

9767

Diag. Cht. No. LS-3

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT
(HYDROGRAPHIC)

Type of Survey Hydrographic.....

Field No. LA-5-1-75.....

Office No. H-9767.....

LOCALITY

State Ohio.....

General Locality Lake Erie.....

Locality Ashtabula Harbor and Vicinity.....

19 75

CHIEF OF PARTY
T.D. Kuchciak

LIBRARY & ARCHIVES

DATE June 21, 1979.....

9767
LA-5-1-75
H-9767

Area 7
chts

14825

14536

HYDROGRAPHIC TITLE SHEET

H-9767

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.

LA 5-1-75.

State Ohio

Scale _____

General locality Lake Erie

Locality Ashtabula Harbor and Vicinity

Scale 1:5,000 Date of survey Aug. 28 - Sept. 5, 1975

Instructions dated June 1, 1975 Project No. OPR-300-LA-75

Vessel NOAA launch LAIDLAY (1264)

Chief of party T.D. Kuchciak

Surveyed by LSC Hydrographic Section Personnel

Soundings taken by echo sounder, hand lead, pole Digital Echo Sounder DE 723D

Graphic record scaled by LSC Hydrographic Section Personnel

Graphic record checked by LSC Hydrographic Section Personnel

Protracted by N/A Automated plot by Xynetics-1201

Verification by D.V. Mason May 3, 1979

Soundings in fathoms feet at ~~NW~~ ~~NE~~ LWD which for Lake Erie is 568.6
ft., IGLD (1955).

REMARKS: All times are Greenwich time, unless otherwise noted as EST.

Excess information has been removed from the
Descriptive Report and placed in the according
folder accompanying the survey.

Applied to atlas 2/5/80
[Signature]

Descriptive Report

To Accompany

Hydrographic Survey LA ~~10-3-75~~⁵⁻¹⁻⁷⁵

Register Number: H-~~9586~~⁹⁷⁶⁷

Hydrographic Section

Chief of Party: T. D. Kuchciak

Scale 1:~~10,000 (1975)~~
1: 5,000 (1975) (Inset)

A. PROJECT

Project OPR-300-LA-75 (8 miles east of Fairport to 3 1/2 miles east of Ashtabula Harbor, Ohio) is a combined total of three surveys. The survey described herein (3rd of 3) was accomplished in accordance with Project Instructions, OPR-300-LA-75, dated June 1, 1975.

B. AREA SURVEYED

The survey was made in the inshore waters along the south shore of Lake Erie, ~~extending from 3 1/2 miles west to 3 1/2 miles east of Ashtabula Harbor, Ohio. Also included on LA 10-3-75 sheet is an additional survey (inset) of Ashtabula Harbor at 1:5000.~~ The inshore area surveyed extends from within the 6 foot depth contour to beyond the 40 foot depth contour and is bounded by Longitudes $80^{\circ}48'14''$ and $80^{\circ}51'17''$. The survey was started on August ~~16~~²⁸, 1975, and was completed on September 5, 1975.

C. SOUNDING VESSEL

The NOAA Launch LAIDL~~Y~~ (1264) was used exclusively to accomplish the survey. Regular or deeper sounding operations performed by the LAIDL~~Y~~ involved position numbers 7534-9797, inclusive. Due to transmission breakdown, the close inshore or shoal water sounding areas, normally surveyed by the support skiff MONARK (1638) had to be sounded by the LAIDL~~Y~~. Position fixes in these areas included numbers 4-547, inclusive.

D. SOUNDING EQUIPMENT

Sounding equipment used aboard the LAIDL~~Y~~ (1264) was the Raytheon 723-D Digital Depth Recorder, SN 2928. This Digital Depth Recorder operated very well during the entire period of the survey. Except for the instrument error discussed in the Verifier's Report, "Introduction".

Soundings in the deeper waters were positioned by a conventional range-range positioning mode while the near-shore soundings were positioned by range-azimuth procedures.

Corrections to Echo Soundings

1. Velocity of sound correctors were derived from the Direct Comparison Log, Column P, Corr. (C-N).

2. Deviations of the initial draft setting from the 0-foot line were noted on the fathogram during scanning and were taken into account when the sounding records were corrected.

3. Fathometer instrument error was determined from the Direct Comparison Log, Column Q, Instrument Error (J-P). Instrument error was applied to the analog record during scanning of the digital and analog records. Corrections to the master tape were applied via the corrector tape.

4. Direct Comparison of the Analog Record and the Digital Readings against true bar depths were made only under ideal conditions, at intervals of once or twice a day, and at random locations throughout the work area.

A static draft correction of 2.5 feet was determined for the LAIDL Y (1264) by conventionally approved methods.

5. Settlement and squat tests were made on the launch LAIDL Y (1264) on June 30, 1975. The tests were conducted inside the Fairport Harbor. The project depth of 25 feet was more than adequate for the tests and the harbor breakwalls provided protection from open lake sea swells. Test procedures were in accordance with recommendations in section 4.9.4 of the provisional Hydrographic Manual. A levelling instrument was set up on one of the harbor caissons and sightings taken on a level rod held on the LAIDL Y with the LAIDL Y traveling at the following speeds: 0 (dead), 550, 750, 1000, 1200, 1400, 1600, 1800, 2000 & 2200 RPM.

LAIDL Y

Squat Test June 30, 1975

<u>RPM</u>	<u>Reading Level Rod Ft.</u>	<u>Corr.</u>	<u>TRA-Feet</u>
0	5.82	0	2.5 (draft)
550	5.84	+ .02	2.5
750	5.90	+ .08	2.6
1000	5.99	+ .17	2.7
1200	6.11	+ .29	2.8
1400	6.10	+ .28	2.8
1600	6.00	+ .18	2.7
1800	5.82	0	2.5
2000	5.58	- .24	2.3
2200	5.30	- .52	2.0

E. HYDROGRAPHIC SHEETS

Raw data master tapes were logged and data plotted on the boatsheet using the HYDRO PLOT System aboard the LAIDL Y (1264). Edited master and corrector tapes, velocity tape, and TC/TI tape were logged/generated by personnel of the LSC Hydrographic Section (CLS112) and forwarded to the Processing Division (CAM3), Atlantic Marine Center, for necessary smooth plotting. Final verification of the smooth plot will be accomplished by the Verification Branch (CAM31), AMC.

F. CONTROL STATIONS

Monumented Second and Third-order control stations used in this survey and listed on the survey sheet are: (035) Ashtabula LSC, 1974 (2nd order); ~~(032) Redbrook~~, (033) Decato, (034) Abyss, (037) Gone Awry, (137) Ashtabula E BKW S. End Lt., (038) Electric, ~~(039) Bridge~~, (045) Ashtabula Lt., (123) COE 23 (3rd-order). These stations were established in 1974 by Lake Survey Center, Horizontal Control Section (CLS113) to specifications of National Geodetic Survey and in conformance with the Hydrographic Manual.

G. HYDROGRAPHIC POSITION CONTROL

A Del Norte SHF electronic positioning system, operated in the range-range positioning mode, was used to control the LAIDL Y (1264) during hydrographic data acquisition on sheet LA 10-3-75 and on the included inset. Del Norte remotes with 87 degree directional antennas were set over Second and Third-order control stations as follows:

~~JULIAN DAY 228~~ ~~LA 10-3-75~~
~~Range 1 : B, (033) DECATO~~
~~Range 2 : D, (032) REDBROOK~~

DAY 230
Range 1 : B , (033) DECATO
Range 2 : D , (032) REDBROOK

DAY 231
Range 1 : A , (123) COE 23
Range 2 : D , (032) REDBROOK

DAY 231
Range 1 : B , (038) ELECTRIC
Range 2 : D , (032) REDBROOK

DAY 232
Range 1 : D , (039) BRIDGE
Range 2 : B , (038) ELECTRIC

DAY 233
Range 1 : D , (039) BRIDGE
Range 2 : B , (038) ELECTRIC

DAY 240
Range 1 : B , (038) ELECTRIC
Range 2 : D , (033) DECATO

INSET on LA 10-3-75
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DAY 241
Range 1 : B , (137) ASHTABULA E. BKW. S. END LT.
Range 2 : A , (035) ASHTABULA LSC

DAY 245
Range 1 : B , (123) COE 23
Range 2 : D , (033) DECATO

DAY 246
Range 1 : A , (035) ASHTABULA LSC
Range 2 : D , (037) GONE AWRY

DAY 247
Range 1 : A , (045) ASHTABULA LT.
Range 2 : B , (037) GONE AWRY

DAY 248
Range 1 : B , (034) ABYSS
Range 2 : A , (045) ASHTABULA LT.

A range-azimuth survey positioning mode was used to control the hydrography in shoal water and inside the "banana" area inherent in normal range-range positioning operations. One remote transponder with a directional antenna along with one transit were set over a Third-order control station as follows:

~~Julian Day 233~~
~~Range : D , (039) BRIDGE~~
~~Azimuth : Transit, (039) BRIDGE~~

~~LA 10-3-75~~

DAY 233
Range : B , (038) ELECTRIC
Azimuth : Transit, (038) ELECTRIC

DAY 238
Range : B , (123) COE 23
Azimuth : Transit, (123) C of E 23

DAY 239
Range : B , (038) ELECTRIC
Azimuth : Transit, (038) ELECTRIC

DAY 239
Range : B , (123) COE 23
Azimuth : Transit, (123) C of E 23

DAY 245
Range : B , (123) COE 23
Azimuth : Transit, (123) C of E 23

~~INSET ON LA 10-3-75~~
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DAY 246
Range : B , (038) ELECTRIC
Azimuth : Transit, (038) ELECTRIC

Electronic control, sounding and associated HYDROPLOT equipment aboard the launch LAIDLAY (1264).

Del Norte SHF Electronic Positioning System

T/R Master Transponder with OMNI 360° x 30° Antenna SN 246 .
DMU Trisponder 202A w/TSA SN 192 .
Parallel Buffer, 200-IPIA SN 127

HYDROPLOT System

DEC HYDROPLOT Controller SN 76005941-0700004
DEC Computer PDP8-E (12K-Memory) (LAIDLAY 1264) SN PRO 308130
DEC Computer PDP8-E (12K-Memory) (Office Trailer) SN PRO 3-09104
DEC High Speed Reader/Punch (LAIDLAY 1264) SN 0211123-0256239
DEC High Speed Reader/Punch (Office trailer) SN TC04-02-14005
Left-Right Steering Indicator
Teletype ASR-33 (LAIDLAY 1264) SN 465065
Teletype ASR-33 (LAIDLAY 1264) SN 465202
Teletype ASR-33 (Office trailer) SN 458267
Teletype ASR-33 (Office trailer) SN 436575

Complot DP-3/5 Plotter
Complot DP-3/5 Plotter (Office trailer)

SN 5279-1
SN 5848-19

Sounding System

Raytheon 723D, Digital Depth Recorder

SN 2928

Electronic control equipment comprising the shore stations.

Del Norte SHF Electronic Positioning System

Remote Transponder	A	SN 174
Remote Transponder	B	SN 244
Remote Transponder	C	SN 256
Remote Transponder	D	SN 264

Four Directional Antennas were marked A, B, C, and D and were used with corresponding remote transponders.

Calibration of the Del Norte SHF electronic positioning system was accomplished using Second and Third-order control stations as calibration points. Within the work area, calibration was accomplished by the use of two or more transits set up over horizontal control stations. On a given command from the launch via radio communications, true azimuth cuts or intersections were made on the master T/R transponder aboard the launch. All azimuths were radioed back to the launch for input into the PDP8-E using RK 562 calibration program. Four sets of calibrations were taken and the meaned correctors were entered into the HYDROPLOT Controller before starting hydrographic operations.

At the end of the day, four more sets of calibrations were taken and meaned. The means of the two series of calibration usually checked very closely. All series of calibrations from the same control network were meaned and applied to the corrector tape.

Performance of the Del Norte SHF electronic positioning system during the survey was excellent. No equipment malfunctions were experienced during this survey.

H. SHORELINE

Shoreline in the Ashtabula Harbor area has been provided by LSC's photogrammetry section and has been traced on the Ashtabula Harbor inset accompanying FS LA 10-3-75. The stereo compilation of Ashtabula Harbor was produced by photogrammetric means on a Kelsh Plotter. ~~A copy of the compilation will be enclosed with the smooth sheets.~~

*
Remaining shoreline on LA ⁵⁻¹⁻10-3-75 was obtained from LSC 1970 and 1974 aerial photography with control accomplished by fitting to existing verified topographic features. Due to extensive beach erosion on the south shore of Lake Erie, it is intended to update these changes using aerial photography to be flown by NOS in 1978. *No indication of 1978 photographs were used in updating.*

*See Recommendations

<u>AREA OF PHOTOGRAPHY</u>	<u>YEAR FLOWN</u> (scheduled)	<u>YEAR COMPILED</u> (scheduled)
Ashtabula Harbor	1974 ✓	1975
Vermillion to Fairport Harbor	1975	(1976)
Fairport to Dunkirk	(1978)	(1979)
Dunkirk to Niagara Falls	(1979)	(1980)

I. CROSSLINES

Approximately 10% of the hydrographic data collected on sheet LA 10-3-75 resulted from crosslines. The crossline agreement with the main scheme hydro was very good at most crossings, agreeing within one foot. However, some of the other crossings agreed only to within two feet, directly attributable to the irregular lake bottom.

J. JUNCTIONS

Junction with H-9585 LA 10-2-75, and F.S. 1-1870 (1948), scale 1:10,000, was very good and soundings agreed to the nearest foot. *See Vespine Report.*

K. COMPARISON WITH PRIOR SURVEYS

Prior Surveys in the area of the 1975 survey are:

Field Sheet No.	1-1709, 1937	Scale 1:40,000
Field Sheet No.	1-18 ⁰⁸ 80 , 1942	Scale 1: 5,000
Field Sheet No.	1-1867, 1948	Scale 1:10,000
Field Sheet No.	1-1870, 1948	Scale 1:10,000

The 1975 survey sounding line interval is ⁵⁰~~100~~ meters on LA ⁵⁻¹⁻~~10-3-75~~, and ~~50 meters on the Ashtabula Harbor inset.~~ The 1937 offshore line spacing is 800 meters. The 1942 Ashtabula Harbor Survey has a sounding line interval of 100 meters and the 1948 surveys have a sounding line interval of 175-250 meters.

The much greater density of sounding coverage in 1975 provides a more complex development of depth contour curves than do the prior surveys. However, a comparison of plotted depths in areas of common coverage shows that approximately 90% of the prior survey depths differ from the 1975 survey by no more than ~~to~~ 2 feet.

Within the parameters of hydrographic survey H-⁹⁷⁶⁷~~9586~~ (LA ⁵⁻¹⁻~~10-3-75~~), no uncharted buoys and obstructions were found. However, all navigational aids, obstructions and buoys were relocated at the time of the survey by conventionally approved methods. It was found that the positional accuracy of LA ~~10-3-75~~ survey matched reasonably well with prior survey results. It is intended that all Geographic Positions shown in this report supersede the prior positional data.

<u>OBJECT</u>	<u>DEPTH OVER</u>	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>DATE LOCATED</u>
Southerly Crib ⁴⁰	18	41 54 27.69	80 48 37.54	(245) 2 Sept.
Northwest Crib	19 ²⁰	41 54 29.90	80 48 38.66	(245) 2 Sept.
Northeast Crib	20	41 54 30.22	80 48 37.41	(245) 2 Sept.
^{buoy} (BC 1)	N/A	41 55 04.6	80 47 30.4	(248) 5 Sept.
(HB) 1 QK Fl G	N/A	41 54 56.9	80 47 33.8	(248) 5 Sept.
(B3) Fl G	N/A	41 54 54.4	80 47 19.0	(248) 5 Sept.
(RN 4)	N/A	41 54 48.7	80 47 24.5	(248) 5 Sept.
(BC 5)	N/A	41 54 52.3	80 46 57.6	(248) 5 Sept.
(BC 1) Junction Lighted Buoy	N/A	41 54 44.7	80 47 43.7	(248) 5 Sept.
(RN 2)	N/A	41 54 38.5	80 47 56.4	(248) 5 Sept.
South Water Intake	N/A	41 54 13.98	80 48 25.75	(230) 18 Aug.
North Water Intake	N/A	41 54 14.82	80 48 25.09	(230) 18 Aug.
Pvt Aid HBN Spar	N/A	41 53 13.4	80 51 26.4	(239) 27 Aug.
Union Carbide Intake Crib	23	41 55 20.67	80 45 53.58	(246) 3 Sept.

L. COMPARISON WITH THE CHART

Comparison with NOS Chart 14825, ^{OK} 18th Edition, December 1974, (formerly LS34), scale 1:80,000, and NOS Chart 14610, ⁸³⁸ 21st Edition, June 1974, (formerly LS342), scale 1:5000, Ashtabula Harbor Inset. Depths agree throughout sheet LA ~~10-3-75~~ 5-1-75.



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

JOB HISTORY OF ASHTABULA HARBOR

Ashtabula Harbor photo control was surveyed by CLS 113, Horizontal Control Section, June 20, 1975. All geographic positions for the Corps of Engineers channel limits for the full length of Ashtabula River were plotted for further verification of horizontal positioning. A few control points were also plotted from the U. S. Army Topographic Command, Geographic Positions computer listings.

Two (2) stereo models were compiled at a scale of 1:6000 from NOS color photography dated 20MAY74, frames Z9821 thru Z9823. This manuscript was sized and photographically enlarged to 1:5000 scale, the desired chart scale. This is a reverse from the usual procedure of reducing stereo compiled models but since control was very limited and such a small enlargement, 10 centimeters, it was felt that acceptable accuracy was maintained.

No geographic limits were plotted so that the Compilation Section in Rockville, Md. could make the determination according to the required hydrographic information.

Compilation started in Photogrammetry 7-24-75

Compilation completed 10-24-75



M. ADEQUACY OF SURVEY

This survey is complete and adequate to supersede prior surveys for charting.

N. AIDS TO NAVIGATION

Within the limits of this survey there are eight floating aids-to-navigation maintained by U. S. Coast Guard which collectively adequately serve their intended purpose and are listed in the 1975 Great Lakes Light List.

O. STATISTICS

Vessel LAIDLAY 1264

543 Total number of inshore positions (RA).

2263 Total number of offshore positions (RR).

411 Statute miles of sounding line.

14 Square statute miles of sounding.

0 Bottom samples were taken. (No bottom samples taken due to termination of 1975 field operations. Bottom samples will be taken in May, 1976 during the Hydrographic field season.)

<u>DAY</u>	<u>STATUTE MILES</u>	<u>POSITION</u>	<u>POSITIONING SYSTEM</u>	<u>SCALE</u>
(228) Aug 16, 75	52	7534-7727	RR	1:10,000
(230) Aug 18, 75	13	7728-7773	RR	1:10,000
(231) Aug 19, 75	103	7774-8193	RR	1:10,000
(232) Aug 20, 75	81	8194-8500	RR	1:10,000
233) Aug 21, 75	30	8501-8618	RR	1:10,000
		4-122	RA	
(238) Aug 26, 75	7	123-194	RA	1:10,000
239) Aug 27, 75	12	195-370	RA	1:10,000
(240) Aug 28, 75	44	8619-9011	RR	1: 5,000
(241) Aug 29, 75	28	9012-9245	RR	1: 5,000
(245) Sep 2, 75	10	9278-9417	RR	1: 5,000
		371-417	RA	
(246) Sep 3, 75	13	9421-9499	RR	1: 5,000
		418-547	RA	
(247) Sep 4, 75	8	9500-9646	RR	1: 5,000
(248) Sep 5, 75	10	9647-9797	RR	1: 5,000

P. MISCELLANEOUS

No Input

Q. RECOMMENDATIONS

H-9767 5-1-75

It is recommended that survey LA-~~10-3-75~~, which includes large scale densified coverage of Ashtabula Harbor, be considered completed and acceptable for smooth plotting and verification. It should be noted that contemporary stereocompiled shoreline information within the reach of this survey as defined by the sheet parameters, with the exception of the Ashtabula Harbor inset, was not available. The shoreline depiction shown was obtained from print by print inspection of recent aerial photography with control obtained by a visual fit to existing verified charted topography and prominent landmark features. The shoreline in the area of the Ashtabula Harbor was obtained from controlled stereocompilation procedures. It is believed that the shoreline depiction throughout this survey satisfied prescribed allowable error accuracies at a scale of 1:10,000 and should supersede all prior shoreline depictions until new controlled stereocompiled surveys can be completed by NOS in the future. *See Vainin report*

R. AUTOMATED DATA PROCESSING

<u>PROGRAM NAME</u>	<u>NUMBER</u>	<u>VERSION DATE</u>
Range-Range Real Time	RK 111	8/7/74
Grid Lattice Plot	AM 201	11/10/72
Grid Signal & Lattice Plot	RK 201	2/19/75
Visual Station Plot	AM 202	
Range-Range Non Real Time	RK 211	8/16/74
Range Azimuth Pos. & Sndg. Plot	RK 216	2/14/75
Visual Station Table Marker	AM 301	8/12/74
Geodetic Inverse	AM 407	
Geodetic Inverse/Dir. Pos. Comp.	RK 407	8/15/74
Direct Geodetic Comp.	AM 408	
Geodetic Utility Package	RK 409	9/5/73
* H/R Geodetic Calibration	RK 562	2/19/75
Elinore Line Editor	AM 602	3/10/72
Tape Duplicator	RK 606	8/22/74
Binary Tape Duplicator	RK 610	9/19/73
Unscrambler	RK 337	8/8/74

S. REFERENCE TO REPORTS

None.

* H/R means HYPERBOLIC/RANGE-RANGE

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

WATER LEVEL NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Atlantic Marine Center: CAM-3

Hourly heights are approved for

Water Level Station Used: Ashtabula, Ohio (906-3048)

Period: August 16, 1975 to September 5, 1975

HYDROGRAPHIC SHEET: H-⁹⁷⁶⁷~~9586~~

OPR- 300

Locality: Lake Erie

Plane of reference: Low Water Datum (IGLD 1955 : 568.6 Feet)

Remarks:

Philip C. Morris 7-19-78

Chief, Water Level Section

Don M. Spill...

Chief, Tides & Water Levels Branch

GEOGRAPHIC NAMES

H-9767

Name on Survey	Source of Name											
	A	B	C	D	E	F	G	H	K			
	ON CHART NO.	ON PREVIOUS SURVEY NO.	ON U.S. QUADRANGLE MAPS	FROM LOCAL INFORMATION	ON LOCAL MAPS	P.O. GUIDE OR MAP	RANDOMLY IN ATLAS	U.S. LIGHT LIST				
Ashtabula	14836											1
Lake Erie	14836	-										2
Lake Shore Drive ^{Park Drive}	14836	-										3
Ohio	14836											4
Walnut Beach Park	14836	/										5
Ashtabula River		-										6
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Approved:

Chas. E. Hamilton
Chief Geographer - C345

7 Sept. 1979

L

LIST OF SIGNALS

001	001	7	41	54	27692	080	48	37545	108	0000	000000	SOUTHERLY CRIB
002	002	7	41	54	29907	080	48	38662	108	0000	000000	NORTHWEST CRIB
003	003	7	41	54	30215	080	48	37410	108	0000	000000	NORTHEAST CRIB
004	011	7	41	55	04620	080	47	30410	256	0000	000000	(BC 1)
005	552	7	41	54	56880	080	47	33800	216	0000	000000	(HB) 1 QK FL G
006	553	7	41	54	54440	080	47	19010	258	0000	000000	(B3) FL G
007	004	7	41	54	48690	080	47	24490	255	0000	000000	(RN 4)
008	005	7	41	54	52310	080	46	57640	256	0000	000000	(BC 5)
009	111	7	41	54	44690	080	47	43690	256	0000	000000	(BC 1) JUNCTION LIGHTED BUOY
010	002	7	41	54	38470	080	47	56420	255	0000	000000	(RN 2)
011	004	7	41	54	14825	080	48	25092	235	0000	000000	NORTH WATER INTAKE
012	005	7	41	54	13983	080	48	25746	235	0000	000000	SOUTH WATER INTAKE
013	548	7	41	54	50548	080	46	12518	070	0005	000000	POWERHOUSE BKW LIGHT
014	032	7	41	53	04449	080	51	20561	250	0000	000000	REDBROOK LSC, 1974
015	033	7	41	53	38863	080	49	38923	250	0000	000000	DECATO LSC, 1974
016	034	7	41	54	41181	080	48	04698	250	0000	000000	ABYSS LSC, 1974
017	035	7	41	55	06550	080	47	45211	250	0016	000000	ASHTABULA LSC, 1974
018	036	7	41	55	11403	080	47	41648	139	0000	000000	E COE 11
019	137	7	41	54	47817	080	46	47869	250	0000	000000	ASHTABULA E BKW SOUTH END LIGHT
020	037	7	41	54	47741	080	46	47835	250	0000	000000	GONE AWRY LSC, 1974
021	038	7	41	54	45320	080	46	11500	250	0000	000000	ELECTRIC LSC, 1974
022	039	7	41	55	19090	080	42	49448	250	0000	000000	BRIDGE LSC, 1974
023	045	7	41	55	06587	080	47	45258	250	0016	000000	ASHTABULA LIGHT
024	123	7	41	54	09546	080	48	29195	250	0000	000000	COE 23
025	555	7	41	54	32928	080	47	56587	139	0011	000000	ASHTABULA WEST PIER LIGHT FR
026	554	7	41	54	44650	080	47	41085	139	0007	000000	ASHTABULA INNER BREAKWATER LT.
027	551	7	41	55	11469	080	47	32661	139	0014	000000	ASHTABULA EAST BKW LT. FL G
028	550	7	41	55	11633	080	47	41586	139	0014	000000	ASHTABULA WEST PIERHEAD LT. FR
029	102	7	41	53	13432	080	51	26413	212	0000	000000	PVT AID HBN SPAR
030	104	7	41	55	20673	080	45	53579	108	0000	000000	UNION CARBIDE INTAKE CRIB

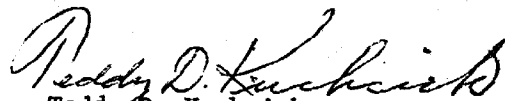
APPROVAL SHEET TO ACCOMPANY
HYDROGRAPHIC SURVEY H-~~9586~~
9767

The acquisition of hydrographic data represented on sheet LA ~~10-3-75~~⁵⁻¹⁻⁷⁵
(and inset) was entirely accomplished under my supervision in the field.
The Descriptive Report was prepared by Jerome M. Nahas.

About 20% of the subsequent data processing accomplished at the Lake
Survey Center was also supervised by me. The remaining 80% of the data
processing was accomplished by the Hydrographic Section personnel under
the direct supervision of Jerome M. Nahas.

The hydrographic survey is considered to be complete and adequate to
supersede previous surveys in the same area.

Approved and Forwarded,


Teddy D. Kuchciak
Chief, Hydrographic Section

TC/TI GRAPHIC OBSERVATIONS S/B 1264 (LAIDL)

P + N = True depth (Ft.)

N = Digital Instrument Mean + Draft

BAR CHECK DATA

P = Digital Instrument Corrector

TRUE DEPTH	P	N
5	-	-
10	0.0	10.0
15	+0.1	14.9
20	+0.2	19.8
25	+0.3	24.7
30	+0.4	29.6
35	+0.5	34.5
40	+0.7	39.3
45	+0.9	44.1
50	+0.9	49.1
55	+0.9	54.1

DEPTH	VELOCITY ABSTRACT (Scaled off graph)	CORRECTION
0.0 - 5.6		-0.2
5.7 - 14.3		0.0
14.4 - 23.1		+0.2
23.2 - 31.8		+0.4
31.9 - 40.6		+0.6
40.7 - 49.3		+0.8
49.4 - 9999		+1.0

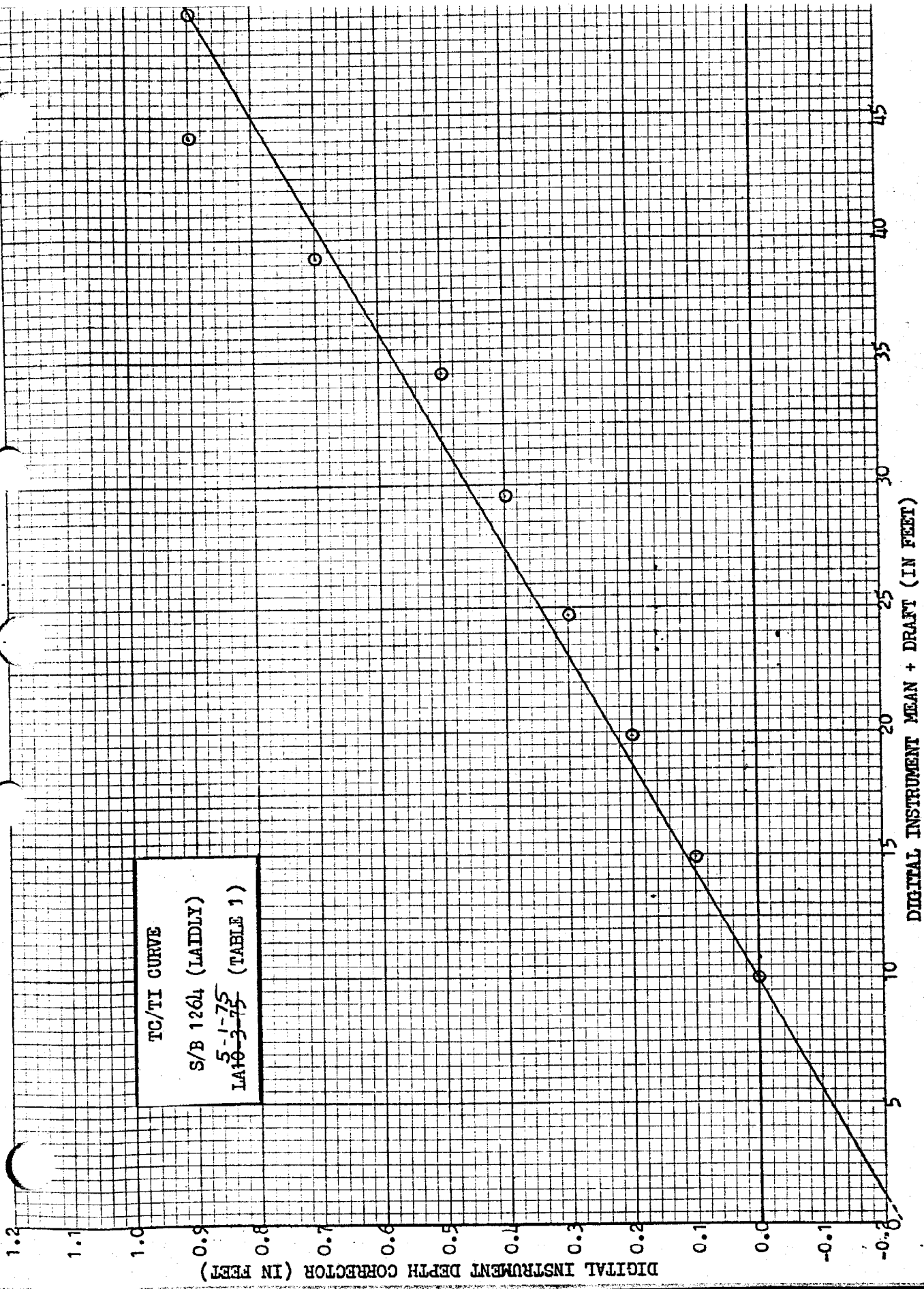
VELOCITY TABLE 1 LA10-3-75 (FS - 14)

000056 1 0002 001 000 126400 009586
 000143 0 0000
 000231 0 0002
 000318 0 0004
 000406 0 0006
 000493 0 0008
 999999 0 0010

TC/TI TAPE TABLE 1

154218 0 0000 0001 228 1264 001975

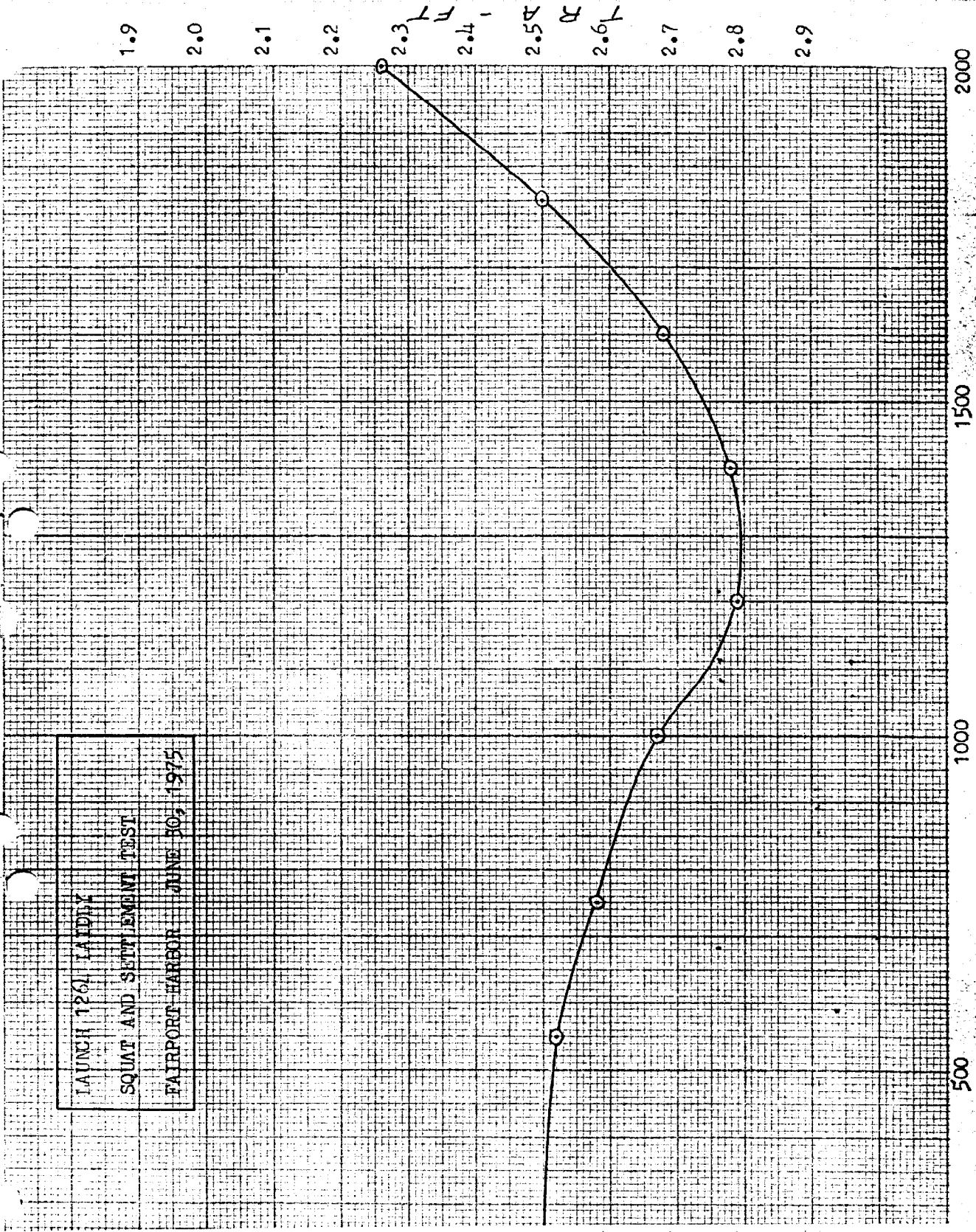
*All measurements and corrections are in feet.



DIGITAL INSTRUMENT MEAN + DRAFT (IN FEET)

DIGITAL INSTRUMENT DEPTH CORRECTOR (IN FEET)

LAUNCH 1261 LAIDDE
 SQUAT AND SETTLEMENT TEST
 FAIRPORT HARBOR JUNE 30, 1975



ENGINE RPM (52)

APPROVAL SHEET
FOR
SURVEY H- 9767

- 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 Verifier's Report.

Date: 6/7/79

Signed:



Title: Chief, Verification Branch

HYDROGRAPHIC SURVEY STATISTICS

H-9767

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

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT
SMOOTH SHEET	1	BOAT SHEETS & PRELIMINARY OVERLAYS	5
DESCRIPTIVE REPORT	1	SMOOTH OVERLAYS: POS. ARC, EXCESS	2

DESCRIP- TION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS/ SOURCE DOCUMENTS
ENVELOPES	1					
CAHIERS			1			
VOLUMES						
BOXES						

T-SHEET PRINTS (List) TP chart *LS 342

SPECIAL REPORTS (List)

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS		
	PRE- VERIFICATION	VERIFICATION	TOTALS
POSITIONS ON SHEET			1441
POSITIONS CHECKED		150	
POSITIONS REVISED		36	
SOUNDINGS REVISED		529	
SOUNDINGS ERRONEOUSLY SPACED		0	
SIGNALS (CONTROL) ERRONEOUSLY PLOTTED		0	
	TIME - HOURS		
CRITIQUE OF FIELD DATA PACKAGE (PRE-VERIFICATION)	2		
VERIFICATION OF CONTROL		1	
VERIFICATION OF POSITIONS		44	
VERIFICATION OF SOUNDINGS		84	
COMPILATION OF SMOOTH SHEET		74	
APPLICATION OF TOPOGRAPHY		0	
APPLICATION OF PHOTOBATHYMETRY		0	
JUNCTIONS		2	
COMPARISON WITH PRIOR SURVEYS & CHARTS		10	
VERIFIER'S REPORT		11	
OTHER		20	
TOTALS	2	246	248

Pre-Verification by F. Saunders	Beginning Date 6/28/78	Ending Date 6/28/78
Verification by P. Niland, S. Kelly, D. Mason	Beginning Date 10/6/78	Ending Date 5/3/79
Verification Check by B. J. Stephenson	Time (Hours) 8	Date 5/4/79
Marine Center Inspection by Hydrographic Inspection Team (AMC)	Time (Hours) 6	Date 5/30/79
Quality Control Inspection by R.W. DeLazarain	Time (Hours) 62	Date 8/21/79
Requirements Evaluation by D.J. Hill	Time (Hours) 2	Date 12/19/79

DR Engle 16 hrs NOV 6, 1979

REGISTRY NO. 9767

The Computer and Excess Sounding Cards for this survey have not been corrected to reflect the changes made to the Computer Card and Excess Card Printouts at this time of the review.

When the cards have been updated to reflect the final results of the survey, the following shall be completed:

CARDS CORRECTED

DATE _____ TIME REQUIRED _____ INITIALS _____

REMARKS:

REGISTRY NO. _____

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

VERIFIER'S REPORT

Registry No. H-9767

Field No. LA 5-1-75

Ohio, Lake Erie, Ashtabula Harbor

SURVEYED: August 28 through ~~September~~ September 5, 1975

SCALE: 1:5,000

PROJECT NO: OPR-300

SOUNDINGS: Raytheon 723D
Depth Recorder

CONTROL: Del Norte
(Range-range and
Range-azimuth)

Chief of Party T. D. Kuchciak
Surveyed by. T. D. Kuchciak
Automated Plot by. XYNETICS - 1201
Verified and Inked by. D. V. Mason
May 1, 1979

1. Introduction

a. A digital to analog instrument error of +0.1 foot in 11 feet of water, to +0.9 of a foot in 45 feet of water was applied to the analog survey data. The digital readout corrections were applied during scanning.

b. This survey, H-9767 (1975) was originally combined with H-9586 (1975) and was intended to be a 1:5,000 scale inset on H-9586. It was surveyed to meet the standards for a 1:5,000 scale sheet; however, to plot H-9586 with a 1:5,000 scale inset would have greatly exceeded the maximum sheet size for a survey. A second registry number was obtained for this sheet: Ashtabula Harbor H-9767 (1975). The field data was separated from H-9586 (1975) for plotting as a separate 1:5,000 scale survey.

c. The projection parameter was revised, and notes added in red to the Descriptive Report during verification.

d. The bottom samples were taken in 1976 and were made part of this survey.

2. Control and Shoreline See Q.C. Report

a. The control is adequately described in Section F and G of the Descriptive Report. Stations not in the NGS file ~~should be~~ labeled (field position).
are

b. The shoreline was transferred to the smooth sheet from a photogrammetric manuscript furnished by the Lake Survey Center (see Section H of the Descriptive Report for further information).

3. Hydrography

a. Depths at crossings are in good agreement.

b. The standard depth curves are adequately delineated. The 24-foot supplemental curve was added to better delineate the bottom configuration and conforms with Chart 14836.

c. The development of bottom configuration and the investigation of least depths do not always meet the standards for hydrographic surveys. See Section 7 of this report. Development in some instances is not adequate by the present survey to verify or disprove some charted depths indicated in the aforementioned section.

4. Condition of Survey

The smooth sheet and accompanying overlays, hydrographic records, and reports are adequate and conform to the requirements in the Hydrographic Manual except as noted below:

a. The sounding volumes were not submitted with the present survey as per section 4.8.3.1 of the Hydrographic Manual.

b. The survey with the inset included exceeds the recommended size for hydrographic surveys. (See Section 1, Paragraph b of this report).

c. A leadline was not used to obtain least depths on cribs located in the vicinity of Lat. 41°54'30"N, Long. 80°-48'38W.

5. Junctions See Q.C. Report

An adequate junction was effected with H-9586; however, the changes on H-9586 will have to be made by the Quality Control Branch, C352, since it has been verified and mailed to Rockville.

6. Comparison with Prior Surveys See Q.C. Report

1-1709	(1937)	1:40,000	1-1711	(1937)	1:15,000
1-1867	(1948)	1:10,000	1-1741	(1936)	1:5,000
1-1870	(1948)	1:10,000	1-1808	(1942)	1:5,000
			1-1869	(1948)	1:2,400

These surveys cover the area of the present survey; however, very few soundings from these surveys remain on the chart. A comparison reveals that the present depths are approximately 0 to 3 feet deeper than the prior surveys. The differences are attributed to survey methods and natural changes. Due to construction and landfill areas, the inner harbor has undergone extensive shoreline changes. The present survey is adequate to supersede the above prior surveys in the common area.

7. Comparison With Chart 14836 (21st Ed. June 14, 1974) LS(342)

a. Hydrography

The charted hydrography originates^{largely} from an unascertainable^(probably Corps of Eng) source, supplemented by several soundings from the prior surveys, ^{which are no longer considered} The charted soundings listed below will have to be evaluated against the present survey as to their suitability for retention on the chart and/or supersession by the present survey.

Charted Depths

Geographic Positions

† Investigated subsequent to date of this survey (BP108917)

	* <u>Lat.</u>	* <u>Long.</u>
6 ft. Disregard-	41°54'53.0"N	80°46'48.6"W
† 10 ft. Supported by 11-25m N.	41°55'03.6"N	80°47'14.3"W
† 17 ft. Disproved	41°55'07.5"N	80°47'21.0"W
† 18 ft. Supported by 18 nearby	41°55'08.2"N	80°47'21.5"W
† 23 ft. Supported by 24 nearby	41°55'10.7"N	80°47'19.0"W
† 24 ft. Disproved	41°55'10.5"N	80°47'24.5"W
29 ft.	41°55'17.3"N	80°47'59.0"W
29 ft.	41°54'44.0"N	80°48'39.6"W
3 ft. - Disproved	41°54'41.5"N	80°46'44.4"W

Origin
1-1869 (1948)

Origin - Non NOS;
directed to
compiler for
appropriate
action

Except as noted above, the present survey is adequate to supersede the charted hydrography within the common area. The three cribs located on the present survey have positions which are substantially different than the chart; however, it is the opinion of the verifier that different horizontal datums is the cause. There is no horizontal datum indicated on the chart.

b. Controlling Depths - Project depths are taken from the 1975 Great Lakes Pilot. There are no conflicts between the project depths and the present survey, with the exception of the 26-27ft. depths located in lat. 41°54.73', long. 80°47.25', and scattered depths 1 to 2 feet shallower than

c. Aids to Navigation - The floating aids to navigation located on the present survey are in substantial agreement with the charted positions and adequately serves the purposes intended. See QC Report.

8. Compliance With Instructions

The survey complies with the project instructions except as noted in Section A of this report.

* Referred to N.A. 1927 Datum


9. Additional Field Work

This is an adequate basic survey and additional field work is not recommended. However, caution should be exercised in considering the charted depths in this area listed under Section 7 of this report.

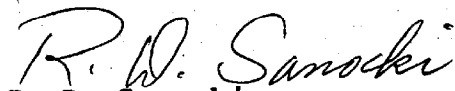
Inspection Report
H- 9767

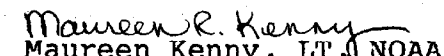
Any verification errors regarding procedures and presentation of survey data detected during inspection by the Hydrographic Inspection Team have been corrected before submission for administrative approval. HIT comments regarding quality of field work, compliance with instructions, and adequacy of the survey have been incorporated within the Verifier's Report.

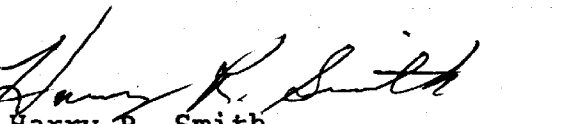
Examined and Approved:
Hydrographic Inspection Team
Date: May 30, 1979


Robert A. Trauschke, CDR, NOAA
Chief, Processing Division


Absent
Carl W. Fisher, CDR, NOAA
Chief, Operations Division


R. D. Sanocki
Technical Assistant
Processing Division


Maureen R. Kenny, LT, NOAA
Chief, Electronic Data
Processing Branch


Harry R. Smith
Team Leader
Verification Branch

Approved/Forwarded


Robert C. Munson
RADM, NOAA
Director, Atlantic Marine Center



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

OA/C352:RWD

August 21, 1979

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

THRU: Chief, Quality Control *gm* Branch

FROM: R. W. DerKazarian *R.W. DerKazarian*
Quality Evaluator

SUBJECT: Quality Control Report for H-9767 (1975), Ohio, Lake Erie,
Ashtabula Harbor and Vicinity

A quality control inspection of H-9767 was accomplished to monitor the survey for obvious deficiencies with respect to data acquisition, delineation of the bottom, determination of least depths, navigational hazards, junctions, sounding line crossings, shoreline transfer, smooth plotting, decisions and actions taken by the verifier, and the cartographic presentation of data. In general, the survey was found to conform to the National Ocean Survey's standards and requirements except as stated in the Verifier's Report, the HIT Report, and as follows:

1. The following supplements the Verifier's Report, paragraph 2:

2.b. A ratio copy of the shoreline manuscript will be retained with the field records. A copy of this manuscript is also filed as Bp-97578. Field edit had not been accomplished on this manuscript; however, it was field checked in 1976.

2. An adequate junction was effected with H-9586 (1975) during quality control evaluation after several curves were adjusted and soundings re-scanned on the present survey.

3. The following supplements the Verifier's Report, paragraph 4:

d. Five bottom characteristics, listed in the smooth position print-out but not included on the Oceanographic Log Sheet - M (Form 75-44), are included in the records of H-9586 (1975).

e. The "Signal List" and a "Report on Buoys and Obstructions" in the Descriptive Report include two items, a north and south water intake, with a cartographic code of 235 (obstruction submerged pipe), located on August 18,



1975. Several of the boat sheets of the present survey show these presumably detached positions but no information exists as to what method of location was used in either the records of the present survey or junctional survey H-9586 (1975). Inshore segments of the submerged water intakes have been shown on the smooth sheet.

4. Four prior surveys had not been considered in the "Comparison with Prior Surveys" section of the Verifier's Report apparently because the original source index is illegible. The Verifier's Report has been annotated and an appropriate comparison accomplished during the quality control evaluation.

a. The comparison revealed differences in depths to be generally as described for those surveys already considered in the Verifier's Report. In the vicinity northeast of the inner breakwater, a turning basin has been dredged to 28 feet; prior depths were 9 to 15 feet. Spoil has presumably been dispersed along the outer breakwater in the northeast corner of the harbor, where present depths appear to be 5 to 7 feet shoaler than 1942 depths.

Several soundings and a rock awash have been carried forward to supplement the present survey. With these additions, the present survey is adequate to supersede the prior surveys in the common area.

b. Prior survey 1-1711 (1937) includes a swept area. This swept area is not in conflict with the present hydrography.

5. The following supplements the Verifier's Report, paragraph 7:

a. Hydrography

Some of the charted soundings not disposed of by the present survey and listed under paragraph 7.a of the Verifier's Report were investigated in 1979 (Bp-108917) and can be disposed of as noted in red in the Verifier's Report.

The horizontal datum of chart 14836 has been determined to be N.A. 1902 Datum. A datum difference of approximately 12 meters in longitude is evident. It is recommended that the chart be revised accordingly.

c. Aids to Navigation

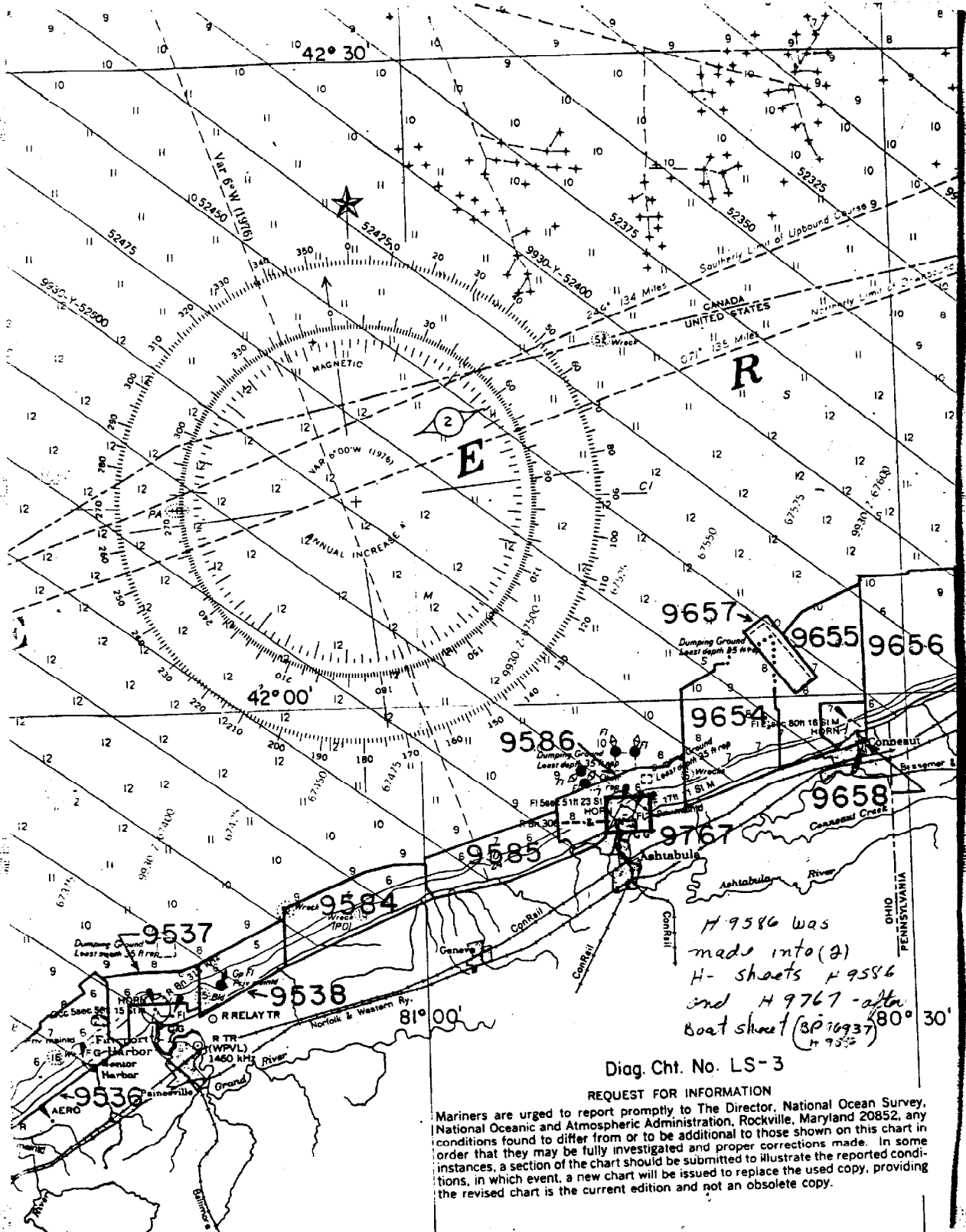
Geographic positions of the charted fixed aids to navigation do not agree with survey positions, obviously because of the datum difference discussed above. Nor are positions of topographic features on the chart in agreement with the survey even after considering a datum shift. It is recommended that the chart be revised using the present survey data. It should

H-9767

3

be noted that National Geodetic Survey had not adjusted the field positions of any of the control stations on this survey as of the date of the survey.

CC:
OA/C35
OA/C351



H 9586 was made into (2) H-shoets #9586 and H 9767 - after boat sheet (8P 7693) #9586

Diag. Cht. No. LS-3

REQUEST FOR INFORMATION

Mariners are urged to report promptly to The Director, National Ocean Survey, National Oceanic and Atmospheric Administration, Rockville, Maryland 20852, any conditions found to differ from or to be additional to those shown on this chart in order that they may be fully investigated and proper corrections made. In some instances, a section of the chart should be submitted to illustrate the reported conditions, in which event, a new chart will be issued to replace the used copy, providing the revised chart is the current edition and not an obsolete copy.

