

FE-232 W.D.

Diagram No.s 369-5,1213-3,1215-3

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey ..Wire Drag.....
Field No.R/H-5-1-80.W.D.....
Office No.....FE 232 W.D.....

LOCALITY

State New York-New Jersey
General Locality ..New York Harbor
Locality Upper and Lower Bays

1980

CHIEF OF PARTY
CDR. M.C. Grunthal.....

LIBRARY & ARCHIVES

DATE January 15, 1982

☆U.S. GOV. PRINTING OFFICE: 1980-766-230

FE-232 W.D.

Area 1
12325 ✓
12334 ✓
12333 ✓
12327 ✓
12349 ✓
Area 2
12350 ✓
12326 ✓

WIRE DRAG
~~XXXXXXXXXXXX~~
HYDROGRAPHIC TITLE SHEET

F.E. 232 W.D.

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.

R/H-5-1-80 W.D.

State New York - New Jersey

General locality New York Harbor

Locality Upper and Lower Bays

Scale 1:10,000 (Smooth Plot)

Date of survey March 17 through July 25 and Nov. 14-23, 1980

Instructions dated March 10, 1980

Project No. OPR-B645-RU/HE-80

Vessel NOAA Ships RUDE and HECK and Launches 1207, 1274, and 1275

Chief of party M. C. Grunthal, Cdr., NOAA

Surveyed by Ship's Officers

Soundings taken by echo sounder, hand lead, pole Wire Drag and ~~Pneumofathometer~~ ^{gauge} Pneumatic Depth Gage

Graphic record scaled by N/A

Graphic record checked by N/A

Protracted by Ship's Officers

Automated plot by (AMC) Xynetics 1201 Plotter (Rough Plotter Strips)

~~XXXXXXXXXXXXXXXXXXXX~~ Soundings penciled by Verified by: M. B. Hickson

Soundings in ~~XXXXXX~~ fathoms feet at MLW ~~XXXXXX~~ MLW

REMARKS: Data removed from the Descriptive Report and filed with the field records are noted on the index to Attachments and Appendices

STANDARDS CHECKED

11-15-82 C. Jay

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Items deleted by the Project Instructions are 12, 17, 19, 25, 26, & 27

Item 18 was investigated by this field examination but no write-up was done in this report. See the Verification Report.

The Whiting Spike was investigated by this field examination but no write-up was done in this report. See the Verification Report.

I.

✓ A. Authority

This project was authorized by Hydrographic Project Instructions, OPR-B645-RU/HE-80, Wire Drag, East Coast Investigations, New York Harbor, dated 10 March 1980, as amended by Change No 1, dated 12 May 1980 and Change No. 2, dated 5 December 1980. ✓

✓ B. Character and limits of the work

This project required the performance of wire drag survey operations in the investigation of 21 charted wrecks and unspecified obstructions considered hazardous ✓ to surface navigation. The general area of operations was New York Harbor, including Upper and Lower New York Bays and Rockaway Inlet. *See pg 5, item H*

Survey operations on each of these items were to 1) confirm its non-existence, ✓ or 2) provide a clearing depth over it, or 3) locate and provide its least depth.

All assigned survey work was electronically controlled and investigated using a survey scale of 1:5000. The assigned work of this project will be applicable to ✓ the following NOS charts: 12326, 12327, 12328, 12334, 12335, 12349, 12350, and 12351. Other investigations carried out at the request of other agencies, will be applicable to NOS charts 12333 and 12331.

✓ C. Control - *See the Verification Report*

The project was controlled using Del Norte electronic positioning equipment ✓ operating on a frequency of 9400 MHz. For each item actually investigated during the course of the project, the applicable control station geodetic information is presented below.

Item 14

(R1) H-55-NY, ^{1980,} located on Liberty Island ✓
 * Latitude $40^{\circ}41'18.57953''N$ * (field position) Station Number 007 ✓
 * Longitude $74^{\circ}02'39.80690''W$

(R2) H-53-NY, ^{1980,} located on Terminal Pier, Caven Point ✓
 * Latitude $40^{\circ}40'32.85866''N$ * (field position) Station Number 005 ✓
 * Longitude $74^{\circ}03'34.83751''W$

Item 24

(R1) H-57-NY, ^{1980,} located at Coast Guard Marine Inspection Office, Manhattan ✓
 Island, NY
 * Latitude $40^{\circ}42'03.22176''N$ * (field position) Station Number 009 ✓
 * Longitude $74^{\circ}00'52.98935''W$

(R2) Bolt, ¹⁹⁸⁰ located on Governor's Island ✓
 * Latitude $40^{\circ}41'10.21481''N$ * (field position) Station Number 011 ✓
 * Longitude $74^{\circ}01'36.21420''W$

* - Positions written to 5 decimals of seconds are non-standard,
 3 decimals of seconds are adequate.

(R1) H-53-NY, ¹⁹⁸⁰
 See R2 under Item 14 Station Number 005 ✓

Item 28

(R1) H-57-NY, ¹⁹⁸⁰ ✓
See first R1 under Item 24 *Station Number 009 ✓*

(R2) H-58-NY, ¹⁹⁸⁰, located at Pier 3, Brooklyn ✓
Latitude $40^{\circ}41'52.087''\text{N}$ *Station Number 010 ✓*
Longitude $74^{\circ}00'04.970''\text{W}$ *(field position)*

Item 29

(R1) H-54-NY, ¹⁹⁸⁰, located in Red Hook, Brooklyn
Latitude $40^{\circ}40'47.20278''\text{N}$ *Station Number 006 ✓*
Longitude $74^{\circ}01'09.69669''\text{W}$ *(field position)*

(R2) Boro Hall, 1931, located in St. George, Staten Island
Latitude $40^{\circ}38'32.15600''\text{N}$
Longitude $74^{\circ}04'35.58500''\text{N}$ *Station Number 012 ✓*

Item 30

(R1) H-53-NY, ¹⁹⁸⁰
See R2 under Item 14 *Station Number 005 ✓*

(R2) Boro Hall, 1931
See R2 under Item 29 *Station Number 012 ✓*

(These stations above were used for control of clearing strip)

(R1) H-54-NY, ¹⁹⁸⁰
See R1 under Item 29 above *Station Number 006 ✓*

(This station was used in the range-azimuth position determination of the position of item 30)

Item 18

(R1) H-4-NY-79, ¹⁹⁷⁹, located on Hoffman Island
Latitude $40^{\circ}34'49.198''\text{N}$ *Station Number 002 ✓*
Longitude $74^{\circ}03'14.875''\text{W}$ *(field position)*

(R2) H-1-77-NJ, ¹⁹⁷⁷, located on Sandy Hook
Latitude $40^{\circ}27'34.476''\text{N}$ *Station Number 001 ✓*
Longitude $73^{\circ}59'41.202''\text{W}$ *(field position)*

Item 31

(R1) Same as R1 under Item 18 *Station Number 002 ✓*

(R2) Same as R2 under Item 18. *Station Number 001 ✓*

D. Del Norte Calibrations - *See the Verification Report ✓*

1. Baseline Calibration

Del Norte electronic positioning equipment was calibrated over a baseline which allowed the signal path to be almost totally over water. The baseline had been previously established by the NOAA Ship WHITING for use in their survey.

An existing control station, Bolt,¹⁹⁹⁰ was used for one terminus of the baseline, at position Latitude $40^{\circ}41'10.21481''N$; Longitude $74^{\circ}01'36.21420''W$. A second point was established in Battery Park, Manhattan, New York, consisting of a bolt emplaced in the pavement. A geodimeter (laser) was used to measure the distance between these two stations, with 10 measurements made in each direction, and the mean of the results computed. - *The G.P. of the Battery Park Point was not ascertained during this survey.*

This distance was 1986 meters, to which value the Distance Measuring Units were initialized, and subsequently checked against, during the complete baseline calibration process.

2. Daily Calibration Checks

Daily checks on the adequacy of the Del Norte calibrations were accomplished prior to and immediately following survey operations. A tabulation of these calibration points, their appropriate geodetic information, and the inverse distances from the transponder sites used is presented below.

For Item 14

Calibration Point: H-54-NY,¹⁹⁸⁰ at Red Hook, Brooklyn - *Station Number 006* ✓
 Latitude $40^{\circ}40'47.20278''N$ (*field position*)
 Longitude $74^{\circ}01'09.69669''W$

Transponder Sites	Inverse Distance
-------------------	------------------

H-55-NY, ¹⁹⁸⁰ <i>Station # 007</i>	2326.908 meters
H-53-NY, ¹⁹⁸⁰ <i>Station # 005</i>	3437.222 meters

For Item 24

Calibration point: Liberty Island Pier - *Not an established station* ✓
 Latitude $40^{\circ}41'23.63''N$
 Longitude $74^{\circ}02'35.16''W$

Transponder Sites	Inverse Distances
-------------------	-------------------

H-57-NY, ¹⁹⁸⁰ <i>Station # 009</i>	2691.821 meters
Bolt, ¹⁹⁸⁰ <i>Station # 011</i>	1444.385 meters

Calibration Point: H-54-NY,¹⁹⁸⁰ at Red Hook, Brooklyn - *Station Number 006* ✓
 Latitude $40^{\circ}40'47.20278''N$ (*field position*)
 Longitude $74^{\circ}01'09.69669''W$

Transponder Site	Inverse Distances
H-53-NY, ¹⁹⁸⁰ <i>Station # 005</i>	3437.222 meters

For Item 28

Calibration point: Liberty Island Pier - *Not an established station* ✓
 Latitude $40^{\circ}41'23.63''N$
 Longitude $74^{\circ}02'35.16''W$

Transponder Sites	Inverse distances
-------------------	-------------------

H-57-NY, ¹⁹⁸⁰ <i>Station # 009</i>	2691.821 meters
H-58-NY, ¹⁹⁸⁰ <i>Station # 010</i>	3633.967 meters

For Item 29

Calibration point: Liberty Island Pier - *Not an established station* ✓

Latitude $40^{\circ}41'23.63''N$

Longitude $74^{\circ}02'35.16''W$

Transponder Sites	Inverse Distance
-------------------	------------------

H-54-NY, 1980	Station # 006	2300.037 meters
---------------	---------------	-----------------

Boro Hall, 1931	Station # 012	5998.162 meters
-----------------	---------------	-----------------

For Item 30

Calibration point: H-54-NY, ^{1980,} at Red Hook, Brooklyn - *Station Number 006* ✓

Latitude $40^{\circ}40'47.20278''N$ ✓

Longitude $74^{\circ}01'09.69669''W$

Transponder Sites	Inverse Distance
-------------------	------------------

H-53-NY, 1980	Station # 005	3437.222 meters
---------------	---------------	-----------------

Boro Hall, 1931	Station # 012	6383.123 meters
-----------------	---------------	-----------------

For Item 18 and Item 31

Daily checks of Del Norte calibration were accomplished by observing strong three point sextant fixes, with check angles, while at anchor. The correct distances from the transponders were computed by trilateration using an HP-65 programmable calculator. The shore signals, with their appropriate geodetic information are listed below:

Romer Shoal Lighthouse (ROY), 1900	<i>Station Number 015</i> ✓
Latitude	$40^{\circ}30'46.443''N$
Longitude	$74^{\circ}00'50.175''W$
NY-X	1996124.450 feet
NY-Y	104700.300 feet

West Bank Lighthouse (WET), 1917	<i>Station Number 013</i> ✓
Latitude	$40^{\circ}32'16.282''N$
Longitude	$74^{\circ}02'35.796''W$
NY-X	1987970.700 feet
NY-Y	113794.600 feet

Coney Island Parachute Tower (COP), 1945	<i>Station Number 016</i> ✓
Latitude	$40^{\circ}34'22.29304''N$
Longitude	$73^{\circ}59'05.34307''W$
NY-X	2004217.952 feet
NY-Y	126544.247 feet

Bridge North (BUN), 1940	<i>Station Number 017</i> ✓
Latitude	$40^{\circ}34'26.66966''N$
Longitude	$73^{\circ}53'08.74121''W$
NY-X	2001736.828 feet
NY-Y	127007.488 feet

Bridge South (BUS), 1940
 Latitude 40°34'21.62438"N
 Longitude 73°53'05.68534"W
 NY-X 2031973.320 feet
 NY-Y 126497.217 feet

Station Number 018 ✓

Rockaway^{Inlet} Coast Guard Microwave Tower (MAT), 1962
 Latitude 40°34'03.94124"N
 Longitude 73°53'00.64940"W
 NY-X 2032364.331 feet
 NY-Y 124708.205 feet

Station Number 019 ✓

E. Dates of Survey

Operations on this project commenced on 17 March 1980 and were concluded on 23 November 1980. ✓

F. Tides Reducers - See the approved Tide Note included in this Report. ✓

Field reductions of each day's survey data was accomplished using predicted tides for the reference station Sandy Hook, NJ (853-1681), or the reference station The Battery, N.Y. (851-8750), as appropriate, with the following correctors applied.

On Sandy Hook, for Items 18 and 31
 HW: -10 min
 LW: -10 min
 ratio: X1.00

On the Battery, for Items 14, 24, 29, and 30-
 HW: -12 min
 LW: -12 min
 ratio: X1.00

On the Battery, for item 28-
 HW: 0 min
 LW: 0 min
 ratio: X1.00

G. Junctions and Splits

This project did not junction with any other wire drag surveys. - Concur

There were no splits detected after field inspection of all completed items. All these drag strips were considered to be adequately overlapped with adjacent strips. This statement does not apply to Item 18, which was left incomplete.

Two item investigations contained splits - Item 28 & 31 ✓

H. Incomplete Items

The following assigned items were not investigated by wire drag survey operations and should be reassigned to another survey: Items 11, 13, 15, 16, 20, 21, 22 and 23. Additional information on some of these items was obtained in the field. This information will be summarized and transmitted under separate cover to C351 for their use in evaluating future investigation priorities. ✓

- Items 12, 17, 19, 25, 26, & 27 were deleted by change #1 to the Project Instructions

Item 18 was ^{90%} left incomplete at the end of survey operations on this project. ^{70%} Approximately 70% of the required area coverage was completed. Operations on this item were suspended to prosecute S-C619-RU/HE-80 prior to completion of the field season. During investigation of Item 18, one grounding was encountered on AR day, but a strong detached position could not be obtained. However, a probable position was determined from single vessel observations from the HECK. See the Abstract of Hangs.

I. Currents and Wind

The Hudson River estuary is an area of strong tidal currents at maximum strength and brief periods of slack water. Operations were carefully planned to take advantage of following currents, where hydrographic features made it possible to do so. Where hydrographic features imposed constraints on the direction of a drag, operations were planned for the periods of weak currents around the time of slack water.

During the period of operations in the Upper New York Bay area, survey work was seldom precluded by wind. However, operations late in the season, in the vicinity of Rockaway Point, were frequently hampered by winds up to 20 knots.

The tidal currents in the vicinity of Items 18 and 31 Rockaway Point jetty were extremely troublesome and limited the times of wire drag to a brief "window" near times of slack water.

J. Equipment and Techniques

I. Survey Operations

The RUDE and HECK were used for only one drag during this project. Standard wire drag equipment and procedures were employed, with the RUDE acting as the guide vessel. Two Bristol 20-foot launches were used as drag tenders. All bearings were observed from Sperry gyro repeaters which were checked against the master gyro before the drag. Master gyro error was computed from a sun azimuth, and the results were applied to all observed bearings. Ranges were obtained using Decca RM 1226 marine radars. The "Vadnais" data acquisition system and telemetry link were used to document the drag data in addition to the wire drag volumes. All intermediate and end buoy uprights and the tester uprights were personally verified as correct by the Commanding Officer.

NOAA Launches 1274 and 1275 were used as towing vessels for all the remaining drags during this survey project. The technique used was a modification of the "drift sweep", adequately described in the Admiralty Manual of Hydrographic Surveying (1969), Volume II, Chapter 4, Part 3, and employs the concept of constant tension. The configuration of equipment necessary for this drag technique is illustrated in Figure I.

The chief difference between the Admiralty sweep and the constant-tension drag employed during this project is that the constant-tension drag is towed at slow speed through the water, with a following current, while the sweep is allowed to drift with the current. A testing program was devised (as described elsewhere) which allowed the lift induced by towing to be quantified and considered in the determination of worst case lift conditions. This technique, using pre-positioned range buoys to guide the launch coxswain, enabled the preplanned areas for investigation to be readily and more rapidly covered.

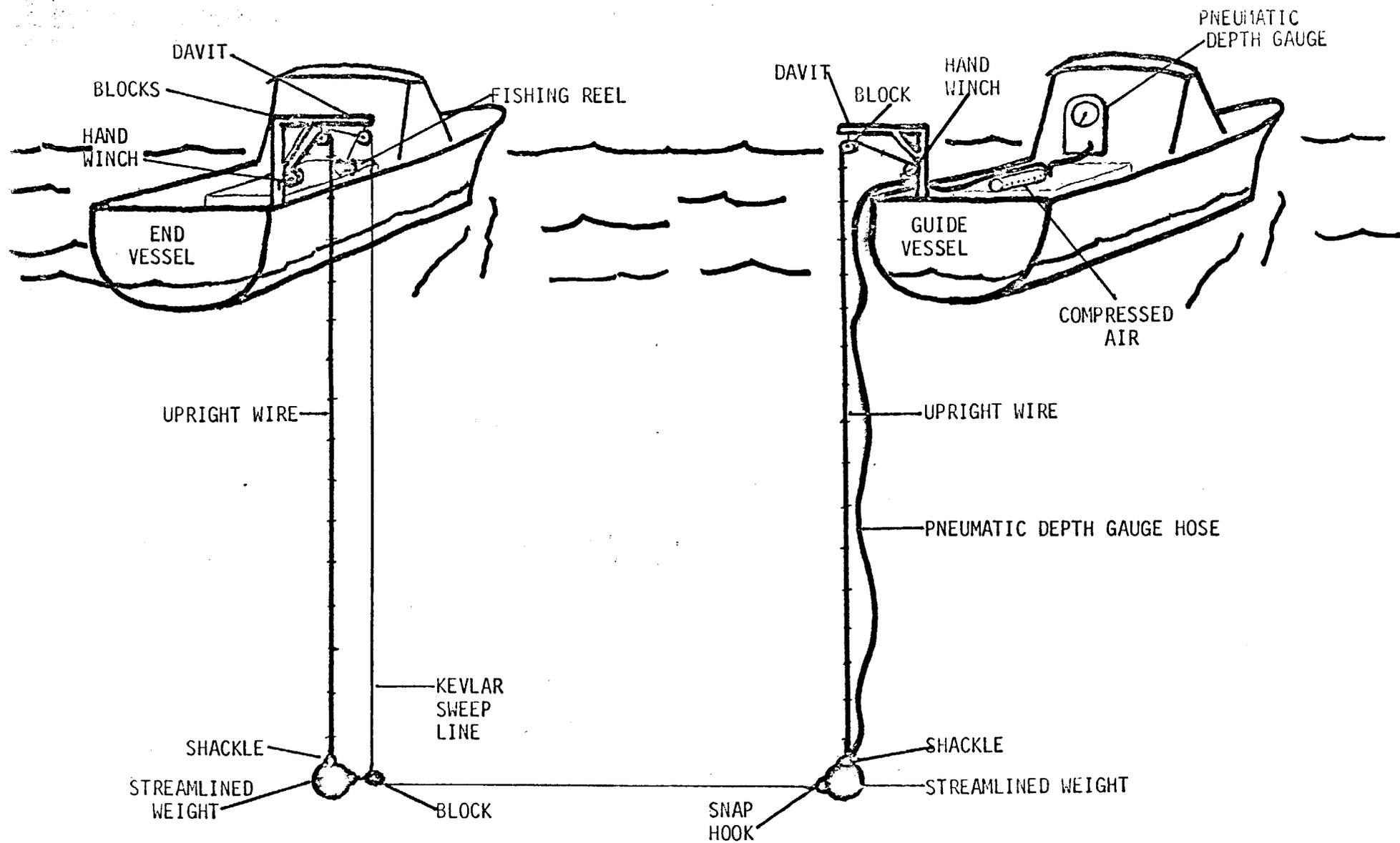


FIGURE 1

2. Testing and Data Reduction for Constant-Tension Wire Drag

The nature of constant-tension wire drag makes it desirable to measure lift by two separate methods to determine the proper amount of lift to be applied during data reduction. The testing program was designed to measure lift at the end of the wire and at random points along the single section of the drag as it progressed through the water. Using this two measurement approach, it is reasonable to assume that the "worst case" lift condition has been detected and applied. ✓

All constant-tension drags were run with a one-minute fix interval. At each fix, the depth of one end of the wire was measured using a Roylyn 3-D Precision depth gauge configured as a pneumatic depth gauge. The orifice of the pneumatic depth gauge was attached to the upright at the same point that the wire was attached. Lift was determined by subtracting the pneumatic depth gauge depth (PFD) from the length of the upright. The pneumatic depth gauge depth was recorded in the drag volume. ✓

Lift at random points along the wire was determined by use of a tester pole in the standard manner. The results of these lift tests were recorded on a rough tester sheet, were then reduced to actual wire depth, and entered into the drag volume. No smooth tester record was maintained for single-section constant-tension drags. ✓

The worst case lift was evaluated by comparing the results and times of these lifts tests, applying the greatest lift over the entire time period during which it was controlling. In most cases, the controlling lift was that measured by the pneumatic depth gauge. The lifts applied to the upright length were rounded to the nearest one-half foot increment as is the normal practice. The pneumatic depth gauge was compared to a measured leadline during this project and the results of this test comparison are entered into the field records. The manufacturers accuracy specifications for the Roylyn gage are $\pm 0.25\%$ of the full 230 FSW scale over the whole scale. ✓

See Attachment VII for definitions used in the testing program.

3. Diving Operations

All diving operations during this project were conducted for the purpose of investigations of hangs and least depth/detached position determinations. Procedures employed were essentially those described in the NOAA Diving Manual, 2nd Edition, Section 7. ✓

K. Discrepancies and Comparisons with Recent Charts - *See the Verification Report*

Most of the items assigned for investigation during this survey were in areas recently covered by basic survey operations of the NOAA Ship WHITING. Any substantive discussion of charted discrepancies is deferred to the results of the WHITING survey. It is, however, possible to state that wire drag survey operations during the survey produced no indications of chart discrepancies in those small areas investigated. ✓

L. Personnel

The officers participating in this survey were: Cdr. Melvyn C. Grunthal, Lt. Cdr. Richard S. Moody, Lt. David H. Peterson, Lt(jg) Peter M. Connors, and Ens. Freddie L. Collins.

M. General Notes

The following notes on the survey operations and on the survey records should aid in the verification of the work of this project:

1. Day letters A-H were used solely for side scan sonar searches and simultaneous fathometer searches. No areas coverage was obtained for these days.
2. Day letters J-M were used for wire drag operations on Item 24, using either the ship-launch method or the early version of the constant-tension method. All strip data from these days were rejected for the following reasons:
 - a. Various problems with physical control of the drag due to small size of survey area and the effects of wind and currents.
 - b. Uncertainty of the wire behavior in the first constant tension method using stainless steel wire and no pneumatic depth gauge. On K-Day, a hang was encountered during a ship-launch drag. This resulted in a preliminary position obtained after a brief fathometer search for a spike. This position was investigated by divers on S-Day and the results are discussed under Item 24.
3. The reduced drag records for all strips which produced area coverage are found in the following sequence of wire drag volumes: 1274 #1, 1274 #2; 1274 #3; 1274 #4; 1275 #4, RUDE #2. Upon return to this project from S-B609, the "guide" vessel role was shifted to Launch 1275, from which the pneumatic depth gage was operated for ease of control of drag strips.
4. The control data for this project are inked on the inside of Launch 1274 Vol. I.

N. Approval

All records of this survey, including the smooth plots, except for the addition of the final effective depths and the drafting of the composite A & D sheets, are hereby approved. The field work was personally supervised by the undersigned. The field sheets and records were inspected daily. This survey is considered complete and adequate for charting.

✓
FPS

M.C. Grunthal, Cdr., NOAA
Commanding Office
NOAA Ships RUDE & HECK

II

logged
A. Item 14 Findings ✓

Item 14 is an unknown submerged obstruction, PA, originating with LNM9-1973. The charted position is Latitude $40^{\circ}40.66'N$, Longitude $74^{\circ}02.83'W$, in the north entrance to the well-used, adequately marked New Jersey Pierhead Channel.

On 17 February 1973, the tug JANE McALLISTER, with a deep draft of 17 feet, reported striking a submerged object, as described in the source document. Her Master reported that the object felt "metallic". The owners, McAllister Bros., Inc., reported that the vessel received considerable damage to all four propeller blades and the Kort Nozzle housing, sufficient to require drydocking. The barge in-tow at the time suffered no damage. The Coast Guard reported the incident to the Corps of Engineers, but no further investigation was made by either. In the seven years since this incident, according to available Coast Guard records, there have been no further reports of vessels encountering this obstruction.

Prior to conducting wire drag operations, the 150 meter radius position circle was investigated by fathometer search at 10-meter spacing. No unusual or significant features were seen and the depths were in general agreement with charted depths. A thorough side scan sonar search of the position circle revealed no features interpretable as different from background reflectivity.

A total of 15 constant-tension wire drag strips were accomplished during this investigation. There were no hangs encountered other than intentional groundings in shoal water at the end of drag strips. The two channel buoys in the vicinity of the position circle were not hung as they were moved by the Coast Guard, at our request, to facilitate our operation.

All drag strips were adequately overlapped. Despite the irregular depths in the east-west axis, effective depths were obtained to the greatest possible depths consistent with the hydrography, with the deeper depths to the east and shoaler depths to the west. The range of effective depths was ~~16~~ feet to 31 feet. Drag strips run in the east-west direction were intentionally grounded, then raised up and grounded again in progressively shoaler water across the position circle.

B. Recommendation on Item 14

This item was extensively investigated by all methods at the disposal of the hydrographer. The results of the pre-survey research, the fathometer search, and the side scan sonar searches offer strong circumstantial evidence of the present non-existence of this obstruction. The bottom clearances, as evidenced by the effective depths and the charted soundings, represent the best obtainable results by constant-tension wire drag methods. While the strict criteria for disproval were probably not completely met over the entire area of investigation, the hydrographer strongly contends that the effective depths obtained, taken together with the other evidence, are sufficient to recommend that the obstruction danger circle symbol be deleted from all affected charts. - Concur ✓

10942
WI

A. Item 24 Findings

Item 24 is an unknown submerged obstruction, ^{reported} PA, originating with LNM 36-1979. The charted position is Latitude 40°41.35'N, Longitude 74°02.5'W, which is located in Anchorage 20A, eastward of Liberty Island. *First appears on July 1980 Edition of Cht. 12334*

The saga of Item 24 begins with the fact that, at the time of the RUDE and HECK survey, the report of its existence was only eight months old, making it the "youngest" of the items assigned. Despite this fact, virtually no additional information regarding this item was available in the records of the Coast Guard or the Army Corps of Engineers. The following sources of information were reviewed in trying to develop further information:

USCG: 3rd District Aids to Navigation Office -

- (1) reported obstructions file
- (2) broadcast notice-to-mariners file
- (3) general message traffic file
- (4) local notice-to-mariners file

In addition, all personnel involved with writing and producing the Local Notice were interviewed. None recalls having written the published information in our source document, nor could anyone shed any further light on it.

Army COE: Harbor Supervisor's Office

- (1) Reported obstructions case file
- (2) Pending investigations file

In addition, the Harbor Supervisor stated that no field investigation of any type had been carried out in the vicinity of Liberty Island in the past year.

The operators of the vessels which most frequently transit the area - the National Park Service and Circle Lines, Inc. (Liberty Island Ferries) - were contacted. Operations personnel from both organizations stated that they were not the originators of the report and both expressed surprise to learn of it.

Side scan sonar search within the 150-meter-radius position circle revealed no evidence of any significant feature interpretable as differing from the background substrate reflectivity. Soundings obtained from the main scheme lines run by the WHITING were carefully examined. Nothing to suggest the presence of an obstruction was seen.

Several drag strips using a ship-launch wire drag method were attempted in this position circle. Serious physical control problems forced the rejection of these strips and abandonment of the technique. One hang was encountered using this system which was investigated by fathometer search. The fathogram record suggested the presence of a shoal to 21 feet (sounded) in general depths of about 25'. A decision was made to recover this area with drag strips using a different drag technique to obtain a clearance depth in this area. The position of this hang was subsequently cleared to 21'. *This temporary hang was with the constant tension system and is logged as being suspected as small debris - the hang was not investigated.*

^{Ship-launch} A second hang was encountered within the position circle on a drag using the ~~constant-tension~~ drag system. While the actual strip was rejected, a position was obtained for the hang and a fathometer search revealed the suggestion of a shoal.

Two hangs were encountered:
1) Hang on a shoal - diver investigated - 19' hang effective depth - 15' clearing effective depth.
2) Temporary hang

✓ JPS

This area was subsequently investigated by divers. No obstruction was found by the divers, but the existence of a shoal was confirmed based upon observed depth changes on diver depth gauges during the search pattern. This area had been previously cleared to an effective depth of 18'. See Attachment III.

rejected strips

The reported position of the item was cleared to an effective depth of 20'. The shoalest effective depth obtained in the drag strips which produced area coverage was ~~15'~~, this along the western limit of the investigation area.

15'

B. Recommendation on Item 24 ✓

The circumstances of this item are suspect. The hydrographer strongly feels that this item does not exist. The 150-meter radius position circle was thoroughly covered in three months of work. The harbor bottom is irregular within the position circle. The limiting depths for drag work were the island to the west, a 21' depth to the north, and south, a 19' depth to the east. The depth in the center of the circle was 24', thus the controlling depth for the area was 21'. The position circle was adequately cleared to within 3' of the controlling depths, but not within 3' of the bottom throughout the circle.

not valid, averaged depth

The hydrographer recommends charting the depths obtained from the WHITING survey, supported by a wire drag clearance, to an effective depth of 18' over the shoal investigated by divers on JD 157, ~~at position~~ in the vicinity of:

rejected strip valid 15' clear see A & D Sheet

Lat. $40^{\circ}41'20.11566''N$
Long. $74^{\circ}02'24.31318''W$

on chrt 12334, 1980 Edition

The obstruction danger circle, PA, currently charted for this item, should be removed. The chart should show, instead, an area clearance by wire drag to the depth selected as appropriate by the chart compiler. The hydrographer recommends this depth to be 18', rather than the shoaler effective depths to eastward or westward which are on the margins of the position circle. - The item should be charted with the ED notation and additionally noted as swept clear to a least depth of 18'.

compromise depth per hydrographer

concur 20' Rejecte strip valid 20' clearance

IV

A. Item 28 Findings ✓

Item 28 is a submerged dangerous wreck, PA, originating with LNM 40-1971. The charted position is Latitude $40^{\circ}41.64'N$, Longitude $74^{\circ}00.67'W$, on the feature known as Diamond Reef, in the East River at its junction with Buttermilk Channel.

logged

On 14 September 1971, an unnamed 36-foot wooden houseboat, of Florida registry, sank in broad daylight while under tow. The area of the sinking was near several prominent landmarks, from which the on-scene Coast Guard vessels obtained a very reliable position. Immediately following the sinking, Coast Guard personnel recovered floating debris, including the roof and a portion of the cabin of the houseboat, leading to the conclusion that the wreck had broken up. By 21 September, using information provided by the Coast Guard, the Corps of Engineers completed a survey of the area and was unable to locate the wreck.

✓

Initial investigation of the 100-meter radius position circle by side scan sonar revealed no features which could be interpreted as the wreck or wreckage. Contemporary hydrography of Diamond Reef was obtained from the WHITING, from which no indications of a wreck were apparent. A total of five constant-tension wire drag strips were accomplished during this investigation. There were no hangs other than intentional groundings in shoal water at the end of some drag strips. All strips were adequately overlapped.

Diamond Reef is an area of irregular bottom with shoaler water a factor on the western and southern portions of the circle and deeper water to the north and east. The area is swept by strong tidal currents and is located adjacent to heavy marine traffic areas. These factors necessitated care in the planning of each drag strip such that the effective depths obtained were the deepest possible within the extant constraints. The range of effective depths were ~~15~~¹² feet to 25 feet, with ~~24~~²⁴ feet effective over the reliably reported position adjacent to a 26 foot sounding.

B. Recommendation on Item 28 ✓

While the strict criteria for disproof were probably not completely met over the entire area of investigation, the hydrographer strongly contends that the effective depths obtained, taken together with the other evidence, are sufficient to recommend that the submerged dangerous wreck symbol be deleted from all affected charts. - Concur - *The split smooth plotted for this item was caused by the end weights dragging on the bottom, not by any contact with any obstruction, and in no way degrades the data in disproving a wreck.* ✓

1072ed V
A. Item 29 Findings ✓

Item 29 is a submerged dangerous wreck, ED, originating with LNM 21-1965 and revised by CL 248-1967. The charted position is Latitude 40°41.02'N, Longitude 74°01.17'W, slightly west of the deep water channel of Buttermilk Channel. ✓

Item 29 is the wreck of the 44-foot cabin cruiser EVENING STAR, which foundered and sank while under tow by the tug DAWN in early April 1965. A complete description was obtained from the publication MERCHANT VESSELS OF THE UNITED STATES, since she was a documented US-registry power vessel (#236523). Circumstances of the wreck were compiled in Marine Inspection Office Investigation Division case record #021898, but these were inaccessible to RUDE and HECK personnel. The owner of the vessel could not be located for interview. ✓

The reported position of the wreck is in an area which was extensively suction-dredged in preparation for new pier construction at Governors Island. Prior to the actual dredging, Corps of Engineers divers searched for, but failed to locate, the wreck. The wreck was not encountered by the dredge during its operations and would have seriously fouled the dredge if it had been. The dredging occurred approximately two years after the sinking. No official record exists of the wreck's salvage. No Coast Guard vessel, nor any other vessel, has encountered the wreck in its 15-year existence. ✓

Prior to conducting wire drag operations, the 100 meter radius position circle was throughout investigated by side scan sonar search. No significant features interpretable as the wreck or wreckage were seen on the sonogram record. WHITING

main scheme hydro at 20 meter spacing showed no soundings less than 24 feet in the position circle. A general deepening trend was noted for this area when compared with charted depths. This area is swept by tidal currents which approach $3\frac{1}{2}$ knots at strength and the bottom is characterized as hard gravel.

A total of five constant-tension launch wire drag strips were accomplished during this investigation. No hangs were encountered other than ^{intentional} groundings in shoal water close to Yankee pier at the end of drag strips.

All drag strips were adequately overlapped with a minimum effective depth of ~~22½ feet in one small area and effective depths of 23-3½ feet elsewhere.~~ ^{an area exists with minimal overlap} The strength and set of the tidal currents forced operations only with the general axis of the channel. Due to the extremely irregular bottom topography over the east-west axis of the position circle, it was virtually impossible to achieve a universal 3-foot bottom clearance. ✓

B. Recommendation on Item 29 ✓

This item was extensively investigated by all normal methods available to the hydrographer. The results of the pre-survey research, the hydrography, and the side scan sonar searches offer strong circumstantial evidence of the present non-existence of this item. It should further be noted that the least dangerous attitude of the EVENING STAR would be if she were intact and lying on her side. She had a beam of 11 feet. Lying in the deepest portion of the position circle, and in that attitude, she would surely have been hung during wire drag operations producing effective depths of 27-34 feet.

^{while} ~~With~~ the strict criteria for disproof were not completely met - bottom topography being the major constraint - the hydrographer strongly contends that all factors attendant to this investigation are sufficient to support the recommendation that the submerged dangerous wreck symbol be removed from all affected charts. - Concur ✓

VI

A. Item 30 Findings

Item 30 is an unidentified submerged obstruction, originating with U.S. Army Corps of Engineers survey BP69301. The charted position is Latitude $40^{\circ}40.73'N$, Longitude $74^{\circ}01.26'W$, at the junction of Buttermilk and Red Hook Channels.

Copies of several dredging surveys were obtained from the Corps of Engineers, and a most probable location was determined using shoreline references. This item was then located using side scan sonar and a continuously operating fathometer. Subsequent investigation by divers revealed the existence of a large piece of what appeared to be construction debris. This debris was marked by the divers and an accurate least depth was obtained using a calibrated pneumatic depth gauge. ✓

Detached Position and

B. Recommendation on Item 30

An obstruction danger circle surrounding a 28-foot least depth ^(reduced chart as for predicted tides) should be applied to all affected charts at position ^{a W. cleared det} Latitude $40^{\circ}40'43.119''N$, Longitude $74^{\circ}01'16.439''W$, which was obtained by ^{of 28ft. 28} Del Norte range-azimuth cut from station H-54-NY. - Concur ✓

VII

A. Items 25 and 26 Findings

Item 25 was a submerged dangerous wreck, PA, originating with LNM 47-1974. The charted position was Latitude $40^{\circ}41.8'N$, Longitude $74^{\circ}02.18'W$, eastward from Ellis Island. Item 26 was a submerged dangerous wreck originating with LNM 23, 25, and 50-1976.. The charted position is Latitude $40^{\circ}41.98'N$, Longitude $74^{\circ}02.14'W$, northeastward from Ellis Island.

Consultations with the Harbor Supervisor's Office, US Army Corps of Engineers and the U.S. Attorney's Office, with documentation made available to ship's personnel, has conclusively proven that Item 25, described as a 78-foot stake boat, and Item 26, described as a barge, were, in fact, the same wreck. Careful inspection of available records to recreate the sequence of events has revealed that the symbol for Item 25 was applied to the charts as a result of erroneous positional information supplied to the Coast Guard.

Item 26, which turned out to be the stake boat sunk in 1974 from evidence developed in a law suit against the owners, was raised and removed by the Corps of Engineers. A COE survey after the salvage showed no evidence of remaining wreckage.

B. Recommendations on Items 25 and 26

Investigation by wire drag methods of these two items was deleted by Change One to the Project Instructions. On the basis of all the facts developed in the presurvey research, it is recommended that both submerged dangerous wreck symbols be removed from all affected charts. - *Concur* ✓

VIII

A. Item 27 Findings

Item 27 was a 12-foot submerged dangerous obstruction, PA, originating with US Army Corps of Engineers survey #BP 92779 of 1975. The charted position is Latitude $40^{\circ}41.98'N$, Longitude $74^{\circ}00.61'W$, in the East River near Pier 6, Manhattan. It is near a lighted East River channel buoy marking the deep water channel.

According to the Corps of Engineers, the obstruction is the remains of an old scow, filled with stone. During basic hydrography operations, the WHITING observed a 12-foot sounding in an area of general depths around 25 feet. It was learned from conversations with the Surveys Section, New York District of the Corps of Engineers that contractual proceedings were underway to have this obstruction removed during 1980. Confirmation of the pending award of the contract was received by telephone on 1/12/81.

changed to 11:30. Also re-application of BP-92779 on 12335 dls. #46 11-22-78

DELETED
SEE
BP11414
& DRAWING
AID PROOF #4

B. Recommendation on Item 27

Further investigation on Item 27 was deleted by Change One to the Project Instructions, which was based on the pending removal contract. The obstruction danger symbol should remain on all affected charts until final notification of removal is received from the Corps of Engineers. - *Concur* ✓

logged IX

A. Item 17 Findings. ✓

Item 17 was a submerged dangerous wreck, PA, which originates with CL118-1975. The charted position is Latitude $40^{\circ}32.3'N$, Longitude $73^{\circ}56.7'W$, in the entrance channel to Rockaway Inlet. ✓

The originator of the source document, Mr. Randy Andronica, was interviewed. Mr. Andronica is a part-time salvage operator and diver. In searching for our Item 18, he was operating a SONAR recording echo sounder (a 7° beam instrument manufactured by Sonar Radio Corp.) in the vicinity of the "gong" buoy at the entrance to Rockaway Inlet. He observed what he interpreted to be a wreck on his echogram trace and reported it as such in his chart letter. ✓

After an extensive interview on his techniques, the on-scene weather, and other pertinent factors, Mr. Andronica stated that he had no other reason or knowledge which would have led him to assume the presence of the wreck. Copies ✓ of his chartlets and the echograms used were obtained and compared ~~to~~ to later editions of the chart. Based upon the conversation with Mr. Andronica and the physical evidence he provided, the hydrographer feels strongly that Mr. Andronica's report was based upon a mis-interpretation of the echogram tracing. Coast Guard records were searched and no record of a wreck in that area was discovered.

B. Recommendation on Item 17

Further investigation on Item 17 was deleted by Change One to the Project Instructions. Examining the same physical evidence as Mr. Andronica, and considering the nature of the information he provided during the interview, the hydrographer ✓ strongly believes that Item 17 was applied to the charts based upon interpretive error. Mr. Andronica's flat statement that he now "doubts the existence" of such a wreck, tends to support the hydrographer's conclusion. It is recommended that the submerged dangerous wreck symbol be removed from all affected charts. - Concur ✓

prev Delete 12357

X

logged

A. Item 19 Findings ✓

Item 19 was a submerged dangerous wreck, ED, originating with LNM 17-1970; 47-1973. The charted position is Latitude $40^{\circ}34.07'N$ Longitude $73^{\circ}59.84'W$, ✓ in Coney Island Channel. Wire drag work was to ensure that no dangerous wreckage remains.

Item 19 was the wreck of the small tug H.W. LONG. The wreck was salvaged, raised, and removed by the USS OPPORTUNE. A copy of the complete salvage report, submitted by the Commanding Officer to the Coast Guard, was obtained. From the descriptions and circumstances of the salvage operation, the possibility is extremely unlikely that any wreckage remains of a size to constitute a hazard ✓ to navigation. The wreck was raised from one of the deepest areas of Coney Island Channel, whose controlling depths at its east and west limits are considerably more shoal than the depth from which the wreck was raised. No vessel with a draft approaching the depth where any wreckage might even conceivably remain could enter Coney Island Channel.

B. Recommendation on Item 19 ✓

Further investigation of Item 19 was deleted by Change One to the Project Instructions. Since the wreck was actually raised and removed, the submerged dangerous wreck symbol should be removed from all affected charts. However, if the verifier and chart compiler still feel that wreckage dangerous to surface navigation still exists, then an obstruction danger circle, ED, on the charted position should be applied to all affected charts. - Concur - Recommend the submerged dangerous wreck symbol be removed from all affected charts. *concur*

Removed thru H-9930 7PS

XI

A. Item 31 Findings ✓

logged

Item 31 originated from a last-minute request for assistance made by the Coast Guard. The request sought information concerning the continued existence of wreckage on the bottom following the salvage of the sunken dredge "PENNSYLVANIA". This wreck had previously been charted as a visible wreck at Latitude $40^{\circ}31'55.93''N$, Longitude $73^{\circ}56'13.0''W$. The WHITING had previously determined a strong detached position on the wreck. The specific interest of the Coast Guard at this time was to determine whether lighted wreck buoy "WR", marking the hazard, could be discontinued.

A position circle of 200 meter radius was assigned, and was centered on the position provided by the WHITING. Survey conditions were marginal due to inclement weather and extremely strong tidal currents. Constant tension drags were run on AU Day, and resulted in a solid hang at an effective depth of ~~22~~ feet, however, no detached position could be obtained as the wire slipped off the hang. On AV Day, reconnaissance hydrography was run, the results of which indicated several areas of depths considerably shoaler than the general depths within the position circle. The shoalest of the areas was located in the immediate path of the AU-Day drag strip which resulted in the hang. Two additional uneventful drag strips were run before the weather and sea conditions seriously deteriorated. - *Unable to use the hydrography due to insufficient data, such as no sounding correctors.*

At this point, contact was made with AMC and Rockville and a determination was made based upon the survey work to that point, that sufficient information had been developed to indicate that dangerous wreckage did indeed still remain, and that the Coast Guard should continue its buoy. ✓

B. Recommendation on Item 31 ✓

The visible wreck symbol, charted at Latitude $40^{\circ}31'55.93''N$; Longitude $73^{\circ}56'13.0''W$ should be removed. An obstruction danger circle, noting "20 ft. reported 1980" should be applied to all affected charts at position Latitude $40^{\circ}31'52.6''N$; Longitude $73^{\circ}56'9.3''W$. - *Concur - however the "20 ft. reported" cannot be verified due to the lack of sounding correctors.*

*NAD 83 pos:
40° 31' 52.6"
73° 56' 9.3"*

See 28 Nov 1980 letter to C3 from Commanding Officer, NOAA Ships RUDE and HECK, in Appendix.

*visible symbol
wreck symbol
deleted thru
L-1572/5*

Removed LMM 46/6

logged XII ✓

A. Findings on obstruction reported by Coast Guard. - *Sunken Barge Investigation* ✓

The Investigation Branch, USCG Marine Inspection Office, New York, requested RUDE and HECK assistance in locating an unidentified obstruction in the south entrance to the New Jersey Pierhead Channel. The report of this obstruction

originates from a grounding/oil spill incident early in 1980. Initial Coast Guard information suggested the possibility of the existence of an uncharted granite obstruction. The craft involved in the grounding was an oil barge which had a reported deep draft of 23½ feet at the time of the incident. Charted depths on the latest edition of the chart show depths of 21-23 feet at MLW in the area of the incident. The time of the grounding and the consequent stage of the tide were not determined.

Initial investigations by side scan sonar search in the lower channel entrance did not suggest the presence of granite boulders or any significant geological feature interpretable as different from background reflectivity. A prominent feature, interpreted as a barge-like object, was discovered, and confirmed by fathometer passes, showing a 3-5 feet peak above surrounding depth. The object was marked and subsequently investigated by divers. Diving operations confirmed the existence of the remains of a large wooden barge. A strong detached position was obtained using Del Norte and a least depth was obtained by pneumatic depth gage.

B. Recommendation on Obstruction Reported by Coast Guard

As a result of the diver investigation, a submerged dangerous wreck symbol, with a least depth of ~~20~~ feet (reduced for predicted tides) should be applied to all affected charts at position:

Latitude $40^{\circ} 39' 18.6''$ N ✓
 Longitude $74^{\circ} 04' 35.8''$ W ✓ Concur ✓

Item 6.a. pg 4, par 1
 7.a.5 pg 5, par 2
 7.b.(1) pg 6

See the Verification Report for results of Item 18
 and Whiting Spike investigations.

Attachments

**Data removed and filed with the Survey Records.*

- I Abstract of Daily Correctors *
- II Statistics
- III Abstract of Hangs
- IV Electronic Control Calibrations and Projection Parameters *
- V Requests for Predicted Tides *
- VI Requests for Smooth Tides
- VII Definitions in Testing *<Tide Division Approval Form*
- VIII Project Instructions *
- IX Recovery Notes *

Appendices

- A. Correspondence - *See section 7.6. of the Verification Report*
- B. Danger to Navigation Reports and Related Information
Geographic Names List

ATTACHMENT II
Wire Drag
Statistics

<u>Date</u>	<u>Letter</u>	<u>Vol. #</u>	<u>Strips</u>	<u>Positions</u>	<u>LNМ</u>	<u>^N SM</u>	<u>ITEM #</u>
5/29/80	K N	1274 #1	2	21	0.66	0.03	24 - D.P. # hang depth
6/06/80	R	1274 #1	2	14	0.61	0.03	24 - 30 Least depth # D.P.
6/11/80	T	1274 #1	1	7	0.30	0.02	29
6/19/80	W	1274 #2	2	9	0.35	0.02	29
6/20/80	X	1274 #2	1	3	0.11	0.01	29
6/21/80	Y	1274 #2	1	11	0.25	0.01	29
6/23/80	Z	1274 #2	1	8	0.27	0.01	30 - Sunken Barge Least depth # D.P.
6/26/80	AA	1274 #2	2	10	0.37	0.02	24
6/27/80	AC	1274 #2	1	9	0.20	0.01	24
7/02/80	AD	1274 #2	1	9	0.30	0.02	24
7/08/80	AE	1274 #3	1	7	0.25	0.01	28
7/09/80	AF	1274 #3	3	24	0.62	0.03	28
7/10/80	AG	1274 #3	3	19	0.70	0.04	14
7/11/80	AH	1274 #3	1	6	0.17	0.01	28
7/15/80	AJ	1274 #3	1	11	0.30	0.02	14
7/16/80	AK	1274 #3	2	10	0.40	0.02	14
7/17/80	AL	1274 #3	4	24	0.53	0.03	14
7/18/80	AM	1274 #4	4	23	0.46	0.04	14
7/21/80	AN	1274 #4	1	4	0.13	0.01	14
7/25/80	AP	1274 #4	2	20	0.48	0.01	WHITING SPIKE
11/14/80	AR	RUDE #2	1	8	0.50	0.18	18
11/17/80	AS	1275 #4	5	39	1.40	0.09	18
11/20/80	AT	1275 #4	3	18	0.65	0.04	18
11/21/80	AU	1275 #4	2	25	0.63	0.05	31
11/22/80	AW	1275 #4	2	28	0.58	0.03	31
			49	367	11.22	0.79	

ATTACHMENT III
ABSTRACT OF HANGS

<u>ITEM</u>	<u>JD</u>	<u>Buoy No.</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Depth</u>	<u>Remarks</u>
24	140 "K"	3-4	40° 41' 18.49 43138"	74° 02' 33.76729"	19' 21' Hang (Sounded) 21 1/2' (Cleared)	Shoal suspected Item # 24. See pgs 10 & 11 of D.R.
30	156	-	40° 40.72'	74° 01.27'	28' (Least depth) 28' (Cleared)	Obstruction
24	157 "A"	-	40° 41' 20.11566"	74° 02' 24.31318"	18' (Cleared)	Shoal; investigated by divers on JD 161
	177	-	40° 39' 18.65"	74° 04' 35.89"	19' (Least depth)	Sunken Barge
	178	-	40° 41.26' (Position Approximate)	74° 02.52'	22' (estimated) (Temporary hang) 19' (Cleared)	Hang not investigated - suspected as small debris
18	319	4	40° 31' 54.96003"	73° 56' 55.99285"	22' (effective) 21 1/2' 20' (cleared)	Item 18; investigation incomplete Hang not investigated
31	326	-	40° 31.87' (Position Approximate) no position obtained	73° 56.18'	22' (estimated) (effective) (Temporary Hang)	Item 31 wreckage of dredge suspected hang not investigated
	207	-	40° 41' 56.69"	74° 01' 39.23"	44' (Hang effective) 42' (cleared)	Obstruction - Whiting spike

Attachment VII

Definitions in Testing

(1) Lift: The difference between the wire depth, or the pneumofathometer depth and the length of the upright when the wire depth is less than the length of the upright. - *The use of the pneumofathometer for Lift determination only applies to the constant tension wire drag system.*

(2) Sag: The difference between the wire depth and the length of the upright when the wire depth is greater than the length of the upright.

(3) Miss: A test of the wire in which, for any reason, the tester pole fails to show evidence of being struck by the wire.

(4) Sag Miss: A test of the wire in which the tester pole fails to show evidence of being struck by the wire because the wire has, with certainty, passed beneath the tester pole.

(5) TOB: "Tester on Bottom." A test of the wire in which the tester rod shows signs of having touched the ocean floor. Such a test is rejected because of the uncertainty of the accuracy of the results of the tests.



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY

FOO

NOAA Ships RUDE and HECK **ATTACHMENT**
c/o USCG Support Center
Governors Island, N.Y. 10004 APPENDIX A

May 21, 1980

Mr. John Zammit
Chief, Operations Division
U.S. Army Corps of Engineers, New York District
26 Federal Plaza
New York, N.Y. 10007

Dear Mr. Zammit,

The NOAA Ships RUDE and HECK have been assigned by the Director, Atlantic Marine Center, National Ocean Survey, to conduct wire drag survey investigations of several charted obstructions and wrecks in New York Harbor and the Lower New York Bay area. In the process of developing additional information on these obstructions beyond that provided in the charting source documents, ships' personnel have consulted with COE personnel of the Surveys Section and the Harbor Supervisor. In the course of these consultations, it was established that the Corps has begun contracting procedures for the removal of one of the obstructions assigned to us for investigation.

In this regard, I would appreciate a letter indicating the status of this contractual activity and an estimated completion date for the removal. If such a letter can be provided by your office, it would support and justify my recent recommendation that wire drag operations, to establish a clear depth over this obstruction, is no longer warranted. The obstruction concerned is described as follows:

at approximate position 40° 41' 58.8"N; 74° 00' 40.2"W, the obstruction which originates from a COE electronic sweep conducted on 21 June 1975 in the vicinity of Manhattan Pier 6. This obstruction is currently marked by East River Red Lighted Buoy "18" and was "swept" showing 12 feet of water over it.

Melvyn C. Grunthal

Cdr. Melvyn C. Grunthal, NOAA
Commanding Officer

*1/12/81 phonecon with Mr Thomas Clark, Asst Operations Chief, ACE
New York District Office*

*Bids on contract for removal of Item 27 will be opened
on 1/14/81.*

W. DeLeon



G. SCUBA ACTIVITIES

June 3 and 4 LT Peterson: 2 dives; 47 min.
 LTJG Connors: 2 dives; 47 min.

June 10 LT Peterson: 1 dive; 11 min.
 RET Smith: 1 dive; 11 min.

June 25 LTJG Connors: 2 dives; 40 min.
 RET Smith: 2 dives; 40 min.

H. CHART CORRECTIONS

OPR-B645-RU/HE-80

The following Danger to Navigation Reports were passed to USCG Group, New York Communication Center at 1245Z, 25 June 1980:

#1 - An unknown submerged obstruction covered by approximately 32 feet of water at mean low water has been discovered at Lat. 40°36'10.8"N, Long. 74°12'03.6"W; distance 420 yds., bearing 074°T from Pralls Island Channel Rear Range Light (Ligh List No. 1770). Charts affected: 12327, 12328, 12333.

*See pg 16
Item x11*

#2 - An unknown submerged obstruction covered by approximately 18 feet of water at mean low water was discovered at Lat. 40°39'18.5"N, Longitude 74°04'34.8"W; distance 1000 yds., bearing 255°T from Robbins Reef Light (Light List No. 1601). Charts affected: 12327, 12328, 12333, 12334.

#3 - An unknown submerged obstruction covered by approximately 36 feet of water at mean low water has been discovered at Lat. 40°38'40.0"N, Long. 74°06'58.5"W; distance 1350 yds., bearing 065°T from Port Richmond Light (Light List No. 1815). Charts affected: 12327, 12328, 12333.

NOTE: Submerged obstruction #2 above was identified as a wooden barge as a result of 25 June 1980 diver investigation.

I. SHIP CAPABILITIES REPORT

None.

J. EQUIPMENT FAILURESRUDE

Item: Whaler
 Problem: Bent propeller.
 Remedy: Installed new propeller.
 Downtime: 1 hr.

Item: Quarters Fan
 Problem: Broken belt.
 Remedy: Installed new belt.
 Downtime: 1 hr.

CHART(S): 12327, 12328, 12333, 12334

ITEM #: X1
OPR- B645- RU/HE-80

ITEM DESCRIPTION: Submerged obstruction

SOURCE DOCUMENT(S): Request for assistance, made by U.S. Coast Guard MJO

INVESTIGATION DATE(S): 18, 25 June 1980

OPR- B645- RU/HE-80

PRESURVEY RESEARCH FINDINGS: The Investigation Branch, USCG Marine Inspection Office, requested assistance in locating a possible obstruction in the New Jersey Pierhead Channel south entrance area. The Coast Guard investigation stems from a grounding/oil spill incident earlier this year. The initial findings suggested that an uncharted granite obstruction may exist. The barge involved in the grounding had a reported deep draft of 23½ feet at the time. Charted water depths on the latest edition of the chart show depths of 21 - 23 feet in this area.

METHOD OF ITEM INVESTIGATION: Side scan sonar search of the lower channel entrance did not reveal the presence of granite boulders or any geological features interpretable as different from background reflectivity. A prominent feature was discovered which was interpretable as a barge-like object. The fathometer confirmed the existence of an object which projected above the bottom by some 3-5 feet. The object was marked and a diver investigation was conducted. The divers confirmed the presence of the remains of a large wooden barge. A least depth was obtained by a pneumofathometer and a detached position ^{was obtained} **POSITION DETERMINED BY:** Del Norte

GEODETTIC POSITION:
CHARTED
OBSERVED

LATITUDE

LONGITUDE

40°39'18.6⁵"N

74°04'35.88⁷"W

CHARTING RECOMMENDATION: A submerged dangerous wreck symbol, with a least depth of ~~20~~¹⁹ feet should be applied to the charts at the observed position.

(Further investigation may reveal the presence of other obstructions)

COMPILATION USE ONLY

CHART

APPLIED AS

See pg 16-17, #X11

APPENDIX A



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
NOAA SHIPS RUDE & HECK
439 West York Street
Norfolk, VA 23510

Date: 26 Sep 1980

To: Commander, Third Coast Guard District
Governors Island, NY 10004
ATTN: OAN

From: Commanding Officer *Melvin C. Hunt*

Subj: Information for Local Notice to Mariners

The following information updates information published in LNM 31 of 1980, page 6:

New Jersey and New York - New York Harbor - Upper Bay

Submerged Wreck - A submerged dangerous wreck has been discovered in position 40°39'18.64"N, 70°04'35-88"W, and is covered by a least depth of 20 feet (reduced for predicted tides). Charts affected are: 123327, 12328, 12333, 12334.

OPR- B645- RU/HE-80

CC:
CAN 1



3. DECK

- a. Chipped, primed and painted anchor windlass and ships' sides.
- b. Installed new NOAA signs on side of pilot house.
- c. Cleaned, chipped, primed and painted forward hold on HECK.
- d. Overhauled ground wire.
- e. Engaged in wire drag operations 75% of time with launches.
- f. Rigged new Kevlar on drag reels.
- g. Routine maintenance.

D. PERSONNEL ACTIVITIES

On 26 August, CDR Grunthal departed on emergency leave.

On 27 August, LCDR David Yeager reported aboard on TDY.

On 3 September, CDR Grunthal reported aboard from emergency leave.

On 4 September, LCDR Yeager departed to return to his regular assignment.

On 12 September, LTJG Robert McCann departed to return to his regular assignment.

On 13 September, LCDR Moody reported aboard from convalescent leave.

E. TRAINING

None.

F. SAFETY

No reportable accidents.

G. SCUBA ACTIVITIES

26 & 28 August - LTJG Connors and RET Smith.
 2 September - LTJG Connors (with CAM53 Tides Party).
 6 September - CDR Grunthal, LT Peterson, RET Smith.
 8 September - OS Shafnacker (with CAM53 Tides Party).
 17 September - LT Peterson and OS Shafnacker.

H. CHART CORRECTIONS

1. The following information updates information published in LNM 31 of 1980, page 6:

New Jersey and New York - New York Harbor - Upper Bay. Submerged Wreck - A submerged dangerous wreck has been discovered in position 40°39'18.64"N, 70°04'35.88"W, and is covered by a least depth of 20 feet (reduced for predicted tides). Charts affected are: 12327, 12328, 12333 and 12334.

OPR-8645-RU/HE-80

See pg 16-17, #X11

See pg. 16 #X1

APPENDIX B



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
NOAA SHIPS RUDE & HECK
439 West York Street
Norfolk, VA 23510

Date: 28 November 1980

To: Director, National Ocean Survey
ATTN: C3

From: CDR M. C. Grunthal
Richard S. Woody
Commanding Officer

Jan 31

Subj: Danger to Navigation Report

A dangerous obstruction to navigation with a least depth found of 20 feet at Mean Low Water (reduced for predicted tides), has been discovered in 28 feet of water at Latitude 40°31.92'N, Longitude 73°56.21'W, bearing 158°T at a distance of 0.52 nautical miles from Rockaway Point Breakwater Light (LLN 1532). This obstruction was discovered during OPR-B645-RU/HE-80 after a request from the U.S. Coast Guard Third District to search the former location of the dredge PENNSYLVANIA which was removed earlier this year. This obstruction is currently marked by the WR Buoy at charted position Latitude 40°31.87'N, Longitude 73°56.16'W. This buoy marked the former location of the dredge PENNSYLVANIA. Charts 12326, 12327 and 12350 are affected.

The Aids to Navigation Branch, U.S. Coast Guard Third District, has been verbally notified of the continuing existence of the dangerous obstruction to navigation at the former location of the dredge PENNSYLVANIA.

OPR-B645-RU/HE-80

cc:
Capt. James Smith
Aids to Nav. Branch
USCG Third Dist.





ATTACHMENT VI

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
 NATIONAL OCEAN SURVEY
 NOAA SHIPS RUDE & HECK
 439 West York Street
 Norfolk, VA 23510

Date : 21 January 1981

Reply to Attn. of:

To : Chief, Tidal Requirements & Acquisitions Branch, C231

From : *David H. Peterson*
 Commanding Officer
 NOAA SHIPS RUDE & HECK

Subject: Request for smooth tides for OPR-B645-RU/HE-80

Ref: Hydrographic Project Instructions OPR-B645-RU/HE-80; 10 Mar 1980

Smooth tide correctors are requested for the indicated dates, times, and on the indicated reference tide stations, during 1980.

On Sandy Hook, New Jersey (853-1681)

<u>Time Corrector</u>	<u>Ratio Corrector</u>
HW - 10 Min., LW - 10 Min. (Items 18,31)	1.00
14 Nov JD 319	1600-2100 GMT
17 Nov JD 322	1530-2230 GMT
20 Nov JD 325	1430-2200 GMT
21 Nov JD 326	1630-2100 GMT
23 Nov JD 328	1800-2300 GMT

On The Battery, New York (851-8750)

<u>Time Corrector</u>	<u>Ratio Corrector</u>
HW - 0 Min., LW - 0 Min. (Items 28, WHITING Spike)	1.00
8 Jul JD 190	1600-2100 GMT
9 Jul JD 191	1200-2100 GMT
11 Jul JD 193	1200-1700 GMT
25 Jul JD 207	1200-1700 GMT

Time CorrectorRatio Corrector

HW-12 Min., LW-12 Min.
 (Items 14,24,29,30, Barge Wk)

1.00

29 May	JD 150	1100-1700 GMT
4 Jun	JD 156	1130-1530 GMT
6 Jun	JD 158	1500-2000 GMT
11 Jun	JD 163	1200-1700 GMT
19 Jun	JD 171	1300-1900 GMT
20 Jun	JD 172	1500-2000 GMT
21 Jun	JD 173	1300-1800 GMT
23 Jun	JD 175	1400-1900 GMT
25 Jun	JD 177	1600-2000 GMT
26 Jun	JD 178	1500-2100 GMT
27 Jun	JD 179	1200-1700 GMT
2 Jul	JD 184	1500-2000 GMT
10 Jul	JD 192	1200-2100 GMT
15 Jul	JD 197	1500-2000 GMT
16 Jul	JD 198	1600-2100 GMT
17 Jul	JD 199	1600-2200 GMT
18 Jul	JD 200	1400-2100 GMT
21 Jul	JD 203	1600-2100 GMT

All data should be sent to Chief, Requirements Branch, C351.

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

Page 2

TIDE NOTE FOR HYDROGRAPHIC SHEET

Item #	Latitude	Longitude	Zoning
#1 28	40°41.64'	74°00.67'	Direct
Whiting Spike	NONE REPORTED		Direct
24	40°41.35'	74°02.50'	Direct
29	40°41.02'	74°01.17'	Apply -10 minute time corrector
#2 30	40°40.73'	74°01.26'	Apply -10 minute time corrector
14	40°40.66'	74°02.83'	Apply -10 minute time corrector
#3 Sunken Barge	40°39'18.64"	74°04'35.88"	Apply -20 minute time corrector
18	40°32.06'	73°56.94'	Apply -42 minute time corrector
#4 31	40°31'55.93"	73°56'13.00"	Apply -42 minute time corrector

February 23, 1981 U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY
ITEM INVESTIGATION
TIDE NOTE FOR ~~HYDROGRAPHIC SHEET~~

Processing Division: Marine Center:

Hourly heights are approved for

Tide Station Used (NOAA Form 77-12): 851-8750 The Battery, New York

Period: May 29, 1980 - November 23, 1980

ITEM INVESTIGATION:

~~HYDROGRAPHIC SHEET~~

OPR: B645-RU/HE-80 — *FE. 232 W.D.*

Locality: New York Harbor

Plane of reference (mean ~~lower~~ low water): 3.15 ft.

Height of Mean High Water above Plane of Reference is 4.50 ft.

REMARKS: Recommended Zoning: See Page 2

James C. Hubbard
Chief, Datums and Information Branch

09

GEOGRAPHIC NAMES

F.E. 232 W.D.

Name on Survey	A ON CHART NO. 12334 B ON PREVIOUS SURVEY NO. 12350 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										
	A	B	C	D	E	F	G	H	K		
New York (TITLE)	✓									1	
New Jersey (TITLE)	✓									2	
New York Harbor (TITLE)	✓									3	
Lower Bay	✓									4	
Upper Bay	✓									5	
Manhattan	✓									6	
Brooklyn	✓									7	
South Brooklyn	✓									8	
Jersey City	✓									9	
Governors Island	✓									10	
Ellis Island	✓									11	
Liberty Island	✓									12	
Red Hook	✓									13	
Red Hook Channel	✓									14	
The Battery	✓									15	
East River	✓									16	
Buttermilk Channel	✓									17	
Hudson River	✓									18	
Atlantic Basin	✓									19	
Eric Basin	✓									20	
Military Ocean Terminal	✓									21	
Robbins Reef	✓									22	
Staten Island	✓									23	
Kill Van Kull	✓									24	
St. George	✓									25	

GEOGRAPHIC NAMES

F.E. 232 W.D.

Name on Survey	A ON CHART NO. 12334 & 12350 B ON PREVIOUS SURVEY C ON U.S. QUADRANGLE MAPS D FROM LOCAL INFORMATION E ON LOCAL MAPS F P.O. GUIDE OR MAP G GRAND McNALLY ATLAS H U.S. LIGHT LIST K										
	Constable Hook	✓									
Constable Hook Reach	✓										2
Rockaway Point	✓										3
Rockaway Inlet	✓										4
Dimond Reef	✓										5
Atlantic Ocean	✓										6
											7
											8
											9
											10
											11
											12
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											25

Approved:

Chas. E. Harrington
Chief Geographer - CBX5

1 April 1982

WIRE DRAG
HYDROGRAPHIC SURVEY STATISTICS

F. E. 232 W. D.

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT
SMOOTH SHEET		9	BOAT SHEETS & PRELIMINARY OVERLAYS		177 ?
DESCRIPTIVE REPORT		1	SMOOTH OVERLAYS: POS. ARC, EXCESS		9

DESCRIP-TION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES	3					8
CAHIERS			1			
VOLUMES	17					
BOXES			3 - Plo, Enve., Cahie			

T-SHEET PRINTS (List) TP-00740

SPECIAL REPORTS (List)

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS		
	PRE-VERIFICATION	VERIFICATION	TOTALS
POSITIONS ON SHEET			769
POSITIONS CHECKED	0	189	189
POSITIONS REVISED	0	56	56
SOUNDINGS REVISED N/A	-	-	-
SOUNDINGS ERRONEOUSLY SPACED N/A	-	-	-
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED	0	0	0
	TIME - HOURS		
CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION) Survey Automation	60	0	60
VERIFICATION OF CONTROL	0	10	10
VERIFICATION OF POSITIONS	0	10	10
VERIFICATION OF SOUNDINGS Individual Strips A&D SHEETS & Positional Overlays	0	52	52
COMPILATION OF SMOOTH SHEET	0	71	71
APPLICATION OF TOPOGRAPHY	0	19	19
APPLICATION OF PHOTOBATHYMETRY	0	0	0
JUNCTIONS	0	0	0
COMPARISON WITH PRIOR SURVEYS & CHARTS	0	12	12
VERIFIER'S REPORT	0	19	19
OTHER	0	66	66
TOTALS	60	259	319

Pre-Verification by M. B. Hickson	Beginning Date August 5, 1981	Ending Date August 14, 1981
Verification by M. B. Hickson	Beginning Date August 17, 1981	Ending Date Oct. 21, 1981
Verification Check by R. D. Sanocki	Time (Hours) 3	Date Nov. 3, 1981
Marine Center Inspection by Hydrographic Inspection Team (AMC)	Time (Hours) 12	Date Nov. 4, 1981
Quality Control Inspection by F.P. SAULSBURY	Time (Hours) 12	Date Mar 5, 1982
Requirements Evaluation by D. Hill	Time (Hours) 10	Date 9/3/82

5 pages 5-5-82 5 hrs.

ATLANTIC MARINE CENTER
VERIFICATION REPORT

REGISTRY NO.: F.E. 232 W.D.

FIELD NO.: R/H-5-I-80 W.D.

New York, New York Harbor, Upper and Lower Bays

SURVEYED: March 17 through July 25 and
November 14 through November 23, 1980

SCALE: 1:10,000 (Smooth Plot)

PROJECT NO.: OPR-B645

SOUNDINGS: Wire Drag and
Pneumofathometer

CONTROL: Del Norte
(Range-Range)

Chief of Party M. C. Grunthal
Surveyed by R. S. Moody
..... D. H. Peterson
..... P. M. Connors
..... F. L. Collins

Automated Plot by (Rough Strip) Xynetics 1201 Plotter (AMC)

I. PURPOSE OF THE SURVEY

The purpose of the field examination was to investigate and prove or disprove the existence of 21 items in the New York Harbor area. Their reported positions and identities are listed in the Project Instructions and the Descriptive Report. ✓

Items 11, 13, 15, 16, 20, 21, 22, and 23 of the Project Instructions were not investigated on the field examination. Assigned items 14, 18, 24, 28, 29, 30, 31 and unassigned items Whiting Spike and Sunken Barge were investigated and the results are discussed in this report and portrayed on the smooth A&D sheets included in the Descriptive Report. ✓

2. CONTROL AND SHORELINE

a. The source of control is adequately described in Section C. of the Descriptive Report. Dates of triangulation station establishment and station numbers were added during verification. ✓

b. Shoreline portrayed on the smooth A&D sheets is intended for orientation purposes. The source of shoreline is from shoreline manuscripts TP-00740, TP-00743, TP-00744, and TP-00753. All four shoreline manuscripts are Class III, final reviewed, not field inspected, not field edited, and were compiled from photography dated October 1974 and October 1975. As no field edit is likely to be accomplished on the shoreline manuscripts, they will remain as Class III maps. ✓

3. JUNCTIONS

There were no junctions on this field examination. ✓

4. COMPARISON WITH CONTEMPORARY SURVEYS

H-9815 (1980) 1:10,000

H-9820 (1979) 1:10,000

Contemporary hydrographic survey H-9815 (1980) is common to items 14, 24, 28, 29, 30, and Whiting Spike investigation on the present field examination. Except as noted in the Descriptive Report for H-9815 and the discussions regarding the items investigated by the present survey below, H-9815 is adequate to supersede the charted hydrography and the prior surveys common to this field examination. ✓ In addition to the discussions by the hydrographer in the Descriptive Report for this survey the following is noted:

logged
Item 14 - (Obstruction Reported, PA, charted in Latitude $40^{\circ}40.66'$, Longitude $74^{\circ}02.83'$, originates with LNM 9 of 1973.) There are no conflicts between contemporary hydrography and present survey effective depths with the exception of one minor conflict at Latitude $40^{\circ}40.61'$, Longitude $74^{\circ}02.92'$ where a contemporary 16-foot sounding is on the edge of an area cleared to and effective depth of 17 feet. This conflict is not considered significant as the sounding is exactly on the limit of the cleared area and the bottom in this area rapidly shoals to the west and south. Additionally there are two navigation buoys common to the present wire dragged area that were not hung as these buoys were removed by the U. S. Coast Guard prior to wire drag operations. *concur*

logged
Item 24 - (Obstruction Reported, PA, charted in Latitude $40^{\circ}41.35'$, Longitude $74^{\circ}02.5'$, originates with LNM 36 of 1979.) There are no conflicts between contemporary hydrography and present survey effective depths with the exception of the two hangs located on the present survey. The hang of the shoal indicates approximately three feet shoaler depths between the hang effective depth and contemporary hydrography. The uninvestigated temporary hang, position approximate, suspected as small debris, is three feet shoaler than soundings on the contemporary hydrographic survey. ✓

logged
Item 28 - (Submerged wreck, PA, charted in Latitude $40^{\circ}41.64'$, Longitude $74^{\circ}00.67'$, originates with LNM 40 of 1971.) There are no conflicts between contemporary hydrography and present survey effective depths. *concur*

logged
Item 29 - (Submerged wreck, ED, charted in Latitude $40^{\circ}41.02'$, Longitude $74^{\circ}01.17'$, originates with NM 21 of 1965.) There are no conflicts between contemporary hydrography and present survey effective depths. *Wk is considered disproved by pres survey investigation*

logged
Item 30 - (Obstruction covered by 28 feet of water, charted in Latitude $40^{\circ}40.73'$, Longitude $74^{\circ}01.26'$, originates with U. S. Army Corps of Engineers survey BP 69301, 1966.) There are no conflicts between contemporary hydrography and present survey effective depths. The least depth determined on the submerged obstruction located by this field examination is five feet shoaler than the least depth determined on the contemporary hydrographic survey. ✓

logged
Whiting Spike Investigation - (Submerged obstruction, located in Latitude $40^{\circ}41.94'$, Longitude $74^{\circ}01.14'$ originates with contemporary survey H-9815, 1980.) There are no conflicts between contemporary hydrography ✓

and present survey effective depths with the exception of the hang of the submerged obstruction which has a depth two feet shoaler than the contemporary hydrographic least depth. *46 ft. fath sdg on H4815 - hung at 44' & cleared by 43' on pres. survey*

Contemporary hydrographic survey H-9820 (1979) is common to items 18 and 31 on the present field examination. Except as noted in the Descriptive Report for H-9820 and the discussions regarding the items investigated by the present survey below, H-9820 is adequate to supersede the charted hydrography and the prior surveys common to this field examination. In addition to the discussions by the hydrographer in the Descriptive Report for this survey the following is noted:

logged Item 18 - (Submerged wreck, ED, charted in Latitude $40^{\circ}32.06'$, Longitude $73^{\circ}56.94'$ originates with NM 44 of 1968 and revised by CL 118 of 1975.) There are no conflicts between contemporary hydrography and present survey effective depths with the exception of the uninvestigated hang which has a hang effective depth 4-6 feet shoaler than contemporary hydrographic soundings. *See V.R. pg 6 item b. (1)*

logged Item 31 - (Visible wreck, reported in Latitude $40^{\circ}31'55.93''$, Longitude $73^{\circ}56'13.0''$.) There are no conflicts between contemporary hydrography and present survey effective depths. Only about 50% of this item investigation falls within the hydrographic limits of contemporary survey H-9820 (1979). The temporary hang, position approximate, is outside the hydrographic limits but is within 40 meters of the located "WR" buoy. This buoy was not hung during present survey investigations. *Wreck was salvaged. Ctn debris as recommended on p. 16 item XI B. in the D.R.*

No contemporary survey covers the common area of the Sunken Barge investigation. *conclu*

5. COMPARISON WITH PRIOR SURVEYS

Comparison with prior surveys was not accomplished for this field examination as the contemporary hydrographic surveys common to the items investigated adequately discuss comparisons of contemporary data with prior data. The Sunken Barge investigation is not common to any contemporary survey but is common to prior survey H-5607 (1934) which is not the source of charted data in the item area and as bottom structure is significantly changed no useful comparison could be made. The portion of Item 31 not covered by contemporary hydrography is in an area which prior surveys are not currently available and the source of charted data is not readily ascertainable.

6. COMPARISON WITH CHARTS 12334, 52nd Edition, August 4, 1979 12350, 46th Edition, December 1, 1979

a. Hydrography

Items 14, 24, 28, 29, 30, Whiting Spike investigation, and Sunken Barge investigation are common to Chart 12334. Comparison of the present field examination to charted data was not accomplished for items 14, 24, 28, 29, 30, and WHITING Spike investigation as contemporary survey H-9815 (1980) supersedes charted data in the common area. See section 4 of this report.

logged Sunken Barge Investigation - (Unidentified submerged obstruction, reported in the south entrance to the New Jersey Pierhead Channel, originates

from the Investigation Branch, USCG Marine Inspection Office, New York.) A sunken barge with a least depth of 19 feet was located on the present field examination in an area of charted 21-foot depths. *Not on chart, should be chtd as shown on the present survey*

Items 18 and 31 are common to chart 12350. Comparisons of the present field examination to charted data was not accomplished for item 18 as contemporary survey H-9820 (1979) supersedes charted data in the common area. See section 4. of this report. ✓

logged Item 31 - (Visible wreck, reported in Latitude 40°31'55.93", Longitude 73°56'13.0".) No conflicts exist between charted hydrography and present survey effective depths with the exception of the charted visible wreck symbol which is in an area cleared by an effective depth of 20 feet. The buoy "WR" was not hung and is charted in a location that borders a split and an area cleared by an effective depth of 21 feet. There is no mention in any of the survey records as to whether this buoy was moved for wire drag operations. *N.C. 12350 (46 Edit, Dec 197) See pg 16, item XI B. of D.R. for recommendation on this item.*

b. Aids to Navigation

Only one floating aid to navigation, buoy RB GONG, was located by this field examination. This buoy agrees well with its charted location. No fixed aids to navigation were located by the present field examination. ✓

7. CONDITION OF SURVEY

The condition of the field examination is satisfactory except as follows:

a. Field Work and Records

(1) Presurvey research by the field on the assigned items was excellent. This research resolved five items without field work and provided valuable information on all other items investigated. ✓

(2) Bottom clearances on items investigated by this field examination were generally not in accordance with Section 3 - 20 of the Wire Drag Manual, however the irregular bottom configurations, currents, restricted areas of operation, and other constraints preclude the reasonable possibility of total compliance. ✓

(3) Items 28 and 31 contained a split in each investigation.

(4) Items 14, 24, and 31 contained areas of insufficient overlap and Items 28 and 29 contained areas of minimal overlap. Item 30 has a clearance strip of minimal overlap over the obstruction on which a least depth was obtained. Overlap criteria for the constant tension wire drag system is not defined as is for standard wire drag. Exact end buoy paths and positions are obtained in the constant tension system. For these reasons the following criteria was established for this field examination: Overlap of under ten meters is considered minimal and overlap of less than five meters is considered insufficient. ✓

(5) The assigned minimum area of investigation was not adhered to for the following items:

Item 31 - 60% of the assigned area completed. See Section XI. ✓
of the Descriptive Report.

Item 18 - 90% of the assigned area completed. ✓

Item 28 - only the small area of the split cannot be claimed as covered ✓
for effective depth. See Section IV.B. of the Descriptive Report.

Item 30 - 50% of the assigned area completed. However, the obstruction
was accurately located and a least depth by ~~pneumofathometer~~ was obtained. *Chart as shown
pneumatic depth gage on pres. survey*

Whiting Spike and Sunken Barge Investigations - Neither of these
items were assigned minimum areas of investigation. Both items were accurately *concur*
located and either a clearance depth or a least depth was obtained.

(6) Investigations on Items 18, 24, 30, 31, and Whiting Spike were
conducted using the wrong side of the Station 1 to Station 2 electronic control ✓
network baseline. The automated system at AMC has great difficulty in processing
data accomplished on the wrong side of the baseline.

(7) Marked calibration points (such as pilings, ends of piers, corners
of bulkheads) used for daily opening and closing calibrations should be surveyed by
prescribed methods and assigned a signal number and name and included in the control *concur*
listing in the Descriptive Report.

(8) Sonargrams and fathograms included in the survey records should *concur*
be annotated, folded, and stamped as prescribed by the Hydrographic Manual.

(9) Hydrographic information and data such as reconnaissance hydrography
that is included in the survey records should have the appropriate correctors
(TRA, Settlement & Squat, instrument correction, and velocity corrections) computed,
applied, and included in the Descriptive Report as prescribed by the Hydrographic
Manual. Least depths by fathometer could not be ascertained due to the lack of *concur*
necessary correctors and lack of proper annotation of the fathograms. If data such
as reconnaissance hydrography is not of any significant value and not intended as
part of the survey, it should not be included with the survey as part of the survey
records.

(10) The Item 31 investigation included four constant tension wire drags
and reconnaissance hydrography but apparently side scan sonar was not used. It
was ascertained during this investigation that debris from the salvaged wreck remains ✓
on the bottom and side scan sonar would have been valuable in providing information
on extent, size, and attitude of the debris.

(11) Notations as to which stations were used to control an investigation
were not noted in the volumes for several days of data. On days where the control ✓
stations are noted the station names listed frequently do not correspond with the
proper triangulation station names.

(12) Several cases of conflicting information were noted between the ✓
survey volumes and the Descriptive Report.

(13) Notations as to which item work was being accomplished were not noted for several days of data in the survey volumes. ✓

(14) Notations as to the condition of the bight of the drag at Line Begins was not noted for many strips in the survey volumes. This notation is necessary ✓ even for constant tension wire drag.

(15) Notations as to strip number (Strip #2 of 3) was not recorded in the survey volumes for many strips. ✓

(16) Prior surveys furnished to the field (Section 7.13 of the Project Instructions) should be included with the survey records. ✓

(17) Current editions of affected charts should be included with the survey records. ✓

b. Descriptive Report

(1) Methods, results, and recommendations concerning the investigations on Items 18 and Whiting Spike were not addressed in the Descriptive Report. These ✓ items are addressed as follows:

logged
Item 18 is listed as a submerged wreck, ED, in the Project Instructions with source and positional information. Eight constant tension drags and one standard wire drag was accomplished on this item. Wire drag investigations covered approximately 90% of the assigned area of coverage with effective depths ranging from 19 to 23 feet. Charted depths in the area range from 20 to 28 feet. The charted position of the submerged wreck was cleared by an effective depth of 22 feet. As the clearance depths obtained cannot disprove the existence of the wreck it is recommended that the wreck symbol be retained as charted. A hang was encountered at Latitude 40°31.91', Longitude 73°56'34" at an effective depth of 22 feet and was subsequently cleared by an effective depth of 20 feet. As this hang is approximately 270 meters south of the charted position of the submerged wreck and was not investigated, it is recommended that this hang be charted as a submerged obstruction with a clearance depth of 20 feet. Side scan sonar apparently was not used in this investigation but may have proved useful in locating obstructions. Buoy RB GONG was located by this field examination and agrees well with its charted position.
Retain the charted wk symb ED & note as cleared by 22 ft.
concur with abstr. recommendation

logged
The Whiting Spike investigation originated with a solid "spike" or echo of an obstruction on a fathogram of the NOAA Ship WHITING during hydrographic survey H-9815 (1980). This item was investigated by both reconnaissance hydrography and two constant tension wire drags. This obstruction was hung at an effective depth of 44 feet and subsequently cleared by an effective depth of 43 feet. This obstruction was not diver investigated, however, fathograms indicate that the obstruction extends approximately 6 feet off the bottom. Least depths by fathometer were not useable due to the lack of necessary sounding correctors, positional, and time information to correctly reduce and position a least depth. It is recommended that this obstruction be charted as a submerged obstruction cleared by a wire drag effective depth of 43 feet.
From page 2
concur

(2) A statement to the effect that all control stations listed were recovered by the field as prescribed by the Hydrographic Manual should have been

made in Section C. of the Descriptive Report. Additionally, the year of establishment for each of the control stations should have been listed. *concur*

(3) All electronic, visual, and calibration stations should be numbered and included in a signal list and signal tape in the format compatible with the automated systems of the Marine Centers; see Section 5.3.5 of the Hydrographic Manual. *concur*

(4) Valid data intended for use in compilation of the survey (such as detached positions and least depth) gathered on days which were rejected should be noted in either the Abstract of Hangs or in the Miscellaneous section of the Descriptive Report. *concur*

(5) The Wire Drag Statistics (Attachment II) and the Abstract of Hangs (Attachment III) were not complete and were amended during verification. ✓

(6) A Geographic Names List was compiled during verification and is included in the Descriptive Report. ✓

(7) The Commanding Officer should sign the approval in the original Descriptive Report. ✓

(8) No title sheet (NOAA Form 77-28) was included in the Descriptive Report. ✓

(9) No cover sheet (NOAA Form 76-35A) was included with the Descriptive Report. ✓

(10) Appendix A of the Descriptive Report is not complete; there are two or more pages missing. ←

(II) Charts used in comparison should be listed in the Descriptive Report by chart number, edition number, and edition date. ✓

c. Field Plotting

Field plotting consisted of individual strips plotted on individual mylar sheets and field A&D sheets (color coded for clarity, not effective depth) for Items 14, 18, 24, 28, 29, and 31. Although this is not in accordance with the Wire Drag Manual, it is considered adequate. ✓

only portion of Monthly Report concerning the wreck was included other paper not required. Dlu

8. COMPLIANCE WITH PROJECT INSTRUCTIONS

This wire drag field examination adequately complies with Project Instructions OPR-B645-RU/HE-80, Wire Drag, East Coast Investigations, New York Harbor, dated 10 March 1980 and Changes 1 and 2 except ⁹⁵ noted in this report.

9. ADDITIONAL FIELD WORK

This is a good basic wire drag field examination. Additional field work on Items 14, 24, 28, 29, 30, Sunken Barge, and Whiting Spike is not recommended. Additional

field work is recommended on Items 18 and 31. Items 11, 13, 15, 16, 20, 21, 22, and 23 were not investigated on this field examination and should be reassigned for future investigations. ✖ concur ✓

10. MISCELLANEOUS

a. The following factors were considered in smooth plotting this field examination at the 1:10,000 scale.

- (1) All area coverage work done on this field examination was conducted using Del Norte in the range-range mode. *- Del Norte in range-range mode does not meet accuracy standards for a 1:5,000 scale survey.*
- (2) Contemporary hydrographic surveys H-9820 (1979) and H-9815 (1980) are at the 1:10,000 scale. *- Surveyed at 1:5,000, plotted at 1:10,000 during processing.*
- (3) Shoreline manuscripts TP-00740, TP-00743, TP-00744, and TP-00753 are at the 1:10,000 scale. *- Should have been compiled at 1:5,000*
- (4) Chart 12334 is at the 1:10,000 scale and Chart 12350 is at the 1:20,000 scale.
- (5) At the 1:10,000 scale all smooth A&D sheets and position number overlays could be included in the Descriptive Report.

b. Charting recommendations made by the verifier are included with the hydrographer's recommendations in the Descriptive Report except for Items 18 and Whiting Spike investigation which are noted in Section 7.b. of this report. ✓

c. Two temporary hangs were ^{en}countered during this field examination (Items 24 and 31). These two temporary hangs were smooth plotted as position approximate with an estimated effective depth. Neither of these temporary hangs were investigated. ✓

** Item 11 - reported obstr. PA, charted in lat. 40°31.7'N, long 74°01.00'W from LNM 33 of 1972 (cht 12327)*

Item 13 - subm pipes, reported PD, charted in lat. 40°32.86'N, long 74°03.38'W from C.L. 141 of 1976 (cht 12327)

Deleted
Maurice B. Hickson, III
Maurice B. Hickson, III
Cartographer
Evaluation and Analysis

Item 15 - wreckage chtid in lat. 40°41.91'N, long 74°00.29'W from LNM's 18 & 21 of 1972 possible remains of helicopter (cht 12334)

Date: October 21, 1981

Item 16 - subm wreck, ED, chtid in lat 40°33.29'N, long 73°56.77'W. LNM 41/1973 and CL-118/1975 (cht 12327)

Item 20 - subm wreck, PD, chtid in lat 40°34.18'N, long 74°00.84'W from NM 37/1960 & CL-560/1968 (cht 12349)

Item 21 - subm wreck, PA, chtid in lat. 40°34.68'N, long 74°00.9'W from CL-1286/1966

Item 22 - reported obstr, chtid in lat. 40°35.33'N, long 74°00.03'W from NM-13/1950 (cht-12349)

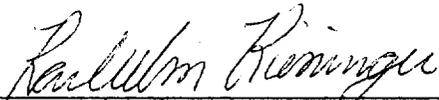
Item 23 - subm wreck, 8 ft reported, chtid in lat 40°35.33'N, long 74°01.02'W from LNM-13/1971 (cht-12349)

INSPECTION REPORT
FE-232 WD

The completed survey has been inspected by the Hydrographic Inspection Team with regard to survey coverage, cartographic symbolization, and verification or disproof of charted data. The Verification Report has presented the facts accurately and properly, the procedures used were appropriate, and the recommendations are logical and justifiable. The survey records comply with National Ocean Survey requirements except where noted in the Verification Report. The Hydrographic Inspection Team concurs with the verifier's findings, actions, and recommendations and commends the verifier, Mr. Maurice B. Hickson III, for his methods and approach in verifying this non-standard wire-drag survey.

The Inspection Team also notes that the strict criteria for clearing the drag to within two to three feet of the bottom has not always been met as noted by the hydrographer. This was particularly true in areas of irregular bottoms. We concur with the hydrographer that the investigations as described are adequate to dispose of the charted items as contended. ✓

Examined and Approved
Hydrographic Inspection Team



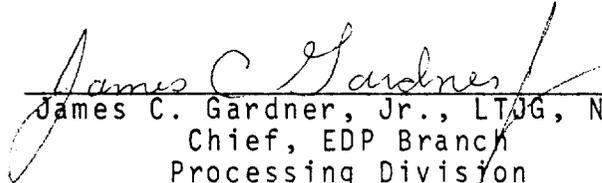
Karl Wm. Kieninger, CDR, NOAA
Chief, Processing Division



R. D. Sanocki
Chief, Verification Branch
Processing Division

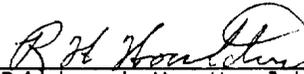


Evelyn J. Fields, LT, NOAA
Data Quality Officer
Operations Division



James C. Gardner, Jr., LTJG, NOAA
Chief, EDP Branch
Processing Division

Approved/Forwarded
November 13, 1981



Richard H. Houlder, RADM, NOAA
Director, Atlantic Marine Center



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Rockville, Md. 20852

C352:FPS

March 9, 1982

TO: Glen R. Schaefer *GRS*
Chief, Hydrographic Surveys Division

THRU: Chief, Quality Control Branch *gm*

FROM: F. P. Saulsbury *F.P. Saulsbury*
Quality Evaluator

SUBJECT: Quality Control Report for FE-232 (1980) WD, New York-New Jersey,
New York Harbor, Upper and Lower Bays

A quality control inspection of FE-232 WD was accomplished to monitor the survey for adequacy with respect to data acquisition, determination of the validity of hangs, groundings, and least depths, validity of cleared depths over obstructions in the survey area, A&D sheet, Verifier's Report, decisions and actions by the verifier, and cartographic presentation of data. In general, it was found to conform to the National Ocean Survey's standards and requirements except as stated in the Descriptive Report.

cc:
C351





UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Rockville, Md. 20852

NOV 10 1982

C351 :DJH

TO: CAM - Richard H. Houlder
FROM: C3 - C. William Hayes *C. William Hayes*
SUBJECT: FE-232 WD (1980), OPR-B645, New York-New Jersey, New York Harbor,
Upper and Lower Bays, Report of Compliance with Project Instructions

The smooth sheet and Descriptive Report for the subject survey have been examined. This survey, except as noted in the Quality Control Report, dated March 9, 1982 (copy attached), and the Hydrographic Survey Inspection Team Report, dated November 13, 1981, is complete and adequate for the purposes intended and is in compliance with Project Instructions OPR-B645-RU/HE-80, dated March 10, 1980.

Attachment

cc:
C352 w/o att.



40° 40' 00" 74° 05' 00" 74° 04' 30" 74° 04' 00"

MILITARY OCEAN TERMINAL

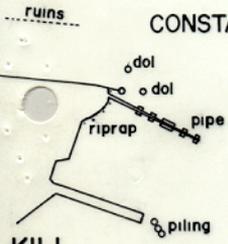
40° 39' 30" 40° 39' 30"

Sewer Terminal Light

100 ROBBINS REEF LIGHT USE, 1930

ROBBINS REEF

CONSTABLE HOOK



KILL VAN KULL

1-9
Least depth of 19 ft.
Not cleared
Sunken barge (wooden)
Diver Investigation

UPPER BAY

40° 39' 00" 40° 39' 00"



STATEN ISLAND

FE-232 WD
INVESTIGATION OF SUNKEN BARGE
JUNE, 1980
SCALE: 1:10,000
SOUNDING IN FEET AT MLW

ST GEORGE

KRYLON No 131

74° 05' 00" 74° 04' 30" 74° 04' 00"

74° 03' 00"

74° 02' 30"

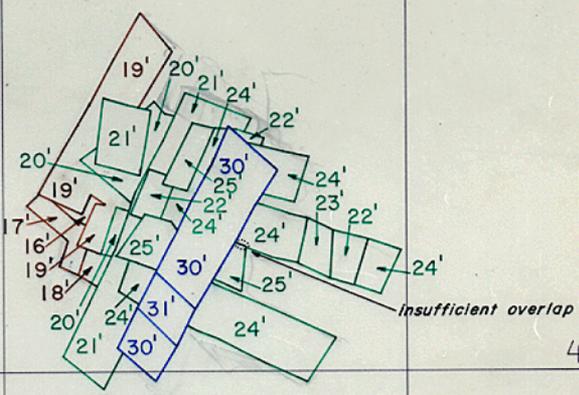
LIBERTY I.

7 H-55-NY, 1980
(field position)

40° 41' 00"

40° 41' 00"

UPPER BAY



40° 40' 30"

40° 40' 30"

FE -232 WD
 ITEM 14
 JULY, 1980
 SCALE : 1:10,000
 SOUNDINGS IN FEET AT MLW

Chf 12334
H-9815

40° 40' 00"

40° 40' 00"

KRILON No
1311

74° 03' 00"

74° 02' 30"

74° 02' 00"

74° 01' 30"

40° 42' 30"

40° 42' 30"



JERSEY CITY

HUDSON RIVER

MANHATTAN

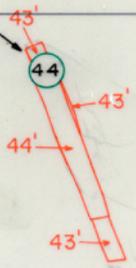
THE BATTERY

Hang at 44 ft.
 Cleared by 43 ft.
 Item Whiting Spike - obstruction - extends approximately 6 ft. off bottom

40° 42' 00"

40° 42' 00"

ELLIS ISLAND



UPPER BAY

40° 41' 30"

40° 41' 30"

FE - 232 WD
 INVESTIGATION OF WHITING SPIKE
 JULY, 1980
 SCALE : 1:10,000
 SOUNDINGS IN FEET AT MLW

GOVERNORS ISLAND

74° 02' 00"

74° 01' 30"

KRYLON No 1311

73° 57' 30"

73° 57' 00"

73° 56' 30"

40° 32' 30"

40° 32' 30"

ROCKAWAY INLET

ROCKAWAY PT

102 ROCKAWAY JETTY BEACON, 1934
Rockaway Point Breakwater Light

RB
GONG

40° 32' 00"

40° 32' 00"

LOWER BAY

Hang at 22 ft.
Cleared by 20 ft.
Hang not investigated

ATLANTIC OCEAN

FE -232 WD
ITEM 18
NOVEMBER, 1980
SCALE: 1:10,000
SOUNDINGS IN FEET AT MLW

KRILLON No
1311

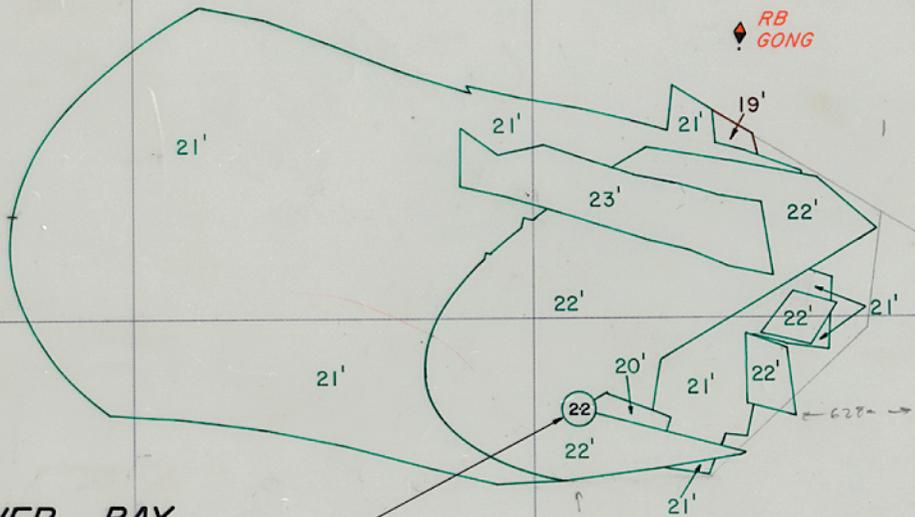
40° 31' 30"

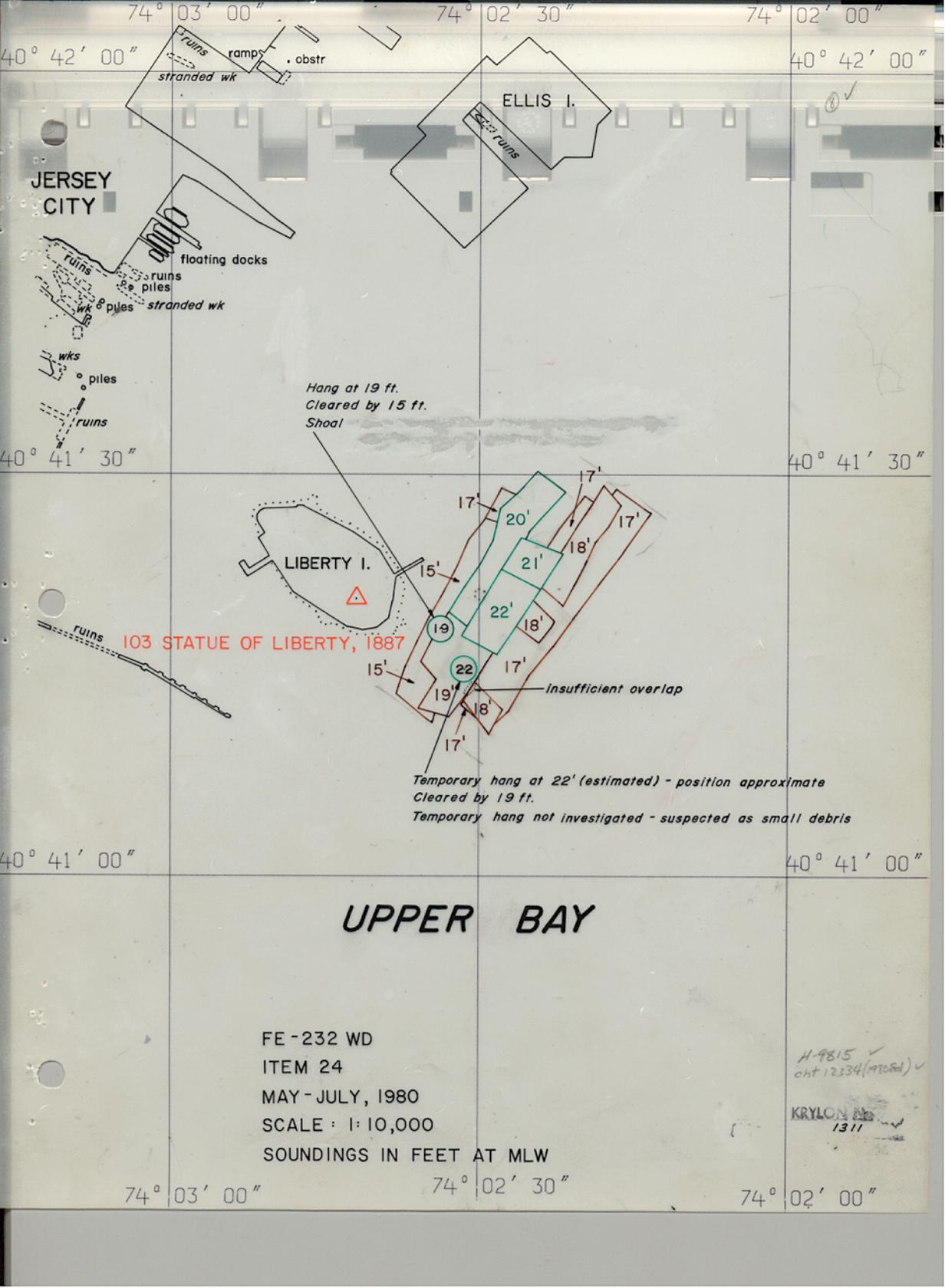
73° 57' 30"

73° 57' 00"

73° 56' 30"

40° 31' 30"



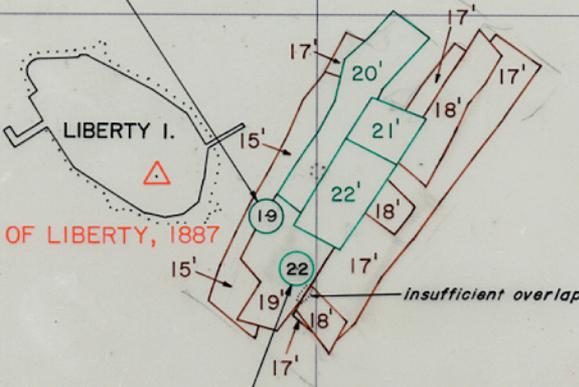


ruins ramps . obstr
stranded wk

ELLIS I.
ruins

floating docks
ruins
piles
stranded wk
wks
piles
ruins

Hang at 19 ft.
Cleared by 15 ft.
Shoal



Temporary hang at 22' (estimated) - position approximate
Cleared by 19 ft.
Temporary hang not investigated - suspected as small debris

H-9815 ✓
cht 12334 (1980) ✓

KRYLON
1311

74° 01' 00"

74° 00' 30"

HUDSON RIVER

FE -232 WD

MANHATTAN

ITEM 28

JULY, 1980

SCALE: 1:10,000

SOUNDINGS IN FEET AT MLW

9 H-57-NY, 1980

(field position)

Tide Station

EAST RIVER

40° 42' 00"

40° 42' 00"

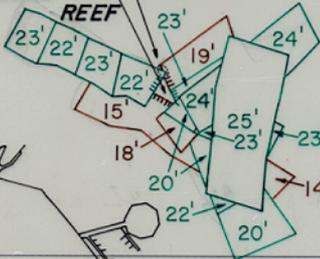
UPPER BAY

10 H-58-NY, 1980

(field position)

*split - caused by end weights grounding
minimal overlap*

DIMOND REEF



40° 41' 30"

40° 41' 30"

GOVERNORS ISLAND

BROOKLYN

40° 41' 00"

40° 41' 00"

BUTTERMILK CHANNEL

ATLANTIC BASIN

74° 01' 00"

74° 00' 30"

KRYLON 1311

74° 01' 30"

74° 01' 00"

DIMOND REEF

40° 41' 30"

40° 41' 30"

GOVERNORS ISLAND

40° 41' 00"

40° 41' 00"

minimal overlap

CHANNEL

BUTTERMILK

ATLANTIC BASIN

40° 41' 00"

UPPER BAY

BROOKLYN

6 H-54-NY, 1980
(field position)

FE -232 WD

ITEM 29

JUNE, 1980

SCALE: 1:10,000

SOUNDINGS IN FEET AT MLW

CH 12334
H-9815

40° 40' 30"

40° 40' 30"

RED HOOK

RED HOOK CHANNEL

ruins

KRYLON Mo
1311

74° 01' 30"

74° 01' 00"

74° 01' 30"

74° 01' 00"

GOVERNORS ISLAND

BUTTERMILK CHANNEL

40° 41' 00"

40° 41' 00"

UPPER BAY

ATLANTIC BASIN

6 H-54-NY, 1980
(field position)

BROOKLYN

RED HOOK

Least depth of 28 ft.
Cleared by 28 ft. - minimal overlap
Item 30 - large concrete obstruction of irregular shape
extends approximately 7 ft. off bottom

40° 40' 30"

40° 40' 30"

RED HOOK CHANNEL

ERIE BASIN

FE-232 WD
ITEM 30
JUNE, 1980
SCALE: 1:10,000
SOUNDINGS IN FEET AT MLW

CH-12334
H-9815

KRYLON
1311

40° 40' 00"

74° 01' 30"

74° 01' 00"

40° 40' 00"

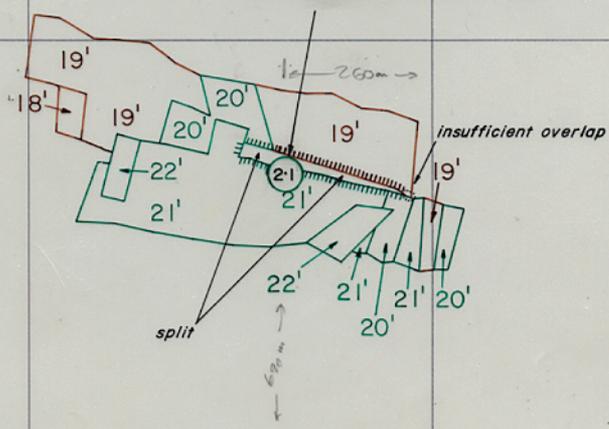
ROCKAWAY
INLET

ROCKAWAY PT.

102 ROCKAWAY JETTY BEACON, 1934
Rockaway Point Breakwater Light

Temporary hang at 21' (estimated) - position approximate
Cleared by 21 ft. - insufficient overlap
Temporary hang not investigated

LOWER BAY



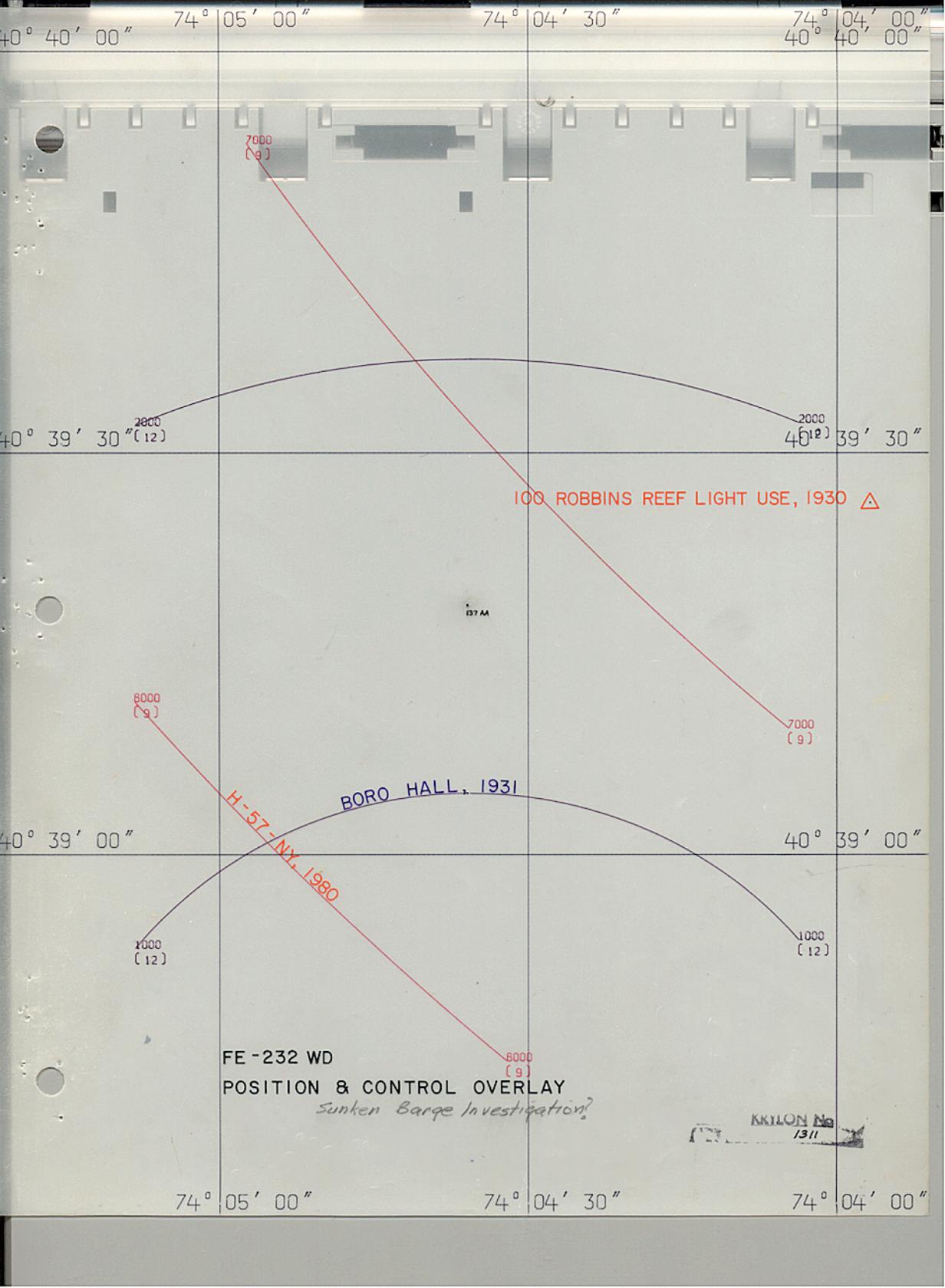
ATLANTIC OCEAN

FE -232 WD
ITEM 31 ✓
NOVEMBER, 1980
SCALE : 1: 10,000
SOUNDINGS IN FEET AT MLW

CH. 12350
H-9820V

RYLON No
1311

✓



40° 40' 00"

74° 05' 00"

74° 04' 30"

74° 04' 00"
40° 40' 00"

7000
(9)

40° 39' 30" (12)

2000
(12)
40° 39' 30"

100 ROBBINS REEF LIGHT USE, 1930 Δ

137 M

8000
(9)

7000
(9)

BORO HALL, 1931

H-57-NX, 1980

40° 39' 00"

40° 39' 00"

1000
(12)

1000
(12)

FE-232 WD
POSITION & CONTROL OVERLAY
Sunken Barge Investigation?

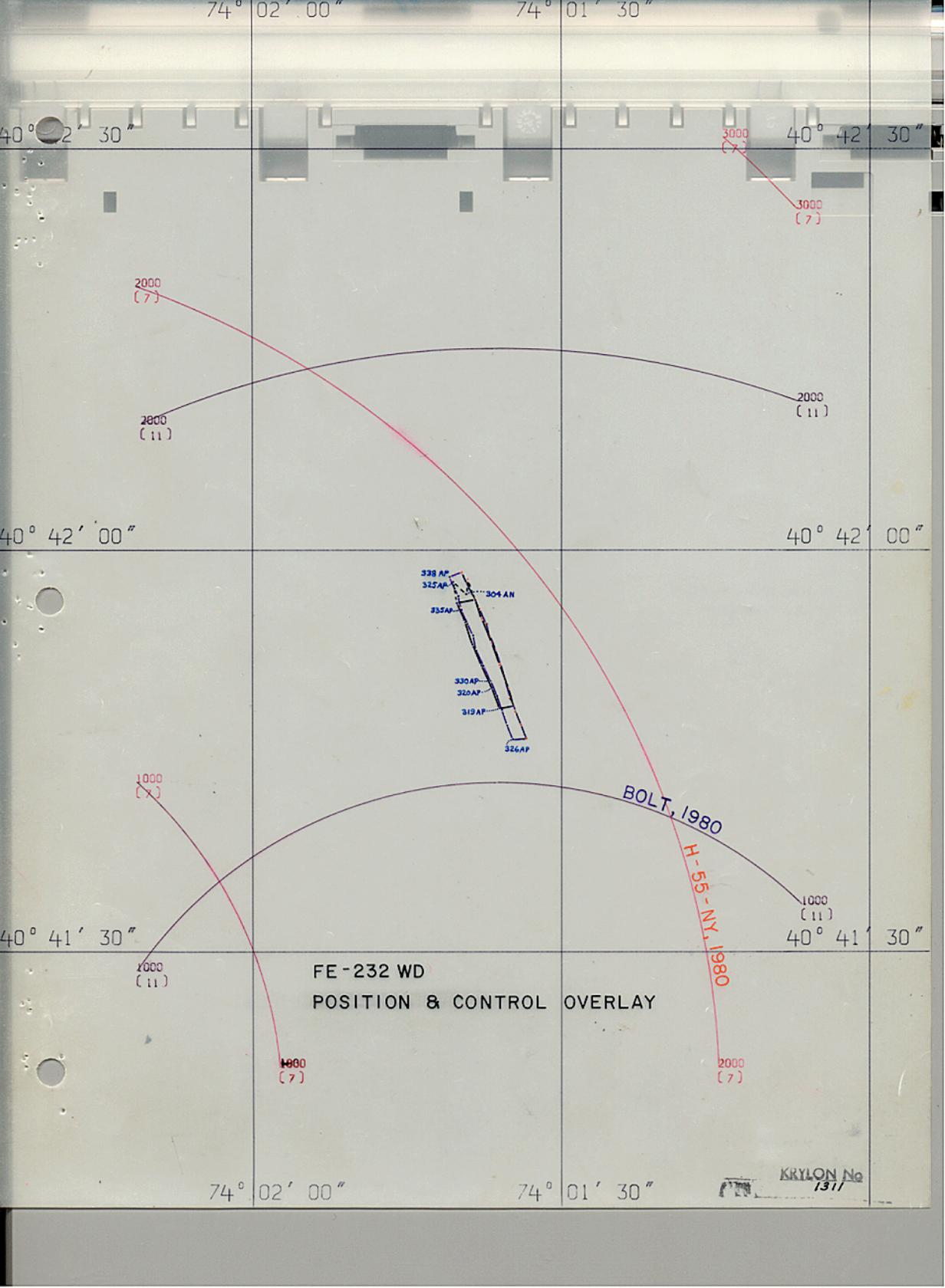
8000
(9)

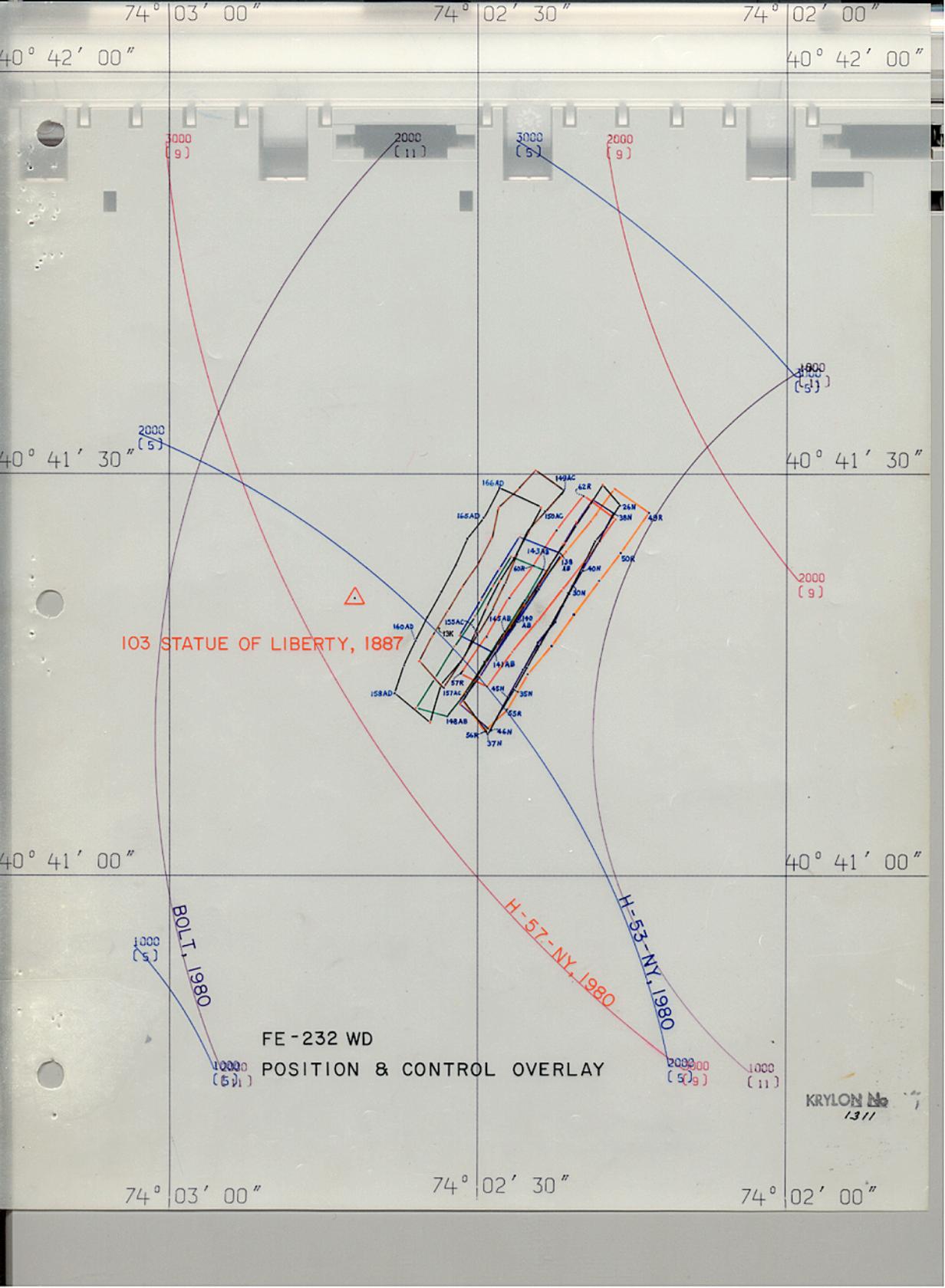
KKILON No
1311

74° 05' 00"

74° 04' 30"

74° 04' 00"





103 STATUE OF LIBERTY, 1887

FE-232 WD

POSITION & CONTROL OVERLAY

KRYLON No. 1311

74° 03' 00"

74° 02' 30"

74° 02' 00"

40° 42' 00"

40° 42' 00"

40° 41' 30"

40° 41' 30"

40° 41' 00"

40° 41' 00"

BOLT, 1980

H-57-NY, 1980

H-53-NY, 1980

3000 (9)

2000 (11)

3000 (5)

2000 (9)

2000 (5)

1800 (6)

2000 (9)

1000 (5)

1000 (6)

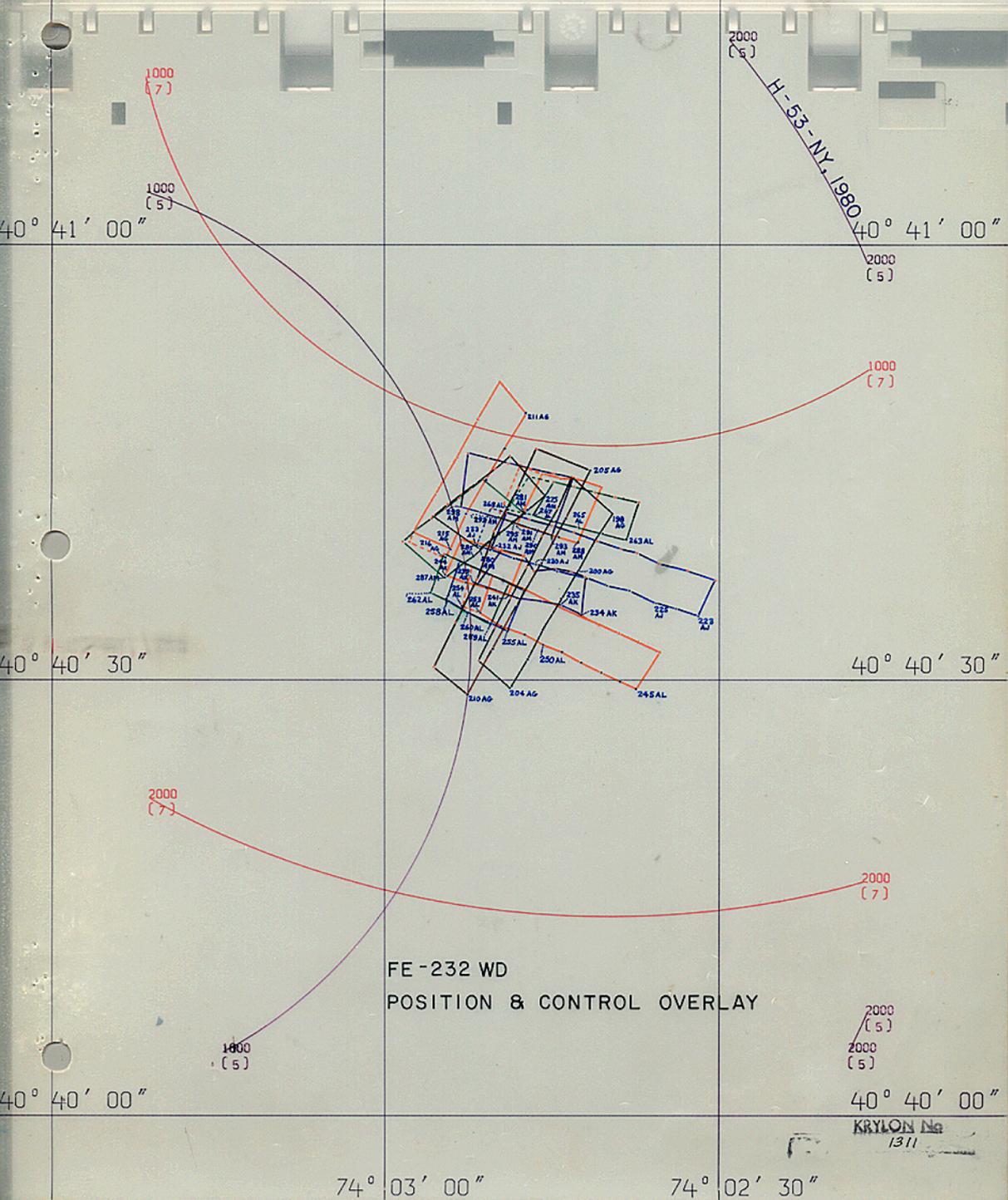
2000 (5)

1000 (11)

74° 03' 00"

74° 02' 30"

⊕ 7 H-55-NY, 1980



1000
(7)

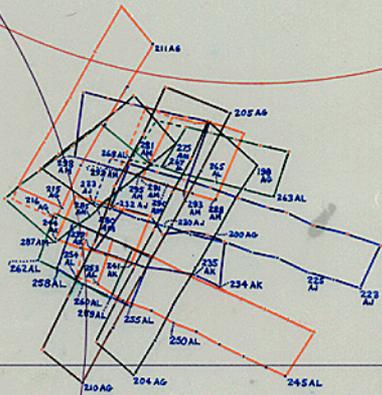
1000
(5)

2000
(5)

H-55-NY, 1980

2000
(5)

1000
(7)



40° 40' 30"

40° 40' 30"

2000
(7)

2000
(7)

FE-232 WD
POSITION & CONTROL OVERLAY

1000
(5)

2000
(5)

2000
(5)

40° 40' 00"

40° 40' 00"

KRYLON No
1311

74° 03' 00"

74° 02' 30"

73° 57' 30"

73° 57' 00"

73° 56' 30"

40° 32' 30"

40° 32' 30"

9000
(2)
9000
(2)

10000
(2)

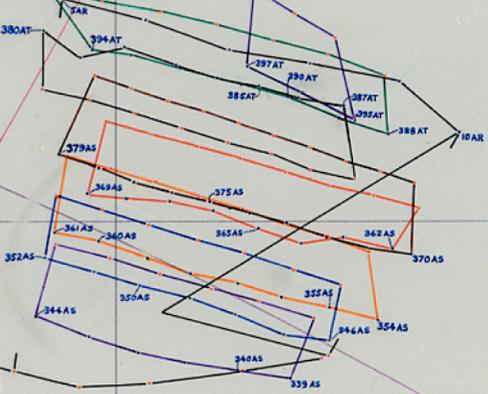
10000
(1)

102 ROCKAWAY JETTY BEACON, 1934

10000
(1)

RB
GONG
380 AT

9000
(1)



40° 32' 00"

40° 32' 00"

FE-232 WD
POSITION & CONTROL OVERLAY

10000
(2)

11000
(2)

H-4-NY-79, 1979
H-1-77-NJ, 1977

9000
(1)

KRYLON No
1311

40° 31' 30"

73° 57' 30"

73° 57' 00"

73° 56' 30"

40° 31' 30"

74° 01' 00"

74° 00' 30"

FE-232 WD
POSITION & CONTROL OVERLAY

40° 42' 00"

40° 42' 00"

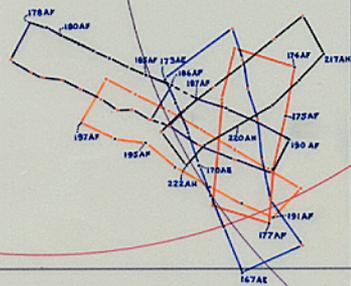
① 9 H-57-NY, 1980

1000
(9)

① 10
H-58-NY, 1980

40° 41' 30"

40° 41' 30"



1000
(9)

1000
(10)

2000
(10)

2000
(10)

2000
(9)

40° 41' 00"

40° 41' 00"

74° 01' 00"

74° 00' 30"

1311

74° 01' 30"

74° 01' 00"

7000
(12)

40° 41' 30"

40° 41' 30"

1000
(6)

1000
(6)

40° 41' 00"

40° 41' 00"

6000
(12)

7000
(12)

⊗ 6 H-54-NY, 1980

BORO HALL, 1931

FE -232 WD
POSITION & CONTROL OVERLAY

40° 40' 30"

40° 40' 30"

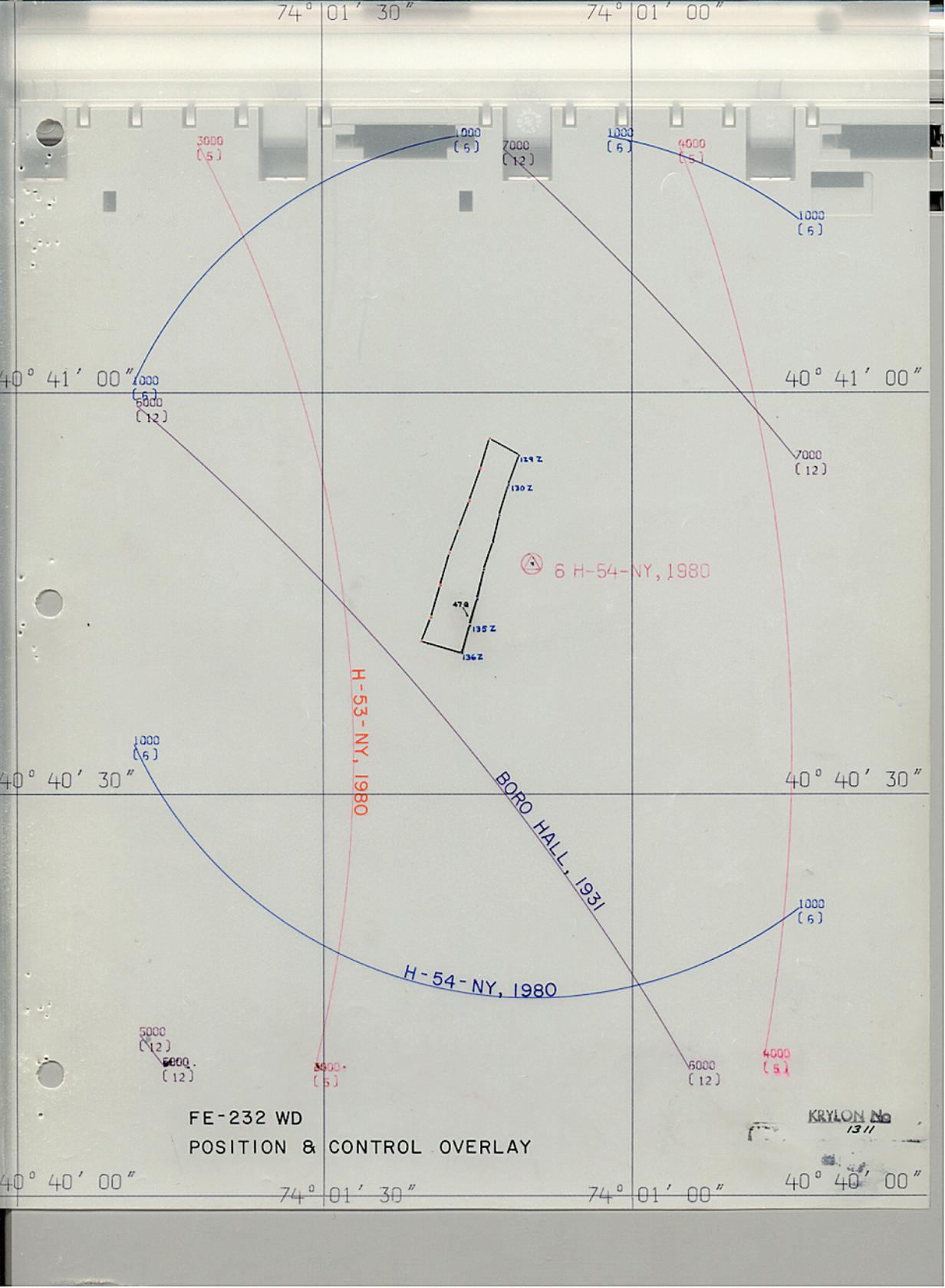
1000
(6)

6000
(12)

74° 01' 30"

74° 01' 00"

KRYLON
1311



74° 01' 30"

74° 01' 00"

3000
(5)

1000
(6)

7000
(12)

1000
(6)

4000
(5)

1000
(6)

40° 41' 00"

1000
(6)
6000
(12)

40° 41' 00"

7000
(12)

⊠ 6 H-54-NY, 1980



H-53-NY, 1980

BORO HALL, 1931

40° 40' 30"

1000
(6)

40° 40' 30"

H-54-NY, 1980

1000
(6)

5000
(12)
6000
(12)

3000
(5)

6000
(12)

4000
(5)

FE-232 WD
POSITION & CONTROL OVERLAY

KRYLON No
1311

40° 40' 00"

74° 01' 30"

74° 01' 00"

40° 40' 00"

73° 56' 30"

73° 56' 00"

40° 32' 30"

40° 32' 30"

10000
(1)

11000
(2)

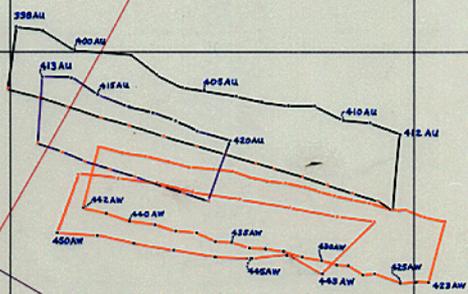
102 ROCKAWAY JETTY BEACON, 1934

40° 32' 00"

40° 32' 00"

9000
(1)

10000



12000
(2)

40° 31' 30"

40° 31' 30"

11000
(2)

H-4-NY-79, 1979
H-1-77-NJ, 1977

FE-232 WD
POSITION & CONTROL OVERLAY

12000
(2)

9000
(1)

KRYLON No
1511

73° 56' 30"

73° 56' 00"

