

HYDROGRAPHIC TITLE SHEET

H-9724

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.

WH 10-2-77

State MASSACHUSETTS

General locality BUZZARDS BAY

Locality HILLER COVE TO INDIAN NECK

Scale 1:10,000 Date of survey 19 SEPTEMBER-9 NOVEMBER 1977

Instructions dated 15 MARCH 1977 Project No. OPR 503-WH-77

Vessel NOAA SHIP WHITING'S LAUNCHES 1202 (2932) and 1203 (2931), and Skiff WH-4 (2933)

Chief of party CDR. JOHN W. CARPENTER

Surveyed by DAVID GOODRICH, JOHN RUBINO, ROBERT MANDZI, NICHOLAS PERUGINI, EDWARD ASSAF

Soundings taken by echo sounder, hand lead, pole Raytheon DE-7230 & DE-719 echo sounders

Graphic record scaled by WHITING PERSONNEL

Graphic record checked by NEP

Protracted by _____ Automated plot by HYDROPLOT Xynetics 1201 Plotter (Amc)

Soundings ^{Verified} penciled by L.G. Cram 13 May 1981

Soundings in fathoms feet at MLW MLLW

REMARKS: ALL TIMES ARE COORDINATED UNIVERSAL TIME (Greenwich Mean Time)

Notes and changes in the Descriptive Report made by the verifier during verification & the o.c. evaluator.

Misc data culled from the DR are filed with the survey records

AWAIS + Surf checks MSM 10/22/85

STANDARDS CK'D 11-21-85

X.W.W. 10/4/91

Clay

DESCRIPTIVE REPORT
TO ACCOMPANY SURVEY

H-9724

WH-10-2-77

A. PROJECT

Hydrographic survey WH-10-2-77, H-9724, was performed in accordance with project instructions for OPR-503-WH-77, Buzzards Bay, Massachusetts dated 15 March 1977. ^{Change #1 dated 12 Apr. 1, 1977} Change No. 2 dated 12 April 1977, and change No. 3, dated 2 May 1977, ^{Change No. 4 dated 24 Apr. 1977} amended the original project instructions. A letter dated 19 October 1977 clarifying survey limits of OPR-503-WH-77 was received from Chief of Requirements Branch.

B. AREA SURVEYED

(H-9724) WH-10-2-77 was performed from julian day 262 to 313, 1977. The survey area is comprised of the northwest head of Buzzards Bay. The survey limits extend on the west from Hiller Cove north to the Weweantic river. The eastern limits extend south from Indian Neck, including Dry Ledge to one-half mile north of Cleveland East Ledge Light. The sheet has the overall boundaries;

NORTH: 41°46'02"
SOUTH: 41°36'00"
EAST: 70°41'20"
WEST: 70°46'00"

The survey area is to the west of Cleveland Ledge Channel, a major approach for deep-draft vessels to the Cape Cod Canal. Traffic in the survey area is basically limited to yachts and small craft. The shoreline is quite irregular, characterized by several small navigable coves and harbors. Many foul areas exist in close proximity to navigable waters.

C. SOUNDING VESSELS

Whiting launches 1202 and 1203 performed all range/range survey work. Launch 1202 also ran one day of range/azimuth. EDPs for launches 1202 and 1203 were 2932 and 2931 respectively. The survey launches were equipped with the PDP-8E Hydroplot System in conjunction with Raytheon Model 723D echo sounders.

Vessel
identification
numbers
New
H-9724

Several mechanical difficulties hampered the performances of both launches. Daily problems with the Onan generators would occur, usually resulting in overheating and oil leaks. Also, a problem with the V-drive shaft in launch 1203 was quite common. Because of the irregular nature of the survey area's bottom, two propellers were irreparably damaged. Half of J.D. 272 and all of J.D. 273 was run at reduced speed because of propeller damage to 1203.

Skiff WH-4 (EDP 2933) performed range/azimuth, shallow-water work. The skiff, a 17 foot Boston whaler, was equipped with a Raytheon DE 719 fathometer, in conjunction with a Del Norte positioning unit and a Distance Measuring Unit. The skiff was powered by both Evinrude and Mercury outboards. Because groundings were quite frequent, several propellers were severely damaged.

D. SOUNDING EQUIPMENT

Echo sounders used on WH-10-2-77^{H-9724} in launches 1202 and 1203 were Raytheon model 723D. Serial numbers are #37018 and #37010 respectively. Bar checks were taken daily, weather and sea conditions permitting. Several days were noted when the fathometer trace was erratically picking up a trace of the bar on launch 1202. Digital and analog readings generally compared within 0.1 foot. A-F checks were run periodically. All soundings recorded on this sheet were on the A scale (0-50 feet).

Several minor problems were noted with the launch fathometers. While proceeding at full speed, the analog trace would sometimes disappear while making a tight turn, thus digitizing zeros on the printout. Also when backing down on-line, air bubbles were apparently trapped near the transducer producing a gap in the trace.

Because oil from the bilges was discovered leaking into the transducer case, followed by erratic function of the fathometer in launch 1203, the transducer was remounted outboard of the hull prior to operations on this survey. The transducer depth of 1203 was found to be 2.0 feet. Launch 1203 had a transducer depth of 1.3 feet at all times.

At very shallow depths, usually less than 7 feet, the trace would become erratic in both launches resulting in 0 foot depths registering on the digital. However, accurate scanning could be made of the fathograms, correcting the problem.

Settlement and squat corrections are taken from trials run by Whiting personnel in May 1977. Periods of reduced speed and full speed were noted on master printouts, more often than in sounding volumes.

Velocity corrections were based on bar check averages. Data from bar checks were compiled in direct comparison logs and velocity corrections were computed in accordance with the hydrographic manual. See Verification Report.

Skiff WH-4 was equipped with Raytheon shallow water fathometer, DE 719, S/N 465. The transducer was mounted on a bracket outboard the rail. Each day a transducer depth was measured with the skiff fully loaded with survey equipment and personnel. As a result, the "tide and draft" adjustment was set to correspond to the transducer depth. The "calibration zero" adjustment and "speed of sound" correction were made according to operating instructions. Pole soundings were made at the beginning of each day, and compared to the fathogram. Agreement was generally within 0.1 feet. In areas of grassy bottoms, intermittent pole checks were made to aid in the scanning of fathograms.

E. HYDROGRAPHIC SHEETS

The smooth field sheets were prepared by Whiting personnel using a Houston Instruments DP-3 Roll Plotter, S/N 4680-1. For processing purposes, the area was divided into three plotter sheets. Plotter origins for the sheets are as follows:

	<u>Latitude</u>	<u>Longitude</u>
South:	41°38'25"N	70°47'10"W
Central:	41°40'50"N	70°47'10"W
North:	41°43'29"N	70°47'10"W

A total of six plotter sheets are submitted with this survey. Three sheets cover the entire field sheet. One set of plotter sheets contain all main scheme hydrography, crosslines, and least depths found in development areas. The other set of plotter sheets are a series of overlays which were made up to clarify dense soundings on developments. This overlay also contains detached positions of all buoys, bottom samples, rocks and dives. The scale of the survey is 1:10,000. *Piers, groins etc. were not delineated on the field sheets, only their offshore ends were identified.* All soundings on the field sheet have predicted tides and velocity corrections applied. Electronic position correctors have also been applied. The sheets total dimensions are 60 in. x 36 in. In order to show soundings in the northern Wewantic River, the sheet has to be extended to 62 in. in length. Also, it should be noted that on J.D. 305, fix number 9999 was encountered. From this day, to J.D. 309, positions 001-514 (VESNO 2933) duplicated earlier position numbers (VESNO 2932). The sheets will be sent to Atlantic Marine Center, Norfolk, Virginia for verification and smooth plotting.

F. CONTROL STATIONS

The following signals were used for electronic positioning sites or for calibrations.

<u>SIGNAL NO.</u>	<u>NAME</u>	<u>LOCATION</u>
007	BUT,1977	Butler Point

<u>SIGNAL NO.</u>	<u>NAME</u>	<u>LOCATION</u>
	<i>LIGHTHOUSE</i>	
009	BIRD ISLAND LIGHT <i>LIGHTHOUSE</i>	Bird Island
011	CLEVELAND EAST LEDGE LT.	Buzzards Bay
013	WING'S NECK <i>LIGHTHOUSE</i>	Wing's Neck
017	SCRAG, 1910	Scraggy Neck
019	NYES NECK WATER TOWER	Nyes Neck
033	WOODS HOLE WATER <i>STONE</i> TOWER	Woods Hole
057	CRO, 1977 (marked)	Cromeset Point
127	PIN, 1977	Piney Point
129	PLA, 1977	Planting Island
131	WOD, 1977	Converse Point
133	LEW, 1977	Marion, MA
135	LEN, 1977	Allen Point
137	TAY, 1977	Converse Point
139	GRA, 1977	Marion, MA
143	GOO, 1977	Planting Island
145	RAMP, 1977	Swifts Beach
147	SOR, 1977	Wareham, MA
149	CRAB II, 1977	Wareham, MA
151	LONG, 1977	Long Beach Point
153	DEL, 1977	Wareham, MA
155	ROM, 1977	Wareham, MA
157	ASF, 1977	Hammett Cove
159	SIN, 1977	Weweantic River
161	LOU, 1977	Hamilton Beach
163	JET, 1977	Weweantic River
165	HOM, 1977	Cromeset Neck
167	ENG, 1977	Wareham, MA
169	COK, 1977	Crooked River
171	CRY, 1977	Weweantic River
173	AMP, 1977	Weweantic River
175	TIC, 1977	Weweantic River

With the exceptions of signals 9,11,13,17,19,33,137,139,143, & 157, all stations were established by third order traverse in 1977 by Photo Party 62. Documentation will be forwarded in their control report.

Positions for the following signals were obtained from published horizontal control data: Bird Is. ~~Light~~ *Lighthouse* (009), Cleveland East Ledge ~~LT.~~ *Lighthouse* (011), Wing's Neck ~~LT.~~ *Lighthouse* (013), Scrag 1910 (017), Nyes Neck Water Tower (019), Woods Hole ~~Water~~ *Stone* Tower (033).

Stations TAY (137), GRA (139), GOO (143), and ASF (157), were established by Whiting personnel using third order traverse. Documentation will be forwarded to Operations Division, AMC, for approval prior to being sent to NOS.

G. HYDROGRAPHIC POSITION CONTROL

Three types of position control were used in this survey:
1) Range/Range, 2) Range/Azimuth, 3) "See Boat Sheet." The Del Norte system provided electronic range control for range/range, range/azimuth, and some "see boat sheet" work.

1) Range/Range The range/range hydrography was performed by launches 1202 and 1203, equipped with Del Norte master units and distance measuring units, in conjunction with the PDP-8E Hydroplot System. Remote stations were selected so that intersection of ranges was at no time less than 30 degrees.

Daily calibration of the system was accomplished using three point sextant fixes (with check angle). Pattern correctors were computed from visual and electronic fix data using RK 561. Inverse distance between fix and check fix were compared and daily pattern correctors computed by means of weighting and averaging. In addition to daily visual calibrations, a baseline calibration was performed every 2 weeks.

It should be noted that Master and DMU's were kept paired between baseline calibrations. At times, entire systems were moved from launch to launch, always keeping Masters and DMU's paired. The following DMU-Master pairs were used:

Julian Days 261-264

<u>Vessel</u>	<u>Masters S/N</u>	<u>DMU S/N</u>
1202	1067	182
1203	281	179
WH-4	199	188

Julian Days 267-280

1202	1067	182
1203	281	179
WH-4	1068	188

Julian Days 281-295

1202	1068	188
1203	281	179
WH-4	185	182

Julian Days 296-314

1202	1068	188
1203	281	179
WH-4	185	182

2) Range/Azimuth Skiff WH-4 performed all range/azimuth work with the exception of J.D. 276, when launch 1202 was used. On all days,

azimuth and range stations were identical, utilizing Del Norte remote units on shore. Azimuths were measured with Wild T2s, S/N 35052, and 35803. The skiff was equipped with a Del Norte Master unit paired with a DMU.

3) See Boat Sheet Because of the irregular nature of the shoreline, several "see boat sheet" lines were run. The following positions were run "see boat sheet":

<u>JULIAN DAY</u>	<u>POSITION NUMBERS</u>
306	115-116,155-156,191
307	283-306,314-320
308	373-378
309	394-419
278	8341-8348
300	9507-9508
303	9821-9833
304	9912-9919
305	0001-0003,17,0020

Several "see boat sheet" positions were run while still receiving Del Norte ranges. These ranges were used in conjunction with constructed angles to obtain positions.

The Del Norte positioning system performed satisfactorily throughout the project. It was found that electronic corrections varied from day to day using the same units. Correction variances were seldom greater than 5 meters. No major problems were encountered with the Del Norte system.

H. SHORELINE See Verification Report

Shoreline for this sheet was obtained from the following Class III manuscripts:

TP 00764	May, 1976
TP 00765	May, 1976 April 1974-75
TP 00761	April, 1976 April 1974-75
TP 00769	April, 1976

TP 00761 was verified by Photo Party 62 in the summer of 1977. Field edit for other manuscripts was accomplished by Photo Party 62 and will be forwarded under a separate cover.

I. CROSSLINES

The percentage of crosslines run on this survey was 9.8%. Agreement with main scheme lines was excellent in most cases. It should be noted that several crosslines were run by skiff WH-4 using range/azimuth control over range/range main scheme that was performed by launch 1202. This area is located between Converse Point and Butler Point. Agreement in this area is good showing 0-2¹ foot discrepancies.

See Verification Report *pg 2, item 3*

J. JUNCTIONS

To the south, ^{west} this survey junctions with survey H-9647 performed by the NOAA Ship Pierce in 1976. Agreement between the two surveys is excellent with discrepancies of 0-2 feet noted. *H-9647 has not yet been rec'd in the Rockville Office 2/25/85 (also not verified)*

To the east, this survey junctions with contemporary survey H-9712 performed by the Whiting in 1977. Agreement is excellent with minor discrepancies of 0-1 foot noted. *H-9712 has not been verified 2/25/85*
To the south this survey junctions with contemporary survey H-9661 (1976)

K. COMPARISON WITH PRIOR SURVEYS

See Verification Report

SURVEY NO. H-2273 April-October, 1896. 1:10,000

Northern Wareham River to Crab Cove - In general, depths on new survey are 1-3 feet shoaler than old survey. Channel is 3-4 feet shoaler. *concur*

Broad Marsh River-Broad Marsh Cove - New survey is 2-3 feet shoaler, than old survey. *concur*

Wareham River to Mark's Cove - In general, new survey is 1-2 feet shoaler than old survey. Depths in Wareham River channel are in good agreement. New survey shows channel has narrowed considerably. *concur*

Southern Weweantic - New survey shows depths 1-3 feet shoaler than old survey. *concur*

One-half mile radius south of Cromeset Point - New survey shows depths 1-2 feet shoaler. *concur*

South of Indian Neck, east of Great Hill - Agreement is very good between new and old survey.. In general, 0-1 foot agreement. ✓

SURVEY NO. 2272 (1896)

Wings Cove to Dry Ledge - In general, good agreement, 0-2 feet. *concur*

Sippican Harbor to Hammett Cove - ^{good} Excellent agreement. 0-2 ft. shoaler ✓

Aucoot Cove to Bird Island - Excellent agreement. 0-1 ft. shoaler ✓

Bird Island to Cleveland Ledge Channel - Good agreement. New survey is generally 1-3 feet shoaler. *concur*

SURVEY NO. 2309 (1896-1897)

Area bordered by 41°38'30"N, 70°44'30"W and 41°39'30"N, 70°43'00"W. ✓
Excellent agreement. 0-1 ft. shoaler than old survey

SURVEY NO. 2318 (1896) 1:20,000

1 mile NW of Cleveland East Ledge Light - Good agreement.* 0-2 foot ✓
* except in area of dredged channel

discrepancies.

SURVEY NO. 3184 1:20,000 (1896)

Southeast of Bird Island to Cleveland Ledge Channel - Good ✓
agreement.

All Pre-survey review items and developments were investigated by running a 50 meter grid pattern around a given area. Unless otherwise noted, all grid lines were oriented in an east-west, north-south direction. Further development of items will be discussed in the following individual write-ups. See Verification Report

PSI NO. 17 The following shoals, charted from prior NOS surveys, have been developed and recommendations for retention made.

✓ 17A Latitude: 41°39.14'^{08"}N ✓ Charted depth: 11 feet ✓
Longitude: 70°44.45'^{11.00"}W ✓ From H-2309 (1896-97)

Investigation of this item shows an irregular bottom in the area. 11 foot soundings were found between positions 1178 and 1179 at the following geographic positions:

Latitude: 41°39'10.22"N ✓ Latitude: 41°39'09.78"N ✓
Longitude: 70°44'27.72"W ✓ Longitude: 70°44'28.19"W ✓

~~Retention of this 11 foot charted depth is recommended.~~
Recommended charting this area as shown on the smooth sheet. CONCUR

✓ 17B Latitude: 41°39.80'N ✓ Charted depth: 12 feet ✓
Longitude: 70°43.52'W ✓ From H-2272 (1896)

Development of this area reveals an irregular bottom. A depth of 13 feet was noted one sounding out of fix 823. Geographic position of this sounding is: Least depth of 22 ft @ Pos. 819+2 Lat 41°39'48.01" Long 70°43'52.02" CONCUR ✓
Latitude: 41°39'46.8"N
Longitude: 70°43'29.0"W

Because of the irregular nature of the bottom, it is recommended that the ~~charted~~ 12 foot sounding ~~be retained.~~ *be charted from the present survey CONCUR*

✓ 17C Latitude: 41°40.10'N ✓ Charted depth: 7 feet ✓
Longitude: 70°43.35'W ✓ From H-2272 (1896)

Besides the standard 50 meter grid, a line southwest-northeast was run at reduced speed on this item. The fathogram reveals a regular bottom with a jagged outcrop in this area. A least depth of 8 feet was found two soundings out of fix 837. Geographic position of this sounding is: 850+1 in excess level 1.
Latitude: 41°40'06.8"N
Longitude: 70°43'20.9"W

Further development of this area by Whiting divers found a least

depth of 5 feet at position 6002. Geographic position of this tide-corrected, lead-line, least depth is: *5' sdg. described in the sdg. vol. as the l.d. on a rock "ledge" sitting on a flat sandy bottom, ledge area extends 80 to 100 ft. in a S.E.-N.W. direction. (Subm. reef)*

Latitude: 41°40'07.³/₄"N
 Longitude: 70°43'21.²/₄"W

It is recommended that the 7 foot charted depth in this position be replaced with a 5 foot sounding. *Chart the area as shown on the present survey.*

17D Latitude: 41°40.49'N Charted depth: 4 feet *See Q.C. Report Item # 10*
 Longitude: 70°44.45'W

A standard grid, coupled with a southeast-northwest line was run on this item. Within an area of a 50 meter radius of the charted sounding, a least depth of 9 feet was found three out of position 1133.

Geographic position of this sounding is:

Latitude: 41°40'28.8"N
 Longitude: 70°44'26.6"W

It should be noted that *5-9 foot soundings were found 200 meters west and northwest of this position. These soundings were located near the charted foul area off Converse Point. This indicates a discrepancy between the charted 12 foot contour and this survey. A 5 foot depth (position 1150) was located 150 meters west of the 4 foot charted position. Geographic position of this sounding is:*

Latitude: 41°40'27.³/₄"N
 Longitude: 70°44'26.¹/₄"W

(LNB N to M 27 of 1909)

It is recommended that the charted 4 foot *from prior survey 4-829 retained.* sounding be eliminated and replaced by the above 5 foot sounding. It is also recommended that the charted 12 foot contour line be reevaluated. *See Q.C. Report, Item # 10*

17E Latitude: 41°39.33'N Charted depth: 16 feet
 Longitude: 70°44.50'W *from H-2272 (1896)*

Using the standard grid, a least depth of 15 feet was discovered 2 soundings out from fix 791. Geographic position of this sounding is:

Latitude: 41°39'18.⁶/₄"N *20"N*
 Longitude: 70°44'29.⁴/₄"W *30"W*

It is recommended that the 16 foot charted sounding be eliminated and replaced by a 15 foot depth at the above position. *concur*

PSI 19 Charted Position Charted Depth: 17 feet
 Latitude: 41°38.97'N *From F.E. No. 3, 1967*
 Longitude: 70°42.83'W *[FE.207(1967)W0]*

This item is a 17 foot submerged obstruction reported to be a sunken buoy. Analysis of the fathogram reveals a very regular bottom in this area. A least depth of 24 feet was found on positions 760 and 761. Geographic position of these fixes are:

#760 Latitude: 41°39'01.2"N
Longitude: 70°42'50.0"W

#761 Latitude: 41°39'02.3"N
Longitude: 70°42'46.9"W

In general, depths in this area range from 24³ to 26 feet. A further investigation was made by Whiting divers. A tide corrected least depth determined by leadline was found to be 24 feet at fix number 6005. The geographic position of this fix is:
Latitude: 41°38'58.2"N
Longitude: 70°42'49.8"W

A thorough search of the area revealed no evidence of a sunken obstruction. It is recommended that the charted depth of 17 feet be eliminated and replaced by a 24-foot sounding.
~~the 17 ft obstruction with evidence. Doubtful note to E.D.~~

✓ PSI 20 Charted Position

Latitude: 41°39.10'N
Longitude: 70°42.82'W

Charted Depth: 17 feet

what was described as the remains of a sunken scow or barge, on H-3391 (1912-14) which was lost many yrs ago, is considered to have deteriorated & no longer constitutes a hazard to navigation.

This item was investigated for a 17 foot sounding which prior survey H-3391 states is the remains of a scow or barge. The fathogram reveals a smooth bottom in this area. A least depth was found to be 22 feet between fix numbers 73-74³³⁻³⁴ on the main scheme. Development of this area reveals a 23 foot least depth between fix numbers 767-768. It is recommended that the 22 foot sounding be retained eliminating the charted 17 foot sounding.
Do not concur with the charters' comments. Expunge the 17 ft sdg. Area as shown on the present survey.

✓ PSI 21 Charted Position

Latitude: 41°39.98'N
Longitude: 70°42.30'W

Charted Item: from F.E. No. 3, 1967
Submerged wreck

Retain subm. wk, E.D. # note as cleared to 20 ft

This item is an investigation of a charted submerged wreck. The wreck is reported to be a wooden barge 40 feet x 12 feet x 4 feet. Analysis of the fathogram reveals a smooth rolling bottom. Least depth in this area was found to be 23 feet on fix 892. Splits of the main scheme were run between the approximate position of the wreck, and Bird Island. General agreement with the charted depths exist. No trace of the wreck was found. A 1966 wire drag investigation by the Wainwright and Hilgard, F.E. No. 3 (1967), cleared effective depths of 18 and 20 feet. Acknowledging the possibility of the existence of the wreck, in conjunction with the above mentioned investigations, it is recommended that the charted wreck symbol be retained, noting a drag cleared depth of 20 feet.

✓ PSI 23 Charted Position

Latitude: 41°41.45'N
Longitude: 70°45.14'W

Charted Item:
Obstruction

A charted obstruction was found to be the remains of a boathouse. The obstruction is a 30 feet x 30 feet concrete foundation, 6 feet

above the waterline. The concrete foundation leads to shore from position 5773 at an approximate 225°T direction. It is recommended that the charted obstruction be retained. *Do not concur. Geographic position of obstruction 4 ft at MHW and should be charted as shown on the smooth sheet. The rock awash charted off the end of these ruins is charted from a misc. source. The rock awash is probably rubble from the stone ruins, was not mentioned by the hydrographer & is deferred to the Shoaling reported compiler for a charting resolution.*

✓ PSI 24 Charted Position:
 Latitude: 41°41.26.0"N
 Longitude: 70°45'07.0"W

Charted Depth:
 Shoaling reported

This item investigates reported shoaling in the area west of Ram Channel is Island. It should be noted that this area contains a narrow entrance to a yacht-congested Marion Harbor. The narrow channel is well marked by buoys 7, 8, and 9. The item was developed by use of splits of the main scheme. A discrepancy exists between the charted 16 feet and 18 feet soundings in this area, and the depths found in the development. Least depths of 9 feet have been found in this area. Shoaler depths are present on both east and west sides of the channel. It is recommended that the 12 foot curve be reevaluated showing the channel narrower in this area. *inadequately developed to ascertain a depth. No axis lines were run in the channel. Do not concur. Axis lines should be run at an opportune time - Retain the charted "shl" ref note*

✓ PSI 25 Charted Position:
 Latitude: 41°42.57'N
 Longitude: 70°45.88'W

Charted Depth: 4 feet rep.

This item investigates a reported 4 foot depth at the end of a newly constructed pier. Pole soundings were taken around the face of this pier. A least tide-corrected depth was found to be 4³ feet at position 9810. Geographic position of this position is:

Latitude: 41°42'33.5"N
 Longitude: 70°45'52.5"W

It is recommended that this depth be charted at the above position.

✓ PSI 26 Charted Position **65**
 Latitude: 41°42.57'N
 Longitude: 70°45.50'W

Charted Item:
 Black and red markers

An investigation for charted black and red markers was conducted in the above area. A small red buoy was found marked #2 at position number 9798. Geographic position of the marker is:

Latitude: 41°42.63'N
 Longitude: 70°45.53'W

A search was made for an accompanying black marker. None was found. An investigation was also made for navigational hazards. The marker, which resembles many of the private uncharted markers in the area, bears no clear navigational significance. It is recommended that both black and red markers be deleted from the chart. *See Verifiers Report (pg 7, item 11). This buoy marks the approach to Hammett Cove & is in the U.S.C.G. Lt. List. There may be many priv. maintained markers in this area, however this is the only marker specifically mentioned & located on the present survey. The "many uncharted markers in the area" are considered to be the privately maint'd channel markers addressed under charted "Note C"*

PSI 28 Charted Position
Latitude: 41°43.50'N
Longitude: 70°42.83'W

Charted Item: *from CL-2111 of 1975 (power squadron)*
Sunken rock
Pos# 9557 to Pos# 9569

An investigation was performed in search of a sunken rock 2 feet above the bottom. Splits of the main scheme were run reducing the spacing to 45 meters. A visual, as well as fathometer search was made for the sunken rock. Least depths in the area were found to be a consistent 2 feet. No sign of a sunken rock was found. Considering the shallow depth of this area, it is recommended that no particular note be made of this rock, and the ^{area be from the present survey.} charted ^{depth remain} ~~2 feet.~~ **CONCUR**

✓ PSI 29 Charted Position
Latitude: 41°43.20'N
Longitude: 70°42.50'W

Charted Item:
Submerged wreck, **PA** *sure*

Because of an error in plotting the geographic position on the boat sheet, the development was run 200 meters north of the approximate position. No sign of the wreck was found on the main scheme or development. Because of sparse coverage, retention is recommended. *Source is Local Notice to Mariners No. 40 of 1975* **CONCUR** ✓

✓ PSI 31 Charted Position, *from CL 1126 of 1967 (BP-72377)*
Latitude: 41°45.00'N
Longitude: 70°42.15'W

Charted Depth: 7 feet, *rep 1967*
Lat. 41°45'00.64"
Long. 70°42'09.51"

This item is an investigation of a reported 7 foot depth. It should be noted that this charted position is located 110 meters west of a small boat ramp. A narrow strait exists between the boat ramp and the main Wareham River channel. Depths in this strait range from 6 feet to 11 feet. This area was developed by running a split between the main scheme, reducing spacing to 45 meters. In the immediate area of the strait, a least depth of 7 feet was located between positions 9398-9399. It is recommended that a depth of 7 feet be charted at this position. Also, the narrowness of the strait should be noted on the chart. *There are numerous 7ft depths in the area, recommend charting this area from Smooth Sheet.* **CONCUR.**

✓ Development #1 Charted Position
Latitude: 41°42.60'N
Longitude: 70°42.33'W
2.65

Charted Depth: 15 feet
Smooth Sheet depth 13 feet
Lat. 41°42'35.19"
Long. 70°42'39.67"

Item investigation was performed after finding a 13 foot sounding on the main scheme between positions 5290-5291. The area was further developed* and least depth was found to be 14 feet on position number 5611. It is recommended that the ~~16~~ foot charted depth be eliminated and replaced by a 13 foot depth. *development Pos's 5605-5618* **CONCUR**
Chart depths as shown on the present survey.

✓ Development #2 Charted Position
Latitude: 41°42.50'N
Longitude: 70°42.55'W
7

Charted Depth: 12 feet

This development was run after finding a side echo resembling a 6 foot sounding on the main scheme fathogram. This echo is located

between position numbers 5275-5276. It should be noted that the fathometer on this day was picking up many such echoes. The area was further developed and a least depth of 11^{1/2} feet was found on position 5624. Geographic position of this fix is:

Latitude: 41°42'32.7"N
Longitude: 70°42'24.8"W

Development positions 5619 to 5633

It is recommended that the 11^{1/2} foot depth be charted at the above position. *Chart area as shown on the present survey.*

✓ Development #3 Charted Position
Latitude: 41°42.0'N ✓
Longitude: 70°41.8'W

Charted Depth: 12 feet ✓
Development positions 5489-5547

An investigation of this 12 foot dashed circle item was performed by running a grid pattern around the shoal area known as Dry Ledge. The area is an outcrop of awash rocks surrounded by 8 feet to 15 feet of water. The 12 foot charted sounding is located 400 meters south-west of the outcrop. The development shows an 8 foot sounding between positions 5536-5537. A further investigation of the area was made by Whiting divers. A tide-corrected leadline least depth of 6 feet was found at position number 5689 at the following geographic position.

Latitude: 41°41'59.9"N
Longitude: 70°41'41.6"W

⁸⁶ Sent Notice to Mariners to Aids to Navigation on Feb 6, 1980

It is recommended that this 6 foot depth replace the charted 12 foot sounding. *concur* (chart as 6Rk) Shown on Cht. 13236, 21st Ed. dated 6/27/81

✓ Development #4 Charted Position
Latitude: 41°42.0'N ✓
Longitude: 70°42.8'W ✓

Charted Depth: 18 feet
Development positions 5634 to 5643

An investigation of a 12 foot ^{* in excess level 1 of smooth sheet} sounding found on the main scheme was performed in the above area. A pronounced spike was noted on the main scheme between positions 5142-5143. After development, a least depth of 11⁹ feet was found between position 5644-5645. The item was further investigated by Whiting divers. A tide-corrected leadline depth of 11⁰ feet was found at position 5691. Geographic position of this fix is:

Latitude: 41°42'01.2"N
Longitude: 70°42'11.0"W

^{* in excess level 1, Shookest depth is 9ft found during fathometer development search, it is in excess level 0 (smooth sheet) at}

Lat. 41° 42' 00.65" } position of L.D. 9' }
Long. 70° 42' 11.79" } Sdg on rock

It is recommended that the 11⁹ foot sounding, ^{on a subm rock} at the above position be charted. *concur* Shown on Cht. 13236, 21st Ed., dated 6/27/81

✓ Development #5 Charted Position
Latitude: 41°41.9'N
Longitude: 70°41.3'W
2.7

Charted Depth: 17 feet
Development positions 5663 to 5674

This development was run after finding a ¹⁴ 13 foot sounding between positions 5124-5125 on the main scheme. The sounding was found in charted waters of 15-17 feet. The development showed a least depth

of 14 feet between positions 5667-5668. ^{at Lat. 41°41'56.25" Long. 70°42' 43.24"} It is recommended that the 14 foot sounding found on the main scheme replace the 15-17 foot charted depths. *CONCUR - Chart area as shown on the present survey*

✓ Development #6 Charted Position Charted Depth: 17 feet
Latitude: 41°41.76'N *in vicinity*
Longitude: 70°42.65'W

This development was run after noting an 11 foot sounding on the main scheme between positions 5106-5107. This sounding is surrounded by depths of 14-18 feet. Least depth in the development was found to be 12*feet between positions 5657-5658. It is **In excess level 1* recommended that the main scheme depth of 11 feet be charted at that position. *Lat. 41°41'45.86" Long. 70°42' 25.92" Development positions 5649 to 5660 CONCUR*

✓ Development #7

This development was run after noting discrepancies between currently charted depths and main scheme soundings. Charted depths in this area range from 16 to 20 feet. Two particular positions should be noted in this large development. A least depth of 10 feet was found 1 sounding out from position 5468. Geographic position of this sounding is:

Latitude: 41°41'44.1"N *Development positions 5435 to 5487*
Longitude: 70°42'04.2"W

This position is currently charted 19 feet. A depth of 14* feet was noted between positions 5445-5446. A further investigation by WHITING divers found a 15 foot tide-corrected leadline depth 30** meters west of the 14 foot fathometer depth. This position is 5700 and has a geographic position of: ** at Lat. 41°41' 38.59" Long. 70°42' 13.31" ** In excess level "1"*

Latitude: 41°41'38.4"N
Longitude: 70°42'14.2"W

This position is currently charted 20 feet. It is recommended that the 10 foot sounding 1 out from 5462⁸, and the 14 foot sounding between positions 5445-5446 replace currently charted depths. *CONCUR Chart these areas as shown on the present survey.*

✓ Development #8 Charted Position Charted Depth: 17-19 feet
Latitude: 41°41.43'N *Development Positions *5423 to 5434*
Longitude: 70°42.72'W

This area was developed after finding a 13⁶ foot sounding between positions 5044 and 5045. This area currently has charted depths of 17-19 feet. The area was developed with a grid spacing of 50 meters. Least development depth found was 17 feet on position number 5429. It is recommended that the above 13⁶ foot main scheme sounding be charted. *at Lat. 41°41' 25.54" Long. 70°42' 43.93" CONCUR*

✓ Development #9 Charted Position Charted Depth: 12 feet

Latitude: 41°41.32'N * least depth on smooth sheet at
Longitude: 70°42.78'W Lat. 41°41' 19.09"
Long. 70° 42' 55.14"

This item is a 12 foot dashed circle item. The area was developed by using a 50 meter grid spacing. Least depth found was 12 feet on fix 5685.* Because of the irregular nature of the bottom and close proximity to shore, this 12 foot sounding may exist. It is recommended that the charted 12 foot sounding be retained. *concur*
The 12 ft was carried forward to the smooth sheet from H-2272 (1896)

Development #9B identified as #9D on the field sheet. Development Pos. 5676 to 5687

This development was run after noting side echoes on the main scheme fathogram. Least depth in this development was found to be 22 feet at position 726. *129 in excess level 1* Geographic position of this fix is:

Latitude: 41°38'47.4"N Numerous 22ft. depths in this area.
Longitude: 70°42'56.9"W
58.45

Charted depths in this area range from 21 feet to 23 feet. It is recommended that the charted depths in this area be retained. *No. Recommend charting per smooth sheet as the one ft difference falls within the acceptable range for possible natural changes in the area. CONCUR*

Development #10

This area was developed after noting a peculiar trace on the fathogram during main scheme hydrography. Charted depths in this area are between 22 feet-25 feet. The development shows a least depth of 23 feet on position 742. Geographic position of this fix is:

Latitude: 41°39'01.2"N 38' 54.86"
Longitude: 70°42'50.0"W 15.64"

It is recommended that the currently charted depths in this area be retained. *No. Recommend charting per smooth sheet as the depths on the present survey are within the limits of possible natural changes. CONCUR*

Development #11 Charted Position Charted Depth: 16 feet
Latitude: 41°39.67'N
Longitude: 70°42.88'W

This development is an investigation of a 16 foot black square item. Least depth was found to be 17* feet located 2 out from position #711. Geographic position of this sounding is:

368 Latitude: 41°39'39.58"N * Excess level 1 Development Positions 703 to 714
Longitude: 70°42'56.01"W
53.11"

Because of the irregular nature of the bottom it is recommended that the 16 foot charted depth be retained in this area. *concur* *black square items originate with wire-drag surveys. Carried forward to smooth sheet*

Development #12 Charted Position Charted Depth: 16 feet
Latitude: 41°39'46"N
Longitude: 70°43'00"W

A development was run over this black square item, investigating for a 16 foot charted depth. It should be noted that a 15 foot depth was found on the main scheme between positions 399-400.

* Lat 41° 39' 45.65"
Long. 70° 43' 01.65"

symbolization on presurvey review DW 1/6/24

Least development depth was found to be 16 feet between positions 693-694. It is recommended that the charted depth be replaced by the above 15 foot depth. at Lat. 41°39'45.65" Long. 70°43'01.65" Development positions 691-702
It is recommend this area be charted as shown on the present survey. CONCUR

Development #13

This development was run approximately 300 meters east of Bird Island after noting discrepancies between currently charted depths and main scheme hydrography. Least depth found was 7 feet, 3 out from 870. Geographic position of this sounding is: Development Positions 862 to 873 807 to 914
Latitude: 41°40'07.33"N
Longitude: 70°42'47.04"W

Charted depths in this area are 10 feet. It is recommended that a 7 foot depth be charted* in the above position. (No bottom sample taken)
chart depths as shown on the present survey.

✓ Development #3B Charted Position Latitude: 41°43'45"N Longitude: 70°44'07"W
Charted Depth: 3 feet
* at Lat. 41°43'43.51" Long. 70°44'05.84"

An investigation of this 3 foot dashed-circle item shows a 2 foot sounding between 9872-9873*. It is recommended that the 2 foot sounding replace the charted 3 foot depth. CONCUR ✓

✓ Development #5B Charted Position Latitude: 41°43.53'N Longitude: 70°43.88'W
Charted Depth: 5 feet
* at Lat. 41°43'33.07" Long. 70°43'53.11"

This development is a 5 foot dashed-circle item. A split of main scheme shows the area is very foul, with unnavigable waters. Depths of 2 feet between 9893-9894 were found in the vicinity of the 5 foot charted depth. It is recommended that a 2 foot sounding replace the charted 5 foot depth. CONCUR
Chart the area as shown on the present survey.

✓ Development #12B Charted Position Latitude: 41°40.68'N Longitude: 70°42.73'W
Charted Depth: 12 feet
* Lat. 41°40'43.66" Long. 70°42'53.11"

This investigation is a dashed-circle 12 foot charted depth. Least depth within a 90 meter radius was found to be 14 feet between position 821-822. No sign of a 12 foot sounding was found on main scheme or development. It is recommended that the 12 foot sounding be retained. carried forward to smooth sheet ✓ CONCUR

Development #18 Charted Position Latitude: 41°42.08'N Longitude: 70°44.93'W
Charted Item: Rock awash

Splits of the main scheme were run in search of a rock awash in this area. No sign of the rock was found. It is recommended that the charted rock be deleted. No Rock on T-sheet added to smooth sheet splits not close to this rock. Two splits were run when tide was 3/2 ft above MLW
Charted rk awash was brought fwd from H-2272 (1896) * (0)

Development #14 ✓ Charted Position
Latitude: 41°40.05'N
Longitude: 70°43.30'W

Charted Depth: 8 feet *Retain*
Pos # 1156 to Pos # 1169 as charted
at Lat. 41°40' 02.48"
Long. 70°43' 18.34"

A development of a small shoal approximately 600 meters southwest of Bird Island was performed. Least depth was found to be *9 feet, 2 out from fix 1156. This development, in conjunction with PSI 17C, shows that the 12 foot and 6 foot contour should be reevaluated in this area. *8ft sdg. charted from #2272 (1896) was carried fwd to the present survey.*

Development #15 ✓ Charted Position
Latitude: 41°39.40'N
Longitude: 70°44.28'W

Charted Depth: 17 feet ✓

This item is an investigation of a 17 foot charted depth. A grid development shows a least depth to be *15 feet, 2 out from position 805 } *disregard*
Geographic position for this fix is: *excess level "2"
Latitude: 41°39'31.5"N
Longitude: 70°44'14.2"W

At a later date, a dive was made in this area. A tide-corrected least depth of 11 feet was found at positions 6003 and 6004. Geographic position for these fixes are:

6003	Latitude: 41°39'31.1"N	6004	Latitude: 41°39'31.0"N <i>Excess Level "1"</i>
	Longitude: 70°44'13.6"W		Longitude: 70°44'14.0"W

The divers documented that the area had generally a sandy bottom. Rocks 1-3 feet in diameter were piled on top of each other resulting in a least depth of 11 feet. It is recommended that a depth of 11 feet be charted in the above areas. *Concur ✓ 11RK*

Development #16 ✓ Charted Position
Latitude: 41°39.05'N
Longitude: 70°44.40'W

Charted Depth: 17 feet (*Retain*)
Survey depth 18 ft as charted
Lat. 41°39' 04.71"
Long. 70°44' 21.48"

This development investigates a 17 foot charted depth. A least depth of 17 feet was found on the main scheme between positions 193-194. The development reveals a least depth of 19 feet, 1 out from position 785. It is recommended that the 17 foot charted depth be retained. *17' depth was carried and to the present survey from #359 (1912-14) and concurred.*
carried forward to smooth sheet.

Development #17 ✓ Charted Position
Latitude: 41°40.34'N
Longitude: 70°42.72'W

Charted Depth: 6 feet

A development was run investigating a 6 foot dashed-circle item. It should be noted that a 3 foot sounding was found on the main scheme between positions 1358-1359. Geographic position of this sounding is:
Latitude: 41°40.35'N *shoalest depth is 0.3' located between pos # 1258-1259 at Lat. 41°40' 20.76" Long. 70°42' 45.02"*
Longitude: 70°42.75'W *L.D. is rock covered 1 ft at MLW*
Identified on bathogram as a rock

The area was further developed by splitting main scheme hydrography. Least depth of the development was found to be 3 feet between positions 876-877. It is recommended that the charted 6 foot sounding be replaced by a 2 foot depth. *Concur Do not concur, chart the rock awash in lat. 41°40'20.76"N, long. 70°42'45.02"W*

Should have taken a D.P. & pole sdg, L.L. sdg or a diver investigation for a least depth. Fathometer trace is questionable. Item for future work.

L. COMPARISON WITH THE CHART

H-9724 was compared with chart 13236, Cape Cod Canal and Approaches, 19th Ed., dated May 14, 1977, a 1:20,000 projection. Agreement with the chart was good (0-2 feet) except in the following areas:

Weweantic River - The survey shows an average of 2-3 feet shoaler depths than charted soundings in the area. Definitive decisions should be made when real tides are applied to echo soundings. *channel axis line was not obtained. Fairly good agreement of solgs.*

Wareham River-Broad Marsh Cove - Survey depths show the area 2-3 feet shoaler in this area. It is suspected that there may be a lag in the tidal cycle in these inlet areas which would account for this difference. *plus or minus 1 to 2 ft changes are common.*

Other discrepancies are noted in Section J.

M. ADEQUACY OF SURVEY

This survey is complete and adequate to warrant its use to supersede prior surveys. *with the addition of items carried fwd from prior surveys and items addressed in the report.*

N. AIDS TO NAVIGATION

Aids to navigation in this area include approaches to Sippican Harbor and Wareham River. Positions on buoys #3 and #4 in Cleveland Ledge Channel were also obtained.

Positions on all aids to navigation in the area were obtained with the exception of "3" Fl 2½ sec, delineating the entrance to Sippican Harbor. Although the position was not obtained, its existence was verified by Whiting personnel. Positions on aids to navigation found in this survey are in good agreement with Light List (Vol. #1, 1978) positions. Privately maintained buoys in Hammett Cove were not found. The following is a list of aids to navigation in the project area. *See Q.C. Report for exceptions. See also pg. 12 (ps 1-26) in the D.R. and pg. 7, item 11 in the V.R.*

<u>Buoys (Sippican Harbor)</u>	<u>Position No.</u>	<u>Geographic Position</u>
✓ Bird Is. ^{South Gong} Shoal Buoy	460	41°39'00.16"N 70°42'47.10"W
✓ Red Lighted #2 (Centerboard)	405	41°39'43.49"N 70°43'36.54"W
✓ Bird Is. Reef ^{Bell} Buoy (Bk #13)	560	41°39'59.12"N 70°42'26.26"W
✓ #5 Blk Can	1360 or <i>rejected 5703</i>	41°40'50.96"N 70°44'24.82"W
✓ #6 Red Nun	8108	41°41'34.19"N 70°45'02.10"W
✓ #7 Blk Can	8129	41°41'48.04"N 70°45'13.99"W

<u>Buoys (Sippican Hbr.)</u>	<u>Position No.</u>	<u>Geographic Position</u>
#8 <i>Red Nun</i>	8389	41°41'55.73"N 70°45'15.70"W
#9 <i>Blk Can</i>	8390	41°41'59.95"N 70°45'16.99"W
#11 <i>Blk Can</i>	8391	41°42'09.68"N 70°45'24.28"W
#13 <i>Blk Can</i>	8392	41°42'20.02"N 70°45'31.94"W

Buoys (Wareham River)

✓ Dry Ledge buoy #2 <i>Red Nun</i>	5150	41°42'03.42"N 70°41'38.09"W
✓ Entrance buoy #4 <i>Red Nun</i>	5274	41°42'29.43"N 70°42'24.98"W
✓ Entrance buoy #5 <i>Blk Can</i>	5289 or 9112	41°42'33.57"N 70°42'40.05"W
✓ Entrance buoy #7 <i>Blk Can</i>	9125	41°42'51.42"N 70°43'06.30"W
✓ Entrance buoy #8 <i>Red Nun</i>	8932	41°43'09.70"N 70°43'12.39"W
✓ Entrance buoy #10 <i>Red Nun</i>	8913	41°43'14.92"N 70°43'07.74"W
✓ Entrance buoy #11 <i>Blk Can</i>	8899	41°43'19.35"N 70°43'08.53"W
✓ Entrance buoy #13 <i>Blk Can</i>	8976	41°43'30.33"N 70°43'06.39"W
✓ Entrance buoy #14 <i>Red Nun</i>	9045	41°43'45.08"N 70°43'09.29"W
✓ #15 <i>Blk Can</i>	9346 or 9214	41°44'00.04"N 70°43'01.70"W
✓ #17 <i>Blk Can</i>	9334	41°44'08.82"N 70°42'40.38"W
✓ #19 <i>Blk Can</i>	9333	41°44'19.05"N 70°42'37.17"W
✓ #20 <i>Red Nun</i>	9331 or 9488	41°44'27.08"N 70°42'31.54"W
✓ #21 <i>Blk Can</i>	9332 or 9487	41°44'31.17"N 70°42'28.93"W
✓ #23 <i>Blk Can</i>	9464	41°44'40.30"N 70°42'28.47"W
✓ #24 <i>Red Nun</i>	9463	41°44'46.36"N 70°42'24.68"W
✓ #26 <i>Red Nun</i>	9462	41°44'56.97"N 70°42'17.01"W
✓ #28 <i>Red Nun</i>	9461	41°45'02.95"N 70°42'16.41"W
✓ #30 <i>Red Nun</i>	9460	41°45'07.11"N 70°42'19.68"W
✓ #32 <i>Red Nun</i>	9500	41°45'11.75"N 70°42'32.00"W

<u>Buoy</u>	<u>Position No.</u>	<u>Geographic Position</u>
Cleveland Ledge Channel ✓ #4 <i>Red-Lt</i>	459	41°39'23.52"N 70°41'12.09"W
Cleveland Ledge Channel ✓ #3 <i>Blk Gong-Lt</i>	458	41°39'26.20"N 70°41'22.12"W

O. STATISTICS

<u>VESNO</u>	<u>POS. NO.</u>	<u>MILES HYDRO.</u>	<u>SQ. NAUTICAL MILES</u>
2931	779	90.1	3.0
2932	1199	168.1	8.75
2933	2459	99.3	3.75
TOTAL	4437	357.5	15.50

Bottom Samples: 42

TIDE GAGES: 30 Day - 4
3 Day - 3
Staffs - 3

P. MISCELLANEOUS

NONE

Q. RECOMMENDATIONS

It should be noted that position #8695 in Wing's Cove plots up on ^{lat. 41°41'59.90"} land. This fix is the beginning of an arc. It was not determined ^{long 70°43'30.48"} whether an error in the unverified shoreline manuscript or a bad angle is the cause of this discrepancy. It is recommended that *plots in water on S.S. # 15* verified shoreline be examined and if the discrepancy still exists, *O.K.* reject fix #8695 and the two following soundings before 8696.

R. AUTOMATED DATA PROCESSING

The following computer programs were used during the course of this survey:

<u>PROGRAM NO.</u>	<u>DESCRIPTION</u>	<u>VERSION DATE</u>
RK 111	Range-Range Real Time Hydroplot	1-30-76
RK 201	Grid and H/R Lattice Plot	4-18-75
RK 211	Range-Range Off-line Plot	1-15-76
RK 212	Visual Station Table Load	4-01-74
RK 215	Visual Position and Sounding Plot	5-16-74
RK 216	Range-Azimuth Position and Sounding Plot	2-5-76
RK 300	Utility Computations	2-10-76
RK 330	Data Reformat and Check	3-12-76

PROGRAM NO.	DESCRIPTION	VERSION DATE
AM 500	Predicted Tide Generator	11-10-72
RK 561	Hyperbolic and Range-Range Geodetic Calibrations	2-19-75
AM 602	Extended Line Oriented Editor	3-10-72

S. REFERENCES TO REPORTS

The control data and field edit report will be forwarded by Photo Party 62, Robert Tibbits, Chief of Party.

A "Danger to Navigation Report" was filed to the Associate Director, Marine Surveys and Maps (C3), through the Director, Atlantic Marine Center (CAM) on 29 Nov. 1977. A one foot sounding was reported in 6 foot charted waters, 0.3 miles southeast of Butler Point and 0.3 miles northeast of Bird Island. Location of the sounding was reported as being; Latitude: $41^{\circ}40'20.8''N$

Longitude: $70^{\circ}42'45.1''W$

(covered 0.7 ft at MLW)

Also, a report was filed 20 October 1977 to Coast Guard District 1, Boston, MA, recommending this area be noted in Local Notice to Mariners.

note on bathogram (pos 1258-59) describes this as a rock, (cov. 1 ft MLW) on smooth sheet. Trace on bathogram strongly resembles a vegetation trace. Should locate this rock with a D.P. & ascertain a L.D. with pole, L.L. or L.W. observation (probably could walk this at L.W.)



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 *Jac*
Subject: Dangers to Navigation Report

Hydrographic survey H-9724 (Sept-Nov, 1977) conducted by the NOAA Ship Whiting has discovered a 1 foot sounding .3 miles northeast of Bird Island and .3 miles southeast of Butler Point in Buzzards Bay, Massachusetts. The sounding is located 41° 40' 20.8'' N latitude, 70° 42' 45.1'' W longitude. This position is currently charted as a 6 foot sounding on NOS charts 13230 and 13236. *(pos 1258-59 - nk covered 1 ft at MLW)*
Shown on chrt 13236, 21st Ed, dated 6/27/81

The sounding was located by means of range/azimuth hydrography, using the Del Norte positioning unit in conjunction with the hydroplot system.

A report was filed to Coast Guard District 1 recommending this sounding be noted in Local Notice to Mariners.



N.E. OF BIRD ISLAND
BUZZARDS BAY, MASS.

SIPPICAN NECK

Butler Pt

Bird I

Centerboard Shoal

(Chart as
* cov 1 ft. at MLW

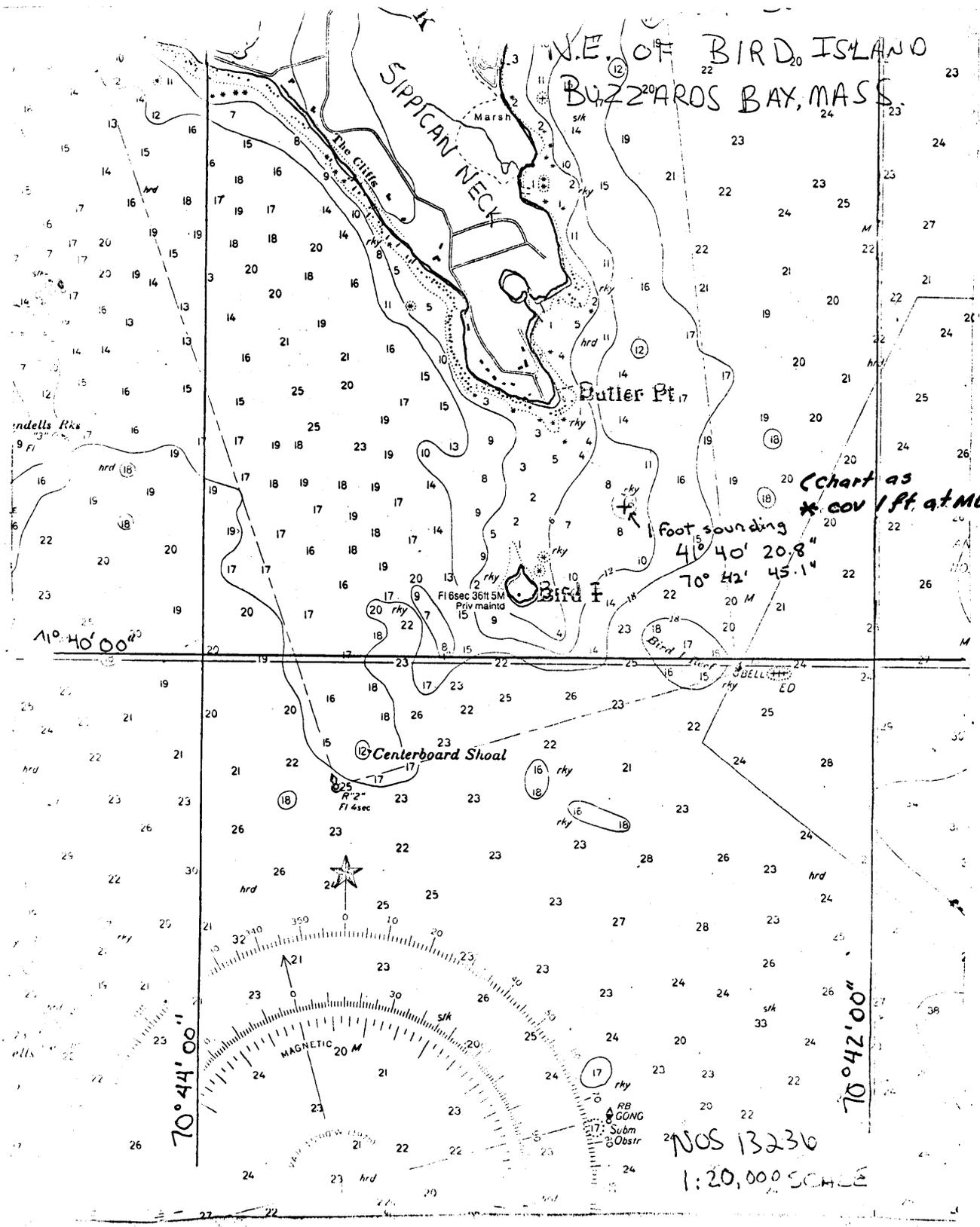
1 foot sounding
4¹⁵ 40' 20.8"
70° 42' 45.1"

11° 40' 00"

70° 44' 00"

70° 42' 00"

NOS 13230
1:20,000 SCALE



NY NMF
DE WIEW

P 202640Z OCT 77
FM NOAA SHIP WHITING/WIEW
TO CCGDNE BOSTON MA
INFO NOAA LANIMARCEN NORFOLK VA
BT

UNCLAS

LOCAL NOTICE TO MARINERS INFORMATION

1. HYDROGRAPHIC SURVEYS BY THE WHITING HAVE LOCATED A ROCK COVERED BY ONE FOOT OF WATER AT MEAN LOW WATER AT LATITUDE NORTH 41 DEGREES 40 MINUTES 20.8 SECONDS AND LONGITUDE WEST 70 DEGREES 42 MINUTES 45.1 SECONDS. THIS LOCATION IS APPROXIMATELY 0.3 N. MILES NORTHEAST OF BIRD ISLAND AND 0.3 N. MILES SOUTHEAST OF BUTLER POINT. THIS POSITION PRESENTLY IS CHARTED WITH A SIX FOOT SOUNDING ON NOS CHARTS 13230 AND 13236.
2. VESSELS THAT ATTEMPT TO TRANSIT THE AREA BETWEEN BIRD ISLAND AND BUTLER POINT SHOULD BE CAUTIONED THAT THIS AREA MAY CONTAIN OTHER UNCHARTED ROCKS.
3. REQUEST THAT THIS INFORMATION BE ISSUED THROUGH THE FIRST DISTRICTS LOCAL NOTICE TO MARINERS.

BT

NNNN

TOD 202118Z Q R U TU LKKK

02018Z WIEW DE NMF QSL QSL AND TU VQU EE QRU AR

NNNN

APPROVAL SHEET

Submitted by:

Nicholas E. Perugini

Nicholas E. Perugini
Ensign, 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:

for *Dirk R Taylor*

John W. Carpenter
CDR, NOAA
Commanding Officer, NOAA Ship WHITING

FIELD TIDE NOTE

The soundings on the field sheet were reduced for predicted tides based on preliminary zoning furnished by Oceanographic Division. Values of +12 minutes to high water, and +22 minutes to low water and a 1.06 ratio were applied to tides predicted for Newport Rhode Island. Tide gages were installed at the following locations.

30 DAY GAGES

<u>NAME</u>	<u>STATION NO.</u>	<u>LATITUDE/ LONGITUDE</u>	<u>TYPE</u>	<u>DATES OF OPERATION (1977)</u>
Chappaquoit	844-7685	41° 36.3' 70° 39.1'	Fischer-Porter ADR S/N 7206A2664M13	June 4-Nov. 5
Stony Point Dike	844-7417	41° 41.7' 70° 40.2'	Fischer-Porter ADR S/N 6402A4596-3	July 6-Nov. 10
Marion	844-7385	41° 42.3' 70° 45.7'	Fischer-Porter ADR S/N 6803A3012M3	Sept.15-Nov.11
Great Hill	844-7368	41° 42.7' 70° 42.9'	Fischer-Porter ADR S/N 7206A2664M2	June 30-Nov.12

3 DAY GAGES

Weweantic	844-7287	41° 44.3' 70° 44.8'	Bristol, Gas Purged S/N 75A-6586	Oct. 29-Nov.7
Wareham	844-7229	41° 45.4' 70° 42.8'	Metercraft, Gas purged S/N 7603-686-73	Oct. 26-Nov.7
Sippican Neck	844-7414	41° 41.6 70° 43.2	Metercraft	Sept.29-Oct.20

STAFF 9-Hour Observations

Mark's Cove	844-7368	41° 44.1' 70° 43.8'		October 28
Broadmarsh Cove	844-7229	41° 45.2' 70° 43.2'		Nov. 1

STAFF 9-Hour Observations (continued)

Hammett	844-7385	41° 43.2'
Cove		70° 45.6'

October 30

U.S. DEPARTMENT OF COMMERCE
August 29, 1978 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Atlantic Marine Center:

Hourly heights are approved for 844-7368 Great Hill, Ma.
844-7385 Marion, Ma.
Tide Station Used (NOAA Form 77-12): 844-7229 Wareham, Ma.

Period: September 19-November 9, 1977

HYDROGRAPHIC SHEET: H-9724

OPR: 503

Locality: Buzzards Bay, Massachusetts

Plane of reference (mean ~~low~~ low water): 2.40 ft. - Great Hill
2.32 ft. - Marion
3.5 ft. - Wareham

Height of Mean High Water above Plane of Reference is 4.0 ft.

Remarks: Recommended zoning:

- 1). In Sippican Harbor and south of a line extending east from Butler Point zone direct on Marion. ✓
- 2). In the Wareham River zone direct on Wareham. ✓
- 3). Elsewhere zone direct on Great Hill. ✓

Don M. Spellman
Chief, Tides Branch

GEOGRAPHIC NAMES

Name on Survey	A ON CHART NO.	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G GRAND McNALLY ATLAS	H U.S. LIGHT LIST	K	
① WAREHAM RIVER ✓	13230	13230								1
✓ WEWEANTIC RIVER ✓	13230									2
✓ WINGS COVE ✓	13230	13230								3
✓ HOLLY WOODS (locality)										4
✓ JOES POINT ✓										5
✓ AUCOOT CREEK ✓										6
✓ BLAKE POINT ✓										7
✓ BIRD ISLAND REEF ✓										8
✓ SEDGE COVE ✓										9
✓ PINEY POINT BEACH (locality)										10
✓ BEVERLY YACHT CLUB										11
✓ CLAPPS ISLAND ✓										12
✓ LITTLE ISLAND ✓										13
✓ NOBSKA BEACH (locality)										14
✓ WARREN POINT ✓										15
✓ BEACH ROCKS (Hydro Feature)										16
✓ SIPPICAN RIVER ✓										17
✓ ROSE POINT ✓										18
✓ BRIARWOOD BEACH ✓										19
✓ HAMILTON BEACH (locality)										20
✓ GIBBS ROCK (Hydro Feature)										21
✓ WAREHAM NECK ✓										22
✓ PINEHURST BEACH (locality)										23
✓ OAKDALE ✓										24
✓ QUAHAUG BAR (HYDRO FEATURE)										25

Approved:

Chas. E. Harrison, Jr.
Chief Geographer - N/C622?

14 JAN 1983

HYDROGRAPHIC SURVEY STATISTICS

H-9724

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET		1	BOAT SHEETS & PRELIMINARY OVERLAYS		6 parts & 0	
DESCRIPTIVE REPORT		1	SMOOTH OVERLAYS: POS. ARC, EXCESS		3	
DESCRIP-TION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/SOURCE DOCUMENTS
ENVELOPES						
CAHIERS	2-row printouts					
VOLUMES	9					
BOXES			1-Smooth (2 parts) with misc. data			

T-SHEET PRINTS (List)

SPECIAL REPORTS (List) 1- Cht. mark-up

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS		
	PRE-VERIFICATION	VERIFICATION	TOTALS
POSITIONS ON SHEET			4479
POSITIONS CHECKED		25	
POSITIONS REVISED		10	
SOUNDINGS REVISED		50	
SOUNDINGS ERRONEOUSLY SPACED			
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED			
	TIME - HOURS		
CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION)	2		
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS		186	
VERIFICATION OF SOUNDINGS		213	
COMPILATION OF SMOOTH SHEET		80	
APPLICATION OF TOPOGRAPHY		150	
APPLICATION OF PHOTOBATHYMETRY			
JUNCTIONS		40	
COMPARISON WITH PRIOR SURVEYS & CHARTS		100	
VERIFIER'S REPORT		28	
OTHER			
TOTALS		7987	7989

Pre-Verification by	MWH	Beginning Date 6/2/78	Ending Date 6/2/78
Verification by	MWH, BJS, DVM, JBW, LGC	Beginning Date 3/14/81	Ending Date 3/31/81
Verification Check by	RDS	Time (Hours) 48	Date 5/8/81
Marine Center Inspection by	HIT	Time (Hours) 8	Date 5/13/81
Quality Control Inspection by	F.P. Saulsbury	Time (Hours) 507	Date 1-12-83
Requirements Evaluation by		Time (Hours)	Date

H. Myers 80 hrs. 3/29/83

APPROVAL SHEET
FOR
SURVEY H-9724

- A. All revisions and additions made on the smooth sheet during verification have been entered in the magnetic tape records for this survey. A new final position printout has/~~has not~~ been made. A new final sounding printout has/~~has not~~ been made.
- B. The verified smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic Manual. Exceptions are listed in the Verification Report.

Date: May 14, 1981

Signed: _____



Chief, Verification Branch

REGISTRY NO. H-9724

The magnetic tape containing the data for this survey has not been corrected to reflect the changes made during evaluation and review.

When the magnetic tape has been updated to reflect the final results of the survey, the following shall be completed:

MAGNETIC TAPE CORRECTED

DATE _____ TIME REQUIRED _____ INITIALS _____

REMARKS:

ATLANTIC MARINE CENTER
VERIFICATION REPORT

REGISTRY NO.: H-9724

FIELD NO.: WH-10-2-77

Massachusetts, Buzzards Bay, Hiller Cove to Indian Neck

SURVEYED: 19 September through 9 November 1977

SCALE: 1:10,000

PROJECT NO.: OPR-503

SOUNDINGS: DE-723, ^DDE-719 Fathometers,
Leadline, and Sounding Pole, *Divers*

CONTROL: Range-Range (Del Norte),
Range-Azimuth (Del Norte
and Theodolite), See Boatsheet

Chief of Party J. W. Carpenter
Surveyed by D. Goodrich
..... J. Rubino
..... R. Mandzi
..... N. Perugini
..... E. Assaf
Automated Plot by Xynetics 1201 Plotter (AMC)
Verified and Inked by L. G. Cram
Date April 10, 1981

I. INTRODUCTION:

a. Unusual problems that were encountered are as follows:

1) The lack of notes in the sounding volumes and the incomplete nature of the notes that were found on the raw data printouts detracted from the completeness of the survey. ✓

2) Both fathometers (S/N 37010 and S/N 37018) used on this survey have histories of malfunctioning as described in the Quality Control Report from National Ocean Survey Headquarters for survey H-9679. It appears that malfunctioning occurred somewhat during this survey. ✓

3) The apparent lack of coordination between the field editor and the hydrographer led to some problems with the verification of rocks and other near shore features. ✓

4) The condition of the copies of the prior surveys as to clarity and legibility were poor and led to great difficulties during verification. *A complete comparison was made with prior surveys during Q.C.I.*

b. Notes and changes were made in red ink in the Descriptive Report by the verifier during verification. ✓

2. CONTROL AND SHORELINE

a. The source of control is adequately described in sections "F" and "G" of the Descriptive Report. Additional information can be found in section 6 of the Descriptive Report and the Control Report accompanying this survey. ✓

b. Shoreline for this survey was transferred from Class I unreviewed shoreline manuscripts TP-00761, 1974-77; TP-00764, 1974-77, 78, 79; TP-00765, 1974-79, 80; ✓ and TP-00769, 1974-76, 77, 79, 80.

It should be noted that some rocks on the topographic manuscripts were left off the smooth sheet due to the crowded condition of some of the rocks. Much the same thing happened when the field took detached positions on rocks. There were ✓ so many rocks that only a limited number could be shown. In all cases the most offshore rocks are shown on the smooth sheet from either the field positions, topographic manuscripts or from prior surveys. *CONCUR*

3. HYDROGRAPHY

a. The agreement at crossings on this survey is adequate; depths agree within ✓ the limits prescribed by the Hydrographic Manual.

b. The standard depth curves could be drawn in their entirety with the exceptions of the "0" and "6" foot curves. Dashed curves, supplemental curves and brown curves were used to better delineate some features. There were some problems in areas of irregular bottom and highly developed areas, in that the deeper soundings in excess could not always be included in the curves. The congestion of shoaler soundings precluded bringing these soundings to the zero excess level and in most cases they were within one foot of the shoaler soundings. In some cases portions of curves were dashed when they crossed the dashed black foul area limits of the shoreline manuscripts. *Also, small portions of the 12' & 18' curves were compromised by inadequate development.*

c. This survey is considered adequate to delineate the basic bottom configuration and to determine least depths only when consideration is given to the supplemental data from the two ^{hydrographic} wire-drag surveys and the prior surveys that were added to the present survey. There were numerous items carried forward from the wire-drag surveys to the present survey. These are all highly reliable items and with the equipment available to the field unit it was not possible nor practical to verify the existence of some of these items. A large number of rocks and some shoal soundings were carried forward to the present survey from the prior surveys. For the discussion of these items see section "6" of this report. ✓

4. CONDITION OF SURVEY

The smooth sheet and accompanying overlays, hydrographic records and reports comply with the requirements of the Hydrographic Manual with the exceptions listed ✓ in section "1" of this report and the following:

a. Apparently the field did not maintain a close quality control check on their plotted data. One example is the development run of Presurvey Review Item #29, a submerged wreck. The development was run 200 meters north of this wreck and apparently was not noticed until after the field unit left the area (See pg. 13 of the Descriptive Report). *Retain the charted subm dangerous wk P.A.*

b. The field unit's investigation of some Presurvey Review Items (numbered) did not conform to the request for the development of these items. An example is PSI #20 and 21 on page 11 of the Descriptive Report. *Investigation by divers was requested in the P.I. - Apparently no diver investigation was performed.*

c. The field development of the Weweantic, Wareham and the Broad Marsh rivers is not adequate; a few additional lines should have been run across the axis of the channels. *concur Also along the axis.*

d. The field failed to adequately develop some of the shoaler soundings located on the present survey. An example is in the vicinity of Latitude 41°41'20", Longitude 70°42'15" where a least depth of 17 feet was found on the present survey. The depths on the chart in this area indicate ²⁰⁻23 feet of water.

e. The field used blue shoreline on their boatsheet but only small portions (north of Latitude 41°45') was inked over in black. It is not apparent from this procedure if any or part of the shoreline was verified by the field unit. *concur*

f. The field's comparison to the charted data was not adequate. At least six items (shoals) were found that warranted a "danger to navigation report" be filed with the Aids to Navigation Section in Rockville. There were ample indications of these shoals on the boatsheet turned in by the field to reveal these dangers. This is a dangerous condition as the survey was done in 1977 and these items are just now getting reported. ✓

5. JUNCTIONS

Adequate junctions were made with the following surveys:

- H-9647 (1976) *not in Rockville office 2/25/85 (not verified)*
- H-9661 (1976) *not verified 2/25/85*
- H-9712 (1977) *not verified 2/25/85*

The junction in the southeast corner of this survey is a three way junction, H-9661 (1976), H-9712 (1977) and H-9724 (1977). The irregular nature of the 30 ft. curve in this area is probably the result of two factors, the steep drop off (from 30 to 40 ft.) and dredging for the channel. *Junctional surveys are not verified as of 2/25/85*

All junctions are complete and should not require any further consideration.

6. COMPARISON WITH PRIOR SURVEYS

	<i>H-829</i>	<i>(1863)</i>	<i>1:5,000</i>
a.	H-2272	(1896)	1:10,000
	H-2273	(1896)	1:10,000
	H-2309	(1896-97)	1:10,000
	H-2318	(1897)	1:20,000
	H-3184	(1910)	1:20,000
	T-2215	(1895)	1:10,000
	T-2253	(1896)	1:10,000

These are the most recent prior surveys in this area that provide complete coverage that was available to the verifier during verification.

The comparison with these surveys is well discussed under section "K" of the Descriptive Report. In summary, the present survey generally appears to be shoaler than the prior surveys by from 1 to 4 feet. However, the basic bottom configuration and general depths are in fair agreement, 70% of the depths are in the range of 0-1 foot shoaler than the prior surveys. An exception occurs in the vicinity of Latitude $41^{\circ}41.7'$, Longitude $70^{\circ}42.0'$ where the prior survey H-2272 shows general depths of 19 to 20 feet. The present survey found an irregular bottom with depth to 10 *concur* feet.

It is reasonable to attribute some of the differences to natural causes as four of the prior surveys were done prior to 1900. On the other hand, there has been a fair amount of man-made changes such as the Cape Cod Canal and channels that have been dredged. There appears to be some amount of erosion taking place in the survey area. The feature known as Butter Point (Latitude $41^{\circ}40'35''$, Longitude $70^{\circ}42'55''$) has eroded approximately 55 meters, a small point in Marks Cove (Latitude $41^{\circ}44'10''$, Longitude $70^{\circ}43'40''$) has eroded approximately 100 meters. ✓

There were numerous submerged rocks and rocks awash (80+) added to the present survey from the above prior surveys. The transfer of these rocks was most difficult due to the reasons discussed under section I.a.4 of this report. Every effort was made to ensure the most prominent rocks not located by the present hydrography or topography were positioned on the smooth sheet and that the accuracy of transfer was up to standards. It should be noted that copies of original documents in poor condition are not the best source to use for this type of transfer. There were some rocks that were not carried forward because of scale limitations; rocks from the present survey and the prior surveys caused a crowded condition. In these areas where appropriate, a dashed limit line was used to denote an area foul with rocks. In some areas rocks fell inshore of rocks seaward and were generally within or close to the low water line. Where crowding existed, these rocks were not shown. *All rocks from prior surveys were re-checked during Q.C.I., & where considered necessary were brought fwd. to the present survey.*

The two prior T-sheets (2215, 2253) of 1895-96 were examined from the perspective of being historical documents rather than comparable prior surveys. There does appear to be some rocks charted from the documents. These are not rock symbols in the present sense but rather small dot shapes. They are so numerous as to make individual comparison meaningless. It was noted, however, that for the most part these fell in areas outlined in dashed black lines and labeled foul on the present survey. Of all the copies of prior surveys these are in the poorest shape, with blurred images and faint symbols. *Re-checked during Q.C.I. & are superseded by the present survey.*

There were ~~six~~ *several* prior soundings, *which* are shoal soundings that apparently were overlooked during the hydrography (no developments). Two others, an 18-ft. depth from H-2272 (1896), and a 12-ft. depth from H-2272 (1896) were carried forward due to inadequate developments. The 18-ft. depth located in approximate Latitude $41^{\circ}39'42''$, Longitude $70^{\circ}41'45''$ is an extension of a shoal feature. The 12-ft. depth located in approximate Latitude $41^{\circ}40'43''$, Longitude $70^{\circ}42'43''$ is discussed under section K, development No. 12 B of the Descriptive Report. *Several shoal sdgs from prior surveys were brought fwd to the present survey.* *12' & 18' sdgs from H-2272 (1896) were brought fwd to the pres. survey.*

With the addition of the rocks and soundings described above and other supplemental data brought forward from the prior surveys, the present survey is adequate to supersede the above prior surveys. *concur*

b. Wire-Drag Surveys

H-3391 (1912-14) W.D.
 F.E. No. 3 (1967) W.D. — *FE 207 (1967) W.D.*

H-3391 (1912-14) W.D. This wire-drag survey covers the southern half of the present survey. ~~There were 13 soundings described as detached sounding carried forward to the present survey. Of these 13 soundings, seven were adequately addressed under section "K" of the Descriptive Report; the other six are as follows:~~ *edges are on*

1) A 20-ft. detached depth charted in Latitude $41^{\circ}39'09''$, Longitude $74^{\circ}43'36''$ was carried forward to the present survey. *Do not concur* Least depth in this area *is* 22 ft. from the present survey. *20' sdg from H-3391 (1912-14) W.D. falls in a mud bottom & is considered discredited by pres. survey depths in this area*

2) A 19-ft. detached depth charted in Latitude $41^{\circ}39'16''$, Longitude $74^{\circ}44'18''$ was carried forward to the present survey. Least depth in this area is 21 ft. from the present survey. ✓

3) A 17-ft. detached depth charted in Latitude $41^{\circ}39'24''$, Longitude $74^{\circ}44'17''$ was carried forward to the present survey. Least depth in this area is 20 ft. from the present survey. ✓

4) An 18-ft. detached depth charted in Latitude $41^{\circ}40'23''$, Longitude $70^{\circ}42'21''$ was carried forward to the present survey. Least depth in this area is 19 ft. from the present survey. ✓

5) An 18-ft. detached depth charted in Latitude $41^{\circ}40'31''$, Longitude $70^{\circ}42'21''$ was carried forward to the present survey. Least depth in this area is 19 ft. from the present survey. ✓

6) A 21-ft. detached depth charted in Latitude $41^{\circ}40'52''$, Longitude $70^{\circ}41'52''$ was carried forward to the present survey. Least depth in this area is 22 ft. from the present survey. ✓

(items 4, 5 & 6)

These last three soundings, being only one foot different from the present survey may not seem to be sufficient but for two facts. It's a reversal of the trend in this area (present survey depths 1 to 2 ft. shoaler) and the fact that no developments were run and some other items that have been developed on the present survey reveal shoaler depths. ✓

There were several conflicts between the present survey depths and the H-3391 wire drag survey effective depths. Where the present survey depths were found to be shoaler than this wire-drag survey, the effective depths of the wire-drag survey should be considered invalid. *Concur, chart depths in the following areas from the present survey.*

1) There is an effective ^{*cleared area*} depth of 20 ft. in the vicinity of Latitude $41^{\circ}41'30''$, Longitude $70^{\circ}42'00''$. The least depth from the present survey in the area is 14 ft. ✓

2) There is an effective ^{*cleared area*} depth of 23 ft. in the vicinity of Latitude $41^{\circ}40'50''$, Longitude $70^{\circ}41'13''$. The least depth from the present survey in the area is 19 ft. ✓

3) There is an effective ^{*cleared area*} depth of 19 ft. in approximate Latitude $41^{\circ}39'48''$, Longitude $70^{\circ}43'02''$. The least depth from the present survey in the area is 16 ft. *16' sdg, with a rky bottom char. is very close to this on H-3391 (1912-14) W.D. & is carried fwd to the pres. survey.*

4) There is an effective ^{cleared area} depth of 19 ft. in approximate Latitude $41^{\circ}39'31''$, Longitude $70^{\circ}44'15''$. The least depth from the present survey is 11 ft. in this area. ✓

5) There is an effective ^{cleared area} depth of 31 ft. in the vicinity of Latitude $41^{\circ}39'50''$, Longitude $70^{\circ}41'05''$. The present survey has depths to 29 feet in this area. ✓

6) There is an effective ^{cleared area} depth of 26 ft. in the vicinity of Latitude $41^{\circ}38'30''$, Longitude $70^{\circ}43'30''$. The present survey has depths 1-foot shoaler in this area. ✓

{FE-207 WD)
F.E. No. 3 (1967) W.D. This wire drag survey covers only a small portion of the present survey on the southeast side. There were two detached depths and one cleared depth (only depth available) carried forward to the present survey. One of the three items was adequately addressed under section "K" of the Descriptive Report, the other two are as follows: ✓

1) A 20-ft. hang depth ^{a temporary grounding} cleared by 20 ft. charted in Latitude $41^{\circ}39'03''$, Longitude $70^{\circ}42'29''$ was carried forward to the present survey. The least depth in this area is 23 feet from the present survey. This item was not developed. ✓

2) A 20-ft. detached depth on a rock charted in Latitude $41^{\circ}40'47''$, Longitude $70^{\circ}41'44''$ was carried forward to the present survey. Least depth in this area is 24 ft. from the present survey. ✓

There were two apparent conflicts between the present survey depths and the wire drag survey effective depths. One of these was an effective depth of 28 ft. in approximate Latitude $41^{\circ}39'55''$, Longitude $70^{\circ}41'38''$. The least depth in this area is 28 ft. on the present survey. *on edge of 28' 30' cleared areas.*

7. COMPARISON WITH CHART #13236 (19th Edition, May 14, 1977)

a. Hydrography

The charted hydrography originates (95%) with the previously discussed prior surveys and with the exceptions of the items listed below, no further consideration is required. The remaining 5% originate with sources unknown and unavailable to the verifier during verification. It appears the general agreement between these 5% of depths and the present survey is the same as the prior surveys soundings identified as charted from NOS sources. ✓

There were approximately 40 developments run on Presurvey Review Items and other features on this survey. These items are considered adequately addressed with the additional notes under sections "K" and "L" of the Descriptive Report by the verifier. ✓

There were numerous items that were charted for which no source was available during verification and two items that should be retained whose source is known but wasn't available to the verifier during verification. These items are as follows: ✓

LHB NM 27, 1909
1) The four foot sounding charted from ~~H-829~~ in approximate Latitude $41^{\circ}40'29''$, Longitude $70^{\circ}44'27''$ was developed by the field and a least depth found was 9 feet. This depth was brought forward to the present survey. *Do not concur, the 4 ft sdy was not brought fwd. The 4 ft sdy originates with LHB N to M 27 of 1909. See pg. 10, item 17 D in D.R. & See Q.C. Report, item #10 for additional discussion.*

2) The submerged wreck symbol (Pre-Survey Review Item No. 29) in Latitude $41^{\circ}43'12''$, Longitude $70^{\circ}42'31''$ originates with Local Notice to Mariners No. 40 of item PSI-29 in 1975. Retention of this item is recommended. *concur* *See also pg. 13, item PSI-29 in the D.R.*

3) Two charted soundings of 28 ft. and 29 ft. in approximately Latitude $41^{\circ}38'32''$, Longitude $70^{\circ}41'30''$ were not investigated by the field and the shoalest depth in this area from the present survey is 32 ft. The source of these two soundings was not determined during verification, recommend the chart compiler evaluate the source of these soundings for retention on the chart. *concur* *on edge of survey, H-3184 (1910) shows 28 depths in this area. unverified junction- al surveys H-9712 (1977) & H-9661 (1976) may resolve conflict. H-9712 & H-9661 are not yet in Rockville files*

The following items are charted but it was not possible at the time of verification to ascertain the source. They are recommended for retention or as indicated unless subsequent investigations have revealed otherwise, as they were not located or discussed by the hydrographer. *These items are deferred to compilation for a charting resolution unless noted otherwise.* *originate with unknown sources unless otherwise noted*

(1) Two groins or piers charted in the vicinity of Latitude $41^{\circ}40'14''$, Longitude $70^{\circ}45'38''$. *Seventeen piers are charted in this area. Recommend charting one pier and several groins as shown on TP-00764 (1974-79) and the smooth sheet.*

(2) A pier charted in the vicinity of Latitude $41^{\circ}40'20''$, Longitude $70^{\circ}45'41''$. *deferred to the chart compiler for resolution*

(3) A pier or groin charted in the vicinity of Latitude $41^{\circ}40'43''$, Longitude $70^{\circ}45'19''$ appears to be the presently shown revised shoreline with a rock awash at the end of a point. *Apparently this is not a pier as charted but a groin that has accumulated sediments. Chart as shown on TP-00764 (1974-79) and the smooth sheet.*

(4) A groin charted in the vicinity of Latitude $41^{\circ}40'42''$, Longitude $70^{\circ}45'11''$. *Seven piers & one groin are shown in this area on TP-00764 & the smooth sheet. The symbolization is considered questionable on TP-00764. Deferred to compilation for a charting resolution.*

(5) A marine railway charted in Latitude $41^{\circ}40'22''$, Longitude $70^{\circ}44'43''$. *Deferred to compilation for a charting resolution.*

(6) Three piers or groins charted in the vicinity of Latitude $41^{\circ}40'30''$, Longitude $70^{\circ}44'41''$. *The northernmost of the three ch'd piers is a groin (see TP-00765 (1974-80)) and should be symbolized as such. The two piers south of the groin are deferred to compilation for a charting resolution.*

(7) A pier ruin or groin charted in the vicinity of Latitude $41^{\circ}41'08''$, Longitude $70^{\circ}45'12''$ should be revised as shown on the present shoreline map. *Do not concur. The "T" pier is not on the present survey. A charting resolution is deferred to compilation.*

(8) The dashed ruins charted in the vicinity of Latitude $41^{\circ}41'54''$, Longitude $70^{\circ}45'21''$. *The ruins of the ch'd pier immediately north of the ruins should be charted as shown on TP-00764 & the smooth sheet - piers with box endings.*

(9) Two marine railways charted in the vicinity of Latitude $41^{\circ}42'15''$, Longitude $70^{\circ}45'42''$. *Two piers at counterpart locations are shown on TP-00764 & the S.S. and may be mistakenly symbolized. A charting resolution is deferred to compilation.*

(10) A pier charted in the vicinity of Latitude $41^{\circ}42'39''$, Longitude $70^{\circ}45'57''$. Although delineated on Class III shoreline map it was recommended to be deleted by field editor. *Expunge the charted pier.*

(11) Two private markers (PSI #26) in the vicinity of Latitude $41^{\circ}42'39''$, Longitude $70^{\circ}45'31''$ were not located by the hydrographer; however, his investigation of this item was not adequate to disprove the existence of any remains of the markers. It is recommended submerged piles be added to the chart in this position. *Do not concur. The charting source for these two markers, N.M. 37 of 1969, reports red & black markers on floats. The charted pile symbols denoting these reported markers & the label, marker, in vertical lettering is in error & should be expunged from the chart. The red buoy "2" shown on the smooth sheet in lat. $41^{\circ}42'37.68''$ N, long. $70^{\circ}45'31.45''$ W is described in the U.S.C.G. Lt List as a seasonal aid marking the approach to Hammett Cove.*

X(12) The pier charted in Latitude $41^{\circ}42'40''$, Longitude $70^{\circ}45'26''$ is not the same in configuration as located on the present survey. The present delineation should be charted. *concur*

X(13) The privately maintained ^{RB} daymarker in the vicinity of Latitude $41^{\circ}42'03''$, Longitude $70^{\circ}44'57''$. The local U.S. Coast Guard District should be consulted by the chart compiler as to its present disposition. (*manks Gibbs Rock*) *concur*

X(14) The pier charted in the vicinity of Latitude $41^{\circ}42'05''$, Longitude $70^{\circ}44'47''$. The present ^{RB} shoreline delineation should be charted. *concur* (*Chart location from TP-00765 (1974-80)*)

X(15) The pier charted in the vicinity of Latitude $41^{\circ}42'16''$, Longitude $70^{\circ}44'42''$. (*This item is not connected to shore & may not symbolize a pier.*)

X(16) The pier charted in the vicinity of Latitude $41^{\circ}42'17''$, Longitude $70^{\circ}44'37''$. The present shoreline delineation should be charted. *Cultural change, chart area as shown on the smooth sh.*

X(17) The pier charted in the vicinity of Latitude $41^{\circ}42'13''$, Longitude $70^{\circ}44'35''$. The present shoreline delineation should be charted. *Cultural change, chart area as shown on the smooth sheet.*

X(18) The ^{three} piers charted in the vicinity of Latitude $41^{\circ}41'40''$, Longitude $70^{\circ}44'21''$. The present shoreline delineation should be charted. *Cultural change, chart area as shown on the smooth sheet.*

X(19) The pier charted in the vicinity of Latitude $41^{\circ}41'32''$, Longitude $70^{\circ}44'11''$. *concur*

X(20) The groin charted in the vicinity of Latitude $41^{\circ}41'07''$, Longitude $70^{\circ}43'38''$. (*Chart'd groin is not connected to S.L.*) *concur*

X(21) The pier charted in the vicinity of Latitude $41^{\circ}41'37''$, Longitude $70^{\circ}43'05''$. The present shoreline delineation should be charted. *concur* (*3 piers & 4 groins are charted in this area. Chart this area as shown on TP-00765 (1974-80)*)

X(22) The ^{& foreshore items} groin charted in the vicinity of Latitude $41^{\circ}41'40''$, Longitude $70^{\circ}43'07''$. The present shoreline delineation should be charted. *concur* (*3 groins & 1 pier*)

X(23) The dashed ruins charted in the vicinity of Latitude $41^{\circ}43'31''$, Longitude $70^{\circ}43'57''$. Recommend submerged ruins be charted. *Deferred to compiler for a charting resolution.*

X(24) The ^{three} ~~two~~ small "T" shaped piers charted in the vicinity of Latitude $41^{\circ}43'33''$, Longitude $70^{\circ}44'00''$. Identified as walkway on present shoreline map. The present shoreline delineation should be charted. (*Walkways are on land & do not extend into water on TP-00765 (1974-80)*) *Do not concur. Charting resolution deferred to compilation.*

X(25) The ^{three & ruins} ~~two~~ piers charted in the vicinity of Latitude $41^{\circ}43'38''$, Longitude $70^{\circ}44'12''$. The present shoreline delineation should be charted. *Chart area as shown on TP-00765 (1974-80) & the sm. sheet.*

X(26) The pile charted in the vicinity of Latitude $41^{\circ}44'11''$, Longitude $70^{\circ}44'35''$. *Do not concur. Charted pile falls in present survey depths of 1 ft. The pile should be expunged from the chart.*

X(27) The ruins charted in the vicinity of Latitude $41^{\circ}43'57''$, Longitude $70^{\circ}44'40''$. *Do not concur. These ruins fall inside the present S.L. delineation. Chart area as shown on TP-00765 (1974-80).*

X(28) The pile charted in the vicinity of Latitude $41^{\circ}43'30''$, Longitude $70^{\circ}43'17''$. Recommend charting as a submerged pile. *Do not concur. The pile falls in charted depth of 1 ft., also falls in 1-ft depths on the present survey. The pile should be expunged from the chart.*

✓(29) The groin charted in the vicinity of Latitude $41^{\circ}44'15''$, Longitude $70^{\circ}43'03''$. The groin is probably buried in the sand inshore of the present low waterline. *concur*

✓(30) The pile charted in the vicinity of Latitude $41^{\circ}44'20''$, Longitude $70^{\circ}42'54''$. Recommend charting as a submerged pile. *Do not concur. Falls in depths less than 1ft on the pres. survey. Expanse the pile from the chart.*

✓(31) The piles (four) charted in the vicinity of Latitude $41^{\circ}45'06''$, Longitude $70^{\circ}42'29''$ are not in the same position as the four piles located by the hydrographer. The piles as shown on the survey should be charted. *concur*
location of the two

✓(32) The marine railways charted in the vicinity of Latitude $41^{\circ}45'17''$, Longitude $70^{\circ}42'30''$. The present shoreline delineation should be charted. *Do not concur. Deferred to compiler for a charting resolution.*

✓(33) The marine railways charted in the vicinity of Latitude $41^{\circ}45'18''$, Longitude $70^{\circ}42'21''$. The present shoreline delineation should be charted. *Do not concur. Deferred to compiler for a charting resolution.*

✓(34) The dashed ruins charted in the vicinity of Latitude $41^{\circ}45'07''$, Longitude $70^{\circ}42'08''$. *fall behind the MLW line and are considered to have no charting significance.*

✓(35) The dashed ruins or groin charted in the vicinity of Latitude $41^{\circ}43'43''$, Longitude $70^{\circ}42'02''$ may be buried inside of the low waterline. *fall behind the MLW line & are considered to have no charting significance*

✓(36) The maine railway charted in Latitude $41^{\circ}45'11''$, Longitude $70^{\circ}42'12''$ is probably no longer in existence and the present shoreline delineation should be charted. *Do not concur. Note in sdg vol. pos. 9583-84 "avoiding railway" added man. railway to sm. sheet from ch'd position.*

It is believed some of these items could be now charted as ruins (piers, groins, etc.) or possibly as submerged (piles, pier ruins, etc.). Without the source documents to determine the nature of material used in construction or the age and condition of these items, it is felt that these decisions are best left to the chart compiler who has available the source documents. *concur*

The comparison with the charted data was most difficult as it is assumed that a great deal of generalization has taken place in respect to shape, number and size of rocks, piers, etc. on the chart due to the scale, but to what extent, it was not possible to ascertain. *concur*

The present survey is adequate to supersede the charted information with the retention of the items listed in this report, the hydrographer's Descriptive Report, and when attention is given to the charted items from sources not readily ascertainable at the time of verification. *See also items listed in the Q.C. Report*

b. Controlling Depths

There is no conflict with the controlling depths of channels on this survey. *concur*

c. Aids of Navigation

The aids to navigation appear to adequately mark the intended features on this survey with the following exceptions:

Computer please check with U.S.C.G. on these aids

1) The buoys in the Wareham River do not mark the best water (most C^{#17} is off station, navigable). The Coast Pilot states that "six feet can be carried to the town"; the C^{#21} inadequately buoys adequately mark that amount. *marks the channel on the survey. Its charted position, inshore of a rock awast is very dangerous and should be changed. Buoy #20 is located on the survey 150 ft north of its charted location and does not adequately mark the channel.*

2) It is recommended that an additional aid be positioned to mark the concur - L.D. 11 at feature (11 ft depth) found in the vicinity of Latitude 41°39'30", Longitude 70°44'13". *MLW on a pile of rocks.*

3) It is recommended that an additional aid be positioned to mark the feature (11 ft) found in the vicinity of Lat. 41°40'46", Longitude 70°43'52" in the entrance to Sippican Harbor. *concur*

(Red Nun "2")

4) The nun buoy located in the vicinity of Latitude 41°42'05", Longitude 70°41'38" does not adequately mark the feature known as Dry Ledge. There is a 6 ft. submerged rock located approximately 140 meters southwest of this buoy. *It adequately marks "dry ledge" however it does not adequately mark the newly discovered 6 ft. subm rock.*

5) There is a 9-ft. submerged rock in the vicinity of Latitude 41°42'01", Longitude 70°42'12" that should have an aid to navigation to mark its position. *concur*

In general, the area north of Latitude 41°41'30" does not appear to be well marked with the buoys as shown on this survey. This is in the area of Weweantic River and the approaches to Wareham, this observation is made in light of a number of shoal areas found on the present survey. It should be noted, however, that the verifier does not have access to information that would reveal the amount or draft of vessels transiting this area. *concur*

The Bow Belts blk can buoy #11 charted in lat. 41°39.13'N, long. 70°44.46'W was not located on the pres. survey. This aid was probably overlooked during hydrography & should remain as chrt'd.

8. COMPLIANCE WITH INSTRUCTIONS

This survey adequately complies with the Project Instructions, with the exceptions listed elsewhere in this report and the following:

- Section 4.14 of the Project Instructions, "Verification of Charted Features". *concur*
- Section 3.4 of the Project Instructions "Responsibility for Agreement of the Hydrographic and the Field Edit Data. *concur*
- Section 6.0 of the Project Instructions, "Coast Pilot".

9. ADDITIONAL FIELD WORK

This is an adequate basic survey. Additional work is recommended only if it is desirable to update the wire drag information and to clarify the topographic information.

*see
Q.C.
Report.*

INSPECTION REPORT
H-9724

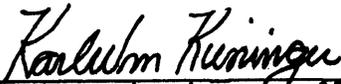
The survey has been inspected by the Hydrographic Inspection Team with regard to survey coverage, delineation of depth contours, development of critical depths, cartographic symbolization, and verification or disproof of charted data. The Verification Report has presented the facts accurately and properly, the procedures used were appropriate, and the recommendations are logical and justifiable. The survey complies with National Ocean Survey requirements except as noted in the Verification Report. The Hydrographic Inspection Team also notes the following:

The complete Field Edit was not contemporary with hydrographic survey operations. The Field Edit was accomplished in a piecemeal fashion from 1977 through 1980. The result was a limited and less than adequate field verification of alongshore charted features.

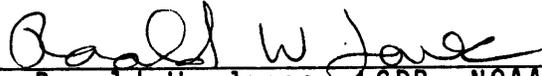
The survey records comply with NOS requirements except where noted in the Verification Report. The Hydrographic Inspection Team concurs with the verifier's findings, actions, and recommendations.

Exceptions are noted in the Q.C. Report.

Examined and Approved
Hydrographic Inspection Team



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



Ronald W. Jones, LCDR, NOAA
Field Procedures Officer
Operations Division



R. D. Sanocki
Chief, Verification Branch
Processing Division



Maureen R. Kenny, LT, NOAA
Chief, EDP Branch
Processing Division

Approved/Forwarded
May 14, 1981



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



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

N/CG242:FPS

March 18, 1985

TO: Roy K. Matsushige *RM*
Chief, Hydrographic Surveys Branch

THRU: Chief, Standards Section *gm*

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

SUBJECT: Quality Control Report for Survey H-9724 (1977), Massachusetts,
Buzzards Bay, Hiller Cove to Indian Neck

A quality control inspection of survey H-9724 was accomplished to monitor the survey for adequacy with respect to data acquisition, delineation of the bottom, determination of least depths, navigational hazards, junctions, sounding line crossings, smooth plotting, shoreline transfer, decisions made and actions taken by the verifier, and the cartographic presentation of data. Revisions and additions to the smooth sheet, plus helpful comments made to the verifier, were identified on a $\frac{1}{2}$ -scale copy of the survey which was furnished to the verifier as advance information. In general, the survey was found to conform to National Ocean Service standards and requirements except as stated in the Verifier's Report and the HIT Report.

The following supplements the Verifier's Report:

1. Several charted black elliptical shapes that denote bare rocks or islets are, in general, disproved or discredited by the present survey. These features are considered superseded by present survey information supplemented by items brought forward from prior surveys.
2. A comparison between the chart and early surveys revealed that rocks awash charted from H-2272 (1896) and H-2273 (1896) were not properly correlated to the scheme of readjusted triangulation based on the North American Datum of 1927. These rocks are displaced about 1 mm at the chart scale from their true position. Therefore, an adjustment was made for rocks carried forward to the present survey in order to meet horizontal datum requirements of the current chart. The present survey smooth sheet should be used to chart these rocks in their correct positions.
3. Several soundings charted from H-2272 and H-2273 of 1896 are accompanied by the letter "R" on their source. The chart compiler apparently misunderstood



the meaning of the letter "R" and mistakenly appended the bottom characteristic "rky" to the charted sounding. These soundings were brought forward to the present survey with the label "Rk" appended and should be charted as shown on the present survey.

Also, some 1-foot soundings charted in the same manner, accompanied by "rky" rather than "Rk," were brought forward to the present survey as rocks awash, covered 1 foot at MLW and should be charted with the appropriate symbol as shown on the smooth sheet.

4. A comparison of the shoreline between the chart and the present survey reveals general conflict throughout the common area. Contemporary shoreline maps should be applied in full on the next chart edition.

5. Portions of ledge charted from a miscellaneous source in the vicinity of latitude $41^{\circ}40.20'N$, longitude $70^{\circ}45.59'W$ are not shown on Class I map TP-00765 (1974-80) and are not mentioned by the hydrographer. Disposition of the charted ledge is deferred to the chart compiler.

6. Sunken rock symbols, annotated with the depth of water covering them at MLW, were transferred to the smooth sheet from the contemporary Class I topographic maps. These depths originated from field edit information and were determined with predicted tides. While the positions of the rocks are reliable, depths covering them are considered estimated.

Recommend charting a submerged rock symbol, with an appended parenthesized label noting the number of feet the rock is covered followed by reported and the date of acquisition; i.e., +(2 ft rep 1980). (This is a newly initiated procedure (March 7, 1985); please direct any questions to the manager of the Chart Planning and Technology Group.)

7. Apparent shoreline in marsh areas is not, in all cases, clearly defined on the smooth sheet. Contemporary shoreline maps should be used for charting areas of apparent shoreline.

8. The marine railway charted from a miscellaneous source in latitude $41^{\circ}45.18'N$, longitude $70^{\circ}42.20'W$ is not shown on TP-00761 (1974-77); however, a note in the sounding volume (pos. 9383-84), "avoiding marine railway," substantiates its charted position. Retain the marine railway as charted.

9. The mooring buoy in latitude $41^{\circ}45.16'N$, longitude $70^{\circ}42.43'W$ was added to the smooth sheet during quality control inspection from a note in the sounding volume (pos. 9411-12) "avoiding mooring buoy."

10. The 4-foot sounding, charted at Mendell's Rocks from Local Hydrographic Bureau Notice to Mariners Number 27 of 1909 in latitude $41^{\circ}40.49'N$, longitude $70^{\circ}44.45'W$, probably falls in present depths of 5 feet about 150 meters west. Least depths of $8\frac{1}{2}$ and 10 feet were determined from investigations on H-829 (1863) and H-2272 (1896), respectively, at the charted position. Least depths of 9 feet were found on the present survey in the area. A charting resolution is deferred to the chart compiler.

11. Two unlabeled foreshore features in the vicinity of latitude $41^{\circ}44.4'N$, longitude $70^{\circ}45.15'W$ were transferred to the smooth sheet from TP-00764 (1974-79). These items were not mentioned by the hydrographer and should be identified during any future survey of the area.

12. Clearances are not charted for the bridge located in the vicinity of latitude $41^{\circ}44.31'N$, longitude $70^{\circ}44.79'W$. This information does not appear on TP-00765 (1974-80), nor were bridge clearances furnished in the hydrographic survey records. With the acquisition of present survey soundings, and the likelihood of their future chart application in the area north of the bridge, clearances, if available to the chart compiler, should be charted.

13. a. The stack charted as a landmark in latitude $41^{\circ}45.22'N$, longitude $70^{\circ}42.66'W$ is not shown on the smooth sheet but appears on TP-00761 (1974-77). Retain the landmark, stack, as charted.

b. The tank charted as a landmark in latitude $41^{\circ}42.53'N$, longitude $70^{\circ}43.32'W$ is not shown on the smooth sheet but appears on TP-00765 (1974-80). Retain the landmark, tank, as charted.

c. The flagpole charted as a landmark in latitude $41^{\circ}40.34'N$, longitude $70^{\circ}44.72'W$ is neither shown on the present survey nor on TP-00765 (1974-80). Recommend that the landmark, flagpole, be expunged from the chart.

The requirement to observe landmarks from seaward in the area of the survey was apparently overlooked by the hydrographer because no mention of landmarks was found in the survey records.

14. Rocks awash in the following locations on prior survey H-2273 (1896) are not charted because subsequent information may have disproved their existence. A check of miscellaneous sources to ascertain the validity of these rocks is deferred to the chart compiler.

<u>Latitude (N)</u>	<u>Longitude (W)</u>
$41^{\circ}44.10'$	$70^{\circ}43.21'$
$41^{\circ}44.14'$	$70^{\circ}42.48'$
$41^{\circ}43.51'$	$70^{\circ}42.50'$

15. The following soundings shown on the present survey are isolated shoal depths from pinnacle traces on the echograms. These soundings were neither investigated to ascertain that least depths were acquired nor were they field identified as submerged rocks. Additional investigations, at an opportune time, are recommended to ascertain least depths and to determine if these features are, in fact, rocks.

<u>Depth (feet)</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>
11	$41^{\circ}40.76'$	$70^{\circ}43.87'$
7	$41^{\circ}43.20'$	$70^{\circ}43.12'$
5	$41^{\circ}40.47'$	$70^{\circ}45.08'$
10	$41^{\circ}40.33'$	$70^{\circ}44.95'$

<u>Depth (feet)</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>
15	41°40.59'	70°45.01'
9	41°40.44'	70°45.11'

16. The 4-foot sounding in latitude 41°40.39'N, longitude 70°45.40'W is considered a side echo. This sounding was acquired on the offshore end of a spit-like shoal on the present survey. Additional development of this shoal to delineate the bottom configuration, to identify the character of the bottom, to acquire a least depth, and to determine the offshore terminus of the shoal should be performed at an opportune time.

17. The 7-foot sounding in latitude 41°40.47'N, longitude 70°45.39'W on the present survey is considered a side echo. Additional development of the area to determine the least depth and the character of the bottom should be accomplished at an opportune time.

18. The 3-foot sounding in latitude 41°40.74'N, longitude 70°43.36'W on the present survey is considered a questionable bottom trace on the echogram. Additional work to determine a least depth and the character of the bottom in this area should be accomplished at an opportune time.

19. Inadequate development compromised desired survey results in the following areas:

<u>Latitude (N)</u>	<u>Longitude (W)</u>	<u>Deficiency</u>
41°44.32'	70°42.58'	delineation of the 12-foot depth curve
41°43.85'	70°44.25'	delineation of the 6-foot depth curve
41°43.47'	70°43.62'	in order to mark continuity of the channel
41°43.30'	70°43.57'	offshore extent of shoal or reef
41°43.17'	70°41.84'	determination of least depth
41°43.12'	70°43.30'	determination of least depth
41°41.50'	70°41.50'	delineation of 18-foot depths curves and determination of least depths along bottom ridges
41°41.25'	70°43.90'	[inadequate coverage (soundings brought forward from prior survey)
41°41.80'	70°43.35'	
41°40.05'	70°45.30'	delineation of 12-foot depth curve and determination of least depth
41°39.27'	70°45.22'	determination of least depth

Any future survey of this area should resolve the above deficiencies.

20. An unsurveyed area in the vicinity of latitude 41°39.25'N, longitude 70°44.35'W (The Bow Bells), near the edge of the survey, may be covered on unprocessed junctional survey H-9647 (1976).

21. The following comments pertain to aids to navigation.

a. Black lighted buoy No. 3, charted in latitude 41°40.48'N, longitude 70°44.40'W, marking the entrance to Sippican Harbor and also marking Mendells

Rocks was not located on the present survey and is not shown on the smooth sheet. However, on page 19 of the Descriptive Report, a reference verifying the existence of the aid is noted. (See Descriptive Report, section N.)

Retain the buoy as charted.

b. Gibbs Rock Daybeacon (privately maintained) charted in latitude $41^{\circ}42.03'N$, longitude $70^{\circ}44.95'W$ from a miscellaneous source was not mentioned by the hydrographer. The aid is noted in the U.S. Coast Guard Light List and should be retained as charted.

c. The black can buoy No. 11 marking "The Bow Bells" shoal and charted in latitude $41^{\circ}39.12'N$, longitude $70^{\circ}44.45'W$ was not mentioned in the survey records. The buoy falls on the edge of the survey and may be located on unverified junctional survey H-9647 (1976).

Retain the buoy as charted.

d. It is noted on page 19 of the Descriptive Report, "Privately maintained buoys in Hammett Cove were not found." Another reference to aids in this area is noted on page 12 of the Descriptive Report under item PSI 26, "The marker, which resembles many of the private uncharted markers in the area, bears no clear navigational significance." (See Descriptive Report, sections K and N.)

These references seem to contradict one another. It is probable that the private uncharted markers in the area of Upper Sippican Harbor and Hammett Cove noted on page 12 of the Descriptive Report are the aids referred to in charted "Note C." Also, the continued existence of aids in Aucoot Cove is considered undetermined.

The U.S. Coast Guard should be queried about the present status of the seasonal aids in these areas.

22. The charted controlling depth note in the Wareham River "6 ft to Wareham" was verified on the present survey. The note should be updated to November 1977.

23. Tide-coordinated low-water color photography is considered a necessity to ensure the complete and accurate acquisition of the numerous rocks awash on future surveys of this area. Also, attention must be given by field personnel to locating sunken rocks and to the determination of least depths. Side scan sonar would be most effective in covering the seabed between sounding lines and would provide qualitative indications of hazards in this area.

24. A comparison between the present survey and Chart 13236, 21st Edition, dated June 27, 1981, was made during quality control inspection in order to provide additional guidance to the nautical chart compiler. Many charted items have not heretofore been addressed. The attached six chart sections contain numbered items cross-referenced to the following numbered recommendations:

(1) Pier is probably charted from air photographs. On the present survey, only the end of a floating pier was located in latitude $41^{\circ}44.70'N$, longitude $70^{\circ}44.89'W$; its delineation was not furnished. Because this position falls near the charted pier, the two items may be the same.

A charting resolution is deferred to the chart compiler.

(2) These charted items originating with miscellaneous sources are not mentioned in the survey records and do not appear on contemporary Class I maps.

Charting resolutions are deferred to the chart compiler.

(3) These items were charted subsequent to the date of the present survey and should be retained on the chart.

(4) Pier is probably charted from air photographs. On the present survey, only the end of a floating pier was located in latitude $41^{\circ}45.28'N$, longitude $70^{\circ}42.63'W$; its delineation was not furnished.

The end of the floating pier in proximity to the charted pier suggests that these piers may be the same.

A charting resolution is deferred to the chart compiler.

(5) Piles are charted from a miscellaneous source. Chart piles in this area as shown on the present survey.

(6) The feature, symbolized as a pier and charted from a miscellaneous source, is identified as a boat ramp on the present survey and should be so labeled on the chart.

(7) Oyster beds charted from T-2212 (1895) are considered unlikely to exist in this area after 82 years. Recommend expunging the charted labels.

(8) Two rocks awash charted from H-2273 (1896) are disproved by present survey information. Chart area as shown on the present survey.

(9) The geographic name "Quasuet Pt." is mistakenly charted as "Quasuet P"--revise the new chart edition accordingly.

(10) This is either a pier or a 1-foot sounding, neither of which is shown on an NOS source. A charting resolution is deferred to the chart compiler.

(11) Piers and shoreline are charted from a miscellaneous source. Chart this area as shown on the present survey and TP-00764 (1974-79).

(12) Low water area is charted from H-2272 (1896). Chart depths in this area as shown on the present survey.

(13) Pier, charted from a miscellaneous source, is not shown on the present survey and is deferred to the chart compiler for a charting resolution.

- (14) Pier is charted from a miscellaneous source and should be delineated as shown on the present survey.
- (15) Pier is charted from a miscellaneous source and should be delineated as shown on the present survey.
- (16) Two piers are charted from a miscellaneous source and should be charted as shown on the present survey.
- (17) Pier ruins are charted from a miscellaneous source. A solid-line pier from the present survey should be charted instead of the ruins.
- (18) Feature was identified as a jetty on the present survey.
- (19) This was identified as a floating pier on the present survey and should be labeled as such, in slanted letters, on the next chart edition.
- (20) Pier is charted from a miscellaneous source. Shoreline change suggests cultural improvements in this area. Recommend expunging the charted pier.
- (21) Rock awash is charted from a miscellaneous source. It is not shown on the present survey but is recommended to be retained on the chart.
- (22) Pier charted from a miscellaneous source should be delineated as shown on the present survey.
- (23) Bare rock, charted from a miscellaneous source, is disproved by TP-00764 (1974-79). A rock awash at this location was carried forward to the present survey from H-2272 (1896). Chart rock awash as shown on the present survey.
- (24) Ruins, charted from a miscellaneous source, are shown on the present survey as a pier in good condition. Chart pier as shown on the present survey.
- (25) The delineation of the "L" pier, charted from a miscellaneous source, is in conflict with the delineation shown on TP-00764 (1974-79). The Class I map delineation is considered questionable. A charting resolution is deferred to the chart compiler.
- (26) Piers and shoreline are charted from a miscellaneous source. Recommend charting the area as shown on TP-00764 (1974-79).
- (27) Two piers and ruins are charted from a miscellaneous source. Chart locations and delineations as shown on TP-00764 (1974-79).
- (28) Piers are charted from a miscellaneous source. Chart delineation as shown on TP-00764 (1974-79).
- (29) Charted rock awash originates with a minus $\frac{1}{2}$ -foot sounding on H-2272 (1896). The sounding was not labeled as a rock, and a nearby bottom

characteristic identifies the bottom as sand. The rock awash should be expunged from the chart.

(30) The sunken rock charted from H-2272 (1896) falls at the end of a pier shown on the present survey. This is considered unlikely. A charting resolution is deferred to the chart compiler.

(31) Pier, charted from a miscellaneous source, is not shown on the present survey. A groin located approximately 20 meters north of the charted pier is shown on the present survey. These are considered the same feature. Expunge the charted pier and chart the groin as shown on the present survey.

(32) Pier and ruins, charted from a miscellaneous source, should be charted as shown on TP-00764 (1974-79) and labeled jetty.

(33) Rock awash is charted from a miscellaneous source. An investigation of this area located stone ruins immediately inshore of the charted rock awash; however, the rock was not mentioned. The evaluator considers the rock awash as part of the stone ruins, but mistakenly charted offshore. A charting resolution is deferred to the chart compiler.

(34) Isolated offshore feature is charted from a miscellaneous source. Groins exist in this area on the present survey. A charting resolution is deferred to the chart compiler.

(35) Piers, charted from a miscellaneous source, should be charted as shown on TP-00764 (1974-79).

(36) Piers, charted from a miscellaneous source, should be charted as shown on TP-00765 (1974-80).

(37) Pier, charted from a miscellaneous source, should be charted as a groin as shown on the present survey.

(38) Isolated offshore feature, charted from a miscellaneous source, should be charted as a pier as shown on the present survey.

(39) Pier, charted from a miscellaneous source, should be charted as a groin from the present survey.

(40) Two piers are charted from a miscellaneous source. Only one pier is shown in this area on the present survey. A charting resolution is deferred to the chart compiler.

(41) Pier, charted from a miscellaneous source, is identified as a jetty on the present survey. The jetty should be symbolized or labeled on the chart.

(42) Pier, charted from a miscellaneous source, should be delineated as shown on TP-00765 (1974-80).

- (43) Rock awash is charted from H-2272 (1896). Present survey information determined this item to be a bare rock. Chart the rock as shown on the present survey.
- (44) Pier and isolated platform are charted from a miscellaneous source. Chart the delineation of the pier as shown on TP-00764 (1974-79).
- (45) Bare rock is charted from a miscellaneous source. Expunge the bare rock and chart a rock awash at this location as shown on the present survey.
- (46) The sunken rock, charted from H-2272 (1896), is discredited by present survey depths of 1 foot in this area. Expunge the charted sunken rock.
- (47 and 48) Bare rocks, charted from a miscellaneous source, are disproved by present survey information. Chart this area as shown on the present survey.
- (49) Low water area is charted from H-2272 (1896). Chart depths in this area as shown on the present survey.
- (50) Five piers are charted from a miscellaneous source. No piers, in this area, appear on the present survey. Chart groins in this area as shown on TP-00765 (1974-80).
- (51) Piers are charted from a miscellaneous source. Chart the location of these piers as shown on TP-00765 (1974-80).
- (52) Pier is charted from a miscellaneous source. Chart the delineation of the pier as shown on TP-00765 (1974-80).
- (53) Two features are charted from a miscellaneous source. Chart these features as shown on the present survey in vicinity of latitude 41°43.49'N, longitude 70°43.93'W.
- (54) The charted abbreviated geographic name "Cedar I." has a period at its end which falls in water. Expunge the charted period.
- (55) Two sunken rock symbols, charted from a miscellaneous source, are discredited by present survey depths of 1 to 2 feet in this area. Expunge the charted sunken rock symbols.
- (56) Low water area originates with H-2273 (1896) as an island and is considered to have been represented on the chart as a low water area when not seen on air photographs. Chart depths in this area as shown on the present survey.
- (57) The sunken rock symbol, charted from a miscellaneous source, is discredited by $\frac{1}{2}$ -foot depths on the present survey. Expunge the charted sunken rock symbol.
- (58 and 59) Piers, charted from a miscellaneous source, are identified as groins on the present survey and should be charted as such.

(60) Label "Oyster Bed," charted from H-829 (1863), is considered obsolete. Expunge the charted label "Oyster Bed."

(60a) A 13-foot sounding or soundings of 1 and 3 feet is/are charted from a miscellaneous source. Expunge the questionable item and chart depths in the area as shown on the present survey.

(61) Pier is charted from a miscellaneous source. Chart as ruins as shown on the present survey.

(62) Offshore end of T-shaped pier, charted from a miscellaneous source, is missing on the present survey. A charting resolution is deferred to the chart compiler.

(63) Identified as a rock jetty on the present survey. Jetty should be charted with a label.

(64) Two groins and a pier charted from a miscellaneous source. The present survey shows only two groins in this area. A charting resolution is deferred to the chart compiler.

(65) Rocks awash and low water delineation are charted from a miscellaneous source. Chart the rocks awash and depths as shown on the present survey.

(66) Chart groins in the area as shown on the present survey.

(67) Retain rock awash charted subsequent to the present survey.

(68) The 5-foot sounding, charted from H-2273 (1896), was brought forward to the present survey because it fell between sounding lines and was not disproved. Its position should be charted as shown on the present survey.

(69 and 70) The 6-foot soundings, charted from H-2273 (1896), are considered discredited by present survey depths of 7 feet in these areas.

(71) The rock awash, charted from a miscellaneous source, should be charted as a bare rock as shown on the present survey.

(72) The bare rocks or islets and low water area, charted from H-2273 (1896), are in conflict with the delineation of this area on the present survey. Chart the area as shown on the present survey.

(73) The islet and rocks awash are charted from H-2273 (1896). The islet does not presently exist. Chart the area as shown on the present survey.

(74) The pier and questionable marks connected to the shoreline are charted from a miscellaneous source. Chart the area as shown on the present survey.

(75) Islets and a low water area are charted from H-2273 (1896). Chart the area as shown on the present survey.

(76) Four piers are charted from a miscellaneous source. Chart the locations of the piers as shown on the present survey.

(77) The sunken rock symbol, charted from H-2273 (1896), is discredited by a 1-foot sounding at this location on the present survey. Expunge the charted sunken rock symbol.

(78) This item was identified as a boat ramp on the present survey and should be charted as such.

(79) Chart the location of this pier as shown on the present survey.

(80) The isolated black mark is charted from a miscellaneous source. This item is not shown on the present survey. A charting resolution is deferred to the chart compiler.

(81) Pier should be charted as shown on the present survey.

(82 and 83) Items are identified as groins on the present survey. Chart with a groin symbol or label.

(84 and 85) One-foot soundings charted from H-2272 (1896) are labeled "rock" on their source. Rocks awash, covered 1 foot at MLW, were carried forward to the smooth sheet. Chart the appropriate symbol instead of the 1-foot soundings.

(86) The 8-foot sounding, charted from H-2272 (1896), is labeled "rock" on the original source. The 8-foot sounding with "Rk" appended was carried forward to the present survey and should be charted as shown on the smooth sheet.

(87) The charted 5-foot sounding originates with the present survey and should be retained as charted.

(88) The 2-foot sounding charted from H-2272 (1896) is labeled "rock" on the original source. This item was carried forward to the smooth sheet as a 2-foot sounding with "Rk" appended and should be charted as such.

(89) The two heavy dashed lines, charted from a miscellaneous source, apparently symbolize groins. The two protuberant portions of shoreline in this area are identified as groins on the present survey. Chart the area as shown on the present survey.

(90) The 6-foot sounding, charted from H-2272 (1896), is discredited by 8-foot depths on the present survey. Chart depths as shown on the present survey.

(91) The low water area, charted from H-2272 (1896), is discredited by deeper depths on the present survey. Chart depths as shown on the present survey.

- (92) Ruins are charted from a miscellaneous source. Chart groin and concrete pile in this area as shown on the present survey.
- (93 and 94) Items are charted from a miscellaneous source. Chart groins as shown on the present survey.
- (95) The 6-foot sounding, charted from H-2272 (1896), is discredited by deeper depths on the present survey. Chart depths as shown on the present survey.
- (96) Chart the additional islet shown on TP-00765 (1974-80) and the present survey.
- (97) Ruins are charted from a miscellaneous source. Disregard the charted ruins and chart two piers in this area as shown on the present survey.
- (98) Four items (piers or groins) are charted from a miscellaneous source. Chart items in this area as shown on the present survey.
- (99) These items are considered to be groins that have collected sediments since charted. Chart this area as shown on the present survey.
- (100) The 1-foot sounding, charted from H-2272 (1896), is identified on the original source as a rock. A rock covered 1 foot at MLW was carried forward to the smooth sheet. Chart the appropriate rock symbol.
- (101) The geographic name "Seal Rocks" is charted in vertical letters denoting bare rocks. There are no bare rocks on the present survey in this area. Revise the charted letters from vertical to slanted.
- (102) Six items, charted from a miscellaneous source, are identified on the present survey as groins and should be charted accordingly.
- (103) Delineate the charted pier as shown on TP-00765 (1974-80).
- (104) Revise the charted double line delineation of this item to a single line delineation as shown on the present survey.
- (105) The 3-foot sounding, charted from H-2272 (1896), is identified as a sunken rock on the source. A 3-foot sounding with "Rk" appended was carried forward to the smooth sheet and should be charted as such.
- (106) Expunge the charted sunken rock and chart the rock awash shown at this location on the present survey.
- (107) Item is described as a jetty on the present survey and should be symbolized or labeled as such on the chart.
- (108) Ruins originate with a pier on T-2215 (1895). The charted ruins are not noted in the present survey records and fall within a foul area delineated on the smooth sheet. A charting resolution is deferred to the chart compiler.

- (109) Items are identified as groins on the present survey.
- (110) The sunken rock is charted from a miscellaneous source. A rock awash at MLW is shown nearby on the present survey. A charting resolution is deferred to the chart compiler.
- (111) Sunken rock is considered to originate with a minus $\frac{1}{2}$ -foot sounding, identified as a rock on H-2272 (1896). A rock awash and foul area in proximity to the charted sunken rock are shown on the present survey. Expunge the charted sunken rock and chart the area as shown on the present survey.
- (112) The 2-foot sounding, charted from H-2272 (1896), is identified on the original source as a rock. The 2-foot sounding with "Rk" appended was carried forward to the smooth sheet and should be charted as shown on the smooth sheet.
- (113) Chart the locations of the groins as shown on the present survey.
- (114) The 1-foot sounding, charted from H-2272 (1896), is identified as a rock awash covered 1 foot at MLW on the original source. This rock awash was not shown on the smooth sheet since it falls within the limits of a foul area delineated on the smooth sheet.
- (115) Charted items are identified as jetties on the present survey.
- (116) The 1-foot sounding, charted from H-2272 (1896), is identified as a rock on the original source and, if shown on the next chart edition, should be charted with its appropriate symbol as shown on the present survey.
- (117) The three rocks awash, charted subsequent to the date of the present survey, are poorly symbolized cartographically. The rock awash symbols should be properly drafted on the next chart print.
- (118) Chart the location of the rock awash as shown on the present survey.
- (119) Chart the locations of the groins as shown on the present survey.
- (120) Chart groins in this area as shown on the present survey.
- (121) Chart locations of rocks awash in this area as shown on the present survey.
- (122 through 124) The 17-, 2-, and 4-foot soundings charted from H-2272 (1896) are identified on the original source as submerged rocks. The three soundings with "Rk" appended to each were carried forward to the smooth sheet and should be charted as shown on the smooth sheet.
- (125) The 16-foot sounding, charted from H-3391 (1912-14) WD, is identified on the original source as a submerged boulder. The 16-foot sounding with "Bld" appended was carried forward to the smooth sheet and should be charted as shown on the smooth sheet.

H-9724

14

(126) The charted 18-foot sounding is considered to originate with a 19-foot sounding erroneously enclosed within an 18-foot depth curve on H-2272 (1896). Present survey depths of 23 and 24 feet are considered to discredit the charted shoal sounding.

cc:
N/CG241



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

NATIONAL OCEAN SERVICE
OFFICE OF CHARTING AND GEODETIC SERVICES
ROCKVILLE, MARYLAND 20852

N/CG241:MSM

NOV 6 1985

TO: N/MOA - Wesley V. Hull
FROM: N/CG2 - *J. Austin Yeager*
SUBJECT: Report of Compliance for Survey H-9724

The smooth sheet and Descriptive Report for survey H-9724 (1977), Massachusetts, Buzzards Bay, Hiller Cove to Indian Neck, have been reviewed. Please extend my appreciation to WHITING and your processing unit at the Atlantic Marine Center for their efforts in completing this survey. This survey, except as noted in the Quality Control Report, dated March 18, 1985 (copy attached), and the Hydrographic Survey Inspection Team Report, dated May 14, 1981, is complete and adequate for the purposes intended and is in compliance with Project Instructions OPR-503-WH-77, dated March 15, 1977.

Attachment

CC:
N/CG242 w/o att.



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

Hydrographic Index No. G2 R

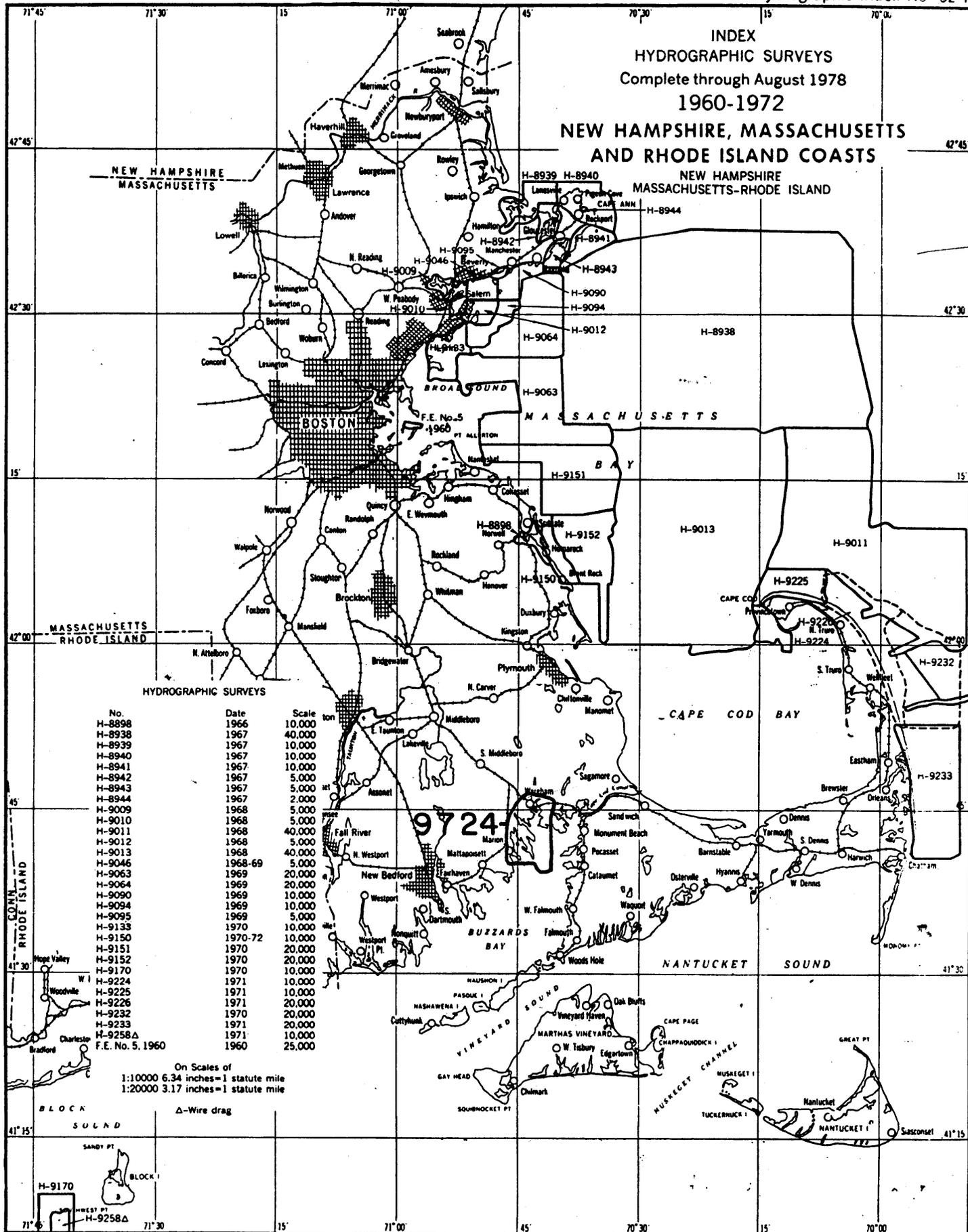
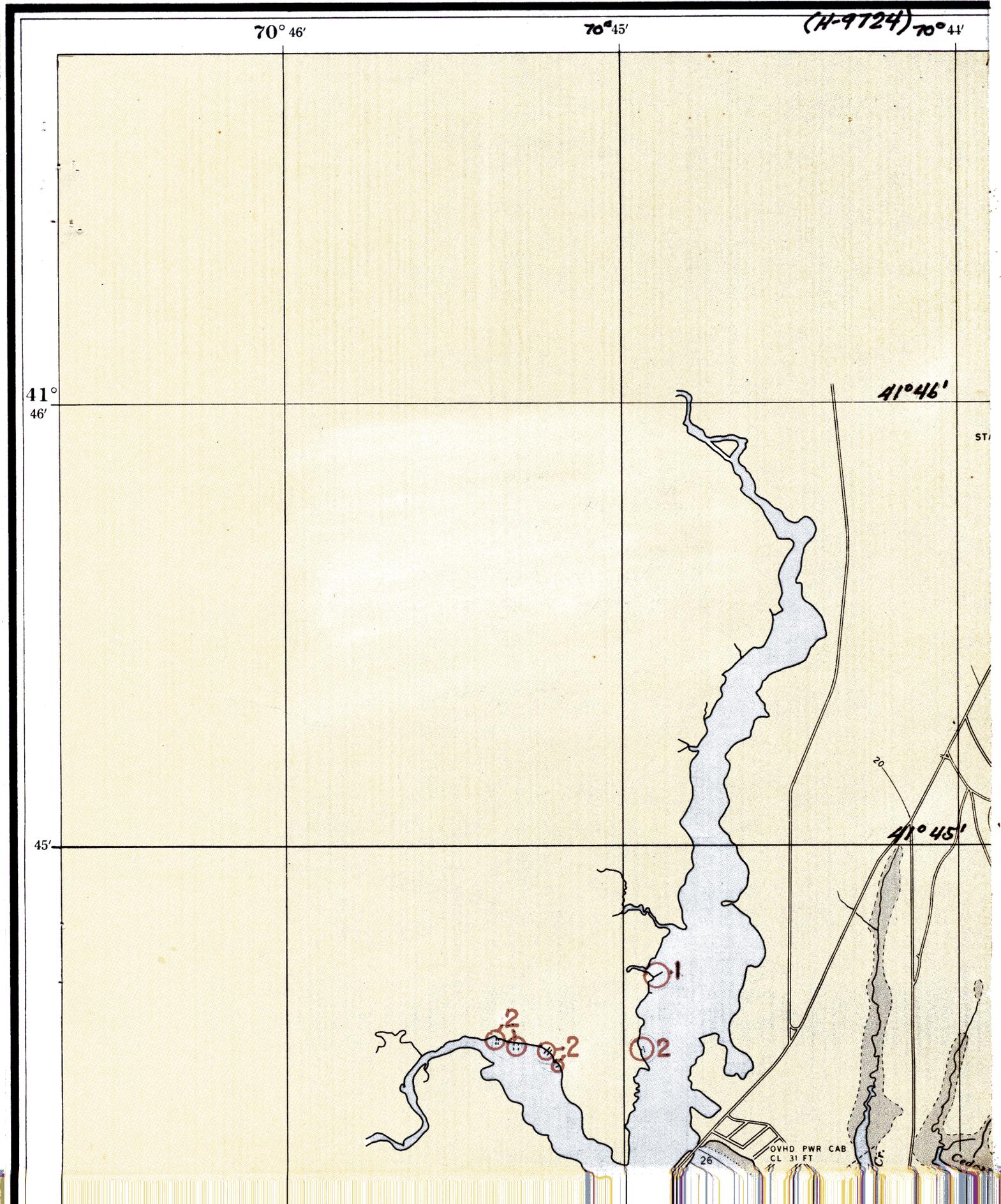


CHART 13236
21st Ed. June 27, 1981

SECTION "A"



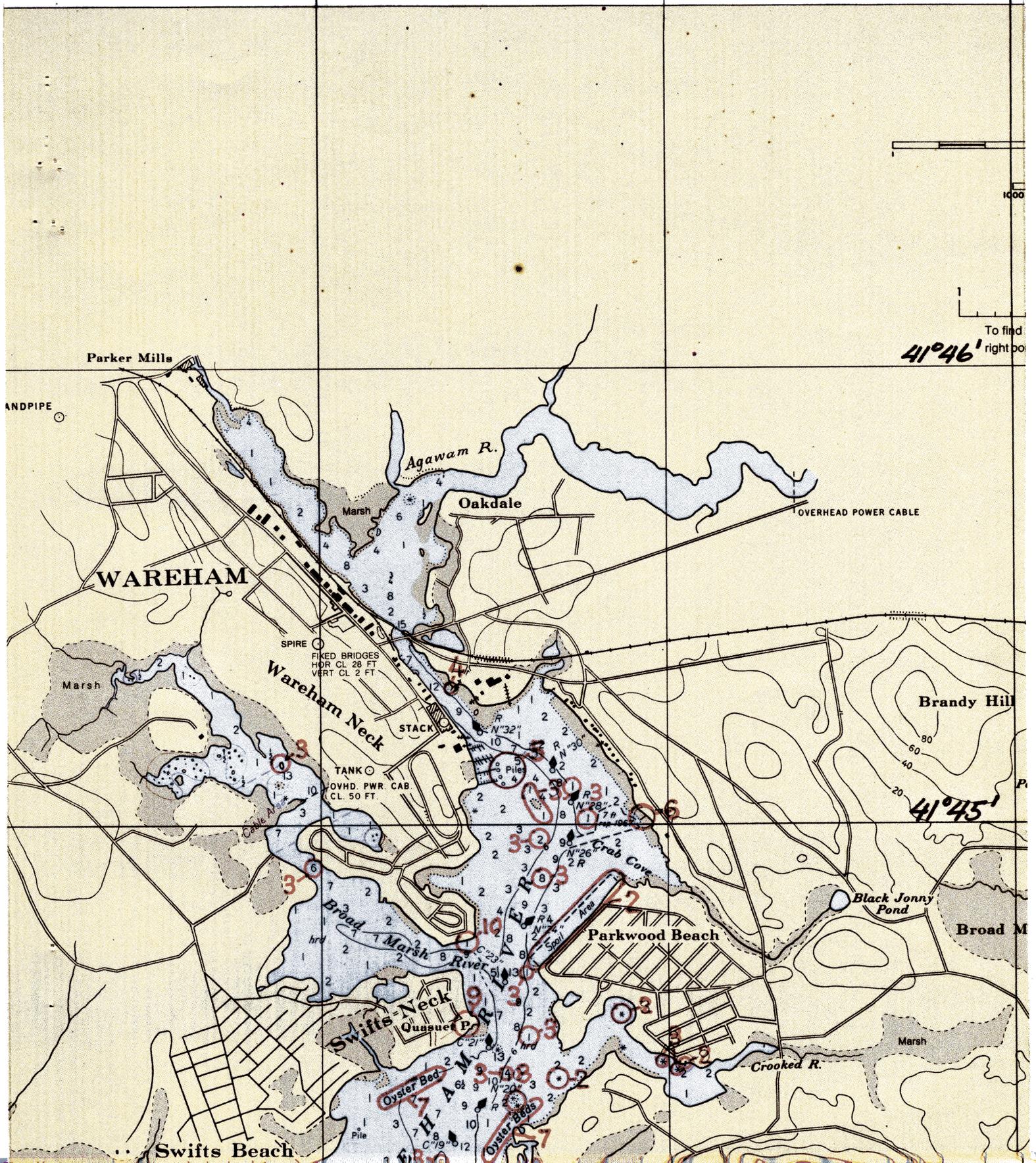
SECTION "B"

70° 43'

70° 42'

(H-9724)

70° 41'



To find
41°46' right bo

41°45'

ANDPIPE

Parker Mills

Agawam R.

Oakdale

OVERHEAD POWER CABLE

WAREHAM

WAREHAM NECK

SPIRE
FIXED BRIDGES
HOR CL 28 FT
VERT CL 2 FT

STACK

TANK
OVHD. PWR. CAB
CL. 50 FT.

Brandy Hill

41°45'

Parkwood Beach

Black Jonny Pond

Broad M

Swifts-Neck

Quasnet P.

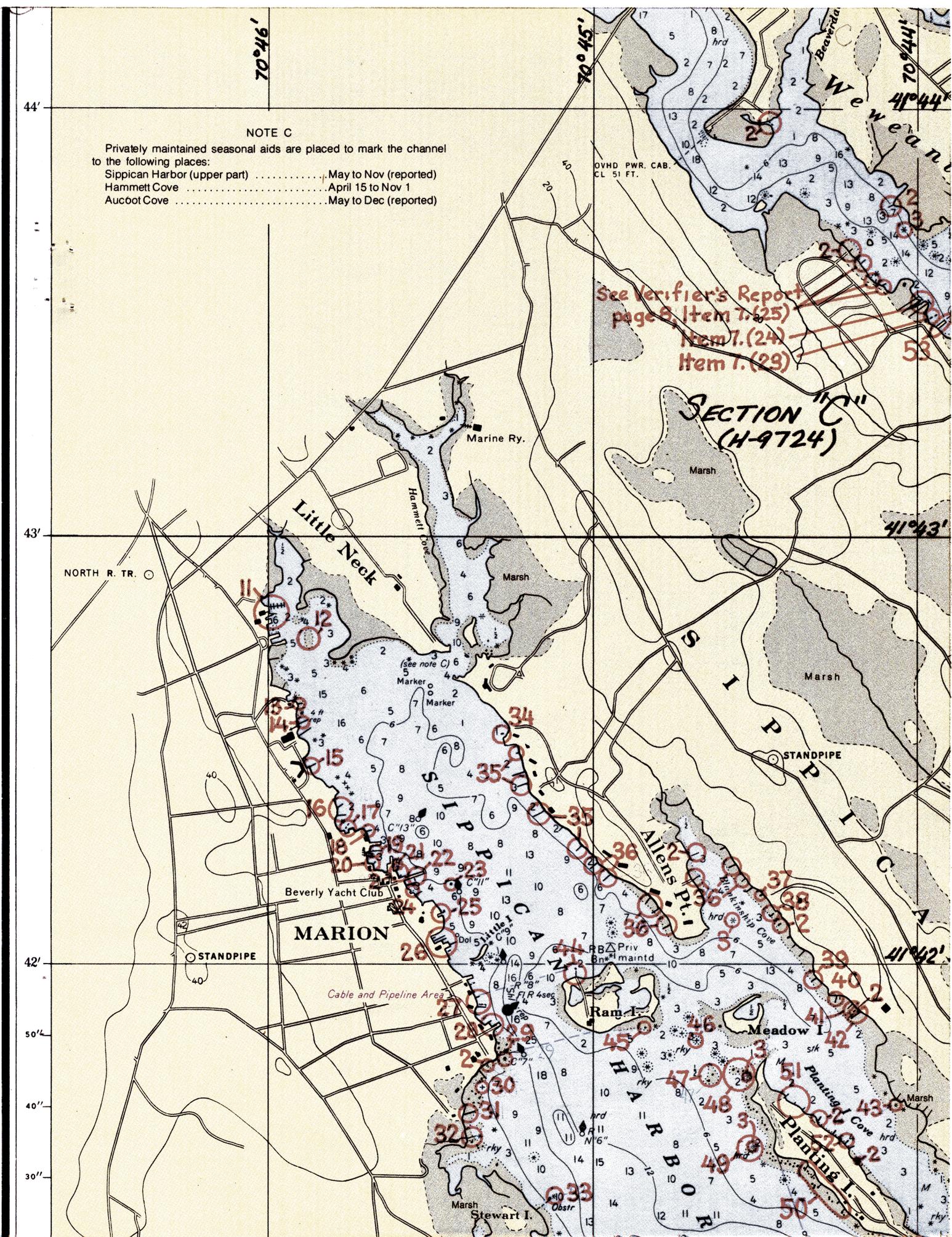
Crooked R.

Swifts Beach

Oyster Bed

Oyster Bed

H A M R



70°46'

70°45'

70°44'

44'

44'

NOTE C

Privately maintained seasonal aids are placed to mark the channel to the following places:
 Sippican Harbor (upper part) May to Nov (reported)
 Hammett Cove April 15 to Nov 1
 Aucocot Cove May to Dec (reported)

See Verifier's Report
 page 8, Item 7.(25)
 Item 7.(24)
 Item 7.(29)

SECTION "C"
(H-9724)

43'

43'

NORTH R. TR. ○

42'

42'

50'

40'

30'

Little Neck

MARION

Allens Pt.

Stewart I.

SECTION "C"
(H-9724)

SIPPICAN HARBOR

HARBOR

Beverly Yacht Club

Marine Ry.

Marsh

Marsh

Marsh

STANDPIPE

STANDPIPE

Cable and Pipeline Area

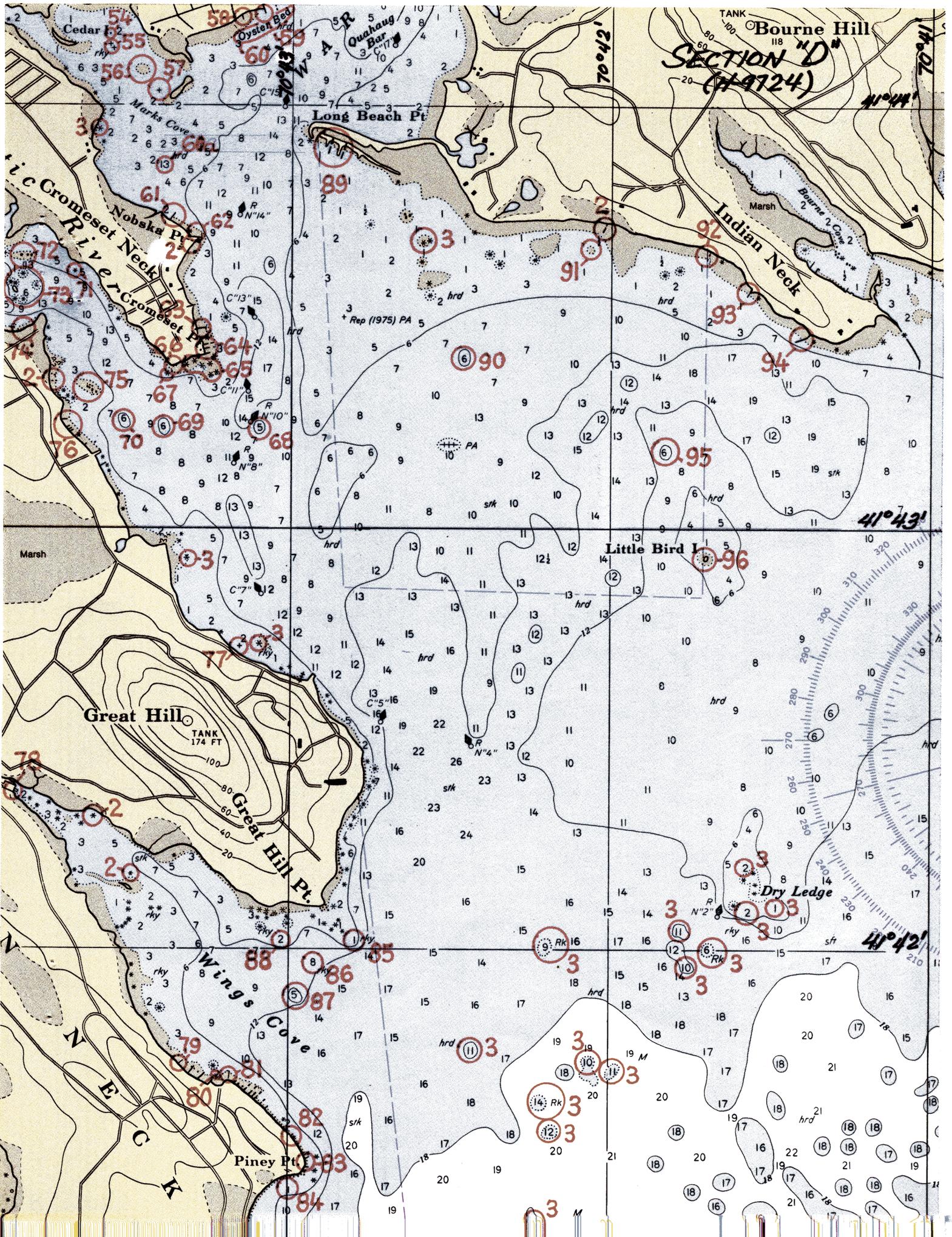
Ramp

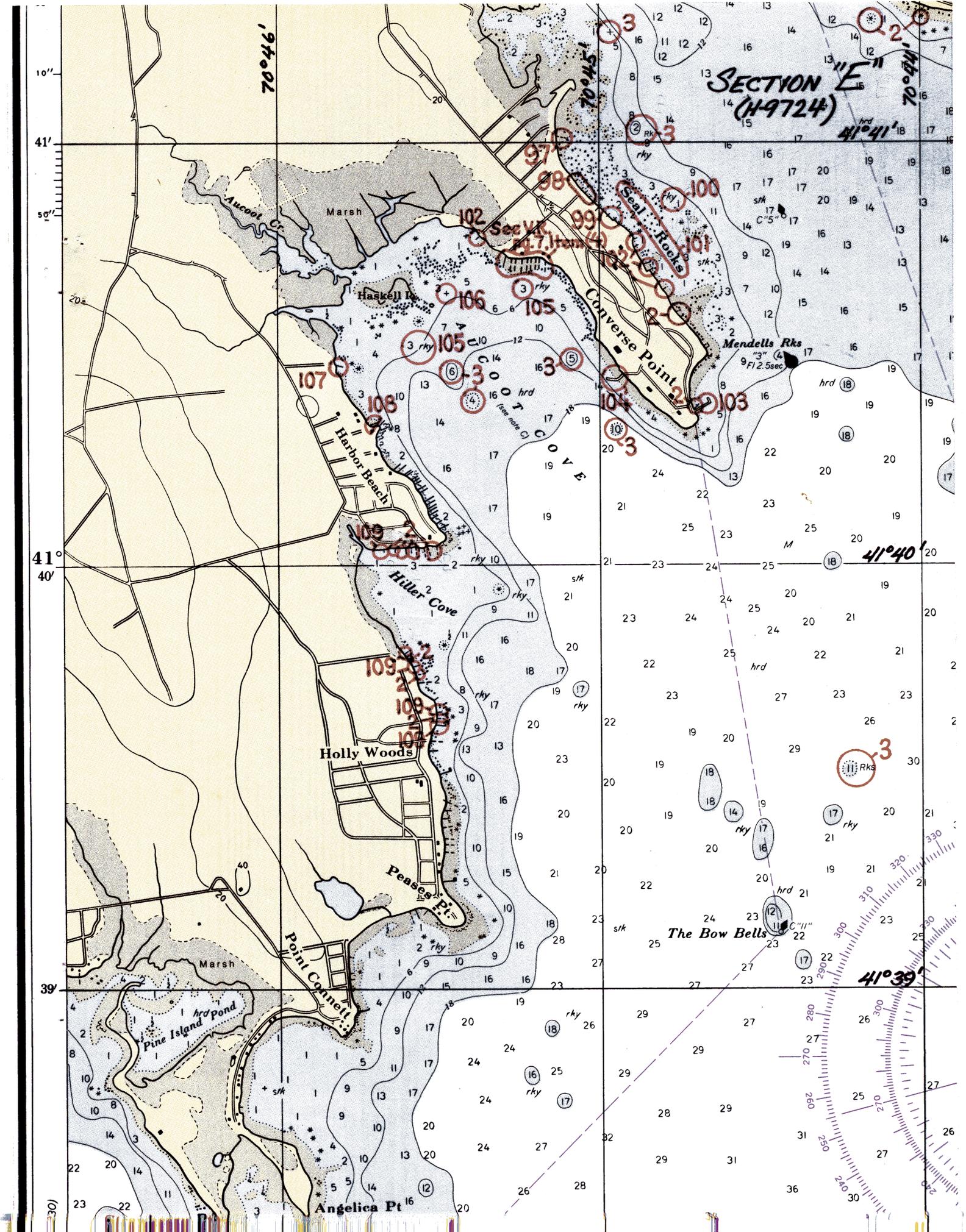
Meadow I

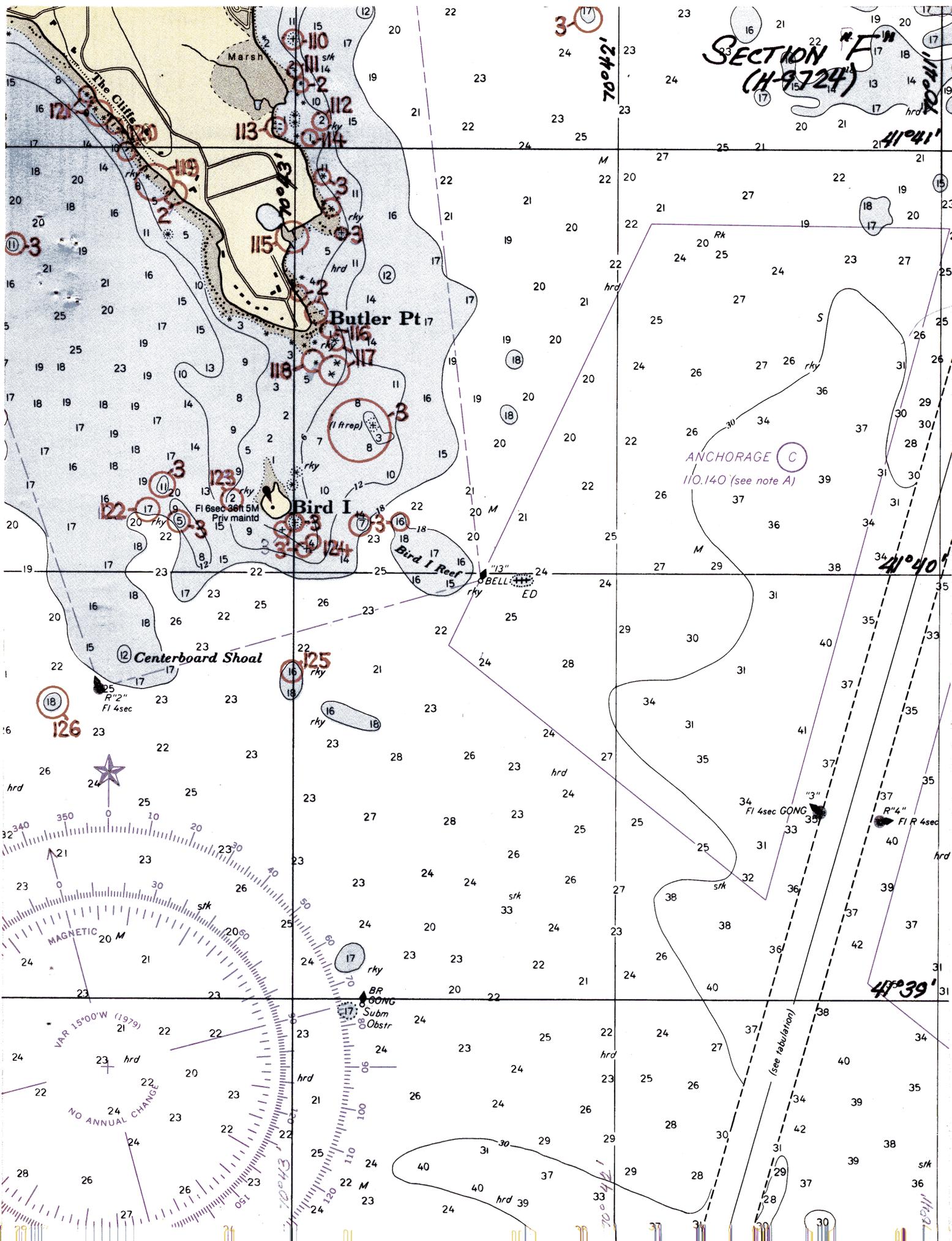
Planting I.

Planting I.

Marsh







SECTION "F"
(H-9724)

ANCHORAGE C
110.140 (see note A)

