

6444

6444

Form 504
Rev. April 1935

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

~~Hydrographic~~ } Sheet No. H - 6444
Hydrographic

U. S. COAST & GEODETIC SURVEY
LIBRARY AND ARCHIVES

MAY 1 1940

Acc. No.

State Rhode Island

LOCALITY

Approaches to Buzzard's Bay and
Narragansett Bay, east of Block
Island.

193.9

CHIEF OF PARTY

Raymond P. Eyma

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

H 6444

REG. NO. H 6444

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. 42

REGISTER NO. H 6444

State Rhode Island

General locality East of Block Island, R. I.

Locality Approaches to Buzzards Bay and Narragansett Bay

Scale 1:40,000 Date of survey May 21 - Sept. 28 1939

Vessel Ship LYDONIA

Chief of Party Raymond P. Eyma

Surveyed by Ship's Officers

Protracted by J. H. Brittain and J. T. Burke

Soundings penciled by J. T. Burke

Soundings in ~~100000~~ feet

Plane of reference Mean Low Water

Subdivision of wire dragged areas by

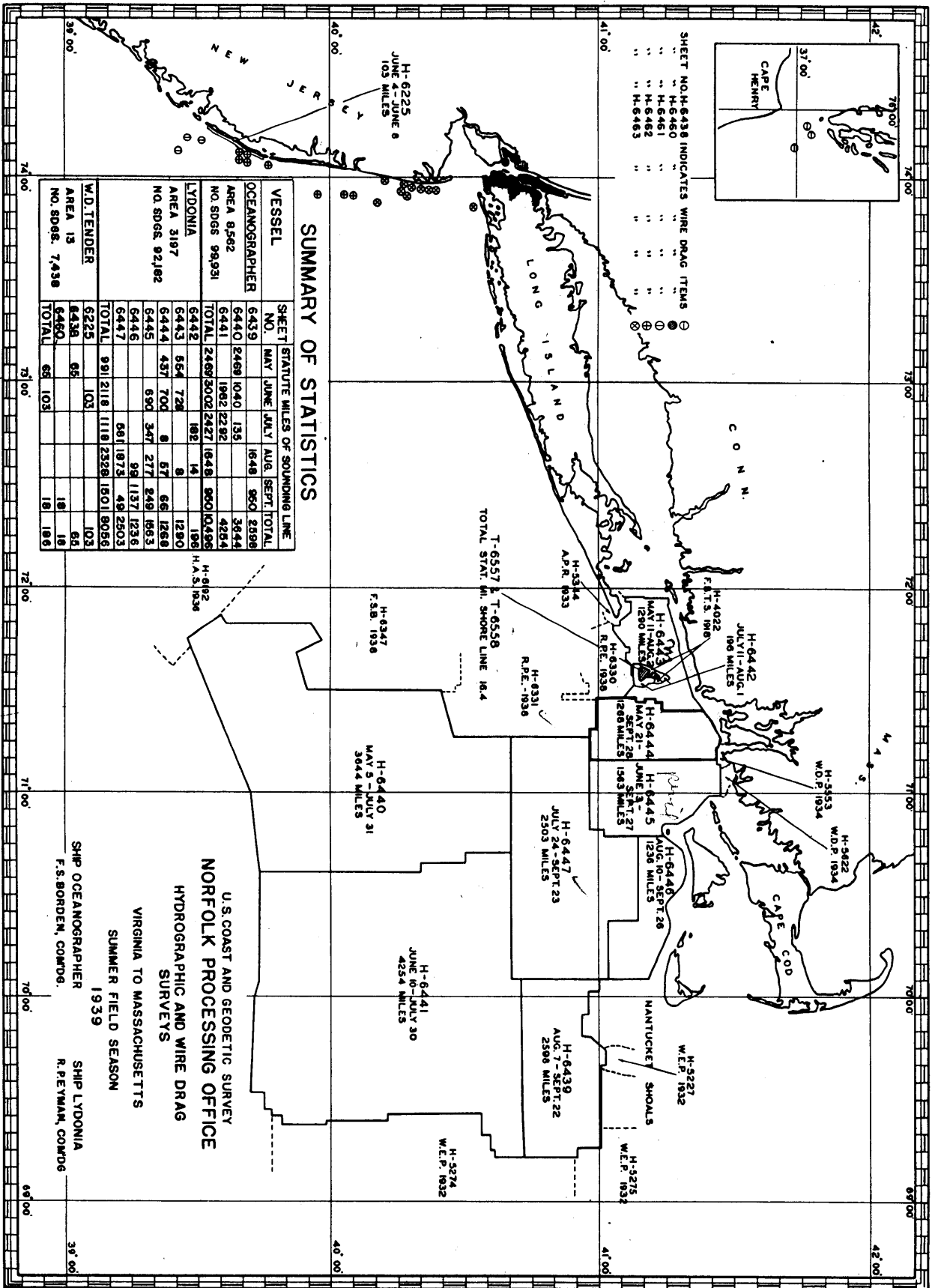
Inked by Francis A. Kelly

Verified by

Instructions dated March 4, 1938

Remarks:

KWW 11/1/41



DATE OF INSTRUCTIONS

The work on this sheet was done in accordance with Instructions, Project HT-207, dated May 16, 1936, and Supplemental Instructions, Project HT-207, dated March 4, 1938.

LIMITS

The area covered by this sheet is part of the approaches to Buzzard's Bay and Narragansett Bay between Block Island, R.I. and Martha's Vineyard Island, Mass. The sheet extends from Latitude $41^{\circ} 00'$ on the south to approximately the 10 fathom curve along the Rhode Island shore and from Longitude $71^{\circ} 10'$ westward to Longitude $71^{\circ} 28'$. It joins sheet H-6445 on the east, sheet H-6447 and H-6331 on the south and sheets H-6443 and H-6330 on the west. The limits are outlined in red on the attached sketch.

SURVEY METHODS

For the greater part of the sheet the control consists of three point fixes on shore objects and survey buoys. The buoys were located by taut wire and sun azimuth traverse starting from a three point fix on shore objects. The southern part of the sheet is controlled by R.A.R., using three sono-radio buoys.

All soundings on this sheet were obtained with the Dorsey No. 1 Fathometer.

SMOOTH PLOTTING

Theoretical velocities of sound in sea water as given in the British Admiralty Tables were used for the R.A.R. on this sheet. The velocities were computed from the bottom temperatures and salinities. Seasonal velocity curves were then plotted, a separate curve being drawn for each fathom of depth. Then from these curves the velocity corresponding to the average depth between the sono radio buoy and the positions were taken for the day on which the work was done. The velocities ranged from 1469 m/s to 1477 m/s for the period from May 21 to June 12.

Distance circles were drawn for each sono buoy at intervals of three seconds corresponding to a velocity of 1475 m/s. These circles were drawn in pencil. Distance arcs to the positions were drawn with colored ink, each sono radio buoy having a distinctive color.

The distance arcs for the positions were plotted in seconds. Each distance was corrected to the uniform velocity of 1475 m/s. For example, position 19A, the distance from buoy Cart of 8.20 seconds at a velocity of 1469 m/s has a correction of $-.03$ seconds to bring it to the velocity of 1475 m/s. The distance was plotted on the sheet as 8.17 seconds.

The sounding lines were dead-reckoned on tracing paper and superimposed over the bomb arcs. For small differences the arcs were assumed to be correct but were rejected in the records where they were obviously in error.

The velocity corrections applied to the fathometer soundings were computed in accordance with Field Memorandum No. 3, 1936. Monthly average temperature and salinity curves were used.

An index correction based on the average of the fathometer comparisons was applied. These comparisons were averaged by months.

A settlement correction of 0.4 feet was applied to the fathometer soundings. This correction was combined with the index correction under the heading I & S in the sounding records.

COMPARISON WITH ADJOINING SURVEYS

Junctions with sheets H-6443 and H-6330 to the west, sheet H-6445 to the east and sheets H-6331 and H-6447 to the south are satisfactory. Junction with sheet H-5553 in the vicinity of Sakonnet Point probably as good as can be expected as the bottom is irregular.

COMPARISON WITH PREVIOUS SURVEYS

A comparison with chart 1210 indicates that the soundings in general check very well. Two discrepancies near the inshore limit were noted as follows:

- Lat. 41°23.1' Long. 71°12.2', charted depth 46 feet, this sheet, 80 feet. Par. 6a(8) review.
- Lat. 41°26.0' Long. 71°16.8', charted depth 28 feet, this sheet, 77 feet. Par. 6a(1) review.

The above are in areas covered with the wire drag.

DISCREPANCIES

In general the crossings on this sheet are satisfactory. Discrepancies were found on a line run on G day and controlled by R.A.R. across lines run on visual fix hydrography. Between positions 40C-41C and 12G-13Q there is a 5 ft. crossing. Between positions 67D-68D and 15G-16G there is a four ft. crossing. Apparently the distances on the R.A.R. line from buoy Adam are too long as the line could be moved northeast along the arcs from buoy Cart about 200 meters and obtain good crossings. Other crossings not in good agreement are as follows: 236-237C (127 ft.) and 15-16Q (122ft.), 82-83D (130ft.) and 157-156C (134 ft.), and 183C (189 ft.) and 47-48H (174-178ft.).

Shift of line 12-16G improved these crossings. Crossing of 183C and 47-48H is at a small deep and is satisfactory. Other discrepancies minor and due to control.

φ 41°12'
571°24'

Moved

TIDAL NOTE

Tide reducers for sheet H-6444 are based on the tide gage at Block Island, R.I., maintained by the Ship Lydonia throughout the field season. No time or range correction was applied. Tide curves were drawn from tabulated hourly heights referred to a datum plane of 2.8 feet on the tide staff.

Respectfully submitted



John H. Brittain
Lieut. (j.g.) C. & G. S.
Norfolk Processing Office.

STATISTICS FOR SHEET NO. H-6444

LYDONIA 1939

Project H/T. - 207

Letter Day	Date	Statute Miles	Soundings	Positions	Volume No.
A	May 21	67.8	868	80	1
B	" 22	140.6	1672	164	1 & 2
C	"	150.7	1503	240	2
D	" 24	78.1	858	159	3
E	June 5	68.1	668	97	3
F	" 6	44.8	473	45	3 & 4
G	"	16.1	166	16	4
H	" 15	25.8	349	59	4
J	" 16	51.3	514	85	4
K	" 23	84.5	859	150	4 & 5
L	" 26	21.5	209	35	5
M	" 27				
	and 28	190.9	1956	345	5 & 6
N	June 28	52.0	647	134	6
P	July 11	-	7	7	6
Q	" 29	8.5	105	19	6
R	Aug. 2	44.9	515	90	6
S	" 8	9.9	98	18	6
T	" 14	2.4	26	6	6
U	Sept. 6	6.8	74	32	6 & 7
V	" 19	46.0	492	109	7
W	" 27	3.5	46	12	7
X	" 28	9.8	154	33	7
TOTALS					
FOR					
SHEET	22	1124.0	12,259	1935	7

Total Area 420 Square Statute Miles

L.A.C.
H.C.

TIDE NOTE FOR HYDROGRAPHIC SHEET

May 14, 1940

Division of Hydrography and Topography:

✓ Division of Charts: Attention: Mr. H. R. Edmonston

Plane of reference approved in
7 volumes of sounding records for

HYDROGRAPHIC SHEET 6444

Locality Approaches to Buzzards Bay and Narragansett Bay,
East of Block Island

Chief of Party: R. P. Eymann in 1939
Plane of reference is mean low water reading
2.8 ft. on tide staff at Block Island Harbor
11.4 ft. below B. M. 2

Height of mean high water above plane of reference is 3.0 feet.

Condition of records satisfactory except as noted below:


Acting Chief, Division of Tides and Currents.

GEOGRAPHIC NAMES

Survey No.

H6444

Name on Survey

	On Chart No.	On previous survey No.	On U. S. quadrangle Maps	From local information	On local Maps	P. O. Guide or Map	Rand McNally Atlas	U. S. Light List		
	A,	B,	C,	D	E	F	G	H	K	
<u>Block Island</u>										1
<u>Narragansett Bay</u>										2
<u>Buzzard Bay</u>										3
<u>East Ground</u>										4
Names underlined in red approved by L. Heck on 7/22/40										5
										6
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										11
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Remarks

Decisions

1		R.I.G.
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Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. **H6444**

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

Number of positions on sheet ¹⁹³⁵
Number of positions checked ²³
Number of positions revised ²
Number of soundings recorded ¹²²⁵⁹
Number of soundings revised ¹²
Number of soundings erroneously spaced ³⁵
Number of signals erroneously plotted or transferred ⁰

Date: *June 26, 1940*

Verification by *Francis B. Kelly* Time: *123 hrs.*

Review by *J. A. McCormick* *7/5/40* Time: *39 hrs.*

HYDROGRAPHIC SURVEY NO. H6444

Smooth Sheet Yes

Boat Sheet Yes

Records; Sounding 7 2 Vols., Wire Drag Vols., Bomb 2 Vols.

Descriptive Report Yes

Title Sheet Yes

List of Signals Yes

Landmarks for Charts (Form 567) No

Statistics Yes

Approved by Chief of Party Yes

Recoverable Station Cards (Form 524) No

Special Chart for Lighthouse Service No
(Circular Nov.30, 1933)

Hydrography: Total Days 22 ; Last Date Sept. 28, 1939

Remarks _____

MEMORANDUM

IMMEDIATE ATTENTION

SURVEY
 DESCRIPTIVE REPORT
 PHOTOSTAT OF

No. H **H6444**
~~No. T~~

{ received May 1, 1940
 registered May 8, 1940
 verified
 reviewed
 approved

This is forwarded in order that your attention may be directed to the matters as indicated below. Please initial in column 3 as an acknowledgement that your attention has been thus directed. The complete original records are available if desired. If you cannot give this your immediate attention, please initial, note, and forward to the next section marked, calling for the records at your convenience.

ROUTE		Initial	Attention called to
20			
22	✓ <i>Comanche Lynon</i>		
24			
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63			
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83			
88			
90			

RETURN TO

82	T. B. Reed
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Verifiers report for H 6444 (1939)

The records conform to the requirements of the General Instructions.

The northern part of the sheet is controlled from Δ stations & survey booms, the southern from two radio booms.

The junction on the north with H 5553 (1934-5) is ^{satisfactory} ~~not very~~ good, with H 6445 (1939) on the east has not been ~~not~~ verified, with H 6331 (1938) & H 6447 (1939) on the south is good, with H 6330 (1938) & H 6443 (1939) on the west is good.

Wire drag surveys H 4005 (1917) & H 4006 (1917) cover the northern end of the sheet and a study of these ~~of~~ soundings has been left to the reviewer.

Francis B. Kelly

June 26, 1940

DIVISION OF CHARTS

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 6444 (1939) FIELD NO. 42

Rhode Island, East of Block Island, Approaches to
Narragansett Bay

Surveyed in May - September 1939, Scale 1:40,000

Instructions dated March 4, 1938 (LYDONIA)

Soundings:

Dorsey I Fathometer

Control:

Three point fixes on buoys
and shore signals; R.A.R.

Chief of Party - R. P. Eyman.

Surveyed by - Officers of Ship LYDONIA.

Protracted by - J. H. Brittain; J. T. Burke.

Soundings plotted by - J. T. Burke.

Verified and inked by - F. B. Kelly.

Reviewed by - J. A. McCormick, July 5, 1940.

Inspected by - H. R. Edmonston.

1. Shoreline and Signals.

No shoreline is shown. The only topographic signal used, O.V.H. Tank in lat. $41^{\circ}10'$, long. $71^{\circ}33'$ is from T-6557 (1939). Buoy signals were located by sun azimuth, taut wire traverse.

2. Depth Curves.

Satisfactory except in lat. $41^{\circ}26.5'$, long. $71^{\circ}14.2'$ and in lat. $41^{\circ}25.5'$, long. $71^{\circ}11.0'$, where additional lines would have more fully developed the 60-foot curves.

3. Sounding Line Crossings.

Satisfactory.

4. Junctions with Contemporary Surveys.

Junctions with H-5553 (1934-35) on the northeast, H-6443 (1939) and H-6330 (1938) on the west and H-6331 (1938) and H-6447 (1939) on the south are satisfactory. The junction with H-6445 (1939) on the east is satisfactory. New surveys eventually will be made on the north but are not contemplated for the immediate future. In the meantime the overlapping older surveys show satisfactory agreement for current charting needs.

5. Comparison with Prior Surveys.

- a. H-101 (1844), 1:400,000; H-153 (1844) 1:20,000;
H-162 (1845), 1:40,000; H-204 (1847) 1:20,000;
H-206 (1847-48), 1:20,000; H-238 (1851) 1:40,000;
H-283 (1851), 1:100,000; H-670 (1859) 1:400,000.

These early surveys are mostly of a reconnaissance nature and have long since been superseded on the charts by surveys discussed in the following paragraph. Agreement of depths on the old surveys with present information is fair considering the less accurate methods available to the early hydrographers.

- b. H-1782 (1887), 1:300,000; H-1787 (1887) 1:40,000;
H-1788 (1887) 1:40,000.

These surveys combine to cover the entire area of the present survey. They show depths which are in fair to good agreement with those of 1939. At the offshore limits of the present survey agreement becomes poorer because of dead reckoning control necessarily used in this vicinity on the older surveys. Principal shoals in the common area check very closely as to position and depth. It has not been necessary to carry forward any information from the old surveys and they are superseded by the present survey in the common area.

- c. H-3668a (1914-17) W.D., 1:30,000; H-4005 (1917-18)
W.D., 1:50,000; H-4006 (1917) W.D., 1:20,000.

Several shoal soundings have been carried forward from these wire drag surveys. In this connection considerable revision was made on H-4006 because of improper treatment of groundings on that survey. Tender soundings were shown without regard to effective depths at groundings which in many cases were considerably less than the soundings. Effective depths on the wire drag surveys do not conflict at any point with soundings on the present survey.

6. Comparison with Chart 353 (New Print of Dec. 14, 1939)
Chart 1108 (New Print of Dec. 14, 1939)
Chart 1210 (New Print of Apr. 4, 1940).

a. Hydrography,

Within the area of the present survey the charts are based on surveys discussed in the foregoing paragraphs. Several errors in application of the

old surveys are listed below.

- (1) 28 foot depth charted in lat. $41^{\circ}26.0'$, long. $71^{\circ}16.8'$, is a duplication of a 28 charted 5 miles to the westward. This was definitely established as having occurred during the compilation of the first edition (May, 1921) of Chart 1210. Strangely enough, Charts 353 and 1108 do not show the erroneous 28 although it has appeared on Chart 1210 for 19 years. Depths listed in sub-paragraphs (2) to (5) below are similar instances of duplication and should be removed from the charts.
- (2) 47 foot depth in lat. $41^{\circ}25.9'$, long. $71^{\circ}16.6'$.
- (3) 63 foot depth in lat. $41^{\circ}25.3'$, long. $71^{\circ}16.4'$.
- (4) 58 foot depth in lat. $41^{\circ}25.9'$, long. $71^{\circ}14.8'$.
- (5) 69 foot depth in lat. $41^{\circ}25.3'$, long. $71^{\circ}18.4'$.
- (6) 93 foot depth in lat. $41^{\circ}22.6'$, long. $71^{\circ}20.7'$; 75 foot depth in lat. $41^{\circ}22.2'$, long. $71^{\circ}11.5'$; and 101 foot depth in $41^{\circ}10.9'$, long. $71^{\circ}22.5'$ appear to be erroneous reductions of $17\text{-}1/4$ fathoms, $14\text{-}1/2$ fathoms and $18\text{-}1/2$ fathoms on H-1787 and H-1788. Present survey depths are accepted on these spots.
- (7) Least depth on East Ground (lat. $41^{\circ}10'$, long. $71^{\circ}27'$) is shown on H-1787 as $7\text{-}3/4$ fathoms instead of the $7\text{-}1/4$ fathom equivalent of the 44 feet charted. The 46 foot sounding on the present survey is accepted as least depth.
- (8) No authority could be found for depths of 46 and 60 feet charted in lat. $41^{\circ}23.1'$, long. $71^{\circ}12.2'$. They, like the 28 foot depth discussed in sub-paragraph (1), first appeared on the first edition (May, 1921) of Chart 1210. The spot was cleared with an effective drag depth of 66 feet on H-4006 (1917). An exhaustive study of history slips and standards for Chart 1210 and obsolete Chart 113 leaves little doubt that the 46 and 60 are erroneous, particularly in view of the numerous errors already found.

b. Aids to Navigation.

Survey positions of navigational aids in the area are substantially as charted.

7. Condition of Survey.

Satisfactory.

8. Compliance with Instructions for the Project.

Satisfactory except as noted in par. 2.

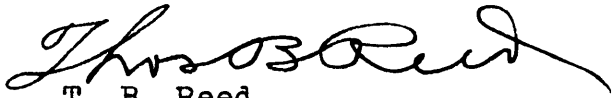
9. Additional Field Work Recommended.

None.

10. Superseded Surveys.

H-101	in part	H-283	in part
H-153	" "	H-670	" "
H-162	" "	H-1782	" "
H-204	" "	H-1787	" "
H-206	" "	H-1788	" "
H-238	" "		

Examined and approved:



T. B. Reed,
Chief, Section of Field Records.



Chief, Division of Charts.



Chief, Section of Field Work.



Chief, Division of H. & T.

applied to chart	353	Nov. 4, 1940	G.H.S.
" " "	1108	Feb. 17, 1941	G.H.S.
" " "	60	Nov. 14, 1941	J.M.A.
" " "	236	Oct 23 1943	H.F.R.
Applied to Reconstruct chart	1210	9/28/61	<i>[Signature]</i>
Applied " "	1210 EXTENSION	JUNE 1964	GRM

Applied to 13221 Extension 2/15/95 John Barton