.10-1951 W.D.
F.E. No.8 1954 W.D.
(50 ft rep)
(70 ft rep)
MAGNETIC

F.E.#1-1976
W.D.

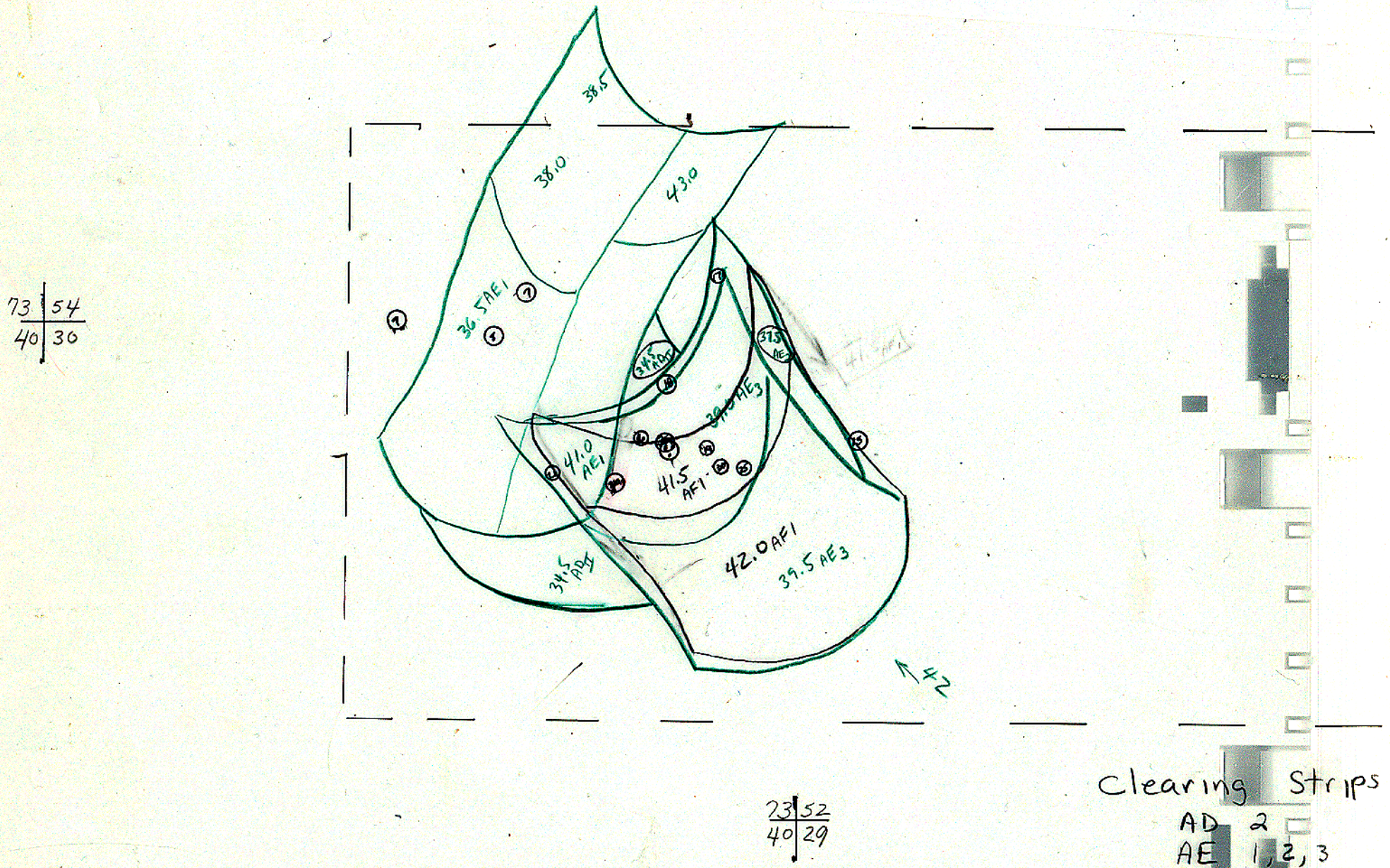


73	51
40	30

73	54
40	29

Clearing Strips
AD 1
AF 2,3,4

F.E.#1-1976
W.D.



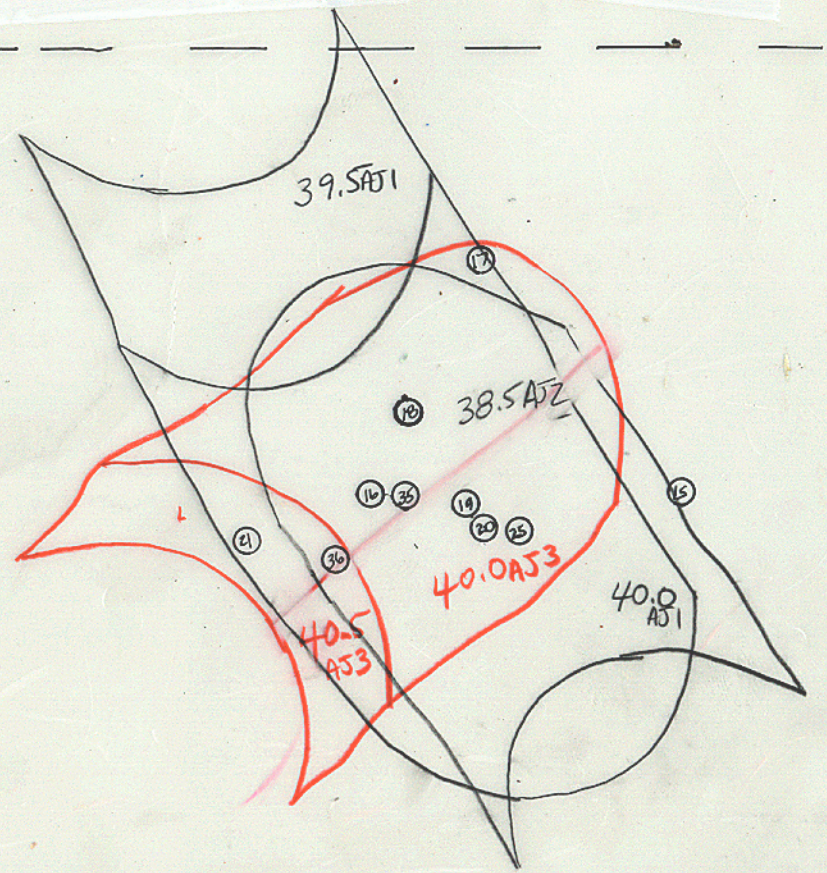
73	54
40	30

23	52
40	29

Clearing Strips
AD 2
AE 1, 2, 3
AF 1

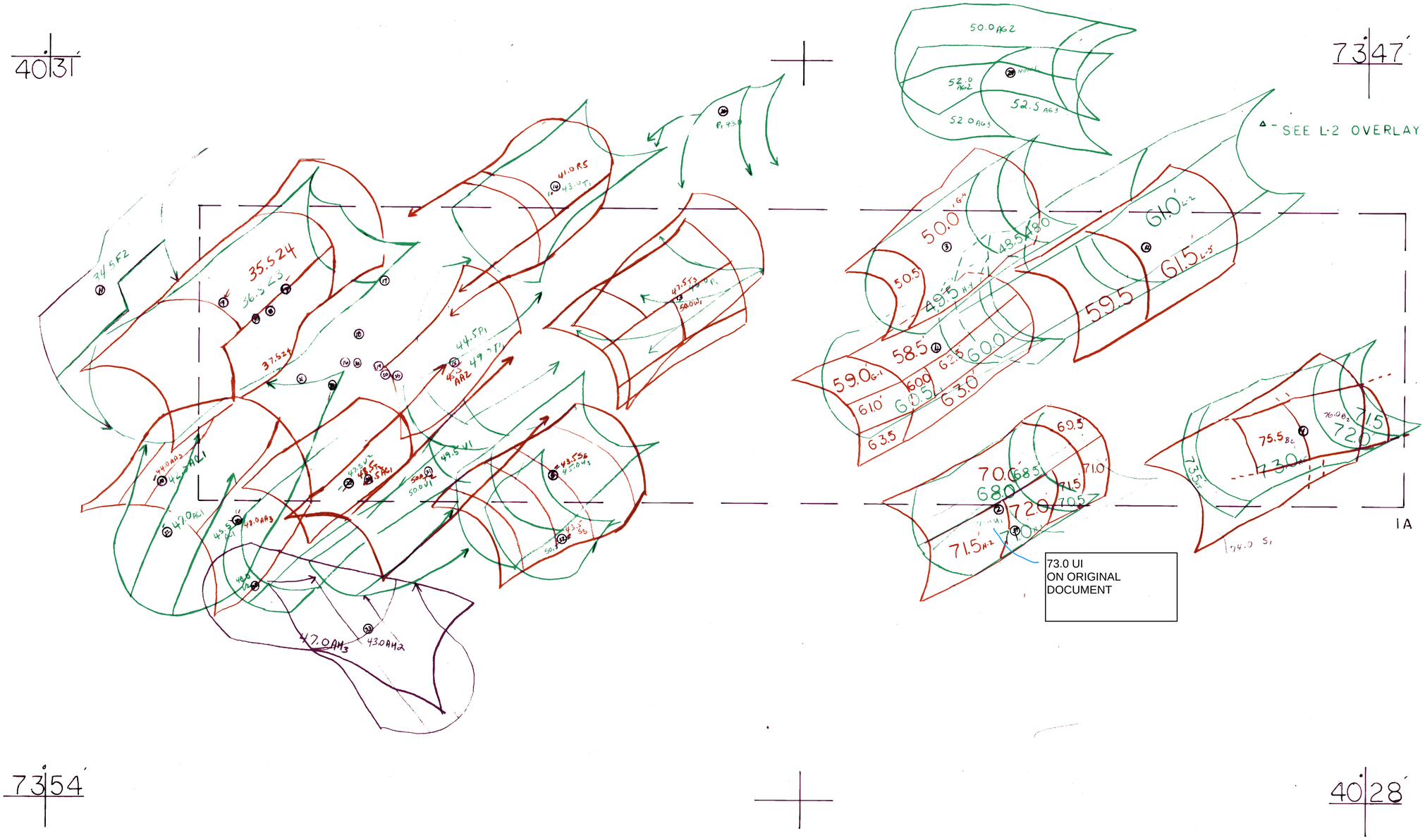
73 | 52
40 | 31

F.E.#1-19076
W.D.



Clearing strips
AJ DAY

73 | 54
40 | 29



A-D "CLEARING" SHEET

~HANGS~

ITEM-1A

20~3~75

CLEARING STRIPS

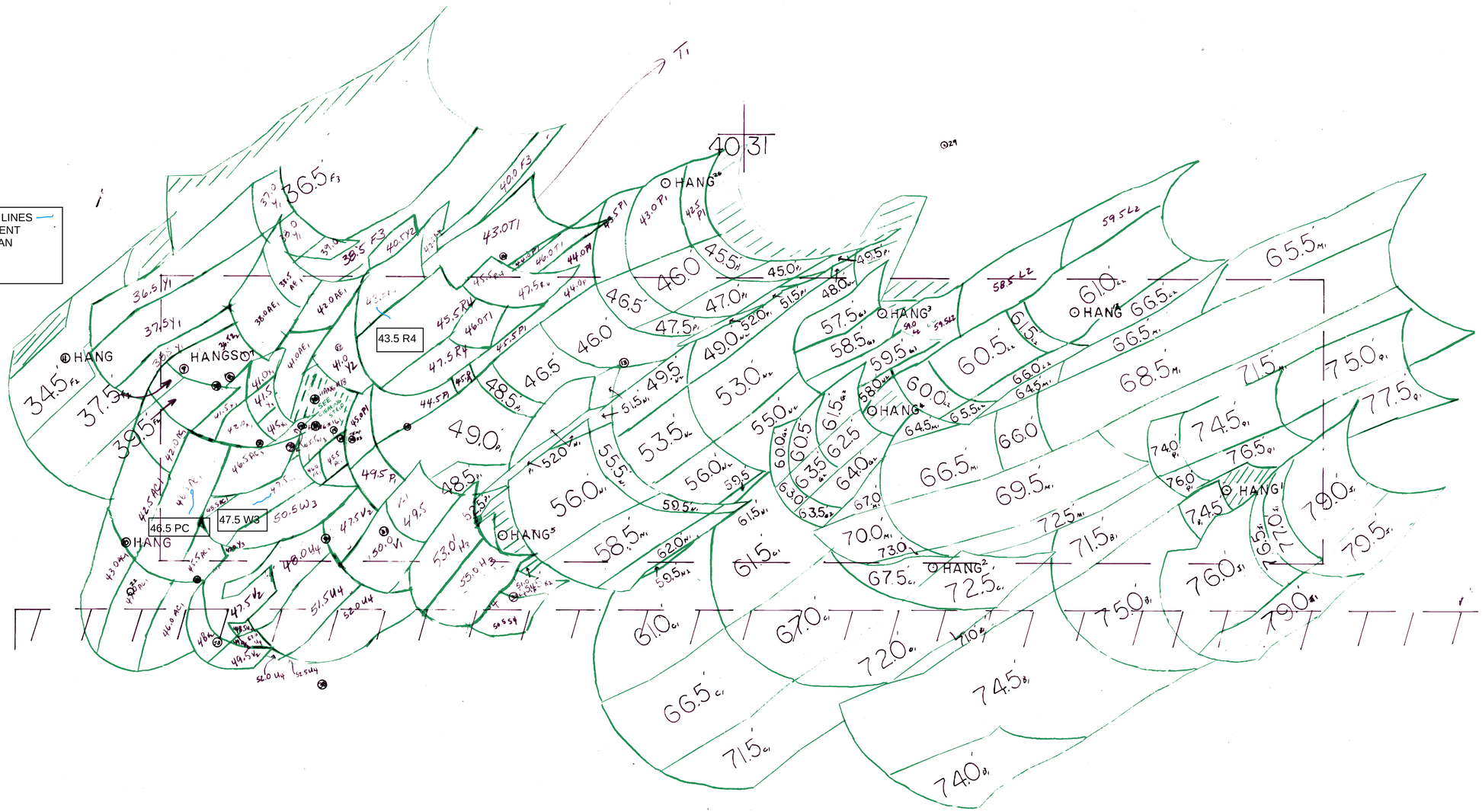
RED ⟶ SO. WEST

GREEN ⟶ NO. EAST

Except For HANGS see other clearing strips

16
17
18
19
20
21
35
36
25

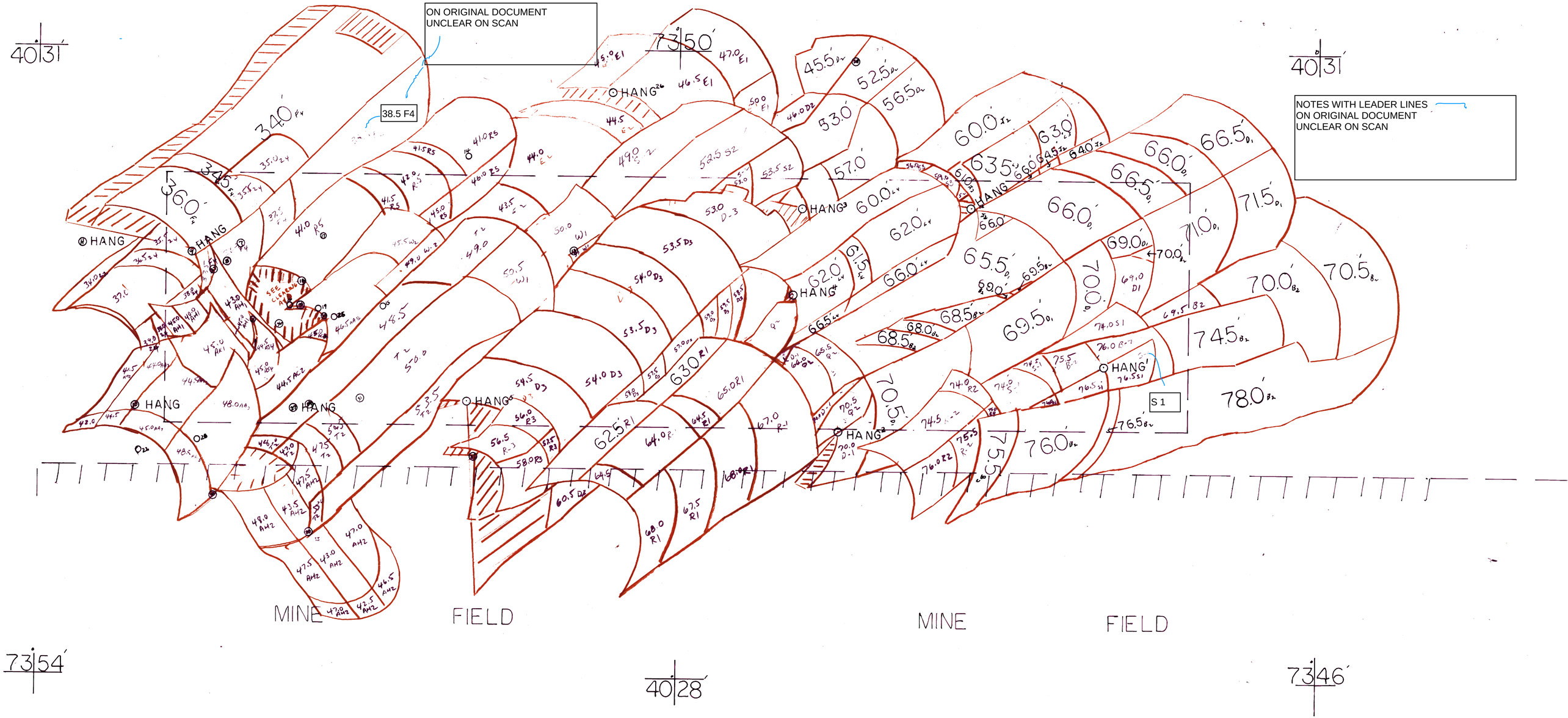
NOTES WITH LEADER LINES
ON ORIGINAL DOCUMENT
UNCLEAR ON THE SCAN



△ AMBROSE
LIGHT

A~D SHEET
20~3~75
ITEM 1A

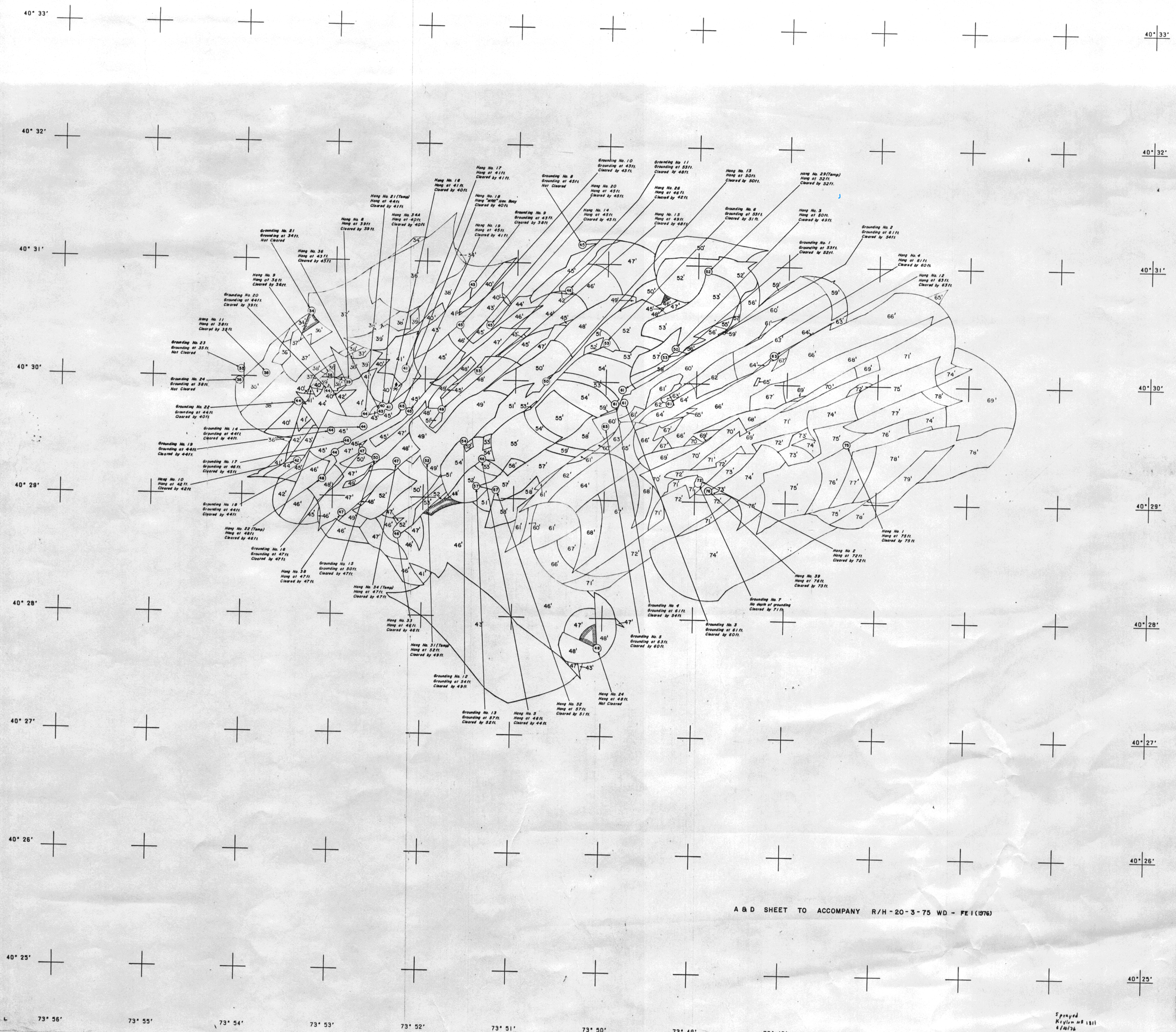
North EAST DIRECTION



△ AMIBROSE
LIGHT

AID SHEET
20-3-75
ITEM 1A

South West Direction
plus 4 NW drags - AH1 AH2 AJ4 AK1



A & D SHEET TO ACCOMPANY R/H-20-3-75 WD - FE I (1976)

Sprayed
Krylon #8 1311
6/10/76

FORM C&GS-8352
(3-25-63)

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. F.E. No.1-1976 W.D.

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.
1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
RKK 1215	8/18/76	Richard L. Hogan	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No.
RKK 369	8-26-76	Richard L Hogan	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. THRU CHT 1215
70	8-30-76	David C. Ames	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. Applied thru chart 1215 (above)
1108	3-11-77	Richard L. Hogan	Full ~~Part Before~~ After Verification Review Inspection Signed Via
			Drawing No. THRU CHART 1215
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.

FORM C&GS-8352 SUPERSEDES ALL EDITIONS OF FORM C&GS-975.

USCOMM-DC 8558-P63