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Diagrams 1209-3 & 1210-4

NOAA FORM 78-35A

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

### DESCRIPTIVE REPORT

Type of Survey ... Hydrographic .....  
Field No. .... PE-10-3-76 .....  
Registry No. .... H-9661 .....

#### LOCALITY

State ..... Massachusetts .....  
General Locality Buzzards Bay .....  
Sublocality .... Nyes Neck to Gifford Ledge .....

1976-77

CHIEF OF PARTY  
CDR J.W. Dropp

#### LIBRARY & ARCHIVES

DATE ..... June 20, 1984 .....

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**HYDROGRAPHIC TITLE SHEET**

H-9661

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.

PE 10-3-76

State Massachusetts

General locality Buzzards Bay

Locality Nyes Neck to Gifford Ledge

Scale 1:10,000 Date of survey 07 Sept to 16 Oct 76

Instructions dated 13 January 1976<sup>77</sup> Project No. OPR 503-PE-76

NOAA Ship PEIRCE (CSS-28), Launch 1202 (2832), Launch 1203 (2833),

Vessel Skiff PE-7, (2837), Skiff PE-6 (2836).

Chief of party CDR Joseph W. Dropp, NOAA  
CDR J.W. Dropp, LCDR K.J. Schnebele, LT G.A. Baisley, LTJG T.I. Lillestolen,

Surveyed by LTJG R.L. Parsons, ENS E.S. Varney, ENS D.H. Minkel.

Soundings taken by echo sounder, hand lead, pole Echo sounders model Ross 5000, Raytheon DE 719D

Graphic record scaled by See Remarks

Graphic record checked by KJS, GAB, TL, ESV, CM

Protracted by N/A Smooth Plot by XYNETICS 1201  
Automated plot by Hydroplot System

Verification by D.V. MASON 6-21-89 cked R.R. HILL 8-23-89

Soundings in fathoms feet at MLW ~~MSL~~

REMARKS: Soundings from Ross echo sounders (VesNo's 2832 & 2833) were obtained from

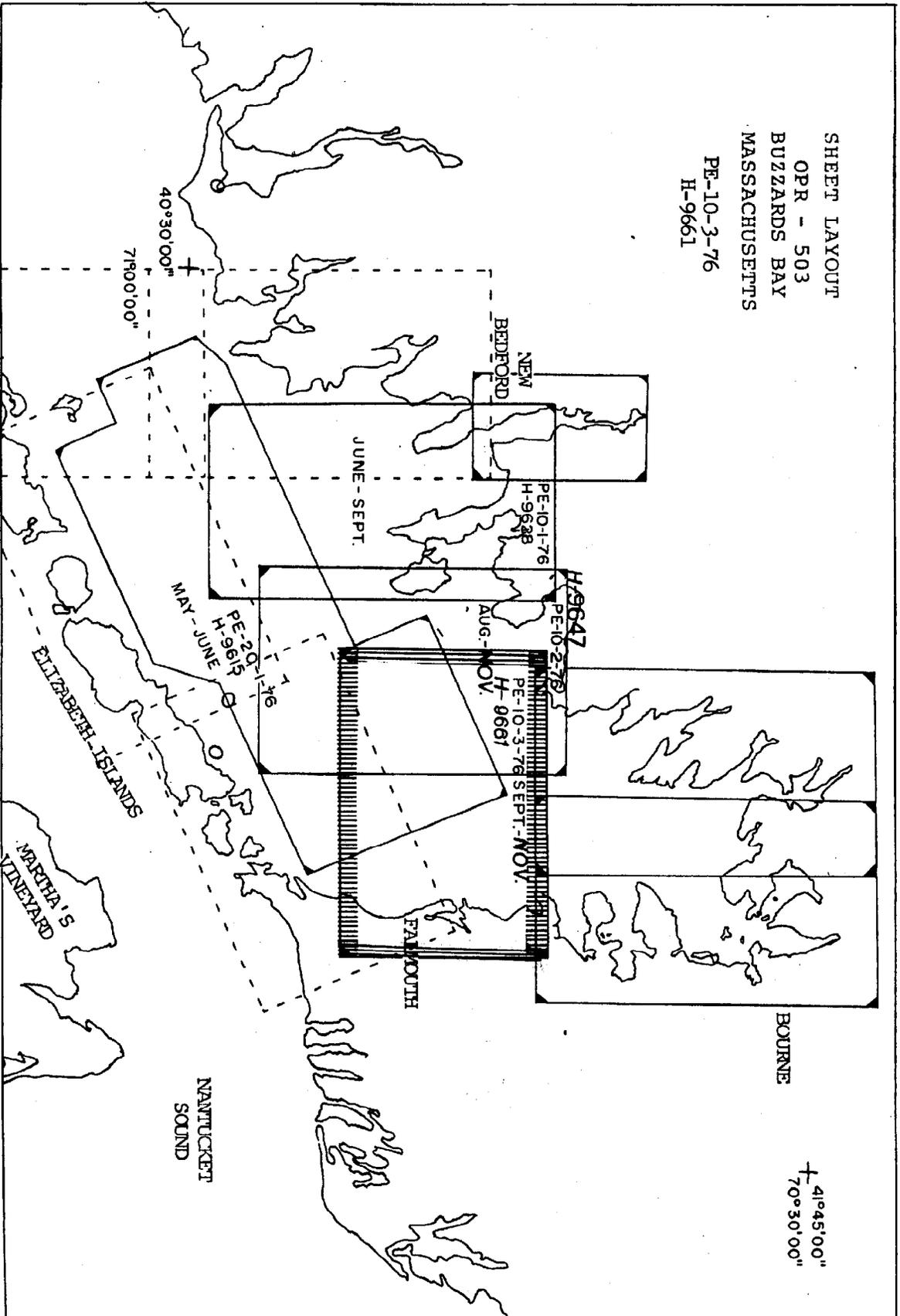
Digital output; soundings from Raytheon Fathometer scaled by RLP, ESV, GS, MH.

All times are Greenwich Mean Time.

*Answers/Surf: G. Myers 9/29/89*

*K.W.W. 10/19/74*

SHEET LAYOUT  
OPR - 503  
BUZZARDS BAY  
MASSACHUSETTS  
PE-10-3-76  
H-9661



Descriptive Report

to Accompany

Survey H-9661

PE-10-3-76

Nyes Neck to Gifford Ledge

Massachusetts

07 September 1976 to 16 October 1976

NOAA Ship PEIRCE (CSS-28)

Joseph W. Dropp

Commander, NOAA

Commanding Officer

NOAA Ship PEIRCE (CSS-28)

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## A. PROJECT

This survey was conducted as part of the Buzzards Bay, Massachusetts, project. The project instructions titled OPR-~~703~~PE, WH-76, were dated 13 January 1976 with changes dated as follows:

Change #1	22 January 1976
Change #2	07 April 1976
Change #3	15 April 1976

## B. AREA SURVEYED

PE-10-3-76 covers the inshore area from the low water line 0.4 nautical miles northeast of the tip of Nyes Neck, Massachusetts, south along the shoreline to 1.4 nautical miles south of Chappaquoit Point. The survey includes Wild and West Falmouth Harbors and extends out to four nautical miles offshore. The survey limits may be best defined by straight lines connecting the following points and the shoreline included between them:

<u>Latitude (N)</u>	<u>Longitude (W)</u>
41/38/ <sup>46</sup> 35	70/39/00
41/38/ <sup>46</sup> 35	70/44/15
41/37/ <sup>02</sup> 08	70/44/15
41/37/ <sup>21</sup> 26	70/43/30
41/37/ <sup>19</sup> 46	70/43/00
41/35/00	70/41/27
41/35/ <sup>34/59</sup> 00	70/38/40

Hydrographic operations began on 07 September 1976 and ended on 16 October 1976. See also special investigation OPR-505-WH-1977

C. SOUNDING VESSEL

Soundings were obtained by four different vessels. Two were automated launches, Launch 1202 (VESNO 2832) and Launch 1203 (VESNO 2833), while two vessels were skiffs, i.e. PE-6 (VESNO 2836) and PE-7 (VESNO 2837). Skiff PE-6 (2836) used a Raytheon shallow water fathometer mounted in the working area of the skiff with the transducer held over the side by a pipe. A "C" clamp was welded to this pipe so that the transducer would be secured at the same depth below the skiff's hull from day to day. Vessels and position numbers were related as follows:

<u>VESNO</u>	<u>POSITIONS</u>	<u>DATES</u>
2833	001-221, 330-1680	07 Sept - 07 Oct
2832	217-329, 3000-4214	09 Sept - 13 Oct
2837	9000-9614	17 Sept - 13 Oct
2836	6872-7146	13 Oct - 16 Oct

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

Both launches, i.e. Launch 1202 (2832) and 1203 (2833) used Ross Model 5000 echo sounders. Their serial numbers were 1053 and 1079 respectively. Both vessels were used throughout the survey and encountered depths between five and sixty feet. Skiff PE-6 (VESNO 2836) mainly used a Raytheon model DE719D Fathometer whose serial number was 3947. This vessel and echo sounder was used exclusively with West Falmouth Harbor, Massachusetts, and encountered depths from two to twelve feet. Alternately, skiff PE-7 (VESNO 2837) (and occasionally 2836 also) used a hand lead and a sounding pole along the shoreline and inside the harbor areas. Depths encountered with a sounding pole ranged from -5 to 15 feet; those with a hand lead: out to 26 feet. VESNO 2833 did use a hand lead to determine depths for diving operations. These varied from 6 to 23 feet. No problems were encountered with the Ross echo sounders. However, on 13 November (J.D. 287) the Raytheon Fathometer was run with the "velocity of sound" adjustment out of calibration. This adjustment is adequately explained with the Sounding Volume 5, p. 6 which reads as follows:

NOTE: Soundings for positions 6892-6999 were taken with a Raytheon 719D Fathometer with the "speed of sound" calibration out of adjustment. The operating manual for the Fathometer indicated that the adjustment is a multiplicative factor of the difference between the "initial calibrate" and the "speed of sound calibrate" (the former usually set at 0.0 feet and the latter at 50.0 feet) i.e. if the difference between these were 50.0 feet

velocity of sound would be 4800 feet/second and if it were 49 feet, the speed would be  $4800 \times (50/49)$  ft/second. Since the actual difference was less than 50 feet, the following corrector was derived:

$$\text{Corrector} = (\text{sounding} - \text{initial correction}) \times \frac{[50 - (\text{calibrate difference})]}{\text{calibrate difference}}$$

e.g., for position 6892: Corrector =

$$+(2.0 - 0.1) \times \frac{[50 - (49.6 - 5.8)]}{49.6 - 5.8} = 1.9 \times \frac{6.2}{43.8} = 0.27 \text{ (rounds to .2)}$$

Corrections to echo soundings for this survey are of two types: a) velocity and draft corrections applied on the velocity tape, and, b) settlement and squat corrections applied on the TC/TI tape. Velocity and draft correctors were derived from daily bar checks for the launches and from simultaneous pole soundings for PE-6 (VESNO 2836).

In addition, there were no initial corrections for the Ross echo sounders which maintain their zero initial through their internal circuitry. However, when some initial corrector needed to be applied to the Raytheon Fathometer, it was applied in the sounding volume. Two velocity tables were derived for each launch by grouping the bar checks in blocks of days, (e.g. Velocity tables 1 & 2 are used between 07 September and 20 September while tables 3 & 4 are used between 01 ~~September~~ and 20 October). Velocity table 5 is used with the skiff PE-6 (2836) between 13 and 16 October 1976 (see enclosed velocity table listing for construction method of velocity tape for VESNO 2836). Velocity tables 6, 7, & 8 were made for VESNO's 2833, 2836 and 2837 respectively containing a zero corrector for use with hand lead and pole soundings.

#### E. HYDROGRAPHIC SHEETS

All field sheets were plotted aboard the PEIRCE by the ship's PDP8/e computer and Complot Roll-bed plotter. Field records will be sent to verification and smooth plotting completed by the Atlantic Marine Center.

There are two main plotter sheets for this survey, both with the long axis along the 000° - 180° axis. The eastern sheet contains all the shoreline and offshore to approximately latitude 70°41.0'. The western plotter sheet extends from approximately 70°41.0' to the western limits of the survey limits (approximately 70°44.3'). For each of the two plotter sheets containing the majority of the hydrography (i.e. mainscheme and crosslines) there is an overlay on which developments, bottom samples and detached positions are plotted. Insets for the Nyes Neck/Wild Harbor area and the West Falmouth Harbor areas were made for clarity at a scale of 1:5000. Developments were replotted at a scale of 1:5000 and are included within the descriptive report.

#### F. CONTROL STATIONS

Electronic control stations for this survey were existing monumented stations or were located by PEIRCE personnel or Photo Party 62 using Third Order procedures. The appended list of signals gives the Geodetic Position used and source of each station. Stations established for this survey were not monumented. Note that station 044 (Cleveland Ledge Eccentric I) was located as an eccentric to Cleveland Ledge Light 1961. Visual signals located by the PEIRCE in Wild and West Falmouth Harbors using procedures outlined in section 3.1.3.1 of the Provisional Hydrographic Manual, with two exceptions. Signal 523 (Lum chimney) was located by intersection of azimuths from three Third Order stations. Station 556 (chimney) was located in Wild Harbor by scaling the position off T-sheet #TP 00770, 1974 because no better position was available. The resulting hydrography showed no problems using this signal. The North American Datum of 1927 was used as a basis for all control stations.

Elevations of signals were not utilized on the signal list for the following reasons. Calculations show that the magnitude of slope corrections due to elevation of the Del Norte equipment are negligible. This is true because elevations were ten meters or less above sea level and observed ranges are typically greater than 500 meters, which imply corrections of less than one meter. Maximum elevation was eight meters for stations 043 and 045 (both on Cleveland Ledge Lighthouse). *elevations that were available were added*

Copies of abstracts and computations for all stations located by the NOAA Ship PEIRCE are included with Supplementary Data (i.e. Field Records). Those located by Photo Party 62 are included in that parties records.

### G. HYDROGRAPHIC POSITION CONTROL

Position control for the great majority of this survey was Del Norte range-range. However, positioning in Wild Harbor was controlled by visual methods, while in West Falmouth Harbor, both visual and range-azimuth methods were used. Electronic positioning units were manufactured by Del Norte Technology Industries while the units and serial numbers are listed below, the actual unit used on a particular day is listed on the Master printout for the respective vessels.

Vessel Numbers 2832, 2833, and 2837 all used the following equipment:

<u>Component</u>	<u>Model #</u>	<u>Serial #</u>
DMU	202	190
Master Unit	212	277
DMU	202	395
Master Unit	212	912

Vessel Number 2836 used the following equipment:

<u>Component</u>	<u>Model #</u>	<u>Serial #</u>
DMU	202	179
Master Unit	212	277
Master Unit	212	219

Shore stations used different remote stations at different times. The Del Norte "code" used for each particular station is listed with the master data printout for each day and is generally contained within the appropriate sounding vessels(s) for each day. The following remote stations were manufactured by Del Norte Technology Industries:

<u>Model #</u>	<u>"Code"</u>	<u>S/N</u>	<u>Dates</u>
212	A	253	07 Sept - 04 Oct
212	A	217	05 Oct - 16 Oct
212	B	217	07 Sept - 04 Oct
212	B	245	05 Oct - 16 Oct
212	C	262	07 Sept - 16 Oct
212	D	221	07 Sept - 16 Oct

Calibrations for the Del Norte units was accomplished by driving the launch or skiff up to a known location and comparing the observed Del Norte patterns to computed ranges on a daily basis.

(See abstract of Electronic Corrrectors). DMU/Master unit pairs were calibrated over a measured baseline of 3316 meters (and checked at 426 Meters) on a biweekly basis throughout the project. The results of these calibrations are documented in a "record" journal submitted for the entire project.

\*NOTE: On 05 October remote code "B" (S/N 217) was modified to operate as remote code "A".

Calibration sites, their position, brief description and method of location follows:

1. <sup>Eccentric 1,1976</sup> Cleveland Ledge Lighthouse (West side) was just below signal 044 at the edge of L.H. on the west side. The lighthouse rises vertically from 20' of water; the launch was therefore able to return to the same spot. Station 044 was located as an eccentric to Cleveland Ledge Lighthouse, Position (station #044) Latitude  $41^{\circ}37'51.113''$ , Longitude  $70^{\circ}41'41.240''$ .
2. Cleveland Ledge Lighthouse, (East side) was at the eastern most ladder on the Lighthouse. This also was located as an eccentric to the Dighthouse. Position, Latitude  $41^{\circ}37'51.087''$ , Longitude  $70^{\circ}41'40.5886''$ .  
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3. West Falmouth calibration site was a 3" pipe driven into the sand outside of West Falmouth Harbor. Its position was determined by T2 cuts from stations 070 and 508. Position, Latitude  $41^{\circ}36'27.864''$ , Longitude  $70^{\circ}39'07.490''$ .
4. Nyes Neck calibration pipe was situated northwest of Nyes Neck Water Tower, approximately 20 meters offshore. The site was a 3" pipe driven four feet into the sand and projected six feet above MHW. Its position, was determined by sextant fixes with check angles. Position, Latitude  $41^{\circ}38'39.012''$ , Longitude  $70^{\circ}39'05.998''$ .
5. <sup>GREAT SIPPONWISSET ROCK</sup> ~~Gifford Ledge~~ Day Beacon was situated offshore of the southern end of Black Beach (that is 1.1 n.m. south of Chappaquoit Pt.). The determination if its position was inadequate for use as a calibration site.
6. A pier located within West Falmouth Harobr was used as a calibration site. Its location was determined on the T-sheet of the area. The distance from this pier to station ROA (#512) was scaled from T.P. 00770.

7. Station HOL (#510) was the corner of a seawall and was used as a calibration site. Its position was determined using third order traverse methods by Photo Party 62. Latitude  $41^{\circ}36'22.912''$ , Longitude  $70^{\circ}38'22.409''$ .

NOTE: For further descriptions, see supplemental data (with field records) section "Electronic Control" calibration sites.

#### H. SHORELINE

Shoreline details were transferred from T.P. 00770, Buzzards Bay and Elizabeth Islands: West Falmouth Harbor, 1:10,000, April 1976. Field edit for this sheet was being accomplished by Photo Party 62 concurrent with this survey. Any changes or corrections made by Photo Party 62 were not transferred to the field sheet. No corrections were made by the PEIRCE. FINAL REVIEW DONE OCT 1984

#### I. <sup>CROSS</sup> GROSSLINES

Crosslines constituted 11.1% of all mainscheme hydrography with excellent agreement. There were no discrepancies.

Special attention should be paid to the junctions between skiff work and launch work. In general it is good, but where the skiff took soundings with a lead line (e.g. nearly everything greater than 14 feet and everything 16' or greater), the soundings should be viewed with a watchful eye. Some questions as to the validity of some leadline soundings was raised during the survey and afterward, only pole soundings were used. These lead line soundings were questionable because of possible leadsman reading error or a faulty leadline (e.g. a missing bunting, etc.). The discrepancies were noted where lead line depths were greater than approximately 13.5 feet. Where gross discrepancies were noted along the southern shoreline, the launch work was accepted as valid and lead line depths rejected.

#### J. JUNCTIONS

This survey was not intended to junction with prior surveys, but rather contemporary surveys. Adjoining surveys were PE-20-1-76 (H-9615) to the southwest and PE-10-2-76 (H-9647) to the northwest. Agreement with these surveys was excellent with no shifting of contours. Differences were observed from zero to one foot. Surveys to the north and south were not completed in 1976 and are scheduled for the 1977 field season.

K. COMPARISON WITH PRIOR SURVEYS

There was one numbered pre-survey review item within the survey area: PSR 15, a 29 foot depth charted at Latitude 41°37.33', Longitude 70°43.32'. The pre-survey review indicated that specific investigation was not necessary unless there was some indication of shoaling on the mainscheme hydrography. There was none in the vicinity of this charted sounding. However, a 32.6 foot depth (a "Spike" between positions 3030 & 3031) was noticed 230 meters north of the charted sounding. This is most likely the 32 foot charted sounding north of PSR 15 on Chart 13234. It is recommended that the sounding remain as charted.

*Do not concur  
32' sdg  
found approx  
30m SE. of  
charted 29'  
sdg. 32' is  
L.D. acquired  
on a small rise  
with main dev.  
lines. No splits  
or dev. of rise  
for L.D. was  
made. Retain  
chtd 29' sdg.  
7RS*

The pre-survey review indicated soundings which were undeveloped or unsupported (i.e. dashed-circle items). The following describes these items.

<u>CHARTED SOUNDING</u>	<u>LATITUDE (N) LONGITUDE (W)</u>	<u>DISPOSITION</u>
16'	41/37/23 70/39/21	Development QQ. a 22' sounding was found (position 1497 <del>493</del> ) at the location indicating possible shoaling. Remain as charted until wire drag can be completed. <i>41°37'22.99N 70°39'20.91W</i>
12'	41/36/31 70/39/25	Development II. Two 11' soundings 60 and 80 meters to the north by west, (position 3667-3668, 3738-3740) as well as a 12' sounding 50 meters to the north-west. Chart should reflect present survey. <i>CONCUR</i>
12'	41/36/23 70/39/22	Mainscheme lines indicate a 12' sounding 80 meters to the northwest. Remain as charted until wire drag can be completed. <i>CONCUR</i>
4'	41/36/19 70/39/29	Dive DZ. Located by divers and least depth obtained by leadline as 6' (position <del>1479</del> ) to 3' with final correctors. Chart should be changed to reflect present survey's depth & position. <i>SEE POS 1471</i> <i>7RS</i>
2, 18'	41/35/47 70/39/240	Development CC. A 18' sounding found 30 meters to southwest (position 3525-3526). Note: 11' sounding 100 meters to southeast (position 3523-3524). Chart should reflect this lesser depth. <i>CONCUR</i>

<u>CHARTED SOUNDING</u>	<u>LATITUDE (N) LONGITUDE (W)</u>	<u>DISPOSITION</u>
8'	41/35/40 70/39/13	Development BB. A 7' sounding was found 15 meters to the northwest (Position 3550-3551). Chart should reflect <del>CONCUR</del> present survey. <i>41°35'40.59(N) 70°39'13.45(W)</i>
10'	41/35/32 70/39/08	Development AA. A <del>7'</del> <sup>8'</sup> sounding found 30 meters to the east (Position 3562-3563). Chart should reflect present survey. <i>41°35'32.29(N) 70°39'7.82(W)</i> <del>CONCUR</del>
1212'	41/35/29 70/39/22	Development Z. Mainscheme indicated two <del>12'</del> <sup>12'</sup> soundings between positions 3408 <del>+2</del> <sup>+3</sup> 3408+3 <del>3409</del> . Chart should reflect present <del>CONCUR</del> survey. <i>41°35'29.73(N) 70°39'24.37(W)</i> <i>41°35'29.73(N) 70°39'22.25(W)</i>
12'	41/35/30 70/39/34	Development Y. Mainscheme indicates a 12' sounding at same location (Position 3407- <del>3408</del> ) <sup>+ (4)</sup> . <i>41°35'29.88(N) 70°39'34.38(W)</i>
26'	41/35/17 70/40/05	Development F. No indication found. This could possibly be a pinnacle outcropping typical of this area. Remain as charted until wire drag of the area can be completed. <del>CONCUR</del> .
17'	41/35/20 70/39/57	Development W. No indication of shoaling. Again, this could be a pinnacle outcropping. Remain as charted until wire drag can be completed. <del>CONCUR</del> .
10'	41/35/29 70/39/51	Development X. A <del>10'</del> <sup>10'</sup> sounding was found 25 meters north of this location (Positions 3651+(3) <del>3652</del> ) (see also positions 3406-3407 mainscheme). Chart should reflect present survey. <i>41°35'29.48(N) 70°39'50.40(W)</i>
30'	41/35/44 70/39/42	Mainscheme does not reflect any shoaling. Remain as charted until more extensive developments and/or wire drag surveys can be made. <del>CONCUR</del> .

<u>CHARTED SOUNDING</u>	<u>LATITUDE (N) LONGITUDE (W)</u>	<u>DISPOSITION</u>
31'	41/36/03 70/39/43	Mainscheme shows no indication of shoaling. Remain as charted until more extensive development and/or wire drag surveys may be completed. <i>CONCUR</i>
27'	41/36/24 70/40/02	Development EE. A 24' sounding was found 30 meters to the northwest (position 3790-+(3) <del>3882</del> ). Chart should reflect present survey. <i>41°36'24.20(N) 70°40'2.67(W)</i>
17'	41/36/25 70/39/38	Development GG. Mainscheme indicates a 14' sounding 90 meters to the northeast (positions <del>3883-3882</del> ). Chart should reflect present survey of 14' sounding. <i>41°36'21.01(N) 70°39'16.46(W)</i> <i>CONCUR</i>
17'	41/36/59 70/39/47	Development MM. A <del>14'</del> 17' sounding was found 35 meters to the southwest (Positions 3823-3824). Chart should reflect present survey. <i>41°36'58.55(N) 70°39'40.47(W)</i> <i>CONCUR</i>
23'	41/37/45 70/40/19	Development D. No indication of shoaling evident. Remain as charted until wire dragoof area can be completed. <i>CONCUR</i>
30'	41/37/43 70/40/30	Development C. Hydrography supports this sounding. Remain as charted. <i>CONCUR</i> <i>41°37'41.41(N) 70°40'31.00(W)</i>

A second group of unnumbered pre-survey review items indicate reliable positions with questionable depths (i.e. squared dashed-circle items). The following discusses these items.

<u>DEPTH</u>	<u>LATITUDE (N) LONGITUDE (W)</u>	<u>DISPOSITION</u>
20'	41/37/47 70/39/39	Dive DY. Dive was made on day 278. Position 1490 neither verifies nor refutes this sounding. Recommend remain as charted. <i>41°37'54.30(N)</i> <i>CONCUR</i> <i>70°39'38.57(W)</i>
22'	41/37/34 70/39/30	Development RR. A 24' sounding 30 meters to the east indicates possible shoaling. (position 1526-1527) Remain as charted. <i>41°37'34.74(N) 70°39'28.86(W)</i> <i>CONCUR</i>
17'	41/37/08 70/39/52	Development and dive PP. Position 1479 neither verifies nor refutes this sounding. Remain as charted. <i>41°37'4.87(N)</i> <i>CONCUR</i> <i>70°39'54.46(W)</i>
21'	41/36/28 70/40/04	Development FF. -Hydrography indicated some shoaling to the south (200 meters). Remain as charted. Pos 1475. <i>CONCUR</i> <i>41°36'25.74(N)</i> <i>70°40'6.58(W)</i>

20' of 200m  
Nacra OK

\*211-11-

<u>DEPTH</u>	<u>LATITUDE (N) LONGITUDE (W)</u>	<u>DISPOSITION</u>
22'	41/37/08 70/40/55	Development A. Neither verified nor refuted. Remain as charted. Pos. 794+(4) 41° 37' 7.58 (N) 70° 40' 47.58 (W) CONCUR
22'	41/37/23 70/40/39	Development B. Hydrography indicates Pos. 410+(1) possible shoaling. Remain as charted. 41° 37' 23.52 (N) 70° 40' 39.59 (W) CONCUR
26'	41/38/18 70/40/16	Hydrography indicates 22' sounding 50 meters to the south (position 532-533). Chart should indicate this lesser sounding. CONCUR 41° 38' 16.40 (N) 70° 40' 15.54 (W)

The following four prior surveys cover the same area as the present survey: H-2316 (1897), 1:10K, H-2318 (1898), 1:20K, H-3184 (1910), 1:20K, and H-6742 (1942), 1:20K. The latter two surveys were very limited in area. Of these, comparison with H-3184 was very good, and with H-6742, good. Comparison with H-2316 indicated more discrepancies further offshore than inshore. Comparison with H-2318 was fair. In the case of the two 1897 surveys, comparisons were made according to the general trend of the bottom contours rather than comparing specific soundings, except where gross discrepancies arose. Since this survey compares so well with the 1910 and 1942 surveys, it is felt that there has been a considerable change in the configuration of the bottom since the 1897 surveys. This is possible with the completion of the Cape Cod Canal Channel in the mid 1930's (3 nautical miles to the north), which would alter the current structure of Buzzards Bay. Soundings from the present survey should be used vice 1897 data except as noted.

The following is a list of discrepancies noted from H-2316 (1897), 1:10K:

<u>DEPTH IN FEET</u>	<u>LATITUDE 41°N</u>	<u>LONGITUDE 70°W</u>	<u>DEPTH FROM PRESENT SURVEY</u>
14-17 shoal	38/25	39/39	<del>29-32</del> 23-32
20	38/38	39/48	<del>18</del> 19 ft
29-30 shoal	<sup>3</sup> <del>28</del> /27-30	39/52	33-36
32-35	38/15	39/51	<del>43-44</del> 44-46
29	37/15	39/51	<del>31-42</del> 44-46
12	36/01	39/25	<del>28-30</del> 14-19
12	36/05	39/24	<sup>27</sup> <del>22-28</del>
36' curve	36/35	40/10	<del>41-45</del> 40-44

<u>DEPTH IN FEET</u>	<u>LATITUDE</u> 41°N	<u>LONGITUDE</u> 70°W	<u>DEPTH FROM PRESENT SURVEY</u>
04	36/13	39/17	12 (retain prior survey depth)
36' curve	35/55	39/52	45
36' curve	35/40 to 36/02	39/45	<del>34-40</del> <del>45-48</del>
18' curve	35/33	40/03	30-33
27' shoal	35/52	40/04	<del>49-50</del> <del>48-49</del>
36' shoal	35/58	40/10	<del>45</del> 46-47
36' shoal	35/56	40/19	46 47
26' shoal	35/44	40/14	49-49
26'	35/44	40/06	<del>49-50</del> <del>48-49</del>
26'	35/29	40/11	39/ <del>54</del> <sup>56</sup>
30' curve	35/28	40/15	<del>53-54</del> <del>50-53</del>
26' curve	35/16	39/53	<del>44-49</del> <sup>50</sup>
27'	35/19	39/43	<del>33-35</del> <del>32-37</del>
25	35/15	39/34	<del>32</del> w. 23ft 60 meters N.
29	35-09	39/57	<del>52</del> 51-52
34'	35/02	39/58	<del>52</del> 51

The following discrepancies are from H-2318 (1897), 1:20K:  
 \*See note about 1897 surveys on previous page.

<u>DEPTH IN FEET</u>	<u>LATITUDE</u> 41°N	<u>LONGITUDE</u> 70°W	<u>DEPTH FROM PRESENT SURVEY</u>
30' curve	38/15	41/34	<del>34/36</del> 39/43
18	38/03	41/38	<del>27-</del> 28-31

<u>DEPTH IN FEET</u>	<u>LATITUDE</u> <u>41°N</u>	<u>LONGITUDE</u> <u>70°W</u>	<u>DEPTH FROM PRESENT SURVEY</u>
35-42	37/25	41/30	<sup>27/29'</sup> <del>30'</del> curve (shoal)
18	38/03	41/38	<sup>29/34</sup> <del>28-31</del> (retain prior depth)
24	38/09	41/33	<sup>29/31</sup> <del>28-32</del>
16	37/58	42/17	<sup>20/21</sup> <del>19-28</del> (retain prior depth)
42-43	37/08	41/44	<sup>30</sup> <del>26-34</del>
41-42	36/12	41/40	<sup>26/32'</sup> <del>30'</del> curve
41-43	36/11	41/20	<sup>28'</sup> <del>30'</del> curve
41-43	35/56	41/09	<sup>29</sup> <del>28</del>
41	35/50	41/20	<sup>36/37</sup> <del>35-49</del>
41	35/35	41/17	<del>28</del> 35'
41	35/34	41/38	<del>30</del> <sup>36/37</sup>
41-42	36/15	41/45	<sup>29/32'</sup> <del>28-32</del>
38-39	36/49	41/26	<sup>27</sup> <del>26</del> 28'
41-43	36/36	41/25	<del>33-28</del>
40-41	36/45	41/45	<del>28-28</del>
34-37	38/20	40/50	<sup>31</sup> <del>40-41</del>
25-28	38/11	40/47	<sup>30</sup> <del>32-33</del>
33-35	37/54	40/38	41
18	36/51	40/52	<sup>31</sup> <del>38</del> (retain prior depth)
20-30	36/56	40/15	<sup>14-17</sup> <del>13-18</del>
40-46	38/08	40/51	<sup>29-30</sup> <del>32-39</del>

<u>DEPTH IN FEET</u>	<u>LATITUDE 41°N</u>	<u>LONGITUDE 70°W</u>	<u>DEPTH FROM PRESENT SURVEY</u>
29-38	35/30	40/22	<sup>48</sup> <del>47-55</del>
29	34/59	40/23	<sup>53</sup> <del>52</del>

The following discrepancy is from H-3391 (1912-14) WD transferred from survey H-6742 (1942):

<u>DEPTH IN FEET</u>	<u>LATITUDE 41°N</u>	<u>LONGITUDE 70°W</u>	<u>DEPTH FROM PRESENT SURVEY</u>
17	38/02	42/22	<del>20</del> 17 ft. ✓

The following discrepancies are from H-6742 (1942) 1:20K:

<u>DEPTH IN FEET</u>	<u>LATITUDE 41°N</u>	<u>LONGITUDE 70°W</u>	<u>DEPTH FROM PRESENT SURVEY</u>
31	38/03	41/50	<del>34</del> 35
46	38/16	42/00	<del>26-43</del> 44
29	37/32	41/55	<sup>35-37</sup> <del>34-38</del>
30	35-49	41/44	<sup>36</sup> <del>35-37</del>
30	35/50	41/22	<del>26-37</del> 38
30	35/23	41/08	<del>27-36</del> 34-37
35	35/19	40/59	39 ✓
37	35/13	41/28	<del>38-40</del> 41
32	35/17	40/35	<del>34</del> 35

L. COMPARISON WITH THE CHART

This survey compared well with chart 13230, 27th Edition, 25 October 1975, 1:40,000. Present survey depths should be used at the following discrepancies except as noted:

<u>CHARTED DEPTH</u>	<u>LATITUDE</u> 41°N	<u>LONGITUDE</u> 70°W	<u>SURVEY DEPTH</u>
42	37/22	42/56	28 36
37	37/23	41/14	33 35
40	37/13	41/51	34-38
26	37/05	42/00	21 32-33
NONE	37/27	41/12	30 ✓
16	37/18	40/40	15 ✓
23	37/17	40/29	17 16
14	37/01	39/50	13 14
14	36/58	40/16	13 14
20	36/20	39/22	15 18
23	36/34	40/38	29-30 (retain charted depth)
NONE	36/49	41/26	26 27
NONE	36/12	40/33	25 43
17	36/27	39/36	14 15
07	35/41	39/13	8 7
06	35/32	39/08	10 7
44	35/51	39/55	34 44
10	35/30	39/52	9 10
35	35/20	40/51	28 33-34
24	35/07	39/24	16 17

Note that the West Falmouth Harbor area has been dredged since 1897. Present survey should be used in this area.

Divers investigated five (5) specific items for this survey. It appears that on three of the dives either the electronic positioning was faulty or the wrong objects were dove on. Least depth on 4' charted rock just west of West Falmouth Harbor entrance 6' by lead line (position 1481). Least depth on rock struck by launch north-west of Little Island, 4', position 1482. *least depth 3' @ 915?*

#### M. ADEQUACY OF SURVEY

This survey is adequate to supercede prior surveys with the following exceptions. The area southwest of Little Island (Latitude 41/36/35, Longitude 70/30/10) was lacking hydrography. Two relatively unimportant areas at the southern end of West Falmouth Harbor were also lacking hydrography. These were at Latitude 41/35/55, Longitude 70/38/40 and Latitude 41/35/50, Longitude 70/38/33.

A holiday just offshore of Silver Beach at Latitude <sup>41</sup>40/37/35 makes the spacing inadequate at the scale of this survey, but it is not felt that additional field work is justified.

Positive resolution of questionable wire drag sounding shown on the pre-survey review was not accomplished during this survey. This could have been accomplished to a greater degree if the best available position were provided with the project instructions rather than scaling the position from a published chart.

Further development of areas of especially irregular bottom (for instance along Longitude 70/41/30) would more clearly define shoal areas.

It should be noted that the narrow beam fathometers used during this survey could easily have missed isolated rock outcrops typical of this area. Prior survey soundings should be carried forward in those areas where a single isolated shoal sounding was evident. The field sheet indicates most of these isolated prior survey soundings.

#### N. AIDS TO NAVIGATION

All buoys within the survey area on Chart 13230 (25 October 75 Edition) were located. A comparison of this survey's position and the charted position of the floating aids compared favorably. These aids adequately serve their intended purpose. In addition, several privately maintained aids were located during this survey as outlined below:

<u>DESCRIPTION OF AID</u>	<u>POSITION NUMBER</u>	<u>LATITUDE LONGITUDE</u>	<u>REMARKS</u>
"CYC" "28" White, wooden with three red horizontal stripes	852	41/36/19.1 70/40/48.8	Probably <sup>A</sup> a racing marker seasonally maintained by Chappaquoit Yacht Club.
"CYC" "23" (asaabove)	937	41/36/53.6 70/40/04.5	(as above)
Day Beacon	<del>92744</del>	41/35/16.2 70/39/14.8	Privately maintained.
Black can, unlighted	7060	41/36/21.8 70/39/03.7	Privately maintained (seasonally)
Black can, unlighted	7061	41/36/21.3 70/38/59.5	Privately maintained (seasonally)
Red nun, unlighted	7062	41/36/20.0 70/39/00.0 38/57.95	Privately maintained (seasonally)
Red nun, unlighted	7063	41/36/20.3 70/38/57.0 56.98	Privately maintained (seasonally)
Black can, unlighted	7064	41/36/21.4 70/38/52.4	Privately maintained (seasonally)
Black can, unlighted	7065	41/36/19.8 70/38/43.49	Privately maintained (seasonally)
Black can, unlighted	7066	41/36/16.4 70/38/39.39	Privately maintained (seasonally)
Red nun, unlighted	7069	41/36/13.8 70/38/31.0	Privately maintained (seasonally)
Black can, unlighted	7070	41/36/12.8 70/38/29.22 .17	Privately maintained (seasonally)
Obstruction marker reading "Rock 6"	9539	41/36/14.0 70/38/36.6	Privately maintained

## O. STATISTICS

Category	Vessel Number	2832	2833	2836	2837	Total
Number of Positions		1292	1574	275	615	2756
Mainscheme Hydrography (n.m.)		87.3	163.2	10.3	43.8	304.2
Crosslines (n.m.)		3.9	29.9	--	--	33.8
Developments (n.m.)		58.3	38.8	--	1.2	98.3
To/From (n.m.)		70.3	94.7	11.2	42.5	218.7
Miscellaneous (n.m.)		33.9	51.6	5.4	21.3	112.2
Total (n.m.)		253.7	378.2	26.9	108.4	767.2
Area (square n.m.)		--	--	--	--	11.7
Bottom samples		36	24	0	0	60

## P. MISCELLANEOUS

It should be noted that North American 1927 Datum ticks were not shown on surveys H-2318 (1897), 1:20K, and H-3184 (1910), 1:20K.

The pre-survey review for this survey was done on chart 13234, 1:20K, which was not in print at the time of the survey. The largest scale chart available was chart 13230, 1:40K.

## Q. RECOMMENDATIONS

(Refer to section M: Adequacy.) The area southwest of Little Island should have hydrography run, i.e. lead line or pole soundings.

The areas in the southern part of West Falmouth Harbor are navigationally unimportant and need no additional work.

The holiday at Latitude 41/37/35 makes the survey in that area inadequate at a scale of 1:10K. However, the present survey agrees well with H-9316 (1897), 1:10K in this area. Little would be gained by additional work in this area and it is recommended that prior survey soundings be carried forward and no additional work be done in this area.

Positive resolution of questionable wire drag depths should be accomplished by divers. This can only be done, however, if the best available positions are given with the project instructions.

Additional development lines could be run at the following locations; a priority is given with each to aid in planning the time to be spent on these items.

<u>CENTER</u> <u>LATITUDE</u>	<u>LONGITUDE</u>	<u>RADIUS OF</u> <u>DEVELOPMENT</u>	<u>REMARKS</u>	<u>RECOMMENDED</u> <u>REPRIORITY</u>
41/37/40	70/42/15	200m	37'25" sounding 34	2
41/37/30	70/42/00	200m	51' stray and 28' soundings	1
41/37/26	70/41/28	320m	27'23" soundings	1
41/37/05	70/41/48	200m	26'23" soundings	1
41/36/41	70/41/41	200m	28'24" soundings	1
41/36/16	70/41/35	440m	22-24' soundings 31-34	1
41/36/12	70/41/04	360m	25-26' soundings 31-36	3
41/35/58	70/41/47	350m	35' 25-30' soundings	1
41/35/41	70/41/02	240m	19'18' soundings (charted) A 19' <i>sound was located</i>	1
41/35/35	70/41/17	200m	24'20" sounding <i>with the AVE A.</i>	1
41/35/27	70/41/00	250m	29'27-30' soundings	2
41/35/17	70/40/59	200m	35' soundings 39-34	2
<del>41/35/17</del>	<del>70/40/35</del>	<del>250m</del>	<del>32' soundings</del>	<del>1</del>
<del>41/35/44</del>	<del>70/39/41</del>	<del>200m</del>	<del>30' sounding</del>	<del>1</del>
<del>41/36/03</del>	<del>70/39/41</del>	<del>200m</del>	<del>31' sounding</del>	<del>1</del>
41/37/40	70/40/08	200m	25'21" sounding	2

Note that several citizens of West Falmouth Harbor area indicated that the harbor channel probably will be dredged within the near future.

It is further recommended that insets at a larger scale than 1:10,000 be made for West Falmouth and Wild Harbors for clarity on the smooth sheet.

#### R. AUTOMATED DATA PROCESSING

The following programs were used in compiling this survey:

<u>#</u>	<u>Program Name</u>	<u>Version</u>
RK111	Range-Range Realtime Hydroplot	01-30-76
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
RK215	Visual Non-Real Time Plot	08-16-74
RK216	Range-Azimuth Non-Real Time Plot	02-05-76
RK300	Utility Computations	02-05-76
RK301	VISTA-Visual Station Table Maker	08-12-74
RK330	Reformat and Data Check	05-04-76
PM360	Electronic Corrector Abstract	02-02-76
4M400	Lambert State Plane Coordinates	04-01-73
RK407	Geodetic Inverse/Direct Computation	10-23-75
RK410	Geodetic Three-Point Fix	08-23-73
4M500	Predicted Tide Generator	11-10-72
AM602	ELINORE-Line Oriented Editor	05-20-75

S. REFERENCES TO REPORTS

Information regarding the method of location and computation of position for signal 043 (Cleveland Ledge Eccentric I) can be found in the field records of Survey H-9647, PE 10-2-76, written by Lt. (jg) Roger L. Parsons, NOAA.

Respectfully submitted for approval,



E. Scott Varney  
Ensign, NOAA

DESCRIPTIVE REPORT TO  
ACCOMPANY SPECIAL INVESTIGATIONS

OPR-503-WH-77

A. PROJECT INSTRUCTIONS

Section 4.10 of Project Instructions OPR-503-WH-77 dated 15 March 1977 provides for additional work in 1977 to complete surveys not finished in 1976 by the NOAA Ships PIERCE and WHITING. For this purpose the WHITING was provided with a list of additional work to be completed by Processing Division, Atlantic Marine Center (see appendix). The WHITING also investigated a reported rock off Nashwena Island in last year's survey area.

B. AREA SURVEYED

The area surveyed includes several different sections of Buzzards Bay, Massachusetts. Investigations for this report were done in the general areas of Knox Point; Quick's Hole and vicinity; Robinson's Hole and vicinity; north shore of Naushon Island; West Falmouth Harbor and vicinity; approaches to Mattapoisett Harbor; areas east, south, and west of West Island; and approaches to New Bedford Harbor. The areas surveyed contains investigations within the limits of surveys H-9646, H-9647, H-9661, and H-9678. The survey was conducted from June 9, 1977 (Julian Day 160) to November 13, 1977 (Julian Day 317).

C. SOUNDING VESSELS

WHITING survey launches <sup>2932</sup>1203 and <sup>2931</sup>1202, and skiff WH4 performed all survey investigations. EDP numbers were <sup>2933</sup>2931, 2932, and 2933 respectively.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS

Launches 1203 and 1202 were equipped with Raytheon 723D Fathometers, serial numbers 37010 and 37018 respectively. Skiff WH-4 used a Raytheon 719 fathometer, serial number 5497. Transducer draft of launch 1203 was measured at 2.0 feet while 1202 was measured at 1.3 feet (see Section J). These values are entered on corrector tapes. TRA of the WH-4 fathometer (typically around 0.8 feet) was measured each day and adjusted for by the internal draft correction on the fathometer; thus TRA is logged on the corrector tapes as 0.0.

Settlement and squat data for the launches is taken from May 1977 trials run in Brunswick, Georgia. Settlement and squat correction is not made for the skiff hydrography since the skiff always ran at a slow speed and was not considered to be different than the transducer depth previously discussed. Velocity corrections were taken from a number of different sources. If a regular survey was being run in adjacent areas at the same time, the velocity corrections from this survey were used in plotting the special investigation. For Julian Days 160, 163, 176, and 178, corrections for the appropriate launch were obtained from WH-10-9(76-77) (H-9668). For Julian Day 225, corrections from WH-10-1-77 (H-9712) were used. For Julian Day 317, velocity corrections from 1976 work of H-9668 were used; the reason for using these corrections is that this work was done in an adjacent area during the same period last year. No adjacent survey was available for Julian Days 303-307. For this reason velocity corrections were based on an average of 5 bar checks. Corrections were graphed and scaled off as shown in the appendix.

Since all work done by WH-4 was very shoal, no velocity corrections were applied to these soundings.

#### E. HYDROGRAPHIC SHEETS

A total of seven field sheets (one of which contains four separate development plots) were prepared for this report. Sheets were drawn up by WHITING personnel using a Houston Instruments DP-3-5 roll plotter, serial number 5557-6. Due to the varying density of soundings, some are plotted at 1:5000 scale while others are at 1:10000. The sheets are as follows.

<u>NAME</u>	<u>SCALE</u>	<u>SURVEY</u>	<u>JULIAN DAYS</u>	<u>VESSEL</u>	<u>POSITION NUMBERS</u>
Quick's Hole	1:5000	H-9646	160	2931	4000-4089
			163	2931	4090-4104
			176	2932	1-125
Robinson's Hole	1:5000	H-9646	178	2932	127-174
H-9646 Developments	1:5000	H-9646	163	2931	4105-4294
			317	2931	6000-6012
✓ West Falmouth Harbor	1:10000	H-9661 ✓	215	2933	6805-6819 ✓
			225	2931	5 7228-7291
Approaches to New Bedford Harbor	1:10000	H-9628	303	2931	1-136
			304	2931	137-228
West Island and Vicinity	1:10000	H-9647	305	2931	229-320
			305	2931	360-366
			306	2931	637-676

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<u>NAME</u>	<u>SCALE</u>	<u>SURVEY</u>	<u>JULIAN DAYS</u>	<u>VESSEL</u>	<u>POSITION NUMBERS</u>
West Island and Vicinity (cont'd)	1:10000	H-9647	307	2931	689-717
			307	2931	719-720
			310	2933	3000-3116
			316	2933	3117-3204
Nye Ledge	1:10000	H-9647	305	2931	320-359
			306	2931	677-688
			307	2931	718

Velocity corrections, tide corrections, and static draft corrections have been applied to the soundings. Tide corrections are based on predicted tides from Newport, R.I. corrected according to zoning furnished by Oceanographic Division (C 331) their correspondence of January 15, 1976.

#### F. CONTROL STATIONS

The following were used as electronic and/or visual control stations:

<u>ELECTRONIC CONTROL NUMBER</u>	<u>NAME</u>	<u>SOURCE</u>	<u>USE (see key)</u>
1	Joy Reference Mark 4	Vol 1	1
3	Radome (Round Hill Light)	Vol 1	4,5
5	West Island Tower B41S41	Vol 1	1,2,4
7	But, 1977	PP62	1
9	Bird Island Lighthouse	Vol 1	4
11	Cleveland Ledge Lighthouse	Vol 1	4
13	Wing's Neck Lighthouse	Vol 1	4
19	Nye's Neck Water Tank	Vol 1	4
21	Chass	Vol 1	3
33	Wood's Hole Water Tank	Vol 1	4
43	Fess, 1977	WHITING	2
46	Duck, 1977	WHITING	2
47	Lamb	Vol 1	3
85	Bri, 1976	PP62	2
401	Walcott USE	Vol 1	1
403	Tater, 1976	PP62	1
405	Black Rock Beacon	Vol 1	4
407	Butler Flats Lighthouse	Vol 1	4
409	Fairhaven Water Tank	Vol 1	4
411	New Bedford Radio Tower	PP62	4
413	New Bedford Fort	Vol 1	1
417	TP-01, 1976	PP62	1
421	Cormorant Rock Beacon	Vol 1	3,4

<u>ELECTRONIC CONTROL NUMBER</u>	<u>NAME</u>	<u>SOURCE</u>	<u>USE (see key)</u>
423	Mat 2 Reference Mark 1	Vol 1	1
425	Angel	Vol 1	1
427	Ned Point Lighthouse	Vol 1	4
431	Ram 2, 1976	PP62	2
433	Nashwena Island Monument	Vol 1	5
435	Cuttyhunk Wind Generator, 1977	PP62	5

Station Uses: 1 = Electronic (Range/Range)  
 2 = Electronic (Range/Azimuth)  
 3 = Range/Azimuth Initial  
 4 = Calibration Object  
 5 = Visual Signal

Station Fess, 1977 and Duck, 1977 were established by WHITING personnel by three point fix with check angle.

Joy RM 4 and Mat 2 RM 1 are reference marks whose position was computed using AM407 and the distance and direction furnished in the station description. In both cases the original station was not recovered. Bri, 1976 and Ram 2, 1976 were also used by NOAA Ship PIERCE in 1976.

For other sources, "Vol. 1" means the source is the published control for Buzzard's Bay, and "PP62" means the control was established in 1976 or 1977 by Photo Party 62, Robert S. Tibbits, Chief of Party.

#### G. HYDROGRAPHIC POSITION CONTROL

Range/range, range/azimuth, and visual methods of control were used during these investigations. Julian Days 215, 310 and 316 were range/azimuth, Julian Day 317 visual, and all other work range/range. Visual calibrations were obtained daily during range/range operations. These calibrations were three point fixes with check angles; normally several fixes with inverse distances of 5 meters or less were obtained. In addition, every two weeks the system was calibrated along a baseline of known length according to procedures described in the Del Norte manual. It should be noted that on Julian Days 303-307 frequent station changes took place during the course of operations.

#### H. SHORELINE

Shoreline on the sheets was taken from shoreline manuscripts:

TP-00768, May 1974; TP-00769, April 1976; TP-00770, May 1976; and TP-00774, December 1975. Shoreline on the 1:5000 Robinson's Hole sheet was taken from a commercial enlargement of the appropriate shoreline manuscript.

### 1. SPECIAL INVESTIGATION ITEMS

The following is a description of the special investigation items as described in the memo "Additional Work - Buzzard's Bay - PIERCE and WHITING" from Processing Division, Atlantic Marine Center (see appendix). All referenced depths are corrected to MLW.

#### H-9646 (WH-10-8-76)

1. Robinson's Hole: This area was investigated on J.D. 178 by launch 1202. Only one rock was seen awash in the area (position 127). Developments with 5 meter line spacing were run over the area of the other charted rocks, producing soundings as shoal as 2 feet. No detached positions on submerged rocks were taken due to strong currents and difficulty in judging visually where the shoalest areas were. From discussions with local residents, there seems little doubt that other submerged rocks are present. Recommend retention as charted.

2. Lone Rock ( $41^{\circ} 27.7'N$ ,  $70^{\circ} 51.2'W$ ) This item was developed extensively, a dive was made to determine least depth on Julian Day 166. The feature is a huge solitary rock with a least depth of 4.2 feet corrected to MLW.

3. North Rock ( $41^{\circ} 27.1'N$ ,  $70^{\circ} 51.2'W$ ) Additional lines were run in the vicinity of North Rock.

4. (a) There is no 9 foot sounding either charted or found on H-9646 at  $41^{\circ} 29.3'N$  and  $70^{\circ} 46.7'W$ . However, the 9 foot sounding at  $41^{\circ} 29.3'N$  and  $70^{\circ} 46.3'W$  was developed at 50 meter spacing. Least depth found was 7 feet, 3rd sounding out of position 4273.

(b) The 18 foot sounding at  $41^{\circ} 29.0'N$  and  $70^{\circ} 47.15'W$  was developed at 50 meter spacing. Least depth found was 18 feet, 1st sounding out of position 4229.

(c) The charted 12 foot sounding at  $41^{\circ} 28.3'N$  and  $70^{\circ} 48.02'W$  was developed at 50 meter spacing. A 13 foot sounding was found at this location, 5th out of position 4145. Recommend retention as charted.

5. Quick's Hole - Wire sweep and dive was judged impractical due to strong currents in this area. However, all presurvey review items were redeveloped. PSI 9 - The two submerged rocks at

(6)

$41^{\circ} 26.88'N$ ,  $70^{\circ} 50.66'W$  were not found with 25 meter line spacing. There are no rocks awash in the immediate area. Recommend deletion.  
PSI 10 - The rock awash at  $41^{\circ} 26.78'N$ ,  $70^{\circ} 50.63'W$  was not found or seen with 25 meter spacing. Recommend deletion.  
PSI 11 (a) - The charted 6 foot sounding at  $41^{\circ} 26.6'N$ ,  $70^{\circ} 51.2'W$  was not found with 25 meter spacing. Recommend deletion.

(b) - The charted 5 foot sounding at  $41^{\circ} 26.44'N$ ,  $70^{\circ} 50.38'W$  was not found; however, a 9 foot rock was found at position 69. Due to such shoal indications, retention is recommended.

(c) - A 5 foot sounding was found 55 meters E of the charted 4 foot sounding at  $41^{\circ} 26.64'N$ ,  $70^{\circ} 50.63'W$ . Retention recommended.

(d) - A 4 foot sounding was found 40 meters S of a charted 2 foot sounding at  $41^{\circ} 26.69'N$ ,  $70^{\circ} 50.56'W$ . Retention recommended.

6. The charted rock at  $41^{\circ} 27.8'N$ ,  $70^{\circ} 48.4'W$  was concretely verified at the 2nd sounding out of position 4178.

#### H-9647

7. (a) Least depth of Randall Rock,  $41^{\circ} 38.6'N$ ,  $70^{\circ} 46.8'W$ , was measured by divers as 100 feet. Randall Rock is not a solitary rock but rather a pile of large boulders. Due to poor visibility, it is possible that a shoaler rock exists than the one leadlined. Recommend retention of 7 foot sounding.

(b) Least depth of Snow Rock,  $41^{\circ} 38.4'N$ ,  $70^{\circ} 47.5'W$ , was measured as 8.3 feet by divers. Due to poor visibility, recommend retention of 5 foot sounding.

(c) Gallatin Rock,  $41^{\circ} 38.0'N$ ,  $70^{\circ} 47.2'W$  was measured as 10.3 feet by divers, as charted.

(d) Least depth of Nye Ledge,  $41^{\circ} 37.2'N$ ,  $70^{\circ} 46.4'W$ , was found as 10 feet on 50 meter sounding line spacing, 5th sounding out of position 334. Recommend retention as charted.

8. Cormorant Rock was developed as close as safely possible on Julian Day 305, position 360-366, and on Julian Day 306, position 637-648.

9. (a) Area southeast of West Island was surveyed on Julian Day 316.

(b), (c), and (d) the vicinity of Ram Island, entrance to Brant Island Cove, and the area northeast of Whale Rock were done on Julian

Day 310.

(d) and (e) Pine Island Pond and the northeast inlet to Brant Island Cove were not surveyed. Pine Island Pond is very shallow and probably bares at low water.

10. Not surveyed.

11. (a) The charted 12 foot sounding at  $41^{\circ} 34.2'N$ ,  $70^{\circ} 48.8'W$  was developed at 50 meter spacing. A 13 foot sounding was found 70 meters NW of this position, on the 1st sounding out of position 279. Retention recommended.

(b) A 14 foot sounding (3rd out position 300) was found 80 meters E of a charted 12 foot sounding at  $41^{\circ} 34.3'N$ ,  $70^{\circ} 48.9'W$ . Retention of charted sounding recommended.

(c) A 7 foot sounding (2nd out position 310) was found 50 meters W of a charted 6 foot sounding,  $41^{\circ} 34.5'N$ ,  $70^{\circ} 49.0'W$ . Retention of charted sounding recommended.

12. Two developments of shoal indications were done south of West Island. Least depths were 16' (4th out position 257) and 17 feet (2nd out position 244).

13. The charted sunken rock at  $41^{\circ} 36.96'N$ ,  $70^{\circ} 48.08'W$ , was developed at 20 meter spacing. No evidence of a sunken rock was found either visually or on the fathogram. Due to the irregular nature of the bottom, retention is recommended.

14. The sunken ledge at  $41^{\circ} 38.2'N$ ,  $70^{\circ} 47.8'W$ , was developed at 50 meter spacing. A 5 foot least depth was obtained at 1st sounding out of position 703. Recommend retention as charted.

15. Hiller Cove work is included with H-9724.

H-9661 *VRK*

16. Hydrography south of the West Falmouth Harbor bridge was done on Julian Day 215.

17. Additional lines southwest of Little Island were done on Julian

Day 225.

18. The charted 30 foot sounding at  $41^{\circ} 35.7'N$ ,  $70^{\circ} 39.7'W$ , was developed at 50 meter spacing. No indication of this sounding was found; deletion recommended.

19. No "Holiday off Silver Beach" was seen on the PIERCE sheets.

H-9628

21. A line around Little Black Rock as close as possible was run on Julian Day 303.

22. Several developments were run at 50 meter spacing on Negro Ledge on Julian Days 303 and 304. A 17 foot least depth was found for the charted 16 foot sounding at  $41^{\circ} 32.9'N$ ,  $70^{\circ} 51.9'W$  on the 3rd sounding out of position 158. A 14 foot sounding on position 164 was found at the charted 14 foot sounding for Hursell Rock,  $41^{\circ} 32.8'N$ ,  $70^{\circ} 51.9'W$ . A 17 foot least depth was found the 2nd sounding out of position 17 in the location of a charted 19 foot sounding at  $41^{\circ} 32.8'N$ ,  $70^{\circ} 52.2'W$ . A 20 foot least depth (3rd out of position 28) was found at the charted 21 foot sounding,  $41^{\circ} 32.6'N$ ,  $70^{\circ} 52.1'W$ .

23. The charted 18 foot rock at  $41^{\circ} 35.4'N$ ,  $70^{\circ} 52.9'W$ , was developed at 50 meter spacing. Least depth found was 19 feet, 2nd sounding out of position 221. Retention of 18 foot sounding recommended. Ambient depth at N "10" is 25 feet; therefore a 26 foot sounding was not searched for.

24. Least depth on Packet Rock,  $41^{\circ} 34.8'N$ ,  $70^{\circ} 52.2'W$ , was found as 9 feet (4th out of position 79) on 50 meter spacing. Due to the irregular nature of the bottom, retention of the charted 5 foot sounding is recommended.

25. Mosher Ledge,  $41^{\circ} 33.9'N$ ,  $70^{\circ} 51.4'W$ , was developed at 50 meter spacing and a least depth of 8 feet obtained on the 1st sounding out of position 115. Due to the irregular nature of the bottom, retention of the 6 foot sounding is recommended.

26. PSI 40 (2), 18 foot rock,  $41^{\circ} 32.2'N$ ,  $70^{\circ} 53.62'W$ , was developed at 50 meter spacing and a least depth of 25' obtained at the 1st sounding out of position 203. Based on examination of the

fathograms the rock is probably there; retention recommended.

27. PSI 42, 32 foot reported sounding at  $41^{\circ} 33.6'N$ ,  $70^{\circ} 51.6'W$ , was picked up on the 2nd sounding out of position 124, least depth 34 feet. Recommend retention of 32 foot charted sounding.

28. Henrietta Rock,  $41^{\circ} 34.3'N$ ,  $70^{\circ} 52.2'W$ , was the subject of considerable development and a dive. Least depth by leadline and fathogram was 11 feet. Feature appears substantially as charted.

29. A detached position was taken 3 meters west of Egg Island. No remnants of the beach were seen at low water; the shoalest object was a rock 0.2 feet above the water line at the time of observation. Recommend charting as rock awash.

30. Great Ledge,  $41^{\circ} 32.4'N$ ,  $70^{\circ} 53.8'W$ , was developed at 50 meter spacing. A least depth of 5 feet was obtained at position 187 and position 196. No breakers were observed; however, work was run at high tide. Recommend retention of 1 foot sounding.

#### H-9644

31. PSI 5: Instructions from Processing Division state "Divers and wire sweep required." However, Pre-Survey Review instructions state: "No specific investigation of this reported wreck required." Therefore no special investigation was done. Due to time constraints, no special investigations on H-9644 were done.

#### J. MISCELLANEOUS

It should be noted that this survey was done essentially in two parts. Sheets 1-4, on the eastern half of the bay, were done early in the season; data is labelled "Special Investigations." Sheets 5-7, on the western side, were done from Julian Days 303-316. This data was labelled "Pierce Pick-ups" at the time, since all work on these sheets is from NOAA Ship PIERCE sheets of 1976.

Due to the fact that these investigations were done concurrently with other surveys, duplicate and omitted position numbers are common. Close attention should be paid to the breakdown shown in Section E.

The investigation on Julian Day 317 is in response to a report of a rock off Knox Point by the caretaker of Nashwena Island, Mr. Alan P. Wilcox. This rock, known locally as "Centerboard Rock", was investigated using visual control and its existence verified

(see sounding volume). A message was sent to Coast Guard District 1 on November 18, 1977 (enclosed) and a Dangers to Navigation Report sent to Marine Surveys and Maps Division (C3) through AMC.

Between Julian Days 225 and 303 the transducer on Launch 1203 was remounted, changing TRA from 1.3 feet to 2.0 feet.

SPECIAL INVESTIGATIONS

PARAMETER TAPES

QUICK'S HOLE

FEST=20000  
CLAT=4576000  
CMER=70/49/00  
GRID=00/00/15  
PLSCL=5000  
PLAT=41/26/20  
PLON=70/51/40  
VESNO=2932  
YR=77  
ANDIST=0.0

ROBINSON'S HOLE

FEST=20000  
CLAT=4576000  
CMER=70/49/00  
GRID=00/00/15  
PLSCL=5000  
PLAT=41/26/30  
PLON=70/50/00  
VESNO=2932  
YR=77  
ANDIST=0.0

H-9646 DEVELOPMENTS

DEVELOPMENT 4A

FEST=20000  
CLAT=4576000  
CMER=70/49/00  
GRID=00/00/15  
PLSCL=5000  
PLAT=41/29/00  
PLON=70/46/00  
VESNO=2932  
YR=77  
ANDIST=0.0

DEVELOPMENT 4B

FEST=20000  
CLAT=4576000  
CMER=70/49/00  
GRID=00/00/15  
PLSCL=5000  
PLAT=41/28/52  
PLON=70/47/00  
VESNO=2932  
YR=77  
ANDIST=0.0

H-9646 DEVELOPMENTS  
CENTERBOARD ROCK

FEST=20000  
CLAT=4576000  
CMER=70/49/00  
GRID=00/00/15  
PLSCL=5000  
PLAT=41/26/00  
PLON=70/54/00  
VESNO=2932  
YR=77  
ANDIST=0.0

DEVELOPMENTS 4C AND 6

FEST=20000  
CLAT=4576000  
CMER=70/49/00  
GRID=00/00/15  
PLSCL=5000  
PLAT=41/27/45  
PLON=70/47/50  
VESNO=2932  
YR=77  
ANDIST=0.0

WEST FALMOUTH HARBOR

FEST=25000  
CLAT=4576000  
CMER=70/49/30  
GRID=00/00/30  
PLSCL=10000  
PLAT=41/34/30  
PLON=70/38/00  
VESNO=2931  
YR=77  
ANDIST=0.0

APPROACHES TO NEW BEDFORD HARBOR (PIERCE PICK-UPS WEST)

FEST=25000  
CLAT=4576000  
CMER=70/49/30  
GRID=00/00/30  
PLSCL=10000  
PLAT=41/31/45

SPECIAL INVESTIGATIONS

SIGNAL TAPE

001	6	41	30	43663	070	59	07018	139	0000	000000	JOY RM 4
003	6	41	32	24234	070	55	50761	139	0000	000000	ROUND HILL LT.
005	6	41	35	00950	070	49	27429	139	0011	000000	WEST ISLAND TWR
007	6	41	40	35480	070	42	59940	139	0000	000000	BUT, 1977
009	6	41	40	09099	070	43	04241	139	0000	000000	BIRD IS. LT.
011	6	41	37	51087	070	41	40931	139	0000	000000	CLEV. LDG. LT.
013	6	41	40	48508	070	39	42260	139	0000	000000	WING'S NK LT.
019	6	41	38	26928	070	39	00933	139	0000	000000	NYES NECK WTR TK
021	6	41	36	15171	070	38	57000	139	0000	000000	CHASS(TWR)
033	6	41	31	33071	070	39	43352	139	0000	000000	WOODS HL WTR TK
043	6	41	26	56551	070	50	29892	139	0000	000000	FESS, 1977
046	6	41	27	30377	070	48	28302	139	0000	000000	DUCK, 1977
047	6	41	27	18084	070	49	30388	139	0000	000000	LAMB
085	6	41	35	53977	070	38	34784	139	0000	000000	BRI, 1976
401	6	41	35	37389	070	54	05185	139	0000	000000	WALCOTT USE
403	6	41	34	59490	070	51	22422	139	0000	000000	TATER, 1976
405	6	41	34	40951	070	51	46667	139	0000	000000	BLACK RK BN
407	6	41	36	13285	070	53	42007	139	0000	000000	BUTLER FLATS LH
409	6	41	38	30252	070	53	12307	139	0000	000000	F'HVN WTR TK
411	6	41	37	20892	070	55	07145	139	0000	000000	N.B. RADIO TWR
413	6	41	37	26509	070	54	10524	139	0000	000000	N.B. FORT
417	6	41	35	34214	070	55	40690	139	0000	000000	TP-01, 1976
421	6	41	36	16611	070	47	32295	139	0000	000000	CORMORANT RK BN
423	6	41	37	42955	070	48	07929	139	0000	000000	MAT 2 RM 1
425	6	41	38	29282	070	45	56313	139	0000	000000	ANGEL
427	6	41	39	02756	070	47	46211	139	0000	000000	NED PT LH
431	6	41	37	06173	070	48	18813	139	0000	000000	RAM 2, 1976
433	6	41	25	36395	070	52	36417	139	0000	000000	NASHWENA IS MON
435	6	41	25	08301	070	56	03159	139	0000	000000	CUTTYHUNK WIND GEN



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

Date: November 29, 1977  
To: C3  
From: Commanding Officer, NOAA Ship Whiting *Jul*  
Subject: Dangers to Navigation Report

Hydrographic survey H-9645 (Nov. 1977), conducted by the NOAA Ship Whiting, discovered a 6 foot sounding .1 miles north of the northwest tip of Nashawena Island, Buzzards Bay, Massachusetts.

Location of the sounding is:

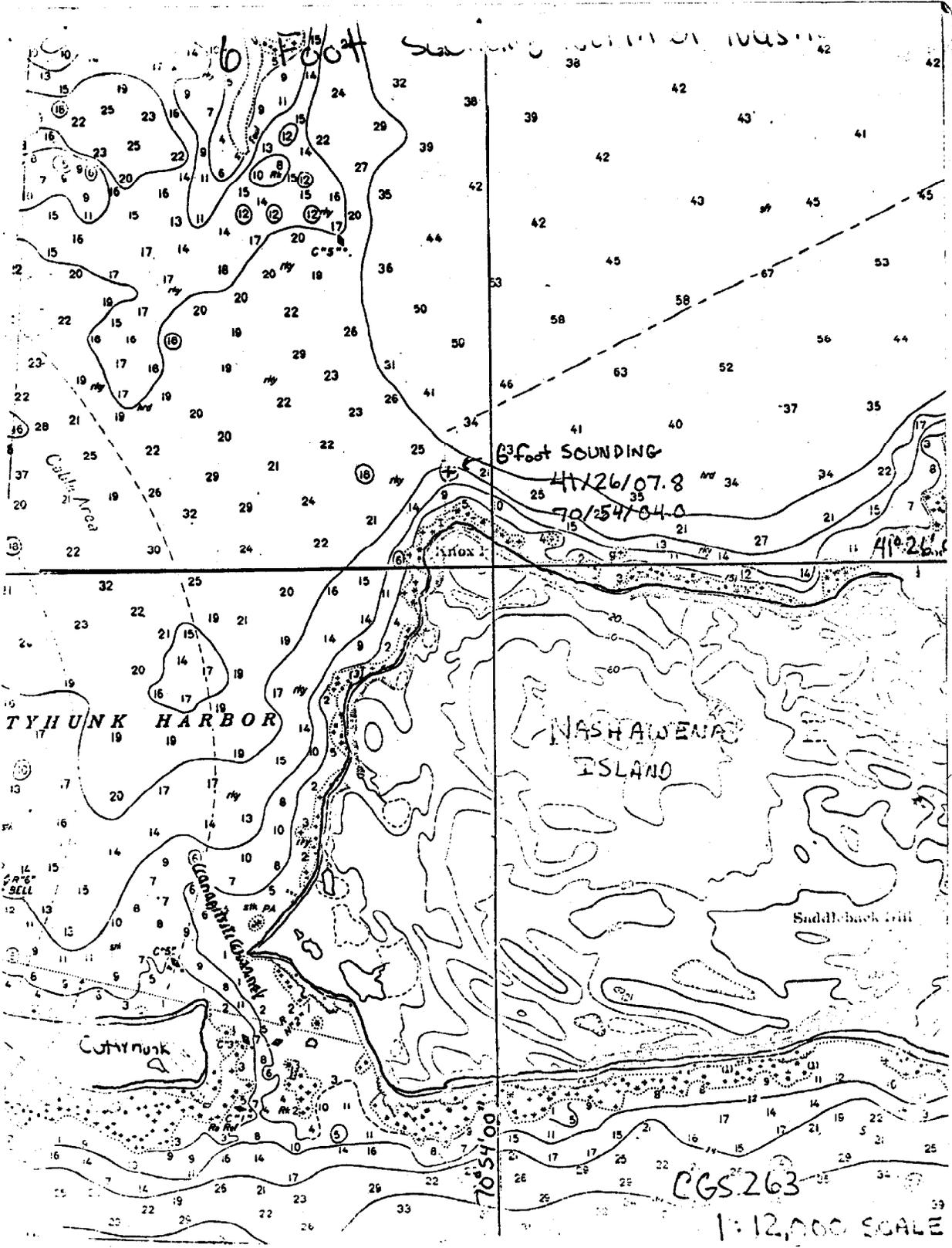
Latitude 41° 26' 07.8'' N

Longitude 70° 54' 04.0'' W

The sounding is presently charted on NOS 13230 as 13 feet.  
The sounding was located by means of visual hydrography.

A report was filed to Coast Guard District 1 to incorporate into their Local Notice to Mariners.





60 Foot

CGS 263

63 foot SOUNDING

41° 26' 07.8

70° 54' 04.0

41° 26'

TYHUNK HARBOR

NASHAWENA ISLAND

Saddleback Hill

Tyhunk

CGS 263

1:12,000 SCALE

70 54 00



1AAXC  
1  
02

FI DE AMC

R 181357Z NOV 77  
FM NOAA SHIP WHITING/WTEW  
TO CCGDONE BOSTON MA  
BT

UNCLAS

LOCAL NOTICE TO MARINERS INFORMATION  
HYDROGRAPHIC SURVEYS BY THE WHITING HAVE LOCATED THE FOLLOWING DANGERS  
TO NAVIGATION.

1. AN UNCHARTED ROCK COVERED BY SIX FEET OF WATER AT MEAN LOW WATER  
LOCATED: NOS CHARTS 13229 AND 13230 AT LATITUDE 41 DEGREES 26 MINUTES  
07.8 SECONDS NORTH AND LONGITUDE 70 DEGREES 54 MINUTES 04.0 DEGREES  
WEST. THIS POSITION IS APPROXIMATELY ONE TENTH OF A NAUTICAL MILE  
NORTH OF KNOX POINT ON NASHAWENA ISLAND. THIS ROCK IS JUST EAST OF  
A CHARTED 13 FOOT SOUNDING AND IS KNOWN LOCALLY AS CENTERBOARD ROCK.
2. AN EXTENSIVE AREA OF UNCHARTED SHOALING LIES EAST OF HOG ISLAND  
CHANNEL LIGHT NUMBER 8 (LIGHTLIST NUMBER 657); NOS CHARTS 13229, 13230  
AND 13236. THIS SHOALING CAN BEST BE DESCRIBED AS BEING CONTAINED WITHIN

IN A CIRCLE WITH A 0.4 NAUTICAL MILE RADIUS CENTERED AT LATITUDE 41  
DEGREES 42 MINUTES 24 SECONDS NORTH AND LONGITUDE 70 DEGREES 38 MINUTE  
37 SK3CBFDS WEST. SOUNDINGS WITHIN THE CIRCLE ARE AS MUCH AS  
10 FEET SHOALER THAN CHARTED SOUNDINGS AND REACH A MINIMUM DEPTH OF 0  
FOOT NEAR THE CENTER OF THE CIRCLE.

BT

C TO 37 SECONDS IN PARA 2

TOD: 18/1414Z NOV 77 DC  
DE FI R AJ

APPROVAL SHEET

Submitted by:

*David M. Goodrich*

David M. Goodrich

Lt.(j.g.), NOAA

Supervision of field and office work on this hydrographic survey was continuous on a day to day basis to ensure completeness of the survey and that all work was done in accordance with the Project Instructions.

Approved/Forwarded:

*Dink R Taylor*

*for* John W. Carpenter

Cdr., NOAA

Commanding, NOAA Ship WHITING

4/25/21

70/39/04

U.S. DEPARTMENT OF COMMERCE  
August 9, 1978 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL OCEAN SURVEY

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Atlantic Marine Center:

Hourly heights are approved for

Tide Station Used (NOAA Form 77-12): 844-7685 Chappaquoit Point, Ma.

Period: August 3-13, 1977.

HYDROGRAPHIC SHEET: H-9661

OPR: 503

Locality: Buzzards Bay, Massachusetts

Plane of reference (mean ~~LOW~~ low water): 2.96 ft.

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

Remarks: Zone direct.

*James R. Hubbard*  
for <sup>85</sup> Chief, Tides Branch

5/23/77

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Atlantic Marine Center:

Hourly heights are approved for

Tide Station Used (NOAA Form 77-12): Chappaquodit Point

Period: September 7 - October 16, 1976

HYDROGRAPHIC SHEET: H-9661

OPR: 503

Locality: Buzzards Bay, Mass.

Plane of reference (mean lower low water): 3.77 ft.

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

Remarks: Zone direct

  
\_\_\_\_\_  
Chief, Tides Branch

## SIGNAL LIST

PE-10-3-76

H-9661

The following signals were used as control stations or hydrographic signals for H-9661 during the 1976 field season in Buzzards Bay, Massachusetts. A separate listing of latitudes and longitudes follows this listing of names.

**SIGNAL NUMBER:** In general the numbers increase from west to east across the project area. Signal numbers 001-099 were used for electronic control stations. Numbers 100-999 were reserved for visual/calibration signals.

**NAMES:** The name of the station is shown. All capitals indicate that the station is part of the basic control network and is listed in the published horizontal control. Supplemental stations either located by Photo Party 62 or ship personnel are shown in leading capitals. If alternate names were occasionally used in the field records, the alternate is shown in parenthesis.

**LOCATED BY:** All stations which are not part of the already existing basic control network were either located by Photo Party 62 (using Third-Order procedures) or by ship personnel.

PP = Photo Party 62

PE = NOAA Ship PEIRCE (CSS-28)

PE(Ex) = NOAA Ship PEIRCE (located using "exception" procedures specified in Section 3.1.2.2 of the Provisional Hydrographic Manual)

**SOURCE:** For existing basic control stations, the book/page of the description and the card number for the geodetic position are shown. For stations located by the PEIRCE, the volume/page of the "Observations of Horizontal Directions" (NOAA Form 76-52) is shown. Note that the abstracts and position computations are included with the supplemental data of each survey. No source is shown for stations located by Photo Party 62.

OPR-503-PE-76

SIGNAL NUMBER	NAME	LOCATED BY	SOURCE
037	ANGEL 1910 ✓ - 1934		- I/320
043	Cleveland Eccentric I ✓	PE	Supplemental Data H-9647
044	Bird Island ✓	PE	Vol II Pg 11-13
045	Cleveland Eccentric II ✓	PE	Vol I Pg 27-38
068	SCRAG 1910 ✓ - 1939		511/24 1/864
069	Nye ✓	PP	
070	Cha ✓	PP	
071	Sil	PP	
080	GUN 1910 ✓ - 1939		- 1/863
400	CLEVELAND LEDGE LIGHT 1961 ✓ ✓		II/79
502	WOODS HOLE YELLOWSTONE TOWER 1928 (✓ 1932)		511/32 1/340 <sup>411</sup>
503	NYES NECK WATER TOWER 1910 ✓ - 1939		511/25 1/864
506	CHASS 1910 ✓ - 1939		511/25 1/863
507	Lit ✓	PP	
510	Hol ✓	PP	
512	Roa ✓	PP	
520	(Jones Pilot House Pier) ✓	PE	Vol I Pg 12-14
521	(Hodgson Beach) ✓	PE	Vol I Pg 12-14
522	(Boat Beach) ✓	PE	Vol I Pg 12-14 <sup>1</sup>
523	(Lum House Southern Chimney) ✓	PE	Supp. Data H-9661
534, 524	(Lum sign) ✓	PE	Vol I Pg 12-14
525	Fin (Dolphin on pier) ✓	PE	Vol I Pg 16-17
527	Cha Rail ✓	PE	Vol I Pg 16-17
528	(Flagpole) ✓	PE	Vol I Pg 23-26
529	(Flagpole) ✓	PE	Vol I Pg 23-26
530	(Telephone Pole) ✓	PE	Vol I Pg 23-26
531	(Light Pole) ✓	PE	Vol I Pg 23-26
532	(Pier Piling) ✓	PE	Vol I Pg 23-26
533	(Telephone Pole) ✓	PE	Vol I Pg 23-26
530	Nye II ✓	PE	Vol I Pg 17-22
551	Silver ✓	PE	Vol I Pg 17-22
555	Crow ✓	PE	Vol I Pg 17-22
556	Chimney ✓	PE	(Photo transfer from TP-00770)

SIGNAL TAPE LISTING  
 OPR 503-PE-76  
 PE 10-3-76  
 H-9661

037	7	41	38	29282	070	45	56313	250	0000	000000	Angel
043	0	41	37	51133	070	41	41240	254	0000	000000	-
044	7	41	40	08737	070	43	04579	254	0000	000000	
045	7	41	37	50899	070	41	40752	254	0000	000000	
068	2	41	39	58603	070	39	15295	250	0000	000000	SCRAG
069	2	41	38	16067	070	39	13916	254	0000	000000	
070	7	41	36	17510	070	39	10743	254	0000	000000	
080	7	41	33	52627	070	39	15791	250	0000	000000	GUN
400	2	41	37	51087	070	41	40931	139	0000	000000	CLEVELAND LEDGE LIGHT
502	7	41	31	33071	070	39	43352	139	0000	000000	
503	7	41	38	26928	070	39	00933	139	0000	000000	
506	7	41	36	15171	070	38	57000	139	0000	000000	(meters) CHASS
507	0	41	36	32953	070	39	00091	243	0000	000000	
510	7	41	36	22912	070	38	22409	254	0000	000000	
512	5	41	35	57361	070	38	59041	254	0000	000000	
520	2	41	36	25314	070	38	48872	243	0000	000000	
521	0	41	36	28534	070	38	39479	243	0000	000000	
522	0	41	36	30976	070	38	30272	243	0000	000000	
523	1	41	36	24734	070	38	31419	243	0000	000000	
524	1	41	36	17069	070	38	35701	243	0000	000000	
525	6	41	36	18475	070	38	44496	243	0000	000000	
527	5	41	36	20216	070	39	07732	243	0000	000000	
528	1	41	36	28588	070	38	25940	243	0000	000000	
529	1	41	36	30224	070	38	19443	243	0000	000000	
530	1	41	36	31466	070	38	16833	243	0000	000000	
531	2	41	36	26497	070	38	15953	243	0000	000000	
532	7	41	36	23444	070	38	15126	243	0000	000000	
533	7	41	36	21211	070	38	20619	243	0000	000000	
550	4	41	38	16008	070	39	12260	243	0000	000000	
551	4	41	38	21446	070	38	40017	243	0000	000000	
555	7	41	38	06980	070	38	48333	243	0000	000000	
556	2	41	38	16450	070	39	12703	253	0000	000000	

FORM C&GS-733M  
(6-66)

OCEANOGRAPHIC LOG SHEET - M  
BOTTOM SEDIMENT DATA

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

SERIAL NO.	DATE	SAMPLE POSITION		DEPTH (Fathoms) Feet	WEIGHT OF SAMPLER	AP. PENE- TRA- TION	LENGTH OF CORE	COLOR OF SED- IMENT	FIELD DESCRIPTION	CHECKED BY	DATE CHECKED	REMARKS (Unusual conditions, cohesiveness, dented cutter, stat. no., type of bottom relief i.e., slope, plain, disposition, etc.)	OBS. INIT.
		LATITUDE	LONGITUDE										
3342 ✓	15 Sept	38° 27' 41"	40° 59' 37"	37	10 lb	surface		bk, gn, bk, gn, M, S *	Depth on this form are	ESV	24 Nov 76		
3343 ✓	"	38° 30' 41"	41° 33' 36"	36	"	"		gn, gy, gn, gy, S, Sh *	uncorrected and were				
3344 ✓	"	38° 27' 41"	41° 56' 35"	35	"	"		gn, gy, gn, gy, M *	taken directly from				
3345 ✓	"	38° 28' 42"	42° 30' 22"	22	"	"		gn, gn, S, Sh *	fathograms.				
3346 ✓	"	38° 30' 43'	43° 01' 22"	22	"	"		gn, S Sh *					
3347 ✓	"	38° 31' 43'	43° 27' 25"	25	"	"		gn S, Sh *					
3348 ✓	"	38° 31' 43'	43° 58' 27"	27	"	"		gn S *					
3349 ✓	"	38° 01' 43'	43° 59' 29"	29	"	"		gn M, S *					
3350 ✓	"	38° 01' 43'	43° 29' 27"	27	"	"		br gn br gn S *					
3351 ✓	"	38° 01' 42'	42° 58' 28"	28	"	"		gn S, Sh *					
3352 ✓	"	37° 59' 42'	42° 27' 27"	27	"	"		gn br gn br S *					
3353 ✓	"	37° 59' 41'	41° 58' 36"	36	"	"		gn M, S *					
3354 ✓	"	38° 01' 41'	41° 28' 28"	28	"	"		br gn br gn crs S *					
3355 ✓	"	38° 01' 40'	40° 59' 36"	36	"	"		gn M *					
3356 ✓	"	37° 30' 40'	40° 56' 35"	35	"	"		gn br gn br gy M, S *					
3357 ✓	"	37° 30' 41'	41° 28' 34"	34	"	"		gn S, Sh *					
3358 ✓	15 Sept	37° 29' 41'	41° 57' 39"	39	"	"		gn S, Sh *					

Use more than one line per sample if necessary.



#3

U.S. DEPARTMENT OF COMMERCE  
COAST AND GEODETIC SURVEY

OCEANOGRAPHIC LOG SHEET - M  
BOTTOM SEDIMENT DATA

FORM C&GS-733M  
(6-66)

VESSEL	NOAA Ship PEIRCE	DATE	SAMPLE POSITION		DEPTH (Fathoms) Feet	WEIGHT OF SAMPLE FLER	AP. PENE- TRA- TION	LENGTH OF CORE	COLOR OF SEDI- MENT	FIELD DESCRIPTION	CHECKED BY ESV	DATE CHECKED 24 Nov 76	REMARKS (Unusual conditions, cohesiveness, denied cutter, stat. no., type of bottom refer i.e., slope, plain, disposition, etc.)	OBS. INIT.
			LATITUDE 41	LONGITUDE 70										
1170 ✓	18 Sept	35° 16' ✓	42° 04' ✓	41	10 lb	surface		gn <del>gy</del>	gn M, S *	Yes. No. 2832 Depths on this form are				
1171 ✓	18 Sept	35° 13' ✓	41° 33' ✓	44	"	"		gn	gn M, S *	uncorrected and are				
3367 ✓	19 Sept	38° 41' ✓	40° 28' ✓	18	"	"		gn	bk S, gn M *	taken directly from				
3368 ✓	"	38° 09' ✓	40° 33' ✓	35	"	"		bk	bk M *	fathograms.				
3369 ✓	"	37° 39' ✓	40° 39' ✓	32	"	"		bk	bk M, S *					
3370 ✓	"	37° 10' ✓	40° 45' ✓	28	"	"		gy	gy S *					
3371 ✓	"	36° 42' ✓	40° 48' ✓	32	"	"		bk	bk M, S *					
3372 ✓	"	36° 11' ✓	40° 56' ✓	33	"	"			S, P *					
3373 ✓	"	35° 41' ✓	41° 01' ✓	23	"	"			S *					
3374 ✓	"	35° 09' ✓	41° 03' ✓	47	"	"		bk	bk M *					
3375 ✓	"	35° 07' ✓	40° 34' ✓	41	"	"		gn	gn M *					
3376 ✓	"	35° 37' ✓	40° 33' ✓	47	"	"		bk	bk M *					
3377 ✓	"	36° 01' ✓	39° 59' ✓	35	"	"		gy	gy S *					
3378 ✓	"	36° 30' ✓	39° 57' ✓	32	"	"			crs S, Sh *					
3379 ✓	19 Sept	37° 01' ✓	39° 59' ✓	22	"	"			S, brk Sh *					

Use more than one line per sample if necessary.



APPROVAL SHEET

Field work on PE-10-3-76, H-9551, was done under my immediate daily supervision. The field sheet and all records have been reviewed and are approved by me.

  
For Joseph W. Dropp  
Commander, NOAA  
Commanding Officer  
NOAA Ship PEIRCE (CSS-28)



**U.S. DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
ATLANTIC MARINE CENTER  
439 West York Street  
Norfolk, VA 23510-1114

August 31, 1989

MEMORANDUM FOR: Users of Hydrographic Survey  
H-9661

FROM: *Christopher B. Lawrence*  
Commander Christopher B. Lawrence, NOAA  
Chief, Atlantic Hydrographic Section

SUBJECT: Processing of Buzzards Bay Survey H-9661

Office processing of Survey H-9661 by the Atlantic Hydrographic Section, N/CG244, was limited to verification of field survey data. The hydrographic data are presented on a smooth sheet which includes shoreline transferred from field edited and office reviewed shoreline manuscripts. Conflicts between shoreline manuscripts and hydrography were resolved on the smooth sheet. Notes were added in pencil to the Descriptive Report during verification. Internal quality control checks were performed on the verification process.

Evaluation and Analysis, Final Inspection and Approval procedures were not performed on Survey H-9661; consequently, no Evaluation Report was prepared. The data from this survey should be used only to supplement presently charted hydrography. This survey is not considered adequate to supercede charted hydrography without a detailed comparison and evaluation of prior surveys and charted data. The digital records/files for this survey are considered incomplete.

The Atlantic Hydrographic Section recommends that copies of this survey and accompanying data not be sold to the public without noting that it is preliminary data. Users of these data should exercise caution.

cc: N/CG24  
N/CG243  
N/CG2441





**U.S. DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**

VERIFIER'S REPORT H-9661

Item #5:

In the vicinity of Lat. 41 38'07.5"N., Long. 70 38'56.5"W., a sunken rock symbol has been shown on the Smooth Sheet. This sunken rock, transferred from TP-00770, is questionable in that it plots in an area where the survey depths show approximately 18 feet of water. Also, Wild Harbor buoy #4 was located during this survey at a position 20 meters southwest of this sunken rock. This indicates a situation where the buoy is not adequately marking a danger to navigation.

Item #25:

In the vicinity of Lat. 41 38'09"N., Long. 70 38'40"W. and Lat. 41 35'55"N., Long. 70 38'42"W. the field unit failed to acquire adequate hydrography to define the zero depth curves.

Item #27:

The charted lighted buoy "CP" in West Falmouth Harbor was located by the field unit; however, the position obtained is considered questionable. Because the Hydrographer recommended that this field position not be used, it was not plotted on the smooth sheet.

Item #34:

A charted 4 foot depth located at Lat. 41 36'17.9"N., Long. 70 39'27.9"W. was investigated by divers during survey operations with a reduced lead line least depth of 6 feet determined. A penciled notation in the Descriptive Report, made during an initial Rockville review, indicates that this 6 foot sounding was reduced to 3 feet with application of final correctors. The 3 foot depth was not substantiated during verification, and the least depth determined by this survey is 6 feet.





**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL OCEAN SERVICE  
OFFICE OF CHARTING AND GEODETIC SERVICES  
ROCKVILLE, MARYLAND 20852

DEC 27 1988

MEMORANDUM FOR: Lieutenant Commander William Wert, NOAA  
Chief, Hydrographic Surveys Branch

FROM: *Russell C. Arnold*  
Commander Russell C. Arnold, NOAA  
Chief, Hydrographic Surveys Branch

SUBJECT: Processing of Wire Drag/Item, Buzzards Bay  
Surveys

Per our December 1, 1988, meeting in Norfolk, I think we are in agreement that the subject surveys, most of which are now 5-15 years old, are well past due for processing. Obviously, your resources are not adequate to conduct full verification of these surveys without compromising other processing goals; a modified approach seems warranted to get these surveys off your inventory.

Buzzards Bay Surveys

Based on a cursory look at two of these surveys, they are not of sufficient quality to supersede the prior surveys in the area; many soundings and features from these prior surveys will need to be carried forward. These surveys do appear adequate, however, to provide supplemental information for charting.

I propose that you expend effort as outlined in your attached December 16, 1988, memo through verification of smooth sheet only. No evaluation and analysis need be done on these surveys. Sufficient priority should be given to this task such that all survey records and recommendations arrive in Rockville by June 30, 1989.

Wire Drag/Item Surveys

Attached is a prioritized list (supersedes 12/9/88 list) of surveys remaining in your inventory. Most of these surveys were conducted in areas where resurvey activity is scheduled in the near future (e.g., Long Island Sound, Rhode Island Sound, Calcasieu, Pascagoula). A cursory look at these surveys may be sufficient. We are primarily looking for information to update AWOIS. Unverified field recommendations may be adequate; we are willing to expand field resurvey effort to resolve items in lieu of waiting for full verification of prior surveys, which has historically resulted in recommendations for considerable resurvey work anyway. I believe that we are currently using better, more conclusive methods to resolve items more efficiently than ever before.



It is understood that our 6-month processing goal for current surveys will have to be temporarily relaxed to accomplish even modified processing of older surveys. However, current requirements for timely preprocessing examinations remain in effect as does the special request to process WHITING side scan sonar records in preparation for HECK's New Jersey Coast project.

**Attachments**



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
 NATIONAL OCEAN SERVICE  
 ATLANTIC MARINE CENTER  
 439 West York Street  
 Norfolk, VA 23510-1114

N/MOA232:RDS

MEMORANDUM FOR: CDR Russell C. Arnold, NOAA  
 Chief, Hydrographic Surveys Branch

FROM: *for R. W. Sawicki*  
 LCDR William A. Wert, NOAA  
 Chief, Hydrographic Surveys Branch

SUBJECT: Comments on Draft - Processing of Wire  
 Drag/Item, Buzzards Bay

1. First Paragraph, 2nd sentence - revise verification to processing.
2. Buzzards Bay Surveys

The following is the status of the seven surveys we have in house:

a. Verification phase of processing

- 1) H-9645 - Sounding verification 95% - needs QC check before going to smooth plot and smooth sheet compilation (about 2-1/2 man/months to complete verification of smooth sheet phase).
- 2) H-9646 - Sounding verification 95% - needs QC check before going to smooth plot and smooth sheet compilation (about 2-1/2 man/months to complete verification of smooth sheet phase).
- 3) H-9647 - Sounding verification 95% - needs QC check before going to smooth plot and smooth sheet compilation (about 2-1/2 man/months to complete verification of smooth sheet phase).
- 4) H-9661 - Sounding verification 30% - needs QC check after sounding verification before going to smooth plot and smooth sheet compilation (about 4-1/2 man/months to complete verification of smooth sheet phase).
- 5) H-9669 - Presently a smooth sheet about 90%. Needs QC check to be considered verified smooth sheet (about 1 man/month) to complete verification.
- 6) H-9712 - Presently a smooth sheet undergoing final QC check before being considered verified smooth sheet (about 1/2 man/months to complete).



Recommend the above surveys be completed through smooth sheet verification phase of processing (est. 13 to 13-1/2 man/months effort). To be considered qualified data for nautical charting the Evaluation and Analysis phase, final inspection, and approval would have to be completed (est. 10-man/months effort). After the "verification" phase data could be reliably used to supplement nautical chart data base but should not supersede surveyed area in common on charts.

b. Evaluation & Analysis Phase of Processing:

H-9628 - This survey will require approximately 2 man/months to complete full processing. Recommend that it be done.

From a nautical charting and future survey standpoint the appropriate effort would be to complete the processing on all seven surveys. This would require an estimated total of 27 man/months. By placing them in the current processing stream this could be accomplished by October 15, 1989 instead of the recommended effort which would be accomplished by June 30, 1989 - 3-1/2 additional months. I recommend that full processing of the seven Buzzards Bay surveys be permitted.

3. Wire Drag/Item Surveys

The following wire-drag survey should be processed to the following extent:

- a. Hangs and/or groundings verified and plotted.
- b. Least depths verified if obtained.
- c. Maximum clearance depths over hangs and/or groundings not verified.
- d. No verification of area clearances.
- e. Additional survey work recommended on hangs and/or groundings in an addendum to Descriptive Reports.
- f. Charting recommendations made in addendum to Descriptive Reports (i.e. concurrence or revisions).

Surveys

FE-241WD	H-9341WD
FE-268WD	H-9368WD
FE-287WD	H-9549WD
FE-296WD	H-10162WD

Recommend processing be completed as we deem appropriate on the following surveys:

FE-256WD  
H-8460WD  
H-10062WD  
H-10088WD

Processing will be modified as appropriate but essentially complete for nautical charting needs with a goal to complete them all during CY1989.

Overall I estimate a 3 to 4 month slippage in our 6 month processing goals for current surveys.

**VERIFIER'S REPORT**  
**HYDROGRAPHIC SURVEY, H - 9661**

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

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

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

Part I - DESCRIPTIVE REPORT	CL	R	Part III - JUNCTIONS (Continued)	CL	R
<p><b>Note:</b> The verifier should first read the Descriptive Report for general information and problems.</p> <p>1. The Descriptive Report was consulted, paragraphs checked if found satisfactory, and notations were made in soft black pencil regarding action taken. Remarks Required: -- None</p>	✓		<p>10. Junctions with contemporary surveys were satisfactory except as follows: Remarks Required: -- Consider conditions after adjustments have been made; note adjustments made. Make special notes of Butt junctions and areas which are <b>SUPERSEDED</b>.</p>		✓
<p>2. Soundings originating with the survey and mentioned in the Descriptive Report have been verified and checked in soft black pencil, including latitude and longitude, together with position identification. Remarks Required: -- None</p>	✓		<p><b>Part IV - VOLUMES</b></p> <p>11. All items affecting the plotting of the survey which are entered in the remarks columns of the sounding records were noted and check marked. In all cases appropriate action was taken and exceptions noted in the volumes. Remarks Required: -- None</p>	✓	
<p>3. All reference to survey sheets mentioned in the Descriptive Report should include registry number and year. Remarks Required: -- None</p>	✓				
<p><b>Part II - SHORELINE AND SIGNALS</b></p> <p>4. Source of shoreline signals Remarks Required: -- List all surveys</p> <p>a. Give earliest and latest dates of photographs</p> <p>b. Field inspection date</p> <p>c. Field Edit date</p> <p>d. Reviewed-Unreviewed</p>	✓		<p>12. Condition of sounding records was satisfactory except as follows: Remarks Required: -- Mention deficiencies in completeness of notes or actions for the following:</p> <p>(a) rocks</p> <p>(b) line turns</p> <p>(c) position values of beginning and ending of lines</p> <p>(d) bar check or velocity correctors</p> <p>(e) time recording</p> <p>(f) notes or markings on fathograms</p> <p>(g) was reduction of soundings accurately done?</p> <p>(h) was scanning accurate?</p> <p>(i) were peaks at uneven intervals missed?</p> <p>(j) were stamps completed?</p> <p>(k) references to adjacent features</p>	✓	
<p>5. The transfer of contemporary topographic information was carefully examined and reconciled with the hydrography. Remarks Required: -- Discuss remaining differences.</p>		✓			
<p>6. The plotting of all triangulation stations, topographic stations and hydrographic signals has been checked and noted in processing stamp No. 42 on the smooth sheet. Remarks Required: -- None</p>	✓				
<p>7. Objects on which signals are located and which fall outside of the high-water line have been described on the sheet. Remarks Required: -- List those signals still unidentified.</p>	✓				
<p><b>Part III - JUNCTIONS</b></p> <p><b>Note:</b> Make a cursory comparison preliminary to inking soundings in area of overlap.</p> <p>8. All junctions of contemporary or overlapping sheets were compared and overlapping curves were made identical. Remarks Required: -- None</p>	✓		<p><b>Part V - MACHINE PLOTTING</b></p> <p>13. All positions verified instrumentally were check marked in color in the sounding records, and verifier initialed the processing stamp. Remarks Required: -- None</p>	✓	
			<p>14. The plotting of all unsatisfactory crossings was verified. Remarks Required: -- None</p>	✓	
<p>9. The notation in slanted lettering "JOINS H---- (19 )" was added in colored ink for all verified contemporary adjoining or overlapping sheets. Those not verified are shown in pencil. Remarks Required: -- None</p>	✓		<p>15. All detached positions locating critical soundings, rocks, buoys, breakers, obstructions, kelp, etc., were verified and the position numbers are legible. Remarks Required: -- None</p>	✓	

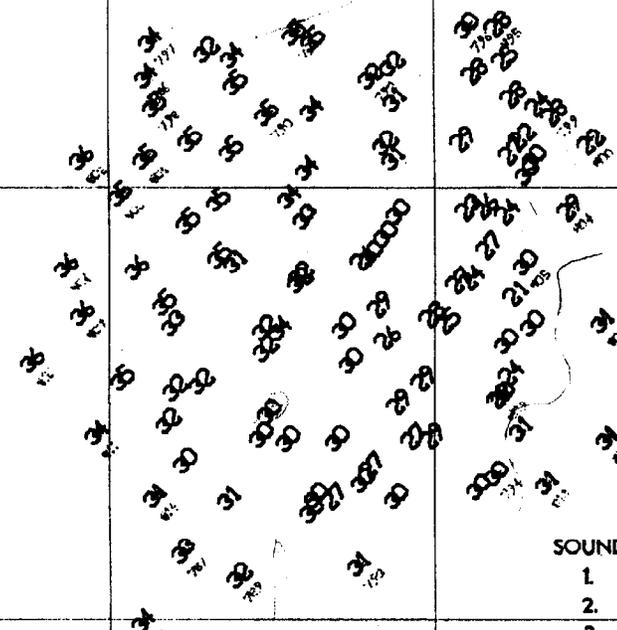
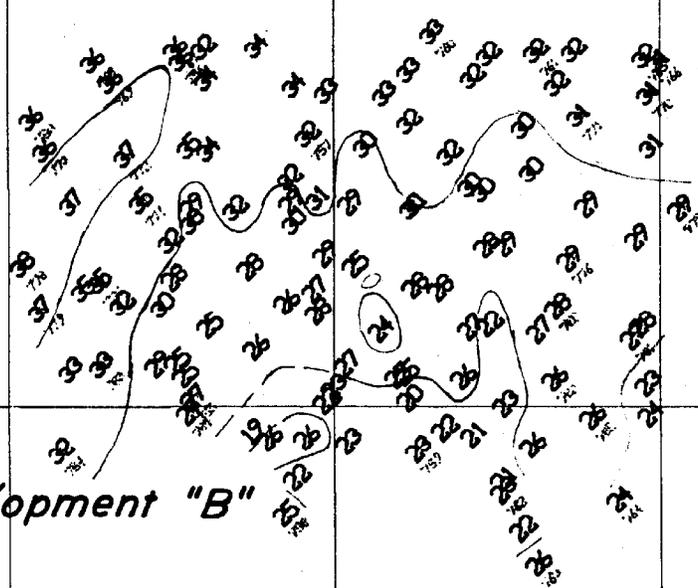
Part V - PROTRACTING (Continued)	CL	R	Part VIII - AIDS TO NAVIGATION	CL	R
16. The protracting was satisfactory except as follows: Remarks Required: -- Refers to protracting in general except for specific faults repeated often, or faults in control information, which required considerable replotting or adjustments.	✓		26. All fixed aids located together with those on the contemporary topographic sheets, have been shown on the survey.  Remarks Required: -- Conflicts of any nature listed.	✓	
17. The protractor has been checked within the last three months. Remarks Required: -- Date of check, type of protractor and number.	✓		27. All floating aids listed in the Descriptive Report should be verified and checked in soft black pencil, including latitude and longitude and position identification.  Remarks Required: -- None		✓
<b>Part VI - SOUNDINGS</b> 18. All soundings are clear and legible, and critical soundings are a little larger than adjacent soundings. Remarks Required: -- None	✓		<b>Part IX - BOAT SHEET</b> 28. The boat sheet was constantly compared with the smooth sheet with reference to notes, position of sounding lines and supplemental information.  Remarks Required: -- None	✓	
19. Sounding line crossings were satisfactory except as follows: Remarks Required: -- Discuss adjustments.	✓		29. Heights of rocks awash were correctly reduced and compared with topographic information.  Remarks Required: -- Note excessive conflicts with topographic information.	✓	
20. The spacing of soundings as recorded in the records was closely followed; Remarks Required: -- None	✓		<b>Part X - GENERAL</b> 30. All information on the sheet is shown in accordance with figures 82 and 83 in the Hydrographic Manual (Pub. 20-2).  Remarks Required: -- None	✓	
21. The scanning, reduction, spacing, plotting of questionable soundings have been verified. Remarks Required: -- None	✓		31. Unnecessary pencil notes have been removed from the sheet.  Remarks Required: -- None	✓	
22. The smooth plotting of soundings was satisfactory except as follows: Remarks Required: -- Refer to legibility, errors in spacing, and errors in numbers - but not to errors in scanning.	✓		32. Degree, minute values and symbols have been checked; also electronic distance arcs have been properly identified and checked on the smooth sheet.  Remarks Required: -- None	✓	
<b>Part VII - CURVES</b> 23. The depth curves have been inspected before inking. Remarks Required: -- By whom was the penciled curves inspected. <i>RRH</i>	✓		33. The bottom characteristics are adequately shown.  Remarks Required: -- None	✓	
24. The low-water line and delineation of shoal areas have been properly shown in accordance with the following: a. From T-Sheet in dotted black lines b. From soundings in orange c. Approximate position of sketched curve is dashed orange d. Approximate position of shoal area not sounded in black dashed  Remarks Required: -- None	✓		<b>Part XI - NOTES TO THE REVIEWER</b> 34. Unresolved discrepancies and questionable soundings.		✓
25. Depth curves were satisfactory except as follows: (This statement should not refer to the manner in which the curves were drawn). Remarks Required: -- Indicate areas where curves could not be drawn completely because of lack of soundings. For some inshore areas a general statement is sufficient.		✓	35. Notation of discrepancies with photogrammetric survey inserted in report of unreviewed photogrammetric survey or on copy.		
			36. Supplemental information.		
Verified by <i>D.V. MASON / checked RRH</i>			Date <i>08/23/89</i>		

41 37 30

41 37 20

41 37 10

41 37 00



No. 42	HYDROGRAPHIC SURVEY	
Field No.	PE-10-3-76	Req. No. _____
Scale 1:	5,000	Plotted _____ Verified _____
Datum	North American, 1927	
Ref. Sta.	(Plotter Origin)	
Lat.	41° 36' 53"	m. Adj. _____
Long.	70° 40' 27"	m. <del>_____</del>

SOUNDINGS REDUCED FOR:

1. PREDICTED/~~APPLIED~~ TIDES ARE/~~NOT~~ APPLIED
2. DRAFT CORRECTION ~~IS~~/NOT APPLIED
3. SETTLEMENT & SQUAT CORRECTION ~~IS~~/NOT APPLIED
4. INSTRUMENT CORRECTION ~~IS~~/NOT APPLIED
5. VELOCITY CORRECTION IS/~~NOT~~ APPLIED

070 41 10

070 41 00

070 40 50

070 40 40

070 40 30

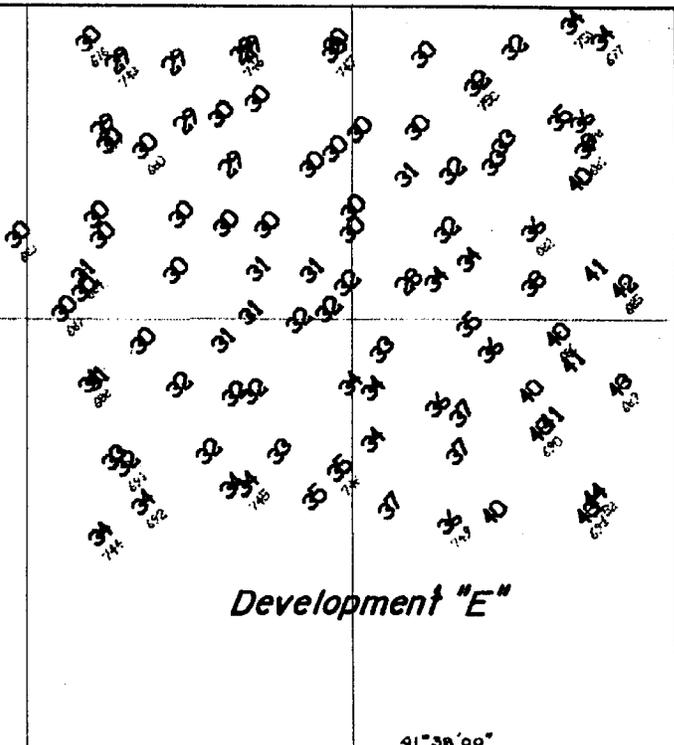
255

No. 42 HYDROGRAPHIC SURVEY  
 Field No. PE-10-3-76 Rec. No. \_\_\_\_\_  
 Scale 1: 5,000 Plotted \_\_\_\_\_ Verified \_\_\_\_\_  
 Datum North American, 1927  
 Ref. Sta., (Plotter Origin)  
 Lat. 41° 37' 36" m. Adj. \_\_\_\_\_  
 Long. 70° 40' 00" m. Unadj. \_\_\_\_\_

41 38 0

SOUNDINGS REDUCED FOR:

1. PREDICTED/~~MEAN~~ TIDES ARE/~~NOT~~ APPLIED
2. DRAFT CORRECTION ~~IS~~/NOT APPLIED
3. SETTLEMENT & SQUAT CORRECTION ~~IS~~/NOT APPLIED
4. INSTRUMENT CORRECTION ~~IS~~/NOT APPLIED
5. VELOCITY CORRECTION ~~IS~~/NOT APPLIED

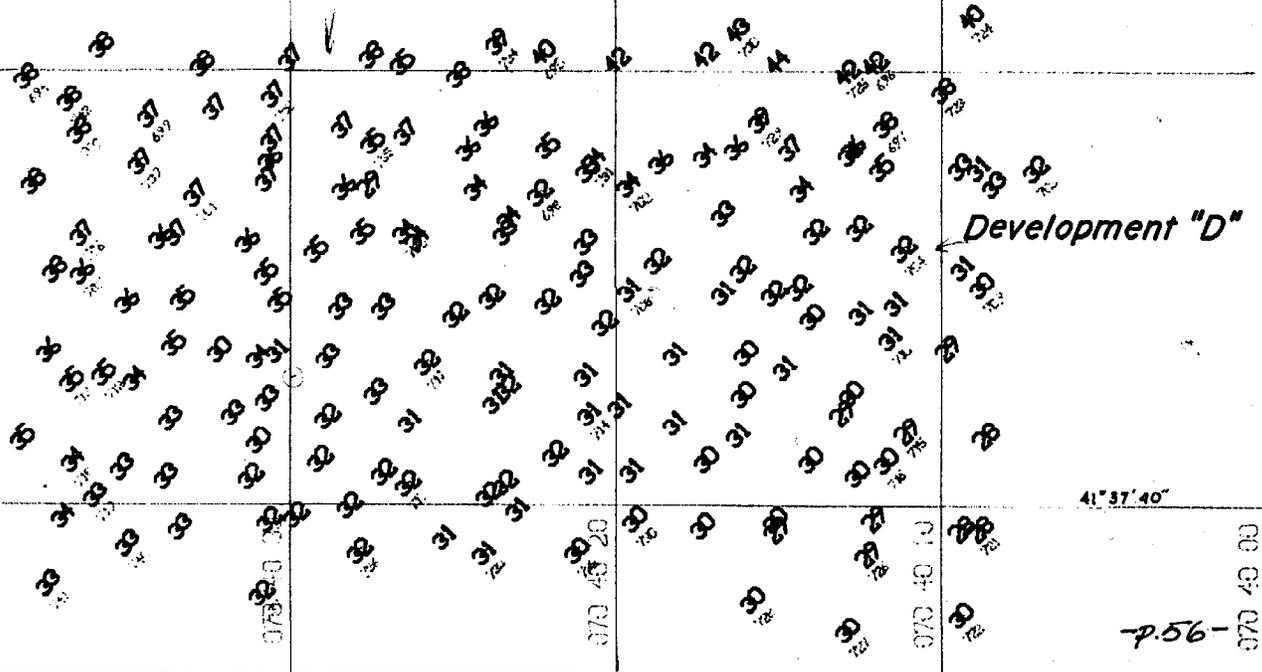


41 38 00

41° 38' 00"

Development "C"

41 37 50



41 37 40

41° 37' 40"

070 40 40

070 40 20

070 40 20

070 40 10

070 40 00

-256-

No. 42 HYDROGRAPHIC SURVEY  
 Field No. PF-10-3-76 Req. No. \_\_\_\_\_  
 Scale 1: 5,000 Plotted \_\_\_\_\_ Verified \_\_\_\_\_  
 Datum North American, 1927  
 Ref. Sta., (Platter Origin)  
 Lat. 41° 35' 07" m. Adj. \_\_\_\_\_  
 Long. 70° 39' 38" m. Unadj. \_\_\_\_\_

41 35 40

41° 35' 40"

SOUNDINGS REDUCED FOR:

1. PREDICTED/TIDES ARE/APPLIED
2. DRAFT CORRECTION NOT APPLIED
3. SETTLEMENT & SQUAT CORRECTION NOT APPLIED
4. INSTRUMENT CORRECTION NOT APPLIED
5. VELOCITY CORRECTION IS/APPLIED

41 35 30

*Development "X"*

Note 9ft. depth  
 Positions 3651-3652

*Development "F"*

Day 260 ... VESNO 2833  
 Positions 815-850

*Development "W"*

41 35 20

*Development "W" & "X"*

Day 276 ... VESNO 2832  
 Positions 3566-3662  
 (part of these pos. are on development 'y'-'z')

070 40 28 35 10

41° 35' 10"

070 40

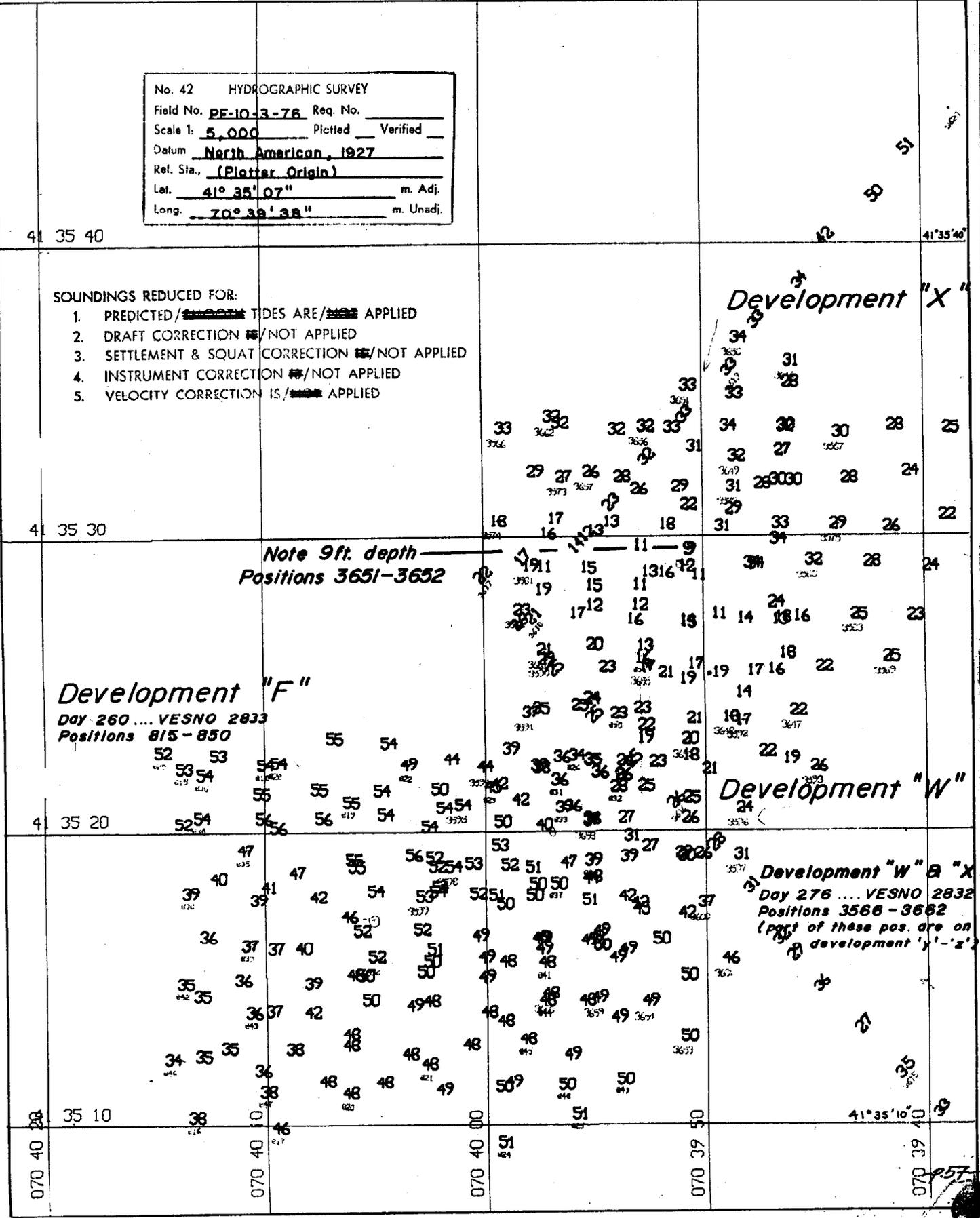
070 40

070 40

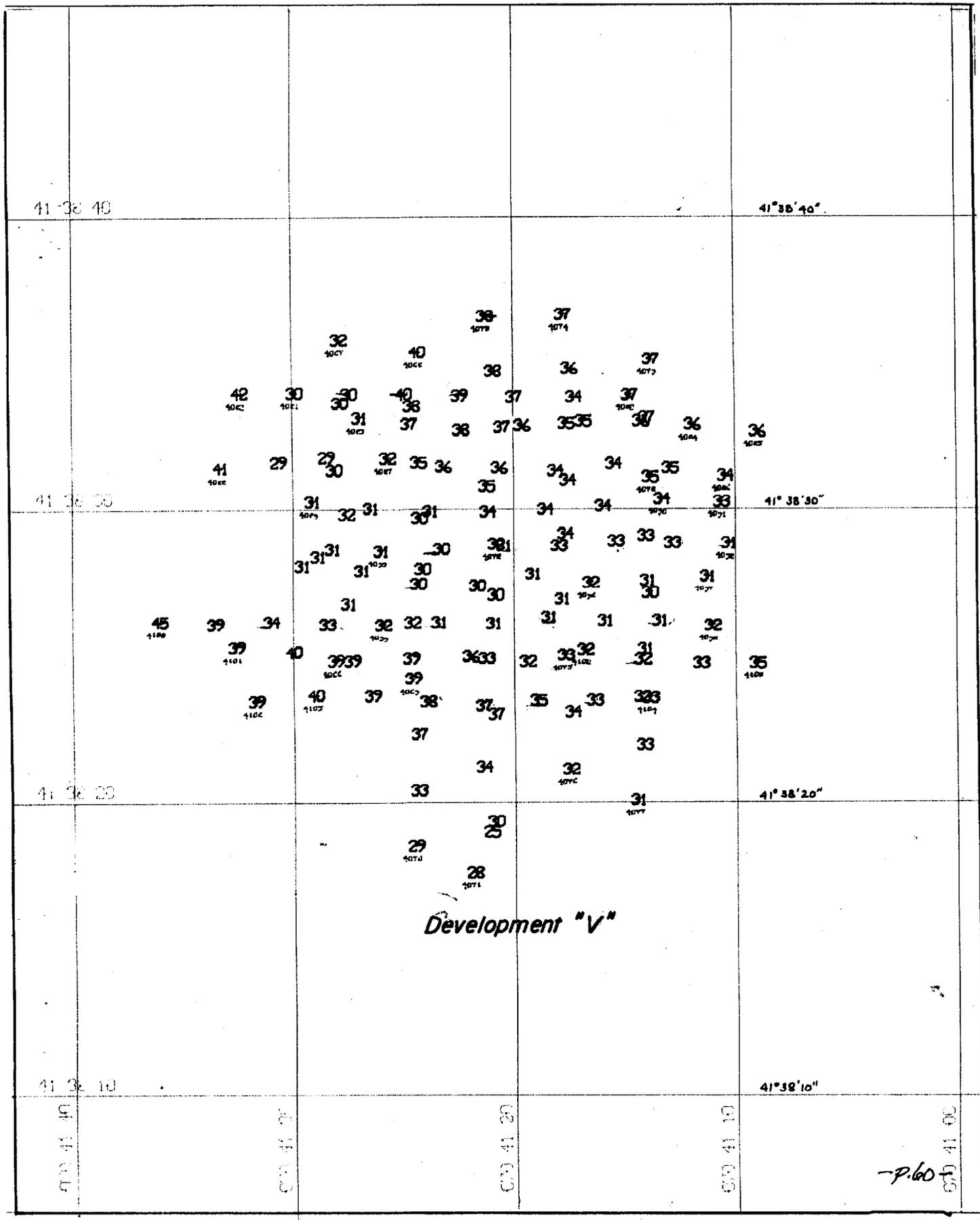
070 39

070 39

41° 35' 40"







41°38'40"

41°38'40"

41°38'30"

41°38'30"

41°38'20"

41°38'20"

41°38'10"

41°38'10"

C.D. 41 40

C.D. 41 20

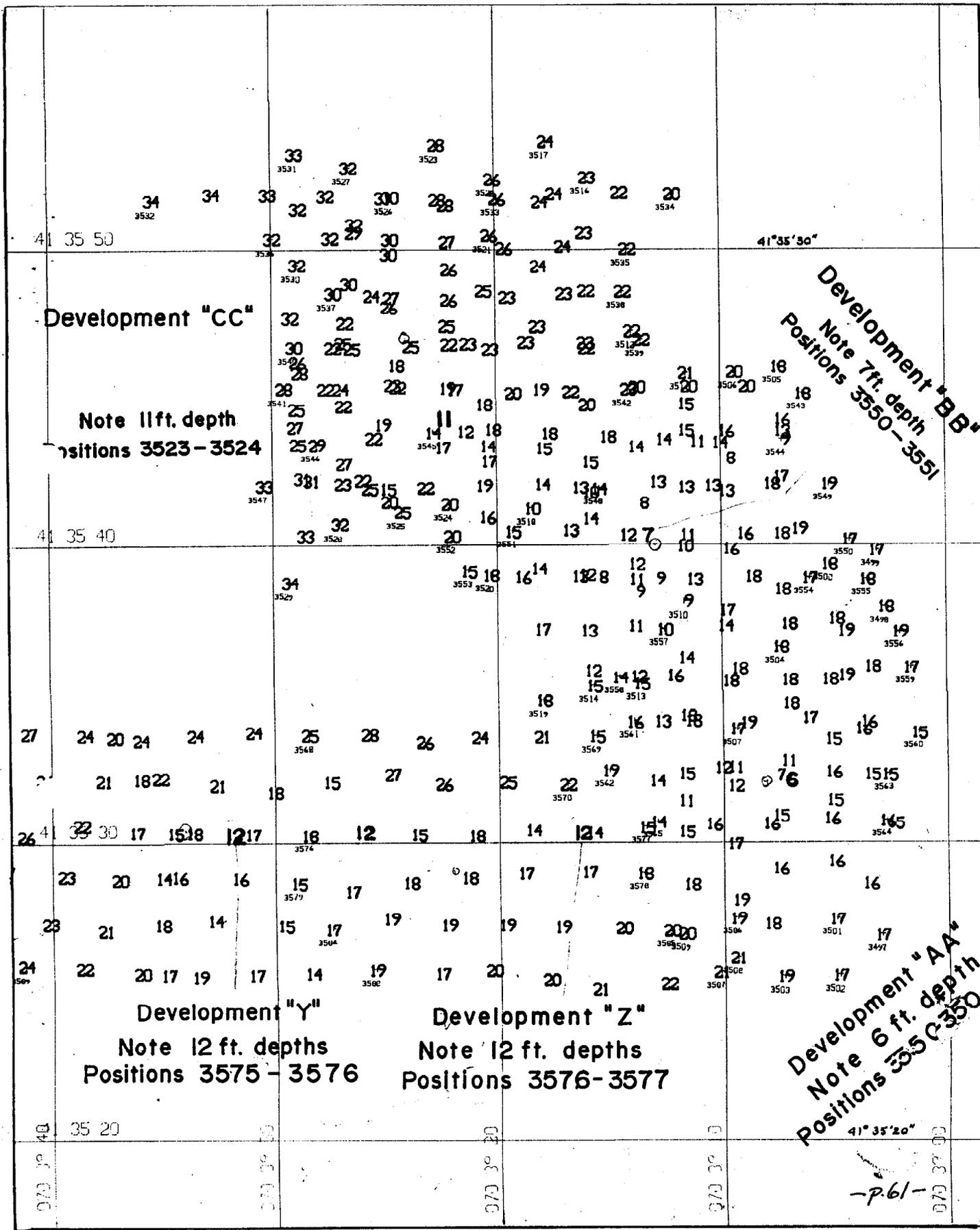
C.D. 41 20

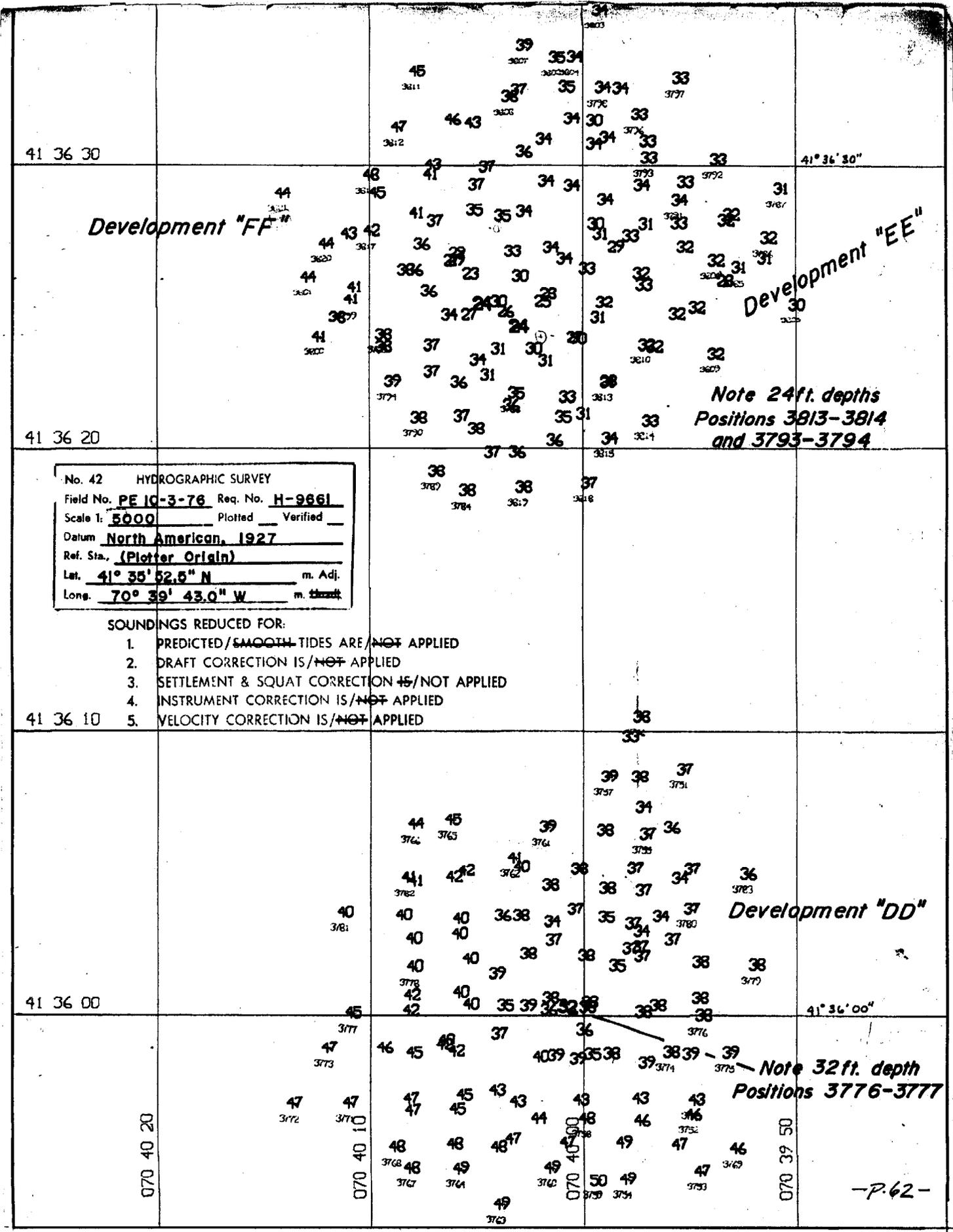
C.D. 41 10

C.D. 41 00

Development "V"

-P.60





41 36 30

41° 36' 30"

*Development "FF"*

*Development "EE"*

*Note 24ft. depths  
Positions 3813-3814  
and 3793-3794*

No. 42 HYDROGRAPHIC SURVEY  
 Field No. PE 10-3-76 Req. No. H-9661  
 Scale 1: 5000 Plotted      Verified       
 Datum North American, 1927  
 Ref. Sta. (Plotter Origin)  
 Lat. 41° 35' 52.5" N m. Adj.       
 Long. 70° 39' 43.0" W m.     

- SOUNDINGS REDUCED FOR:
1. PREDICTED/~~SMOOTH~~ TIDES ARE/~~NOT~~ APPLIED
  2. DRAFT CORRECTION IS/~~NOT~~ APPLIED
  3. SETTLEMENT & SQUAT CORRECTION ~~IS~~/NOT APPLIED
  4. INSTRUMENT CORRECTION IS/~~NOT~~ APPLIED
  5. VELOCITY CORRECTION IS/~~NOT~~ APPLIED

41 36 10

*Development "DD"*

41 36 00

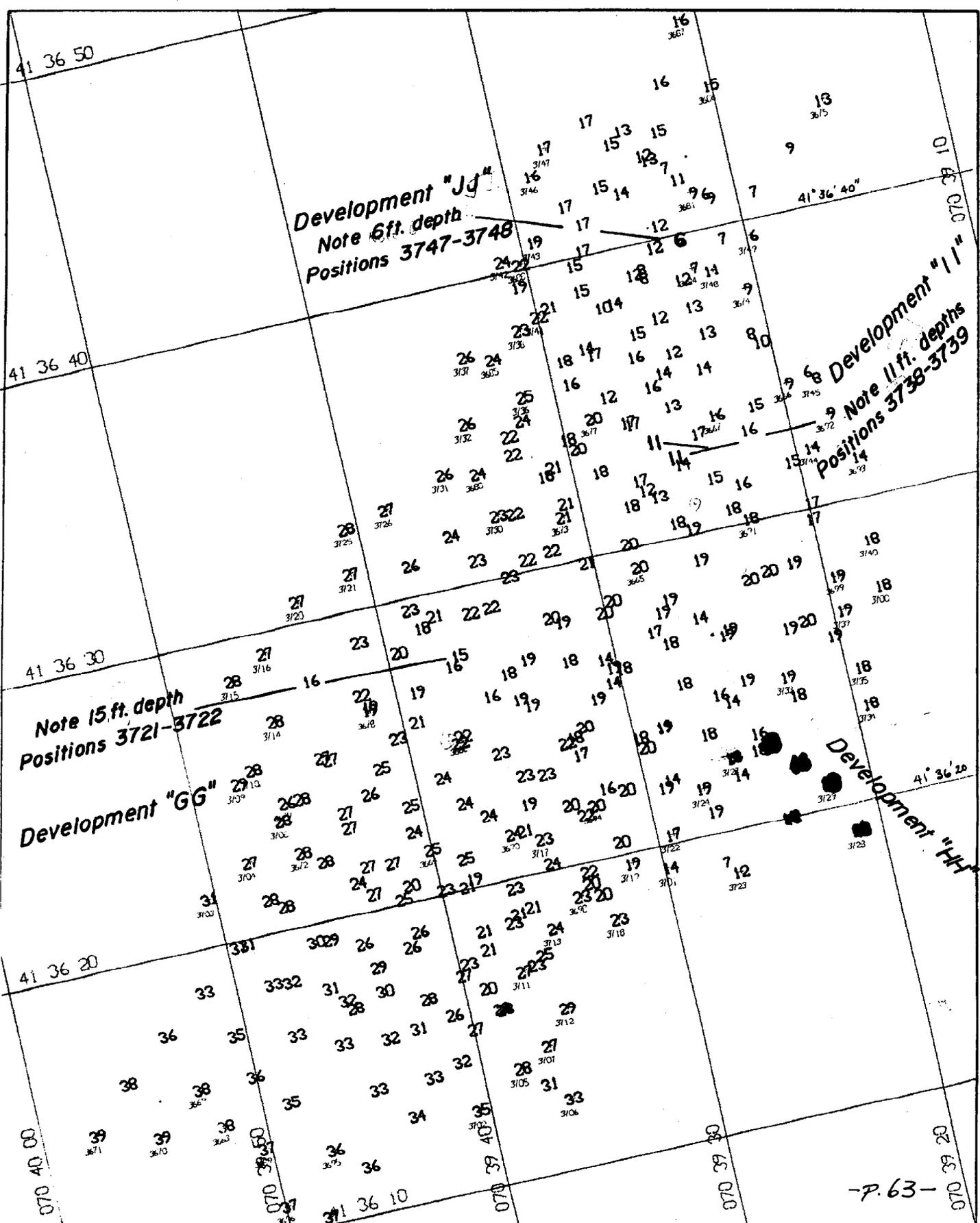
41° 36' 00"

*Note 32ft. depth  
Positions 3776-3777*

070 40 20

070 40 10

070 39 50



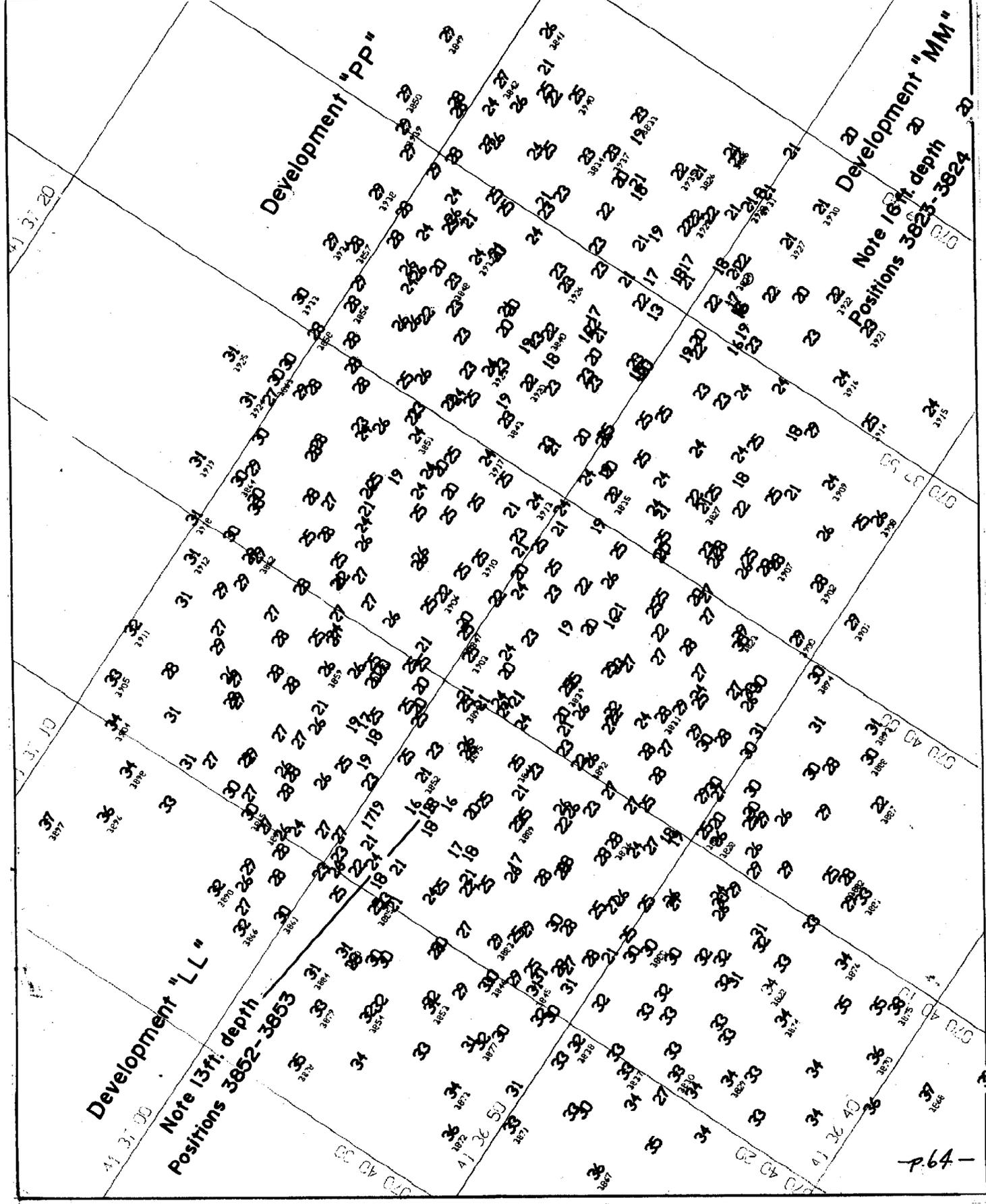
Development "JJ"  
Note 6 ft. depth  
Positions 3747-3748

Development "II"  
Note 11 ft. depths  
Positions 3738-3739

Note 15 ft. depth  
Positions 3721-3722

Development "GG"

Development "HH"



Development "LL"

Note 1371. depth  
Positions 3852-3853

Development "PP"

Development "MM"  
Note 1671. depth  
Positions 3823-3824

41 37 50

41 37 40

Development "RR"

Note 23ft. depth  
Positions 1524-1525

41 37 30

41 37 20

070 39 40

070 39 30

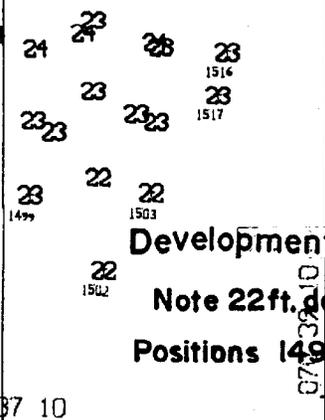
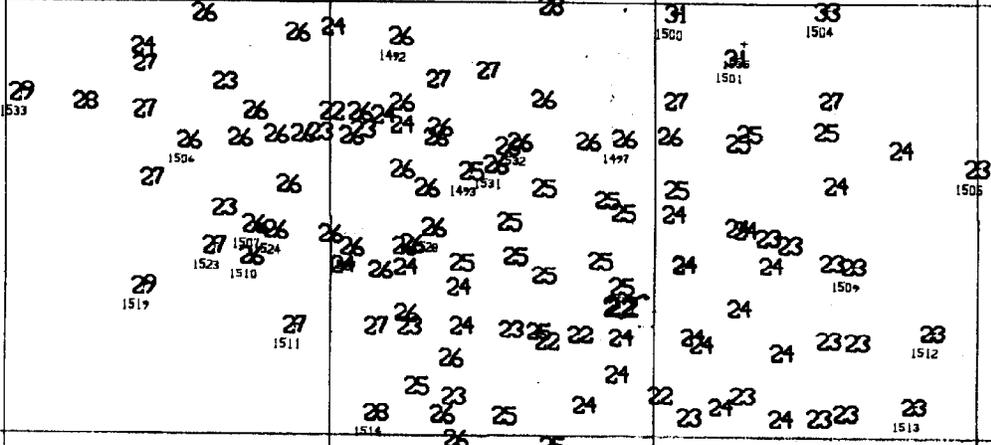
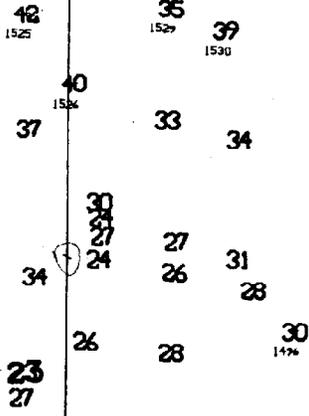
070 39 20

Development "QQ"

Note 22ft. depth  
Positions 1497-1498

070 39 10

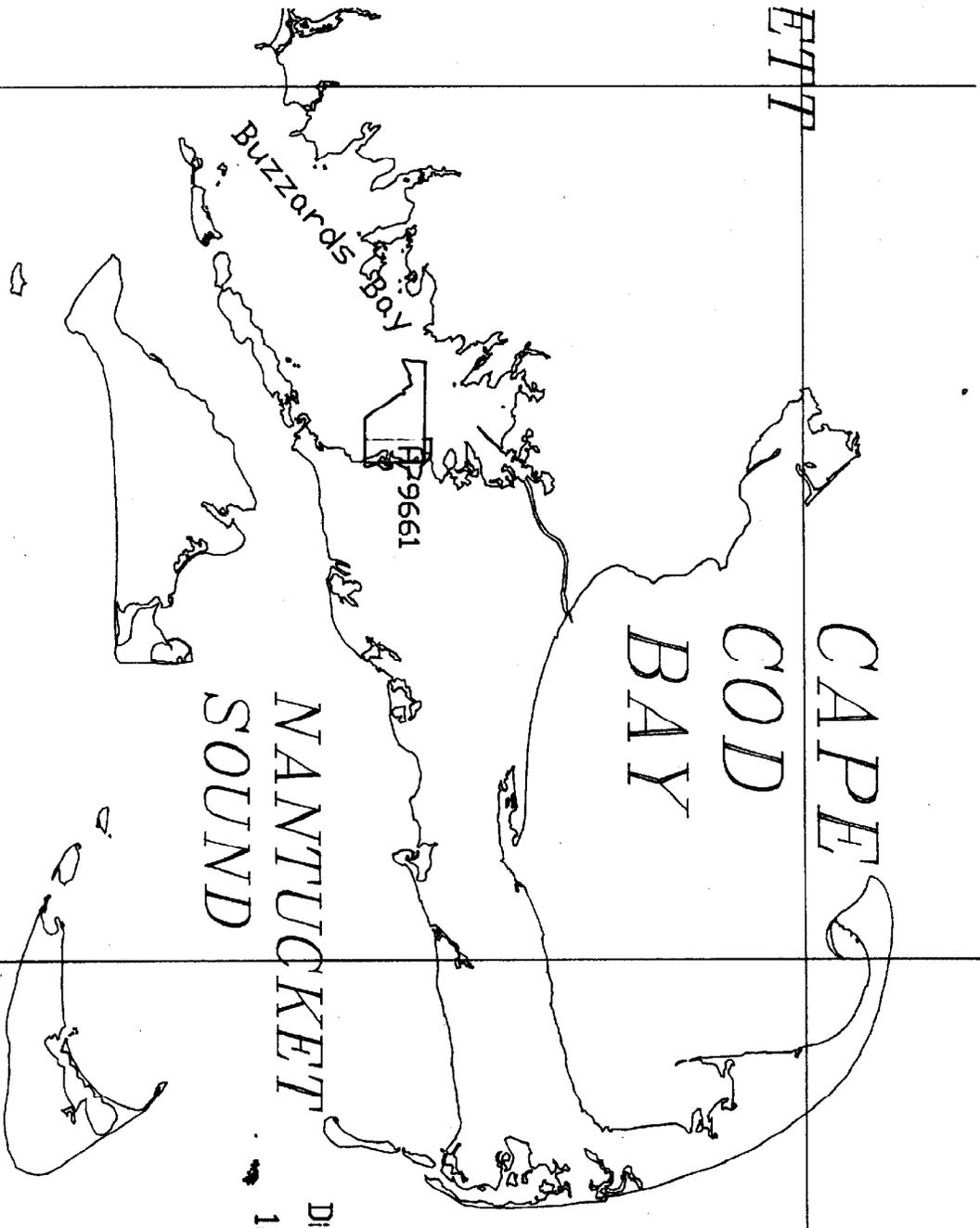
965-



-71°0'0"

-70°10'0"

41°10'



HP

CAPE  
COD  
BAY

NANTUCKET  
SOUND

Diagrams  
1209-3 & 1210-4

42°0'

H-9607

No. 42 HYDROGRAPHIC SURVEY  
 Field No. PE-10-3-76 Req. No. \_\_\_\_\_  
 Scale 1: 5,000 Plotted \_\_\_\_\_ Verified \_\_\_\_\_  
 Datum North American 1927  
 Ref. Sta. (Plotter Origin)  
 Lat. 41° 37' 42" m. Adj. \_\_\_\_\_  
 Long. 70° 41' 41" m. Adj. \_\_\_\_\_

- SOUNDINGS REDUCED FOR:
1. PREDICTED/TIDES ARE/APPLIED
  2. DRAFT CORRECTION NOT APPLIED
  3. SETTLEMENT & SQUAT CORRECTION NOT APPLIED
  4. INSTRUMENT CORRECTION NOT APPLIED
  5. VELOCITY CORRECTION IS/APPLIED

41 38 20  
41 38 10  
41 38 00  
070 43 00  
070 42 50

41° 38' 20"

41° 38' 10"

41° 37' 50"

Development "N"

Development "H"

Development "M"

Development "U"

Development "G"

Plotting error, should  
 be Position 1379 + 4  
 (Corrected on data tapes)  
 Least depth 16 ft.  
 Position 1379 + 4  
 J.D. 264, Vesno, 28.3

