10092

Diagram No. 294-2

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. HFP-10-2-83

Registery No. H-10092

LOCALITY

State New Jersey--Delaware

General Locality Delaware River

Sublocality Chesapeake & Delaware Canal to New Castle

19 83

CHIEF OF PARTY
LCDR R.W. Jones

LIBRARY & ARCHIVES

DATE February 27, 1987

☆U.S. GOV. PRINTING OFFICE: 1985—566-054

10092

Area I
CHES
12311
12277 } TO SIGN OFF SEE "RECORD OF APPLICATION"

NOAA FORM 77-28 (11-72) | U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION | REGISTER NO.

HYDROGRAPHIC TITLE SHEET

H-10092

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. HFP-10-2-83

State: New Jersey - Delaware

General locality: Delaware River

Locality: ~~Newcastle Flats to Pea Patch Island~~ Chesapeake and Delaware Canal to New Castle

Scale: 1:10,000 Date of survey: 6 June 1983 to 5 October 1983

Instructions dated: 22 April 1983* Project No.: OPR-D218-HFP-83

Vessel: Hydrographic Field Party-3, Launch 1283

Chief of party: Ronald W. Jones, ~~Ledr.~~ LCDR, NOAA

Surveyed by: F. Rossmann, R. Snow

Soundings taken by echo sounder, hand lead, pole: (All) Raytheon 719-C Echo Sounder

Graphic record scaled by: F. Rossmann, R. Snow, C. Bush, J. Oswald, M. McMann

Graphic record checked by: F. Rossmann & R. Snow

Protracted by: ~~Field sheet - PDP8/E~~ Automated plot by: AMC - Xynetics 1200 Plotter

Verification by: AMC - Verification Section J.B. Wilson

Soundings in ~~fathoms~~ feet at ~~MLW~~ MLLW

REMARKS: *Change No. 1 - 9 May 1983

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

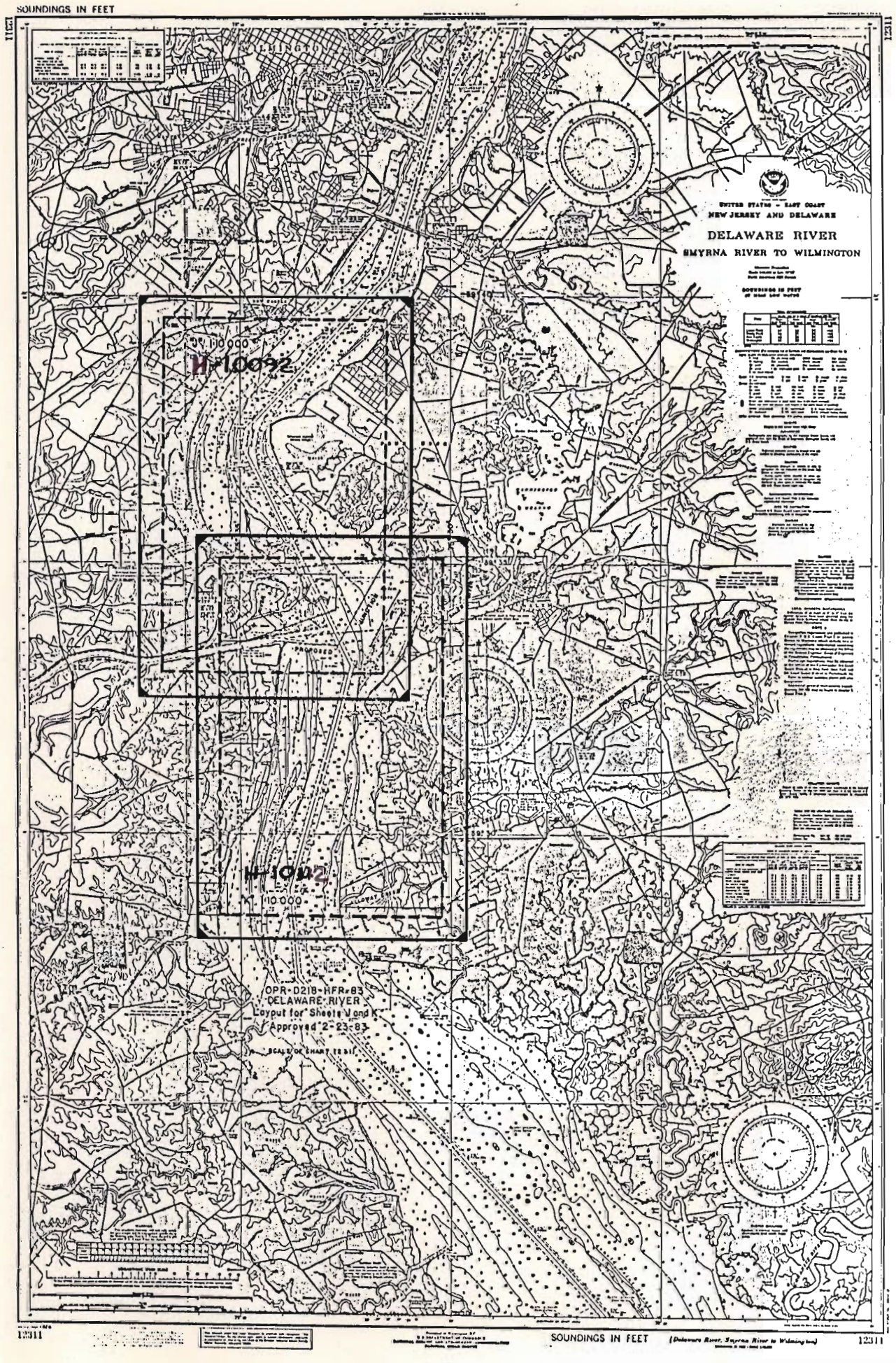
STANDARDS CK'D 3-7-87 CLG

AWOIS/SURF CMSM 8/19/87

SC 5-1-97

NOAA FORM 77-28 SUPERSEDES FORM C&GS-537. (1.)

☆ U.S. GPO: 1974-0-768-081/1207


SOUNDINGS IN FEET
12311
UNITED STATES - EAST COAST
NEW JERSEY AND DELAWARE
DELAWARE RIVER
SMYRNA RIVER TO WILMINGTON
H-10092
1:10 000
H-10092
1:10 000
OPR-D218-HFR-83
DELAWARE RIVER
Layout for Sheets J and K
Approved 2-23-83
SCALE OF CHART 1:10 000
SOUNDINGS IN FEET
(Delaware River, Smyrna River to Wilmington)
12311

DESCRIPTIVE REPORT
TO ACCOMPANY
HYDROGRAPHIC SURVEY H-10092
HSB - 10-02-83

Scale 1: 10,000
Chief of Party: Ronald W. Jones
Officer-in-Charge: LTJG Frederick W. Rossmann
Hydrographic Field Party Section, Hydrographic Field Party #3
Launch 1283

A. PROJECT

This survey was accomplished under Project Instructions OPR-D218-HFP-83, dated 22 April 1983.

Change No. 1, 9 May 1983

B. AREA SURVEYED

The area surveyed was The Delaware River from New Castle, Delaware on the North end to Approximately 1 NM South of Peapatch Island, Delaware. It includes portions of Deepwater Pt Range, Bulkhead Bar Range and New Castle Range dredged channels, and bounded by the following points:

Lat. 39°39'30" N,	Long. 75°31'30" W
Lat. 39°37'30" N,	Long. 75°34'00" W
Lat. 39°36'00" N,	Long. 75°32'00" W
Lat. 39°33'33" N,	Long. 75°34'00" W
Lat. 39°37'30" N,	Long. 75°37'00" W
Lat. 39°40'00" N,	Long. 75°34'00" W

This survey was conducted from 6 June 83 to 5 Oct. 1983 (J.D. 157 to 278 inclusive.

C. SOUNDING VESSEL

All soundings obtained on this survey were obtained from NOAA Launch 1283. All survey records are annotated with the vessel number 1283.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

The following Raytheon fathometer equipment was used during the survey:

JD 157-159:	Recorder Model # 719-C Serial # 9947
JD 160-186:	Recorder Model # 719-C Serial # 5811
JD 189-238:	Recorder Model # 719-C Serial # 6211

The only problem noted with the fathometers was maintaining the proper paper drive calibration. Use of a sounding clock, which marks the

fathogram, insured a proper time sequence. Both serial #9947 and #5811 were returned to AMC for recalibration. The fathometer was monitored continuously while sounding and was under constant adjustment to insure that no initial corrections were necessary.

Settlement and squat tests on Launch 1283 were run on 15 August 1983 (JD227) at Salem, New Jersey. The results of these tests are included in the Appendix of this report. Settlement and squat corrections will be applied via the TC/TI tape during plotting of the smooth sheet at the Atlantic Marine Center and were not applied to the field sheets.

Velocity and instrument corrections were determined by bar checks.

The lengths of the line on the bar were checked on 29 August 83. The results of this inspection showed that the markings on the chain were adequate.

E. SURVEY SHEETS

The field sheets were prepared in the field using a PDP8/e computer and a DP-3 complot plotter. Work sheets, semi-smooth sheets, smooth field sheets, and overlay sheets are included with this survey. Main scheme hydrography and crosslines are plotted on the smooth field sheets while developments, splits, bottom samples, prior survey soundings, junctions soundings, charted soundings, presurvey review items, and aids to navigation are shown on various overlay sheets. Projection parameter tape listing for the field sheets is included in the Appendix of this report. The final smooth sheet and verification of this survey will be accomplished at the Atlantic Marine Center on the Harris/7 computer and the Xynetics 1201 plotter.

F. CONTROL STATIONS

Control stations used during this survey were either existing geodetic control stations published by NGS or were established by The Hydrographic Field Party Section Horizontal crew or the Field Party to third order or better standards. All stations are referred to the North American 1927 datum. A list of all control stations used during this survey is included in the Appendix of this report.

A position for Fort Mott 1933 RM2 was calculated based on Horizontal Control Data by NOS.

Abstracts and calculations for the two positions (Bridge 1983, and Fort Mott 1933 RM2) are included with the survey data. Station Nassau brass disk was removed during the survey by vandals. All that remains is the concrete base.

G. HYDROGRAPHIC POSITION CONTROL

This survey was conducted using Range-Range, Range-Azimuth and see-field-sheet control. During Range-Range operations a Del Norte Distance Measuring System was utilized, a Master and DMU on Launch 1283 and two remote shore stations. During Range-Azimuth operations the Del Norte

(HEWLETT-PACKARD)
System with one remote shore station and a Wild T-1 theodolite were used for control. Range-Azimuth was also conducted using a HP 3808 EDM total station (20" instrument). This system was used to resolve discrepancies noted between the field sheet positions during range-range operations and the T-sheet. Cedar Creek, 39°35'24"N and 75°36'15"W, was controlled at the entrance by Range-Range. Once inside the mouth of the creek the Del Norte rates were lost and See-Field-Sheet control was utilized. Rates were later scaled, based on time and course, so this area could be plotted.

The Del Norte equipment worked well during this survey. One remote unit failed at the start of the survey (JD157). This unit was returned to the Atlantic Marine Center and a different unit was shipped to the Field Party.

Baseline calibrations were conducted periodically during the survey. The baseline was established between stations PK BOAT and PK DUTCH NECK, a distance of 2616 meters. Daily correctors for Del Norte were deemed more accurate than baseline correctors due to failure of components before ending values could be obtained. These are applied on the corrector tapes. Daily checks were taken at static points (Horizontal Control Stations) in the survey area. These daily check readings were compared to the inverse distance. During Range-Azimuth operations, a direct comparison between the HP-3808 EDM distance and the Del Norte were made to obtain correctors.

The appendix of this report contains a list of all control equipment used for positioning and an abstract of corrections to electronic position control.

H. SHORELINE

Shoreline detail for this survey was obtained from registered Class III Shoreline Maps (Job CM-7707):

TP-00249
TP-00250
TP-00251
~~TP-00252~~

and Chart #12277, blown up to the scale of the survey, 19th edition dated 26 June 1982. Chart #12277 was utilized for portions of Cedar Creek and the Delaware City Branch Channel which were not included on the Class III Shoreline Maps.

A shoreline correction was necessary at Pea Patch Island, Delaware. On the southern end of the island, 39°35'04"N, 75°33'59"W, erosion has changed the shoreline. It appears that the shoreline has moved inshore of its mapped position by as much as 130 meters. This change has been noted on the field sheet as dashed red shoreline. The southwestern side of Pea Patch Island, 39°35'05"N, 75°34'12"W, shows some sign of extending into the river. The marsh reeds on this side of the island make it difficult to determine the actual location of the high water line but the hydrographer feels that the mapped shoreline is adequate in this southwest area. No shoreline change will be made to the southwest portion of Pea Patch Island. Do not concur. Additional changes made during processing

The bulkhead at Delaware City, Delaware Latitude 39°34'44", Longitude 75°35'13" has been reconstructed. This area was resurveyed using the HP3808 on JD. 257. Positions 3833 through 3839 represent the corners of the new bulkhead. The shoreline has been drawn in red on the field sheet but may be difficult to see on the field sheet due to scale.

Shoreline on the northern New Jersey side of the sheet differs slightly from the T-sheet (39°39'06"N, 75°31'48"W). This difference maybe caused by the riprap placed in front of the bulkhead. At low tide the riprap is uncovered but is covered at high tide. This portion of shoreline is dashed red on the field sheet.

Shoreline on the southern end along the Delaware side has eroded slightly. This area (39°33.8'N, 75°33~~'30.9"~~W) is undeveloped marsh. The erosion may be caused by eddy currents caused by the riprap along the northern side of the Chesapeake and Delaware Canal. The shoreline is drawn in dashed red on the field sheet.

It should be noted that the hydrographer attempted to run shoreline at high tide. This attempt was felt to give the most accurate comparison between mapped shoreline and shoreline determined by hydrography. Several main scheme arcs of hydrography fall short of the shoreline due to the tide range on the Delaware River. No attempt was made to fill these small holes because the shoreline was adequately defined at high tide. It should be noted that some discrepancy exists between the grid on the Class III Shoreline Maps and the field sheets. As much as 2.0 mm of difference has been noted between the sheets. The shoreline was transferred to the field sheet by carefully adjusting the grids closest to the area of shoreline being transferred to the field sheet.

I. CROSSLINES

Crosslines constitute 11% of the mainscheme hydrography. 99% of the crossings agree within 2 feet. No soundings are in disagreement at crossing by more than 3 feet. The agreement of crossline and mainscheme hydrography is excellent. In areas where crosslines and mainscheme hydro were not in good agreement, due to bad predicted tides, the mainscheme data were used for contouring

J. JUNCTIONS

This survey junctions with the following surveys:

1. H-10042, 1:10,000 scale, 1982.
2. H-10112, 1:10,000 scale, 1983

This survey junctions with H-10042 scale 1:10,000 - 1982 on the up-river end of the current survey. Dredging operations were being conducted on the Deep Water Channel during the present survey. The junction area was surveyed after the dredging was completed. The present survey shows an increase of 6 to 8 feet in depth after the dredging of the channel. All other junction soundings are in excellent agreement, with no soundings varying more than 1 foot between the two surveys. The hydrographer recommends that in the junction area with H-10042, the soundings from the

present survey (H-10092) be charted and that the depth curves incorporated with those of H-10042.

This survey also junctions on the south with H-10112, scale 1:10,000-1983. Soundings in the channel at this junction, latitude 39°34'24", Longitude 75°33'10", are in disagreement by as much as 5 feet due to dredging operations in this vicinity after hydrography was run on H-10092. All other junction soundings are in excellent agreement. *See Evaluation Report.*

K. COMPARISON WITH PRIOR SURVEYS

A comparison was made between the ~~current~~ *present* survey and the following prior surveys:

Registry #	Scale	Year
H-1183 a&b	1:1,250	1873
H-1503b	1:10,000	1881
H-1504a	1:10,000	1881
H-2495	1:9,600	1900
H-2496	1:9,600	1900

The length of time between the prior surveys and the ~~current~~ *present* survey ranges from 83 to 110 years. A considerable amount of change has taken place in and around the Delaware River since the prior surveys. It should be noted that all these surveys were conducted before the 1927 North American Datum. A general comparison was made between these prior surveys and the ~~current~~ *present* survey.

H-1183 a&b

This prior survey is a small scale survey at New Castle, Delaware. These two surveys have only an X-Y grid system so comparison was difficult. The shoreline of these two surveys appear similar. Depths appear to be slightly shoaler on the present survey.

H-1503b

Major differences exist between this and the present survey. There is no general agreement between soundings of these two surveys. Goose Island Flat, a shoal at 39°37'N and 75°34.4'W with a least depth of 3 feet, has been dredged and is part of New Castle Range Channel. A major shoreline change has been made on the New Jersey side of the river. Approximately 3/4 of a square mile area has been diked and backfilled at 39°37'N and 75°34'W.

H-1504a

Depths between the two surveys differ by 5 feet. Depths from the present survey being slightly shallower, except in the dredged channels. Shoreline has changed below Delaware City, Delaware. The present survey's shoreline extends approximately 150 meters from the prior survey (39°34'24"N and 75°34'45"W). Pea Patch Island, Delaware has eroded on the northern end and built up on the southwestern end of the island when compared with this prior survey.

H-2495

The soundings from this survey show general agreement except in the dredged channels. Soundings from the present survey are generally shoaler.

H-2496

There is no general agreement between soundings on these two surveys. A good percentage of the area covered by the prior survey is now dredged channels. No indication of the noted Old Wreck, 19 foot sounding at 39°38.05'N and 75°34.5'W, was seen on the present survey. The dike north of Pea Patch Island was built after the prior survey and has changed the bottom contour. Wreck is not charted and falls in present depths of 25-29 feet. concur

Presurvey Review Items will be addressed in Section L of this report.

Due to the numerous changes since the prior surveys it is recommended that soundings from the present survey supersede the prior surveys' soundings. concur

L. COMPARISON WITH THE CHART

This survey was compared with:

Chart Number	Edition	Date
12277	19th	26 June 1982
12311	30th	4 September 1982

Both charts were enlarged to the scale of the ~~current~~ present survey.

Chart 12277

Controlling depth in Delaware City Branch Channel remains 6 feet. Several obstructions were located during the survey of the channel: See Eval. Rpt

Position	Latitude	Longitude	Description
2567	39°33'47.1"N	75°35'34.0"W	2 each - 8 inch piles
2597	39°34'15.9"N	75°35'25.6"W	2 each - 12 inch piles
2598	39°34'15.6"N	75°35'25.6"W	1'x 5' concrete pillar
2603	39°33'28.6"N	75°35'48.9"W	8 inch piling
2604	39°33'34.0"W	75°35"40.9"W	8 inch piling
Position	Latitude	Longitude	Description
2605	39°33'25.5"N	75°35'50.1"W	Light pole
2606	39°33'24.6"N	75°35'56.3"W	Light pole
2629	39°33'30.7"N	75°35'44.6"W	8 inch piling

The charted submerged ~~piling~~ pile PA at the southern end of the channel at Latitude 39°3[illegible]'2[illegible]", Longitude 75°35'5[illegible]" was not observed during the survey. A specific search was not made therefore, it is recommended this feature be retained on ~~the~~ chart, 12277. concur

The Third Coast Guard, Aids to Navigation Section was contacted via telephone for submission to Local Notice to Mariners for the following 3 dangers:

1. Controlling depth in Bulkhead shoal Channel from the ~~current~~ present survey is ~~28~~ 32 feet versus the reported 39 feet in January 1980. (See appended ltr to USCGD3).

2. The 18 foot sounding, charted at Latitude 39°34'00"N, Longitude 75°33'40"W, has a new least depth of 17 feet. ~~An area of~~ 14-foot soundings was found centered at Latitude 39°34'03"N, Longitude 75°33'45"W. A ~~17~~ 15 foot sounding is also located at 39°34'08"N, 75°33'51"W, the charted depths in this area vary between 19 and 23 feet. All of these shoal soundings are located in General Anchorage #4. (See Appended ltr. to USCGD3). concur

3. A shoal has built on the northeast edge of the Bulkhead Shoal Channel Turning Basin. The shoal has a least depth of 3 feet (pos. 3816-3827). The shoal runs parallel to a line connecting buoys R"8" and R"6A", oriented roughly 140°/320° True. The least depth is centered at 39°35.0'N, 75°35.0'W. It extends from this point approximately 350 meters on 337°T and 520 meters on a course of 132°T. The shoal extends within the limits of the turning basin. (See appended letter to USCGD3). This turning basin is currently charted 39 FT, JAN rep 1980. Dividing the basin into thirds in a NW to SE orientation, depths found over the western third range from ~~34'-43'~~, over the center third from 24'-~~34'~~, and on the eastern third from 3 feet (described above) to 24 ft. This turning basin as well as the channel are privately maintained. The controlling depth note should be changed to reflect final smooth sheet soundings, along with a shoaling notation along the eastern limit. The controlling depth note of 39-FT rep JAN 1980 charted along the Getty Oil Co. fuel pier should be changed to reflect the 38-ft sounding at Latitude 39°35.18'N; Longitude 75°35.68'W, and a 32-ft. sdg. at lat. 39°35.12'N, long 75°35.68'W. concur

The 24 foot sounding charted at 39°35.8'N, 75°33.9'W was disproved during the survey. Several lines were run at 10 meter spacing in this area splitting the main scheme. Lines were also run at 10 meter spacing parallel to the channel. No evidence of a slide into the channel was observed on the fathogram. The hydrographer recommends that the 24 foot sounding be removed from the chart and the channel line reconnected in this area. Soundings in this area (pos. 3638-3673) were put on the field sheet by hand for clarity. See Eval. Rep.

The following items were located during the survey and are not currently charted on Chart 12311:

Position	Latitude	Longitude	Description
3538	39°36'38.4"N	75°33'59.5"W	24 inch diameter steel pile
3539	39°36'38.8"N	75°33'59.7"W	24 inch diameter steel pile
3537	39°36'18.7"N	75°33'44.7"W	12 inch dia. wooden pile
2025	39°39"19.0"N	75°34'16.6"W	Piling marking offshore end of pier in ruins
2032-2035	39°38'42"N	75°35'28"W	Pilings marking the inshore and offshore end of pier in ruins.

Positions 2025 and 2032-2035 are visible only at low tide.

Note that corrected soundings are based on actual tides.

The following PSR Items were investigated during the survey:

PSR #83 39°39'22.00"N 75°34'00.00"W (currently charted as dangerous submerged wreck.)

Item was a visible wreck on T-8774. Charted position was searched at low tide and nothing was found. Wooden wreckage was observed at 39°39'23.638"N, 75°33'53.573"W extending 5 feet offshore. Recommend that the wreck symbol be moved to the new location, and charted as a visible wreck. Awois #1400 concur

PSR #84 39°38'21.07"N 75°35'49.48"W.

Item is a stranded wreck visible on TP00247. Wreckage is visible at all stages of the tide. Wreckage is accurately plotted on the chart. Recommend the stranded wreckage symbol remain charted. Awois #1397 concur

PSR #85 39°38'12.50"N 75°34'38.00"W

charted as dangerous subm. wreck from a miscellaneous source.

Item is a possible wreck along the eastern side of Pea Patch Island Dike. Fatho search was conducted along face of dike on JD 194. Hydrographer found item during fatho search and determined a least depth of 4.0 feet (no correctors applied) with a leadline. Hydrographer feels PSR #85 is not a wreck but a section of the dike that has been broken off from the dike. Recommend that the wreck symbol be removed from the chart and a ~~rock symbol be plotted~~ 3RK be charted at Latitude 39°38'16.789"N, Longitude 75°34'34.634"W. 3ft with correctors Awois #1396 concur

PSR #87 39°35'26.00"N 75°33'55.00"W - Disregard position

Item is an obstruction, rocks. The obstruction comes from CL973/80, reports rocks located at a depth of 21.5 feet, opposite the old slip at Fort Delaware. A fatho search of the area was conducted on 12 Aug (JD 224). No evidence of the reported rocks were found on the fathogram. Recommend that this item be removed from the chart. No least depth was determined for this area because of the slope of the dredged channel. Awois # 1383 See Eval Rep.

PSR #88 39°35'04.43"N 75°34"21.05"W

Item comes from CL191/55 - COE; Public Notice dated 8/29/52 regarding proposed pier construction consisting of 2 barges to be sunk end to end to form a pier 23 feet wide and extending 408 feet channelward from the MHWL. Wreckage is visible at low tide. Recommend this item remain charted as shown on the present survey concur Awois #1382

PSR #86 39°36'45.00", 75°34'34.6" awois #1398
PSR #101 39°36'38.50"N 75°34'16.00"W awois #1399

Both items are charted submerged dolphin-"ED". Chain drag, JD195, was conducted extending 100 meters from charted positions. Nothing was found, however after examining the plotted drag coverage, sufficient overlap was not attained for an unequivocal disproval. It is therefore recommended these submerged dolphins remain as presently charted. Less than 50 percent of area covered by drag. concur

A noticable change has occurred in the 6 foot depth contour on the western side of Pea Patch Island, Delaware and along the New Jersey side of the river in this vicinity. In both areas the curve has receeded. The

pier at 39°36.1'N, 75°33.3'W is in ruins and should be a dashed line on the chart. The pier may appear intact on the aerial photograph because the pier is filled with debris and overgrown with vegetation. All other charted features are accurately portrayed on the chart.

Chart 12311

The following changes were noted:

The 18 foot sounding in General Anchorage #4 has a new least depth of 13 feet (Latitude 39°34'00"N, Longitude 75°33'40"W). A 17 foot sounding is in the same anchorage (Latitude 39°34'08"N, Longitude 75°33'51"W). The charted depths around this 17 foot sounding vary between 18 and 23 feet. A shoal has built on the northeast end of Bulkhead Shoal Channel (see comparison Chart 12277). The 24 foot sounding at 39°35.8'N, 75°33.9'W was disproven (see comparison Chart 12277).

The pier at 39°36.1'N, 75°33.3'W is in ruins (see comparison Chart 12277). The six foot depth contour on the southwest end of Pea Patch Island, Delaware has changed. This change is also seen in the six foot depth contour southeast of Finns Point, New Jersey.

The northern end of the shoal centered at 39°36'35"N, 75°36'01"W has eroded on the northern end. The twelve foot contour of the shoal has moved south 600 meters. The area east of this shoal has increased in depth 3 to 5 feet. Several isolated peaks were noted inside the 24 foot contour centered at 39°38.15'N, 75°35.6'W. These peaks have a least depth of 16 feet.

A visual search was made in the area North of the overhead power cable (39°36.8'N, 75°36.5'W) for the charted ruins. No evidence of the ruins were observed during the visual search. Several lines of the mainscheme hydrography were run through this area, no evidence of the ruins were observed on the fathogram. The Hydrographer recommends that the dashed ruin line be removed from the chart. The charted ruins at Kelly Point, New Jersey, Latitude 39°38'45", Longitude 75°32'33", are still present and should remain charted.

The shoaling in the left outside quarter of the New Castle Range Channel at Latitude 39°34'30", Longitude 75°33'18" has been dredged to deeper depths after the hydrography was accomplished. See Section J-JUNCTIONS"

M. ADEQUACY OF SURVEY

This survey is complete and adequate to warrant its use to supersede prior surveys for charting in the common areas.

N. AIDS TO NAVIGATION

All floating and most fixed aids to navigation in the survey area were located and comparison between their charted, Light List Vol. 1, 1983, and survey position and descriptions were made. Positions were not obtained for the following daymarkers on Pea Patch Island Dike: PPA, PPB, PPC AND PPG. These markers are located along the dike and no detached

positions were obtained during hydrographic operations. They appear to be adequately charted and serve their function of marking the submerged dike well. Pea Patch Island Dike Light B was damaged but adequately marks the dike. A THIRD ORDER position was not obtained on this light because the platform was leaning. Pea Patch Island Dike Light E, which was destroyed by ice, has been replaced by a temporary lighted buoy until it is replaced. The Hamburg Cove Trestle Lights, (2) FW, Light List Vol. 1, 1983, No. 2209 were verified as presently charted, and are street light type. These were applied to the field sheet from the shoreline manuscript. *See Eval Rep.*

The following landmarks were verified visually as presently charted on Chart 12311 or the shoreline manuscripts and were transferred to the field sheet from the T-sheets:

LANDMARK	LATITUDE	LONGITUDE
New Castle Emanuel Protestant Episcopal Church Spire, 1933	39°39'38.370"N (On manuscript only; not needed as landmark for chart)	75°33'46.985"W
New Castle Masonic Temple Belfry, 1933	39°39'36.296"N	75°33'54.351"W
Tank	39°39'43.90"N	75°34'31.21"W
New Castle Del Rayon Tall Blk W. Tank, 1933 *(Tank)*	39°38'47.475"N	75°35'35.112"W
Tank	39°39'38.854N	75°35'09.935"W
Fort Mott National Cemetery Monument, 1933 *(Monument)*	39°36'41.741"N	75°33'23.196"W
Stack	39°38'59.06"N	75°35'49.35"W
Tower (Hamburg USE, 1932)	39°37'40.390"N	75°36'27.852"W
Tank	39°35'54.14"N	75°37'53.75"W
Stack	39°35'36.16"N	75°38'04.06"W

The following landmarks were visually verified as presently charted on Chart 12277 and were applied to the field sheet from the shoreline manuscripts, with the exception of the Delaware City Spire, which was applied from the chart:

LANDMARK	LATITUDE	LONGITUDE
Delaware City Standpipe 1933 *(Standpipe)*	39°34'27.569"N	75°35'39.805"W
Delaware City Spire *(Spire)*	39°34'30.51"N	75°35'34.46"W
Delaware City Fort Dupont Blk. Water Tank 1933 *(Tank)*	39°34'02.700"N	75°35'08.260"W

Non-floating aids and landmarks to be charted with revised positions are on the appended 76-40's.

Seven towers supporting an overhead power cable crossing the Delaware River at mean latitude 39°36'40"N were not located because a distinct point could not be seen for intersection puposes due to their size and shape. All towers were visually verified as presently charted and were applied to the field sheet from the chart blow-up. The towers each lie within an ice fender system which prevented the launch getting near enough for a detached position. The north and south point of each fender was located with a detached position and are shown on field sheet, based on these positions. Towers do not appear on shoreline map. Recommend towers be retained on the chart.

The following RANGES were run during the survey, and found to be accurately charted:

1) Deepwater Range
2) Bulkhead Bar Range
3) New Castle Range
4) Bulkhead Shoal Channel Range (Privately Maintained)

The positions of all the front and rear ranges within the survey area were determined. New Castle Range Rear Lt. not plotted on smooth sheet.

All aids were found to adequately serve the purpose for which they were established.

Cable and bridge clearances were checked and found to be accurately charted.

The submarine cable crossing the Delaware River at Latitude 39°39'00", Longitude 75°33'15", from Kelly Point, New Jersey to New Castle, Delaware is owned and managed by the AT&T Corporation. The cable area on each side of the river is adequately marked with signs.* The submarine cable crossing the River in the vicinity of Pea Patch, Latitude 39°35'30", Longitude 75°34'00", was not marked on either side of the river or on Pea Patch Island.

* Signs not located during survey.

O. STATISTICS

Number of positions	3880
Nautical miles of sounding line	257.7
Nautical miles of crossline	30.6
Nautical miles of development	23.4
Total miles of hydrography	329.7
Number of bottom samples	87
Number of barchecks	59

P. MISCELLANEOUS

Contacted Mr. Ed Bonner, U.S. Army Corps of Engineers (Telephone #215-597-2812) to check on overhead clearances.

JD 199, Positions 2234-2242 are marked rejected in the volume and fathogram. This is good data and should be smooth plotted. The positions fill a hole caused by the change of shore stations.

JD 160, when running into shore, the speed of the boat was decreased at UTM 175630 without taking a fix. Good position data were obtained on Position 600 (UTM 175600) and 601 (UTM 175700). No attempt was made to scale a fix to account for the change of speed. The quality of The hydrographic data does not appear to be affected.

No information was obtained about the currents.

JD 195, positions 2183-2233 represent the ~~wire~~ chain drag for PSR #86 and #101 and should not be smooth plotted. Insert (Scale 1:5000) in D.R.

The first power cable towers on each side of the Delaware River, above Pea Patch Island, Delaware have flashing strobe lights which mark the towers. (East side-Lat 39°36.76'N; Long. 75°33.98'W, West side-Lat. 39°36.67'N; Long. 75°36.78'W). The remaining five towers are not lighted. Towers not located during survey

The fenders for the two towers which flank the New Castle Range Channel are lighted by street lamps mounted on the fenders. (East side-Latitude 39°36.75'N; Longitude 75°34.35'W, West side-Latitude 39°36.74'N; Longitude 75°34.92N;

No soundings were obtained behind the Getty Pier (Latitude 39°35.0'N, Longitude 75°35.5'W) because this area is blocked off with oil spill containment floats. Noted as "Obstr" on shoreline map, noted as "Moored oil spill floats" on smooth sheet.

Q. RECOMMENDATIONS

See Sections H, J, and L for specific recommendations.

R. AUTOMATED DATA PROCESSING

Programs used during field data acquisition and field processing of this survey are as follows:

PROGRAM	DESCRIPTION	VERSION DATE
RK201	Grid, Signal, and Lattice Plot	04/18/75
RK211	Range/Range Non-real time plot	01/15/76
RK212	Visual Station Table Load	04/01/74
RK216	Range/Azimuth Non-real time plot	02/05/76
RK300	Utility computations	02/05/76
RK330	Reformat and Data Check	05/04/76
RK407	Geodetic Inverse/Direct Computation	09/25/78
AM500	Predicted Tide Generator	11/10/72
RK561	H/R Geodetic Calibration	02/19/75
RK562	Geodetic Calibration	09/10/74
AM602	Elinore-line oriented editor	05/20/75

S. REFERENCE TO REPORTS

Descriptive Report H-10042, 1982, 1:10,000
Descriptive Report H-10112, 1983, 1:10,000

Respectfully submitted,

Frederick W. Rossmann

Frederick W. Rossmann
LTJG, NOAA
OIC, HFP-3

75° 34′ 30″ | 75° 34′ 15″

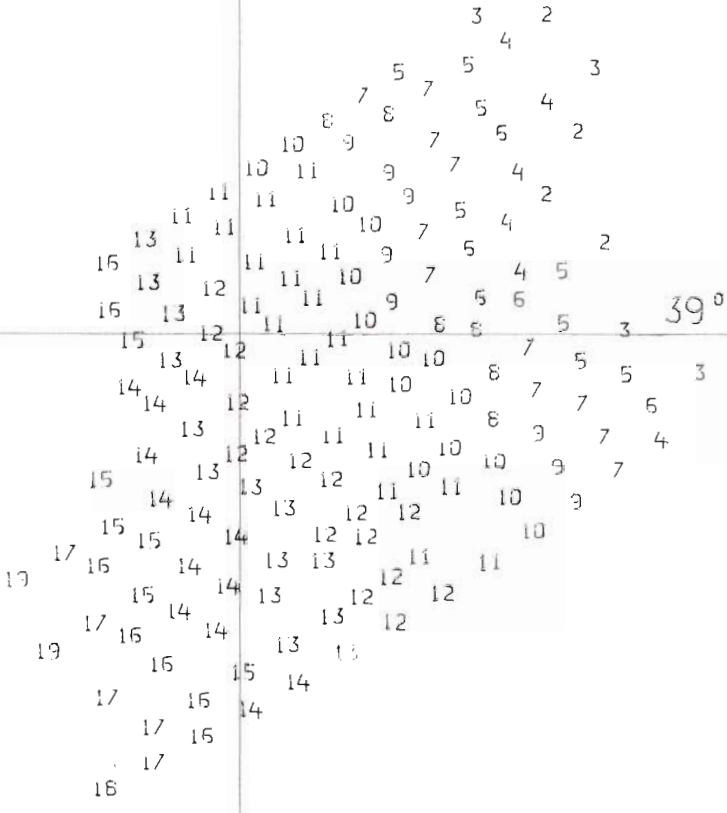
39° 37′ 00″ | 39° 37′ 00″

Preservey Review Items #86 & 101

Chain Drag

Sounding Overlay (Scale 1:5,000)

To Accompany H-10092



39° 36′ 45″ | 39° 36′ 45″

39° 36′ 30″ | 39° 36′ 30″

75° 34′ 30″ | 75° 34′ 15″

75° 34′ 30″ | 75° 34′ 15″

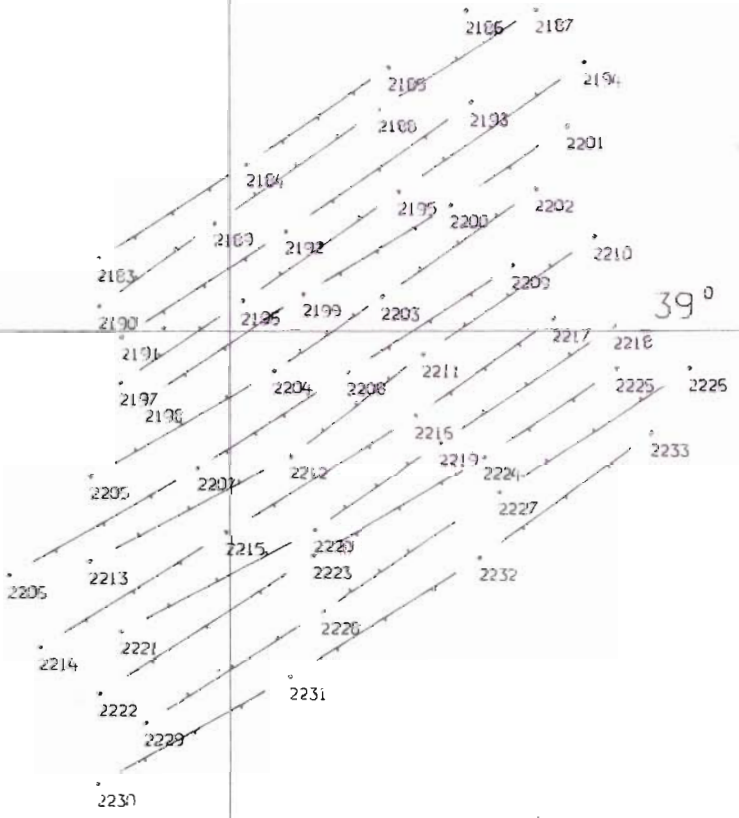
39° 37′ 00″

Presurvey Review Items #86 & #101

Chain Drag

Position Overlay (Scale 1:5,000)

To Accompany H-10092



39° 36′ 45″ | 39° 36′ 45″

39° 36′ 30″ | 39° 36′ 30″

75° 34′ 30″ | 75° 34′ 15″

SIGNAL LIST
H-10092
HFP-10-2-83
OPR-D218 Delaware River

101	4	39	40	45383	075	31	03447	139	0003	000000	McMann 1982
102	0	39	39	30334	075	33	33825	250	0003	000000	Blank CORPS, 1983
103	4	39	38	43104	075	32	32352	250	0003	000000	Nassau 1983
104	4	39	37	35727	075	34	18718	250	0003	000000	Weisner NO RM 1 1983
105	4	39	36	41837	075	35	25142	250	0003	000000	PK Tower 1983
106	6	39	35	45374	075	34	28423	250	0004	000000	Roger 1983
107	4	39	38	17843	075	34	34654	250	0004	000000	Pea Patch Island Dike Lt. D 1983
108	4	39	39	18642	075	34	23463	250	0004	000000	Bulkhead Bar Range Front Lt. 1983
109	4	39	38	32186	075	35	44290	250	0004	000000	Newcastle Range Front Lt. 1983
110	3	39	34	44127	075	35	13503	139	0000	000000	Maxey 1983
111	1	39	35	03802	075	34	23424	250	0000	000000	PK Boat 1983
112	1	39	34	15287	075	31	03678	250	0000	000000	Salem Entrance Channel Front Lt. 1983
113	3	39	33	44508	075	33	44569	250	0000	000000	PK Dutch Neck 1983
114	0	39	34	41328	075	35	19829	250	0000	000000	DeCroix 1983
115	6	39	33	15613	075	35	58403	250	0000	000000	Bridge 1983
116	6	39	33	46167	075	33	33779	139	0012	000000	Chesapeake and Delaware Canal Lt. 2 1983
117	3	39	35	36922	075	36	14232	139	0011	000000	Bulkhead Shoal Channel Range front Lt. 1983
118	3	39	35	54454	075	36	45028	139	0022	000000	Bulkhead Shoal Channel Range Rear Lt. 1983
119	3	39	35	24472	075	33	56632	139	0000	000000	Fort Delaware Lt. 1983
120	3	39	35	22528	075	34	02421	139	0000	000000	Fort Delaware Flagpole 1983
121	3	39	35	18910	075	33	56043	250	0000	000000	Doger 1983
130	4	39	36	02978	075	33	01482	139	0000	000000	Fort Mott Windmill 1983
131	4	39	36	13850	075	33	14069	250	0000	000000	Fort Mott RM 2 1983

Signal 131 - published NGS- Quad.390754,pg.1317. All other signals located by HFPS Field Support Section.

NOAA FORM 76-40 (8-74)
Replaces C&GS Form 567.

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

NONFLOATING [redacted] FOR CHARTS

ORIGINATING ACTIVITY
- [X] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

- [X] TO BE CHARTED
- [ ] TO BE REVISED
- [ ] TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
HFP-3	New Jersey Delaware	New Castle Flats to Pea Patch Island	11/7/83

The following objects HAVE [X] HAVE NOT [ ] been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
D-218		H-10092	North American 1927

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE // D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE // D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
✓Light	Fort Delaware Light 1983 LL No. 2210; Signal 119	39 35	24.475	75 33	56.635		F-3-6-L 5/83	12311 12277
✓Light	Chesapeake and Delaware Canal Light 2 1983, LL#2878, Sig# 116	39 33	46.166	75 33	33.779		F-3-6-L 5/83	12311 12277
✓Light	Pea Patch Island Dike Lt. A 1983, LL#2214	39 36	51.758	75 35	18.945		F-3-6-L 5/83	12311
✓Light	Pea Patch Island Dike Lt. C 1983, LL#2225	39 38	04.730	75 34	49.592	HC 1:38:84	F-3-6-L 5/83	12311
✓Light	Pea Patch Island Dike Lt. D 1983, LL#2226, Sig# 107	39 38	17.843	75 34	34.654		F-3-6-L 5/83	12311
✓Range	Bulkhead Shoal Channel Range Rear Lt. 1983, LL#2207, Sig# 118	39 35	54.454	75 36	45.075		F-3-6-L 5/83	12311 12277
✓Range	New Castle Range Rear Lt. 1983 LL#2203,	39 38	52.880	75 35	57.711	Not plotted on smooth sheet.	F-3-6-L 5/83	12311
✓Range	Bulkhead Bar Range Rear Light 1983, LL#2217	39 39	38.878	75 34	19.730		F-3-6-L 5/83	12311
✓Range	Bulkhead Shoal Channel Range Front Lt. 1983, LL#2206, Sig#117	39 35	36.992	75 36	14.238		F-3-6-L 5/83	12311 12277
✓Range	New Castle Range Front Light 1983, LL#2202, Sig#109	39 38	32.188	75 35	44.790		F-3-6-L 5/83	12311

50.

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	**NAME**	**ORIGINATOR**
OBJECTS INSPECTED FROM SEAWARD	Frederick W. Rossmann, LTjg., NOAA OIC-HFP-3	☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED	R. DeCroix, HFPS, Field Support Sect.	FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		☐ REVIEWER ☐ QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'

(Consult Photogrammetric Instructions No. 64,

OFFICE

I. OFFICE IDENTIFIED AND LOCATED OBJECTS

Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object.

EXAMPLE: 75E(C)6042
8-12-75

FIELD

I. NEW POSITION DETERMINED OR VERIFIED

Enter the applicable data by symbols as follows:

F - Field	P - Photogrammetric
L - Located	Vis - Visually
V - Verified	
1 - Triangulation	5 - Field Identified
2 - Traverse	6 - Theodolite
3 - Intersection	7 - Planetable
4 - Resection	8 - Sextant

A. Field positions* require entry of method of location and date of field work.

EXAMPLE: F-2-6-L
8-12-75

*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.

FIELD (Cont'd)

B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.

EXAMPLE: P-8-V
8-12-75
74L(C)2982

II. TRIANGULATION STATION RECOVERED

When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery.

EXAMPLE: Triang. Rec.
8-12-75

III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH

Enter 'V-Vis.' and date.

EXAMPLE: V-Vis.
8-12-75

**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

NOAA FORM 76-40 (8-74)
Replaces C&GS Form 567.

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

NONFLOATING AIDS [redacted] FOR CHARTS

ORIGINATING ACTIVITY
- [X] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

- [X] TO BE CHARTED
- [ ] TO BE REVISED
- [ ] TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
HFP-3	New Jersey Delaware	New Castle Flats to Pea Patch Island	11/7/83

The following objects HAVE [X] HAVE NOT [ ] been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
D-218		H-10092	North American 1927

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE ″ D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE ″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
✓ Range	Bulkhead Bar Range Front Light 1983, LL#2216, Sig#108	39 39	18.642 83	75 34	23.463 70		F-3-6-L 5/83	12311
✓ Light	Pea Patch Island Dike Light E LL#2227, Light destroyed at time of survey - Lighted buoy "E" on smooth sheet.							12311
✓ Light	C and D Canal Lt. 4, Not in L.L. Destroyed at time of survey. Shown on chart 12277, 19th ed (June 26, 1982)							12311 12277
	Shown as pile PA on 12311, 30th ed (Sept. 4, 1982) Not shown on smooth sheet.					NC L-382 (84)		

19

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	**NAME**	**ORIGINATOR**
OBJECTS INSPECTED FROM SEAWARD	Frederick W. Rossmann, LTjg., NOAA OIC-HFP-3	☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED	R. DeCroix, HFPS, Field Support Sect.	FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		☐ REVIEWER ☐ QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'

(Consult Photogrammetric Instructions No. 64,

OFFICE

I. OFFICE IDENTIFIED AND LOCATED OBJECTS

Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object.

EXAMPLE: 75E(C)6042
8-12-75

FIELD

I. NEW POSITION DETERMINED OR VERIFIED

Enter the applicable data by symbols as follows:

F - Field	P - Photogrammetric
L - Located	Vis - Visually
V - Verified	
1 - Triangulation	5 - Field Identified
2 - Traverse	6 - Theodolite
3 - Intersection	7 - Planetable
4 - Resection	8 - Sextant

A. Field positions* require entry of method of location and date of field work.

EXAMPLE: F-2-6-L
8-12-75

*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.

FIELD (Cont'd)

B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.

EXAMPLE: P-8-V
8-12-75
74L(C)2982

II. TRIANGULATION STATION RECOVERED

When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery.

EXAMPLE: Triang. Rec.
8-12-75

III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH

Enter 'V-Vis.' and date.

EXAMPLE: V-Vis.
8-12-75

**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

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

[redacted] LANDMARKS FOR CHARTS

ORIGINATING ACTIVITY
- [X] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [ ] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

- [X] TO BE CHARTED
- [ ] TO BE REVISED
- [ ] TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
HFP-3	New Jersey Delaware	New Castle Flats to Pea Patch Island	5/83

The following objects HAVE [X] HAVE NOT [ ] been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
D-218		H-10092	North American 1927

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE // D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE // D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
✓ Windmill	Fort Mott Windmill 1983	39 36	02.968	75 33	01.482		F-2-6-L 5/83	12311 12277
✓ Flagpole	Fort Delaware Flagpole 1983 Signal #120	39 35	22.528	75 34	00.427		F-3-6-L 5/83	12311 12277
✓ Radio Tower	C and D Canal Radio Tower 1983	39 33	40.964	75 34	13.638		F-3-6-L 5/83	12311 12277
✓ Tower (Lighted)	C and D Canal Lighted Tower 1983	39 33	40.683	75 34	13.568		F-3-6-L 5/83	12311 12277

LC 38 (84)
L 3

52

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	**NAME**	**ORIGINATOR**
OBJECTS INSPECTED FROM SEAWARD	Frederick W. Rossmann,LTjg., NOAA OIC-HFP-3	☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED	R. DeCroix,HFPS, Field Support Sect.	FIELD ACTIVITY REPRESENTATIVE
		OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		☐ REVIEWER ☐ QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'

(Consult Photogrammetric Instructions No. 64,

OFFICE

I. OFFICE IDENTIFIED AND LOCATED OBJECTS

Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object.

EXAMPLE: 75E(C)6042
8-12-75

FIELD

I. NEW POSITION DETERMINED OR VERIFIED

Enter the applicable data by symbols as follows:

F - Field	P - Photogrammetric
L - Located	Vis - Visually
V - Verified	
1 - Triangulation	5 - Field Identified
2 - Traverse	6 - Theodolite
3 - Intersection	7 - Planetable
4 - Resection	8 - Sextant

A. Field positions* require entry of method of location and date of field work.

EXAMPLE: F-2-6-L
8-12-75

*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.

FIELD (Cont'd)

B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.

EXAMPLE: P-8-V
8-12-75
74L(C)2982

II. TRIANGULATION STATION RECOVERED

When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery.

EXAMPLE: Triang. Rec.
8-12-75

III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH

Enter 'V-Vis.' and date.

EXAMPLE: V-Vis.
8-12-75

**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

☆ U. S. GPO:1975-0-665-080/1155

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
ATLANTIC MARINE CENTER
Hydrographic Field Parties Section

November 7, 1983 N/MOA233/RAL

TO: N/CG222 - Norman E. Banks

FROM: N/MOA233 - Ronald W. Jones Ronald W Jones

SUBJECT: Advance Infromation - "Dangers to Navigation" - Delaware River (Charts 12311 and 12277)

The enclosed copies of sections of survey H-10092 have been transmitted to the Commander, Third Coast Guard District.

Each of the three areas of shoaling are considered to be a "Danger to Navigation" and are located on contemporary survey H-10092 (HFP-10-2-83).

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Atlantic Marine Center
Hydrographic Field Parties Section

November 7, 1983 N/MOA233/FR

Commander, Third Coast Guard District
Aids to Navigation Branch
Governors Island, New York 10004

Changes reflect corrected soundings based on actual tides

Dear Sir:

The following information is the result of a recent National Ocean Service hydrographic survey of the Delaware River. (Survey H-10092, scale 1:10,000, year 1983)

A shoal has built on the northeast end of Bulkhead Shoal Channel. The shoal has a least depth of ~~three~~ two (7) feet. The shoal runs parallel to a line connecting Buoys R"8" and R"6A", oriented roughly 140°/320° true. The least depth is centered at 39°35.1'N, 75°35.3'W. It extends from this point approximately 350 meters on 337°T and 520 meters on a course of 132°T. The shoal appears to extend into the channel. changed and concur

Two soundings in general anchorage #4 have shallower depths than charted. The 18-foot sounding, latitude 39°34'00"N, longitude 75°33'40"W has a new least depth of ~~18~~ 19 feet. A ~~17~~ 15 foot sounding is also located at 39°34'08"N, 75°33'51"W. The charted depth in this area vary between 19 and 23 feet. changed and concur

The controlling depth in Bulkhead Shoal Channel from the current survey is ~~28~~ 30 feet versus the reported 39 feet in January 1980. 30ft changed and concur

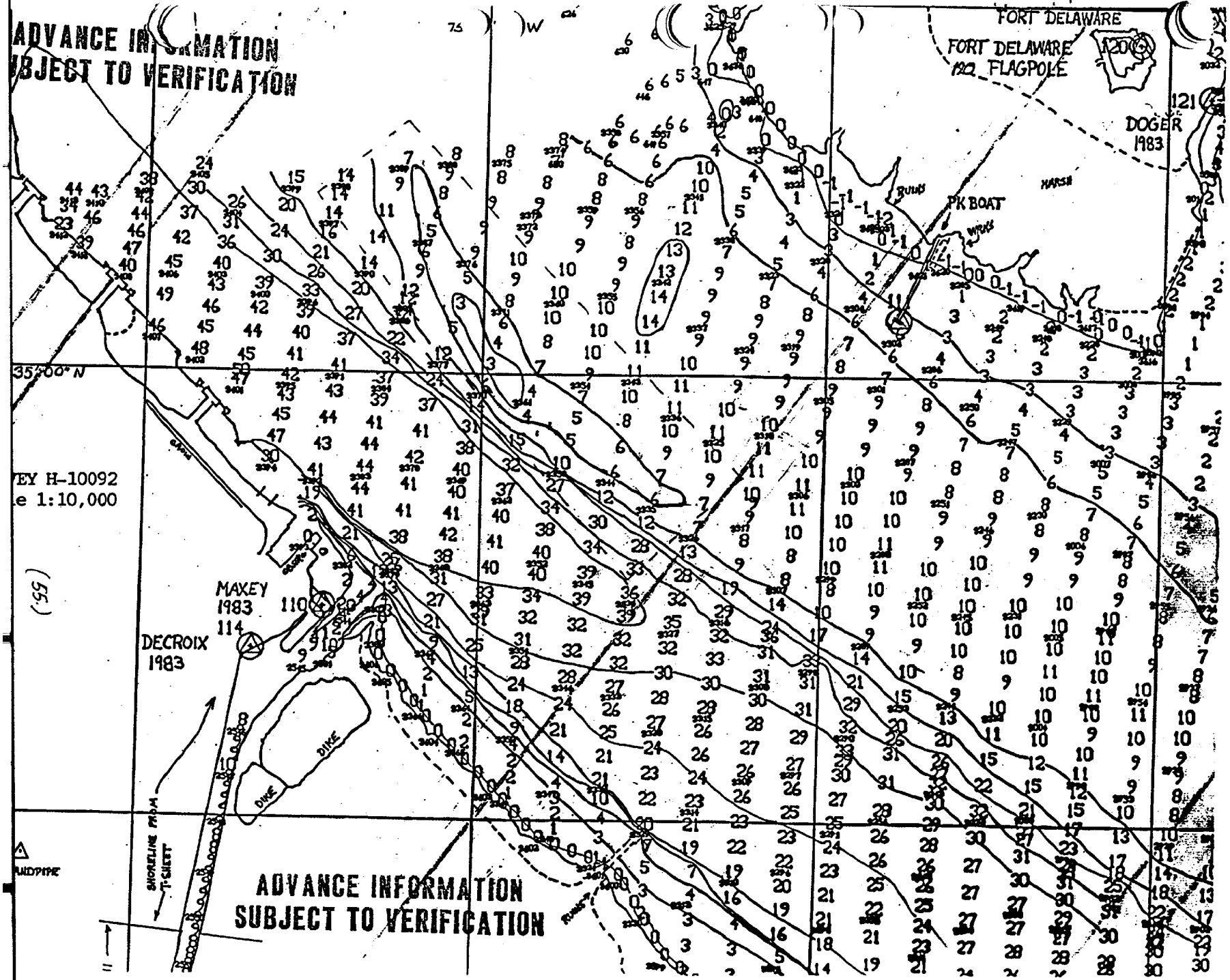
It should be noted that the above information is Unverified Field Data and is subject to office review at NOS Headquarters for charting purposes. Soundings are corrected for predicted tides.

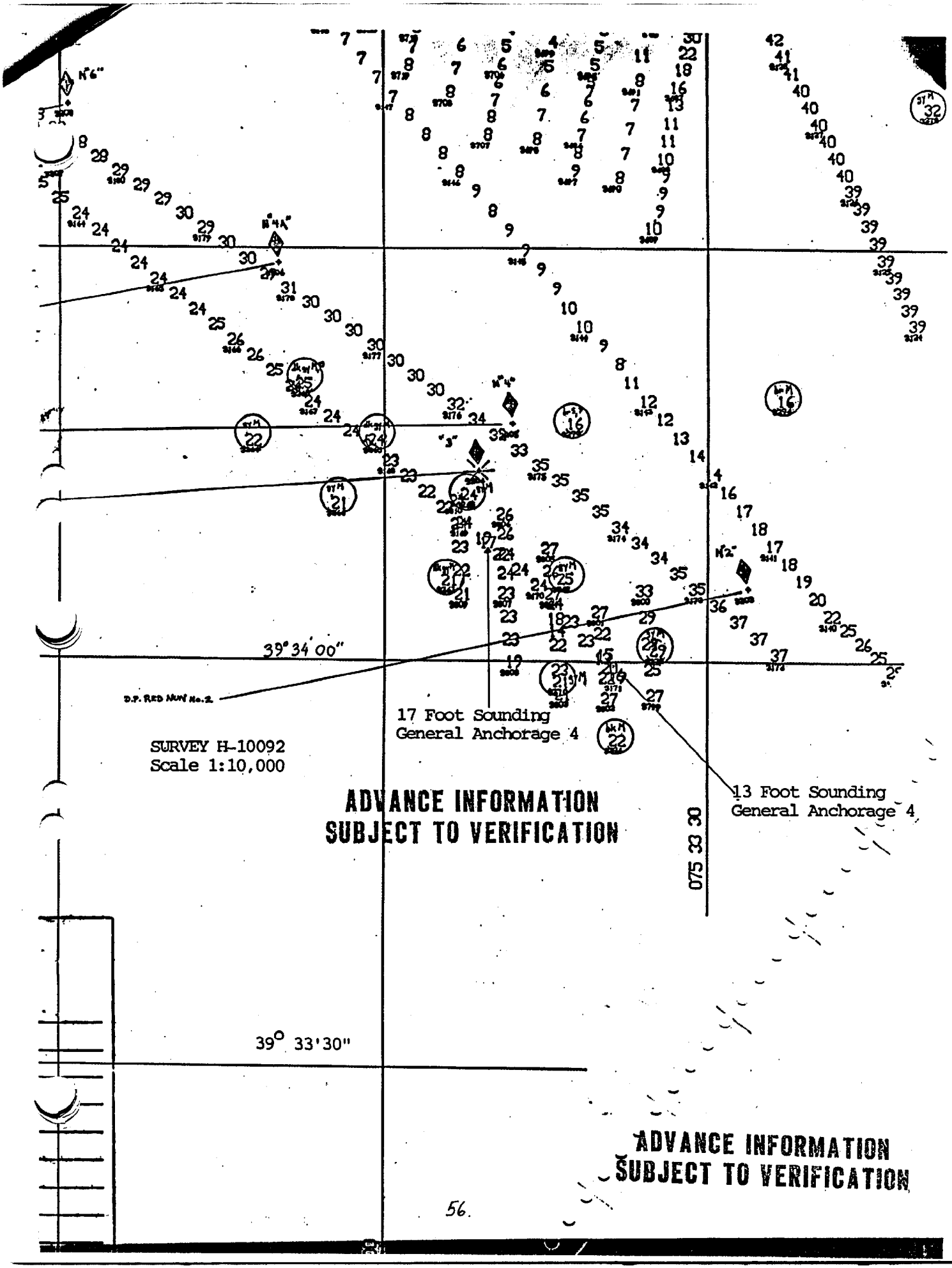
This information affects charts 12311 and 12277.

Sincerely,

Frederick W. Rossmann
Frederick W. Rossmann
Lt(jg) NOAA
Officer-in-Charge, HFP-3

Enclosure


ADVANCE INFORMATION
SUBJECT TO VERIFICATION
FORT DELAWARE
FORT DELAWARE
122 FLAGPOLE
DOGER
1983
PK BOAT
35°00'N
EY H-10092
e 1:10,000
MAXEY
1983
DECROIX
1983
DIKE
DIKE
SHORELINE FROM T-SHEET
ADVANCE INFORMATION
SUBJECT TO VERIFICATION


39°34'00"
39° 33'30"
075 33 30
17 Foot Sounding
General Anchorage 4
13 Foot Sounding
General Anchorage 4
SURVEY H-10092
Scale 1:10,000
ADVANCE INFORMATION
SUBJECT TO VERIFICATION
ADVANCE INFORMATION
SUBJECT TO VERIFICATION

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE

5 Dec 1983

From: OIC, HFP-3 Robert W. Rossmann, LTJG NOAA

To: N/CG243

Via: N/MOA2 R W Kenngott

Thur: N/MOA 233 R W Jarvis

Subject: User Evaluation OPR-D218

Captain Sparks of the Pilots' Association For The Bay And River Delaware was contacted by phone (215-922-7165) on 25 October 1983. A brief discussion was conducted on Chart #12311, DELAWARE RIVER, Smyrna River to Wilmington. Captain Sparks stated the Pilots' Association had no complaints about our charts or tables. The Pilots' Association felt the current format, scale, color and chart layout met their needs. He also stated that the Tide and Current Tables were adequate. His only request of us was to continue to provide adequate and accurate information to the mariner.

ONE-BOAT OTTER BOARD CHAIN SWEEP

Lt. N. Perugini

March 5, 1980

The otter board chain sweep employed by Hydrographic Field Party #5 has been modeled after the technique described in a memo from the NOAA Ship PEIRCE to Chief of Operations Divison, Atlantic Marine Center, dated February 14, 1978. The following is a brief description of the technique now in use by HFP-5.

OPERATION:

The otter board chain sweep has proven to be an effective tool in locating submerged features in shallow water. The sweep currently in use by HFP-5 is deployed from a 22-foot Monark. The rig consists of two wooden otter boards; a 23-meter chain (3/16"), and two adjustable length tow lines. The otter boards and chain are dragged along a swath of the bottom by the two towlines. Dimensions of this swath are governed by the tow angle θ in Figure 1.

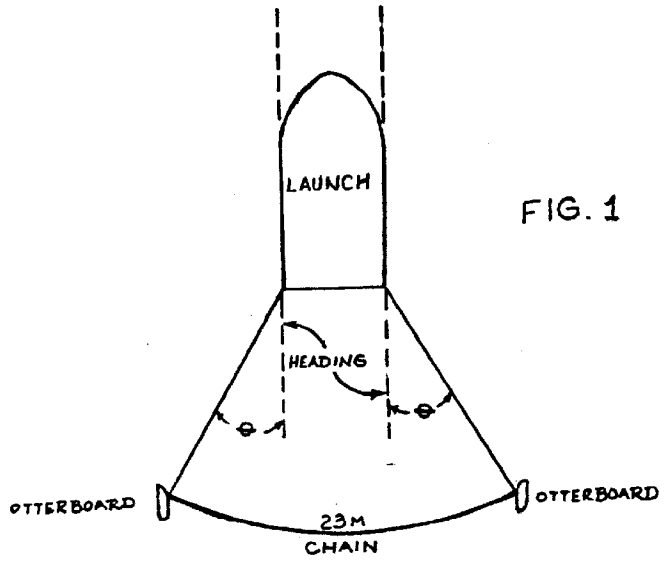


FIG. 1

This angle is dependent on tow speed and towline length.

Deployment of the sweep is performed by first throwing the chain overboard then followed by the otter boards. The rig is then towed slowly as the boards separate. Towline length is usually set at three times the depth. Speed and towline length are adjusted so the angle θ approaches 45°. Under ideal conditions at a depth of 10 feet, the sweep would cover a swath of 14 meters. Currently, the party is working on a plan to add upright lines and floats to the otter boards in order to observe actual spread of the otter boards.

When an object is snagged the launch stops abruptly. At that time two members of the crew begin pulling back on both towlines, pulling the otter boards and chain aboard while still maintaining the hang. When positioned over the hang a fathometer, pole, or leadline search is attempted. In deeper water divers can be deployed to determine a least depth.

DISPROVAL OF AN ITEM

Disproval of an item is time consuming and laborious. It is only attempted when either range/azimuth or range/range position control is available. A typical range/-azimuth disproval scheme is shown in Figure 2.

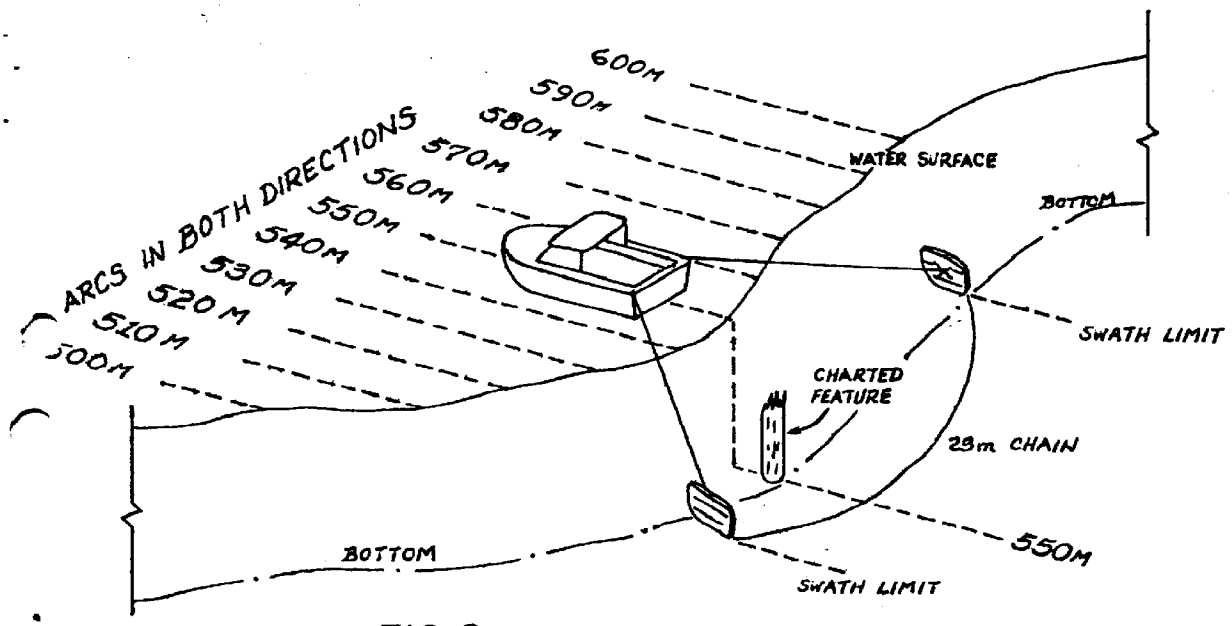


FIG. 2

If the feature is charted a range and azimuth is precomputed from the geodetic position. If the submerged object in Figure 2 has a precomputed range of 550m, controlled arcs between 500m and 600m will be run at 10m spacing in both directions. The 550m arc; for example, will be run in a north and south direction thus reducing the likelihood of the chain slipping over a tilted pile. In 10 feet of water each sweep would cover a 14 meter swath; thus, resulting in a 40% overlap in both directions. This overlap occurs with 30 feet of towline and a tow angle of 45°. Cut off azimuths are recomputed so as to give a total arc length of 200 meters. In this example an area of 200m x 100m would be swept in both directions. If no hangs were encountered during this operation, deletion of the submerged object would be recommended. The operation usually takes 2-3 hours per feature.

LIMITATIONS

The otter board chain sweep can only be utilized under ideal conditions. A regular hard, sandy bottom is most favorable so the boards can skid across the bottom. In areas with soft muddy bottoms, the boards often dig in and rig fouls. The sweep cannot be used in grassy areas or in areas with generally foul bottoms (i.e., stumps, snags, boulders). When any kind of fishing gear is in the area, a sweep is not attempted.

In Figure 1 the tow angle is often less than 45° which effectively reduces the area covered. In theory lengthening the towline would increase the swath with this reduced angle. In practice however a lengthened towline often causes the rig to foul, especially in tight turns. Also fouling of the chain often occurs when the boards are first deployed. The sweep loses effectiveness at depths deeper than 20 feet.

Form Approved. OMB No. 41-R2455

NOAA FORM 77-6
(10-72)

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

COAST PILOT REPORT

PLEASE MAIL TO:

Director
National Ocean Survey
National Oceanic and Atmospheric Administration
ATTENTION: C324
Rockville, Maryland 20852

This record of your experience and observations when coasting, entering port, and/or following inside channels will be used to correct, amplify, or confirm the description now given in the Coast Pilot.

Please use additional sheets if more space is needed.

Additional report forms will be provided upon receipt of each report.

GEOGRAPHIC LOCATION

DELAWARE BAY

LATITUDE	LONGITUDE	CHART NUMBER	COAST PILOT NUMBER
39°34'.8 N	75°35' .3W	12311/12277	3 - 21stEdition

VESSEL	MASTER/COMMANDING OFFICER
Launch 1283	Fred W. Rossmann, LTJG NOAA
DATE OF OBSERVATION: July 83	OBSERVER: Fred W. Rossmann

I. LANDMARKS: Mention those visible from seaward and useful for navigation (day and/or night); include natural ranges and indicate the pair of marks forming a range. Photographs of landmarks difficult to describe are solicited; each view should be labeled with the distance off and the direction towards which the camera was pointed.

TYPE	CHARTED		LATITUDE (Approximate)	LONGITUDE (Approximate)	DESCRIPTIVE INFORMATION HELPFUL IN IDENTIFICATION
	YES	NO			

II. RADAR: List best radar targets and, if known, give maximum useful radar range at which the object can be positively identified and used. Mention under remarks places you have observed radar returns to be misleading.

NAME OR TYPE OF FEATURE (Include approximate latitude and longitude if necessary to identify on chart)	MAXIMUM USEFUL RANGE

III. ROUTES: Where entrance and inside routes are not marked by aids to navigation, show recommended directions for Coast Pilot (latitude and longitude of entrance point, and distances and true courses made good); include natural steering ranges if available.

62

USCOMM-DC 4694-P73

IV. DANGERS: Mention those of concern to the navigator where special caution should be indicated in the Coast Pilot.

V. CURRENTS: Indicate places you have experienced conditions of current where special caution should be mentioned in the Coast Pilot.

VI. ANCHORAGES: Mention best anchorage in the area and other secure anchorages having good holding ground.

LOCATION *(Include anchorage bearings and natural ranges if available)*

TYPE OF BOTTOM OBSERVED:

	EXCEL	GOOD	FAIR	POOR	COMMENT
HOLDING QUALITY					
PROTECTION OFFERED					
ACCESSABILITY					

RECOMMENDED FOR VESSELS:

LENGTH	DRAFT
____ TO ____ FT.	____ TO ____ FT.

VII. REMARKS:

VIII. OTHER COAST PILOT CHANGES

U.S. COAST PILOT

NUMBER	EDITION	PAGE	LINE(S)

NOTE: Any chart(s) submitted with your report to show conditions will be replaced free of charge.

READ: STRIKE OUT: INSERT AFTER: *(Circle one)*

SEE ATTACHED NOTES

VIII. OTHER COAST PILOT CHANGES

Coast Pilot #3, 21st Edition, Dated July 1983

Page 118 Line 1-5R
Strike out: In 1980, a rocky area, with...southeastward for about 200 yards.

Page 118 Line 1-5R
Read: The area around the whaft ruins is fouled with rocks extending approximately 200 meters southwesterly along the shoreline of Pea Patch Island.

Page 118 Line 17-23R
Read: In August 1983, the controlling depth in the canal was 6 feet. Caution should be used when entering the canal from the Delaware River, a single buoy marks the entrance channel. The entrance shoals rapidly on either side of the entrance channel. Shoaling to bare on the east...

Page 118 Line 63-64L
Read: The whaft ruins, on the main channel, is marked by a light.

Page 118, Line 64-1
Strike out: In 1981, the wharf was reported to be in ruins.

APPROVAL SHEET
SURVEY H-10092 (HFP-10-2-83)

The hydrographic records transmitted with this report are complete and adequate.

No direct supervision was given by me during field work and the field sheet was examined only during routine field inspection of the hydro party.

This survey is complete and adequate with no additional field work recommended.

Ronald W. Jones
Lt. Cdr. NOAA
Chief, Hydrographic Field Parties Section

NOAA FORM 61-29
(12-71)

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

LETTER TRANSMITTING DATA

REFERENCE NO.
MOA23-18-87

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

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

TO:

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

DATE FORWARDED
19 February 1987

NUMBER OF PACKAGES
two (2)

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

H-10092 (PE-10-2-83)
OPR-D218-HFP-83--Delaware River

Pkg. 1: (tube)
1 Smooth Sheet
2 Excess Sounding Overlays
1 Position Overlay
1 Original Descriptive Report

Pkg. 2: (box)
1 Cahier containing Final Position Printout and Control Listing
1 Cahier containing Final Sounding Printout and L-File Listing
1 Folder containing data remove from Original Descriptive Report

FROM: (Signature)
Robert G. Roberson

RECEIVED THE ABOVE
(Name, Division, Date)

Return receipted copy to:

Chief, Hydrographic Surveys Branch,
N/MOA23
Atlantic Marine Center
439 W. York Street
Norfolk, VA 23510-1114

NOAA FORM 61-29 SUPERSEDES FORM C&GS 413 WHICH MAY BE USED.

☆ U.S. G.P.O. 1981-564-008/1048

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NO.: H-10092

Number of positions	3689
Number of soundings	13606
Number of control stations	29

	TIME-HOURS	DATE COMPLETED
Preprocessing Examination	17	30 MAY 84
Verification of Field Data	421	22 NOV 85
Quality Control Checks	192	
Evaluation and Analysis	215	14 FEB 86
Final Inspection	52	15 APR 86
TOTAL TIME	897	
Marine Center Approval		12 MAY 86

Transmittal letter of survey and survey records will be included in the Descriptive Report to identify the records accompanying the survey.

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10092

Name on Survey	A ON CHART NO.	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H U.S. LIGHT LIST	K	
ARMY CREEK										1
BULKHEAD SHOAL										2
BULKHEAD SHOAL CHANNEL										3
CEDAR CREEK										4
CHESAPEAKE & DELAWARE CANAL										5
DEEMERS BEACH (locality)										6
DELAWARE (title)										7
DELAWARE CITY										8
DELAWARE CITY BRANCH CHANNEL										9
DELAWARE RIVER										10
DRAGON CREEK										11
DUTCH NECK										12
FINNS POINT										13
FORT DELAWARE										14
FORT MOTT										15
GAMBLES GUT										16
GOOSE ISLAND FLATS										17
GOOSE POND										18
HAMBURG COVE										19
KELLY POINT										20
MILES CREEK										21
MILL CREEK										22
NEW CASTLE										23
NEW JERSEY (title)										24
PEA PATCH ISLAND										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10092

Name on Survey	A ON CHART NO.	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H U.S. LIGHT LIST	K	
PENNS BEACH (locality)										1
PENNS NECK										2
REEDY POINT										3
REYBOLD COVE										4
RIVERVIEW BEACH (locality)										5
TOM CREEK										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
					Approved:					18
										19
					Charles E. Harrington					20
					Chief Geographer - N/C62x5					21
					APR 2 1986					22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
January 10,1984 NATIONAL OCEAN SERVICE

TIDE NOTE FOR HYDROGRAPHIC SHEET

Marine Center: Atlantic

OPR: D 218

HYDROGRAPHIC SHEET: H - 10092

Locality: Delaware River

Time Period: June 6 - October 5, 1983

Tide Station Used: 853-8231, Deepwater, New Jersey
855-1702, Pea Patch Island, Delaware
855-1851, Delaware City, Delaware

Plane Of Reference (Mean Lower Low Water): 853-8231 = 5.48 FT.
855-1702 = 1.94 FT.
855-1851 = 3.30 FT.

Height Of Mean High Water Above Plane Of Reference:
853-8231 = 5.7 FT.
855-1702 = 5.9 FT.
855-1851 = 5.6 FT.

Remarks: Recommended Zoning:

1. In the Delaware River
   a) north of latitude 39°38.0' zone on 853-8231 and apply a - 10 minute time correction. For times of Hydrography when Tide Station 853-8231 was inoperative, zone on 855-1702 and apply a + 20 minute time correction.
   b) south of 39°38.0' to 39°36.0 zone on 855-1702 and apply a + 10 minute time correction
   c) south of 39°36.0' zone direct on 855-1702

2. In the Delaware City Branch Canal
   a) zone direct on 855-1851

James R Hubbard
Chief, Tidal Datum Section

ATLANTIC MARINE CENTER
EVALUATION REPORT

REGISTRY NO.: H-10092 FIELD NO.: HFP-10-2-83

New Jersey--Delaware, Delaware River, Chesapeake and Delaware Canal to New Castle

SURVEYED: June 6 to October 5, 1983

SCALE: 1:10,000 PROJECT NO.: OPR-D218-HFP-83

SOUNDINGS: Raytheon DE-719C Echo Sounder, Lead Line, Sounding Pole

CONTROL: Range/Azimuth (Hewlett Packard-EDM total station) (Del Norte/Wild T-1 Theodolite) Range/Range (Del Norte) "See Field Sheet" method

Chief of Party ..... R. W. Jones

Surveyed by ..... F. W. Rossmann
..... R. S. Snow
..... C. F. Bush
..... J. P. Oswald
..... M. J. McCann

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

1. INTRODUCTION

a. No unusual problems were encountered during processing.

b. Notes in red were appended to Descriptive Report items during processing.

2. CONTROL AND SHORELINE

a. Control is adequately discussed in sections F and G of the Descriptive Report.

b. Shoreline is from registered Class III shoreline maps TP-00249, TP-00250, and TP-00251 of 1975. Shoreline revisions in red are by the hydrographer. Shoreline in brown from chart 12277, 19th edition, is shown for orientation only.

The shoreline map should be used to ascertain the limits of the apparent marsh shoreline for charting. No attempt was made to transfer the apparent marsh shoreline, depicted on the shoreline map, to the present survey.

3. HYDROGRAPHY

a. Depths at crossings are in agreement.

b. The standard depth curves are adequately delineated in Delaware River, except for portions of the 0-depth curve because of its proximity to shore. The existence of oil spill containment floats at the Getty fuel facility precluded the running of sounding lines in this area. (See Descriptive Report, section P.) Some 3- and 24-foot supplemental depth curves, a brown curve, and dashed depth curves were added to emphasize shoal features and better delineate the bottom configuration. Depth curves were compiled using all sounding levels, the smooth sheet, and excess sounding overlays 1, 2, and 3.

c. The development of the bottom configuration and the determination of least depths are considered adequate.

4. CONDITION OF SURVEY

The smooth sheet and accompanying overlays, hydrographic records, and reports are adequate and conform to the requirements of the Hydrographic Manual with the following exceptions:

a. Some Class III shoreline map information transferred to the smooth sheet during processing was not verified at the time of the survey.

b. Verification or disproval of a few charted features such as ruins and piles, where these features were not compiled on the contemporary shoreline maps, was generally ignored during the survey. These items were brought forward to the present survey where possible. Items charted from miscellaneous sources or considered to no longer exist are individually addressed in Section 7, Comparison with Chart, of this report.

c. Numerous positions were in conflict with the shoreline. The hydrographer did not make appropriate changes to the shoreline in these areas.

d. In section N of the Descriptive Report a statement is made to the effect that four markers on the submerged dike were not located by detached positions. No reason was given as to why these features were not located.

e. Several charted features could have been verified or disproved if sounding lines had been run at low water instead of at high water in the vicinity of these items. The low waterline, especially in grassy areas, could have been more completely delineated.

f. In some cases, position numbers were duplicated by the field party.

g. Raw data printouts were not included in the field records.

5. JUNCTIONS

Adequate junctions were effected with H-10042 (1982) on the north and H-10112 (1983) on the south.

6. COMPARISON WITH PRIOR SURVEYS

a. H-133 (1840-1841) 1:10,000
H-134 (1843) 1:20,000
H-148 (1841-1843) 1:80,000
H-156 (1846-1847) 1:10,000
H-808 (1861) 1:10,000
H-1183a (1873) 1:1,250
H-1183b (1873) 1:1,250
H-1249a (1875 1:20,000
H-1249b (1875) 1:20,000
H-1503b (1881) 1:10,000
H-1504a (1881) 1:10,000
H-2495 (1900) 1:9,600
H-2496 (1900) 1:9,600

The above surveys taken together cover the entire area of the present survey and are dated prior to the changes that have taken place due to the establishment of Federal Channel Projects and the construction of the dike at Bulkhead Shoal. A comparison with the present survey reveals numerous changes to the shoreline and depths within the common area. The notable changes are attributed to land reclamation, dredging, scouring by strong currents, and ice flows, accretion, and erosion.

The present survey is considered adequate to supersede the prior surveys within the common area.

b. T-8774 (1946) 2:10,000
T-8775 (1946) 1:10,000
T-8777 (1946) 1:10,000

These photogrammetric shoreline maps cover the area common to the present survey and are subsequent to the prior hydrographic surveys. The Pea Patch Island shoreline and the west side of the Delaware River have changed drastically since 1946 due to erosion and many construction projects. The character of the shoreline along the east side of the river has essentially remained the same, except for a few docking facilities that have either been constructed or are in ruins.

With the addition of one item brought forward, the present survey is adequate to supersede the above surveys in the common area.

7. COMPARISON WITH CHART 12277 (19th Edition, June 26, 1982)
12311 (30th Edition, September 4, 1982)

a. Hydrography

The charted hydrography originates with the previously discussed prior surveys which require no further consideration and with miscellaneous sources which include U.S. Army Corps of Engineers Surveys.

Attention is directed to the following items:

(1) Low waterline changes are noted throughout the survey area, the most extreme of which is the existence of 1- to 8-foot soundings south of Pea Patch Island where a low water area is charted. Low water areas should be charted as shown on the present survey.

(2) The pier ruins charted at latitude 39°35'30"N, longitude 75°36'15"W originate with a miscellaneous source and extend further into the river than charted. Chart the pier ruins as shown on present survey.

(3) The 18-foot sounding charted at latitude 39°34'27"N, longitude 75°34'20"W, originating with a miscellaneous source, was neither verified nor disproved by the hydrographer and should be retained as charted.

(4) The dashed line (unlabeled) that extends about 600 meters from shore, charted in latitude 39°36'43"N, longitude 75°36'30"W, originates with a miscellaneous source. The hydrographer states that a visual search of this item was made with negative results. This item is referred to the compiler for resolution. (see section L of Descriptive Report.)

(5) The two shapes (a small square and a small circle surrounded by four black dots, labeled "Dol") charted at latitude 39°34'38"N, longitude 75°35'12"W and latitude 39°34'36"N, longitude 75°35'09"W from a miscellaneous source were not mentioned by the hydrographer while running a few sounding lines in this area at 2 and 6 feet of tide. The disposition of these items is deferred to the compiler.

(6) The note "Rocks," in slanted letters, charted at latitude 39°35'29"N, longitude 75°32'13"W originates with a miscellaneous source. It is recommended that the note be expunged from the chart and that the rock awash be charted in this area as shown on the present survey.

(7) The note "Rep filled 1975" charted at latitude 39°30'18"N, longitude 75°34'00"W on charted 12277 originates with a miscellaneous source. The note was not mentioned by the hydrographer and should be retained on the chart.

(8) The note "Shl to bare rep 1975" charted at latitude 39°33'27"N, longitude 75°35'45"W originates with a miscellaneous source. The present survey data should be charted in lieu of a note unless subsequent information has been furnished to the compiler.

(9) The positions of the ice fenders charted in the vicinity of latitude 39°39'27"N, longitude 75°34'35"W from a miscellaneous source are in conflict with the positions of counterpart features on the present survey. Chart the ice fenders as shown on the present survey.

(10) The 24-foot sounding labeled "Rks" at latitude 39°35'22.3"N, longitude 75°33'51.5"W from information furnished by the U.S. Army Corps of Engineers (Chart Letters 973 of 1980 and 1639 of 1981) is Presurvey Review Item 87. This item is identified by the Corps of Engineers to be a 2- by 3- by 6-foot construction-stone blocks which slid from an old wharf at Fort Delaware to a location about 25 feet inside the channel's edge. Here, a limited echo sounder search as reported in section L of the Descriptive Report revealed no evidence of the blocks. Until information to the contrary is furnished the feature should be retained on the charts. However, the charted position of this item on chart 12311 should be revised to more accurately reflect its actual location as shown on the larger scale chart 12277, 21st edition, dated April 21, 1984.

Danger #1383

(11) Five elevations between latitude 39°36.17'N, longitude 75°35.04'W and latitude 39°36.42'N, longitude 75°35.18'W along the submerged dike shown on the smooth sheet are selected points where this feature is exposed at low water. The composition of the dike should be ascertained and described on the chart.

The present survey is considered adequate to supersede the charted hydrography within the common area except as noted in this section and in the Descriptive Report.

b. Controlling Depths

(1) The charted controlling depth note "6½ FT 1982" in the vicinity of dashed channel limit lines at latitude 39°34'42"n, longitude 75°35'15"W (Delaware City Branch Channel) from a miscellaneous source is in harmony with present depths and should be retained on the chart.

(2) The charted depth note "6 FT 1979" in the vicinity of latitude 39°34'30"N, longitude 75°35'22"W (Delaware City Branch Channel) from a miscellaneous source is in harmony with present depths, except a 2-foot sounding was located on the east side of the channel at latitude 39°34'32"N, longitude 75°35'22"W. Chart depths as shown on present survey.

(3) In the area of the charted depth note "6 ft centerline rep 1975" from latitude 39°34'25"N, longitude 75°35'25"W southward to latitude 39°33'24"N, longitude 75°35'52"W (Delaware City Branch Channel), present depths are as much as 2 feet shoaler. The depth note is from a miscellaneous source. Chart depths as shown on present survey.

(4) The charted table of controlling depths based on information furnished by the U.S. Army Corps of Engineers from surveys of May and June of 1982 is in harmony with present depths, except for the following:

Location	Present Depths
New Castle Range (Left Outside Quarter)	4 feet shoaler (See section L of Descriptive Report.)
New Castle Range ((Right Outside Quarter)	1 foot shoaler
Bulkhead Bar Range (Left Inside Quarter)	2 feet shoaler
Bulkhead Bar Range (Right Inside Quarter)	1½ feet shoaler

c. Aids to Navigation

The aids to navigation located on the present survey are in substantial agreement with their charted positions and adequately mark the intended features, except for the following:

(1) The white and orange daymark "PPE" charted at latitude 39°37'24'N, longitude 75°35'16"W is apparently the platform with a "danger" sign which was located by the hydrographer about 220 meters north of its charted position. The white and orange daymark "PPF" charted at latitude 39°37'50"N, longitude 75°35'04"W is described as a platform in ruins on the present survey. It is noted on chart 12311, 31st edition, dated September 10, 1983, that the former daymark is charted as an approximate position (PA) at the survey location and the latter daymark has been deleted from the chart. Also, the color and symbol of the charted daymarks along the dike have been revised to white, and in lieu of a triangle, square symbols are now charted. No specific mention of the color of these aids was made by the hydrographer.

(2) Insufficient field data precluded the office verification of the following charted daymarks on Pea Patch Island Dike: "PPA," PPB," PPC," and "PPG." These daymarks were transferred to the present survey from the shoreline map. Pea Patch Island Dike Light "E" charted at latitude 39°38'42"N, longitude 75°34'06"W has been temporarily replaced by a lighted buoy until a fixed light is installed. (See section N of the Descriptive Report.)

(3) Because of ice conditions in winter, floating aids are generally seasonally repositioned. The U.S. Coast Guard should be requested for furnish present positions of these aids for charting, if necessary.

8. COMPLIANCE WITH INSTRUCTIONS

This survey adequately complies with the project instructions.

9. ADDITIONAL FIELD WORK

This is a good basic survey. Additional field work is recommended at an opportune time to completely verify or disprove all unresolved items addressed in section L of the Descriptive Report and section 7 of this report.

James B. Wilson
Cartographic Technician
Verification of Field Data

Lisa Quinlan
Cartographer
Standards Section (N/CG242)
Evaluation and Analysis

Robert R. Hill
Senior Cartographic Technician
Verification Check

Inspection Report
H-10092

The completed survey has been inspected with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disproval of charted data. An evaluator's correction overlay has been furnished the verifier for additional revisions to the smooth sheet. The survey complies with National Ocean Service (NOS) requirements except as noted in the Evaluation Report. The survey records comply with NOS requirements except where noted in the Evaluation Report.

Inspected

George K. Myers

George K. Myers
Chief, Standards Section (N/CG242)
Hydrographic Surveys Branch

Approved

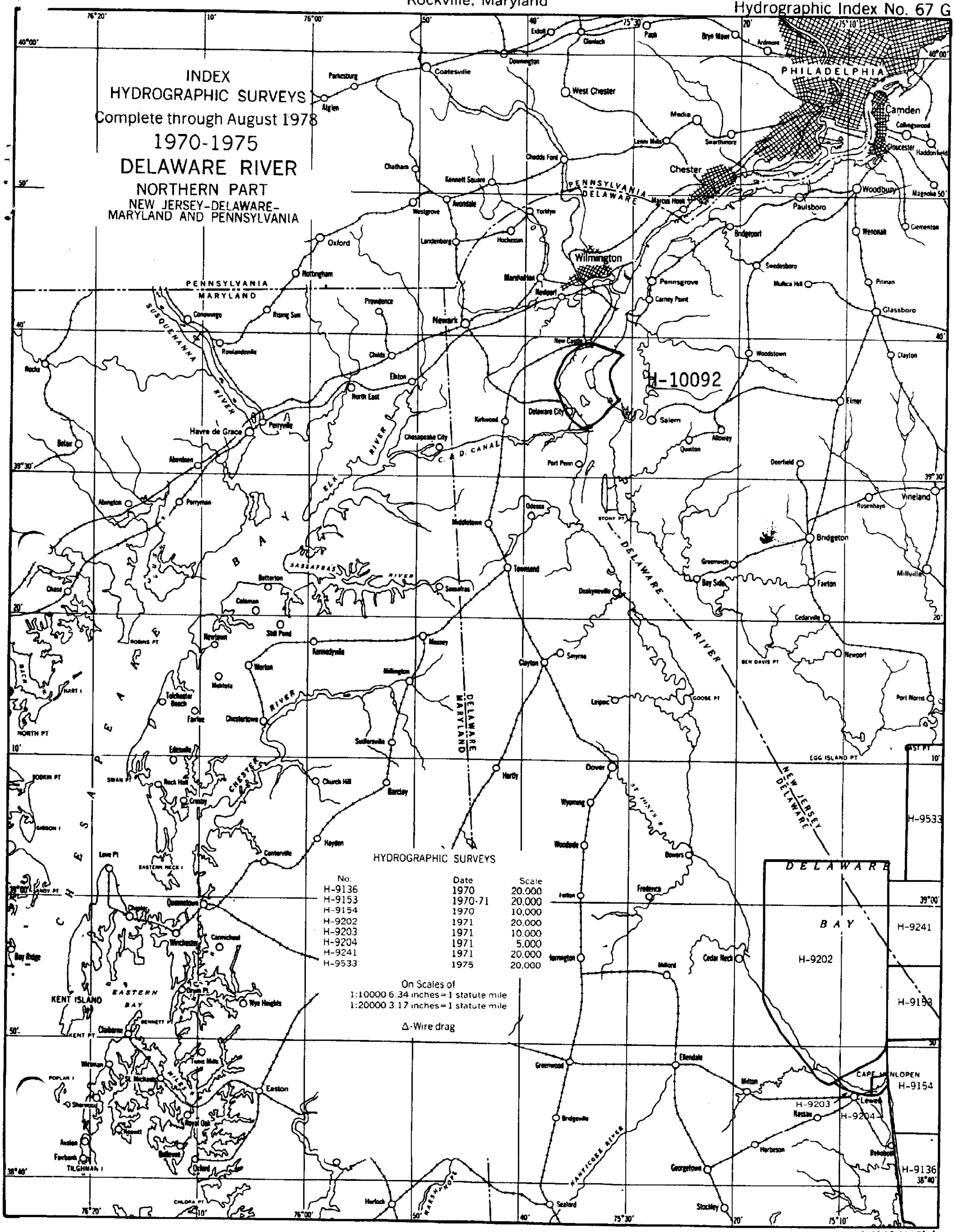
Wesley V. Hull

Wesley V. Hull, RADM, NOAA
Director, Atlantic Marine Center

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

Diagram 294-2

Hydrographic Index No. 67 G



No.	Date	Scale
H-9136	1970	20,000
H-9153	1970-71	20,000
H-9154	1970	10,000
H-9202	1971	20,000
H-9203	1971	10,000
H-9204	1971	5,000
H-9241	1971	20,000
H-9533	1975	20,000

On Scales of
1:10000 6.34 inches = 1 statute mile
1:20000 3.17 inches = 1 statute mile

Δ-Wire drag

A-4346-1(15)

NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10092

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.

1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
12311	10/5/87	Costto	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 51
12277	Cartographer -		Due to printing, 12311 was compiled
			Full Part Before After Marine Center Approval Signed Via without going
			Drawing No. thru Scales (12277) when survey is
			applied to 12277. be sure 2 charts agree
12277	2/16/89	Kenny O'Dell	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 45 22nd ED.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
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			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.