TP-01078

TP-01078

NOAA FORM 76-35

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

DESCRIPTIVE REPORT

Type of Survey Shoreline

Job No. CM-8008 *Map No.* TP-01078

Classification No. Final *Edition No.* 1

Field Edited

LOCALITY

State Minnesota

General Locality Duluth-Superior Harbor

Locality Duluth Ship Canal

1980 TO 1981

REGISTRY IN ARCHIVES

DATE

☆ U.S. GOVERNMENT PRINTING OFFICE: 1974-762-901

NOAA FORM 76-36A (3-72) — U. S. DEPARTMENT OF COMMERCE, NATIONAL OCEANIC AND ATMOSPHERIC ADMIN.

DESCRIPTIVE REPORT - DATA RECORD

TYPE OF SURVEY: [X] ORIGINAL [ ] RESURVEY [ ] REVISED

SURVEY TP- 01078

MAP EDITION NO. (1)

MAP CLASS Final

JOB PH- CM-8008

PHOTOGRAMMETRIC OFFICE: Photogrammetry Division, Rockville, MD

OFFICER-IN-CHARGE: Walter S. Simmons

LAST PRECEEDING MAP EDITION

TYPE OF SURVEY: [ ] ORIGINAL [ ] RESURVEY [ ] REVISED

JOB PH- _____

MAP CLASS _____

SURVEY DATES: 19__ TO 19__

I. INSTRUCTIONS DATED

1. OFFICE	2. FIELD
Aerotriangulation - October 16, 1980	Field - April 17, 1981

II. DATUMS

1. HORIZONTAL: [XX] 1927 NORTH AMERICAN — OTHER (Specify)

2. VERTICAL: [ ] MEAN HIGH-WATER [ ] MEAN LOW-WATER [ ] MEAN LOWER LOW-WATER [ ] MEAN SEA LEVEL — OTHER (Specify): International Great Lakes Datum, 1955

3. MAP PROJECTION: Lambert Conformal

4. GRID(S)

STATE	ZONE
Wisconsin	North

5. SCALE: 1:5,000

III. HISTORY OF OFFICE OPERATIONS

OPERATIONS		NAME	DATE
1. AEROTRIANGULATION	BY	R. Kelly	Dec 80
METHOD: Analytic	LANDMARKS AND AIDS BY		
2. CONTROL AND BRIDGE POINTS	PLOTTED BY	J. Taylor	Jan 81
METHOD: Coradomat	CHECKED BY		
3. STEREOSCOPIC INSTRUMENT COMPILATION	PLANIMETRY BY	J. Taylor	Feb 81
	CHECKED BY	P. Dempsey	Feb 81
INSTRUMENT: B-8	CONTOURS BY	NA	
SCALE: 1:5,000	CHECKED BY		
4. MANUSCRIPT DELINEATION	PLANIMETRY BY	J. Taylor	Mar 81
	CHECKED BY	P. Dempsey	Mar 81
	CONTOURS BY	NA	
METHOD: Graphically Smooth Drafted	CHECKED BY		
	HYDRO SUPPORT DATA BY	P. Dempsey	Mar 81
SCALE: 1:5,000	CHECKED BY	" "	" "
5. OFFICE INSPECTION PRIOR TO FIELD EDIT	BY	P. Dempsey	Mar 81
6. APPLICATION OF FIELD EDIT DATA	BY	J. Schad	Sept 81
	CHECKED BY	F. Wright	" "
7. COMPILATION SECTION REVIEW	BY	F. Wright	" "
8. FINAL REVIEW	BY	R. Kelly	June 82
9. DATA FORWARDED TO PHOTOGRAMMETRIC BRANCH	BY		
10. DATA EXAMINED IN PHOTOGRAMMETRIC BRANCH	BY	R. Kelly	June 82
11. MAP REGISTERED - COASTAL SURVEY SECTION	BY	Howard D. Wolfe (Signed)	OCT 4 1983

NOAA FORM 76-36A — SUPERSEDES FORM C&GS 181 SERIES

* U.S. G.P.O. 1972-769382/582 REG.#6

NOAA FORM 76-36B
(3-72)

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

COMPILATION SOURCES

TP-01078

1. COMPILATION PHOTOGRAPHY

CAMERA(S) Wild RC-8 (E)
Focal Length = 152.71 MM

TIDE STAGE REFERENCE
- ☐ PREDICTED TIDES
- X ☐ REFERENCE STATION RECORDS
- ☐ TIDE CONTROLLED PHOTOGRAPHY

TYPES OF PHOTOGRAPHY LEGEND
- (C) COLOR
- (P) PANCHROMATIC
- (I) INFRARED

TIME REFERENCE
ZONE: Central — ☐ STANDARD
MERIDIAN: 75th — ☒ DAYLIGHT

NUMBER AND TYPE	DATE	TIME	SCALE	STAGE OF TIDE
80-EC-5736 thru 5739	8/31/80	09:45	1:15,000	+1.0 feet - Lake Superior Low Water Datum

REMARKS
Lake Superior Low Water Datum = 600.00 feet

2. SOURCE OF MEAN HIGH-WATER LINE: SHORELINE:

Shoreline was compiled from the above listed photographs and represents the visible line of contact between the water level and land features.

3. SOURCE OF MEAN LOW-WATER OR MEAN LOWER LOW-WATER LINE:

4. CONTEMPORARY HYDROGRAPHIC SURVEYS *(List only those surveys that are sources for photogrammetric survey information.)*

SURVEY NUMBER	DATE(S)	SURVEY COPY USED	SURVEY NUMBER	DATE(S)	SURVEY COPY USED

5. FINAL JUNCTIONS

NORTH	EAST	SOUTH	WEST
No Contempary Survey	No Contempary Survey	TP-01082 - TP-01081	No Contemporary Survey

REMARKS

NOAA FORM 76-36B
(3-72)

NOAA FORM 76-36C
(3-72)

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

TP-01078

HISTORY OF FIELD OPERATIONS

I. ☐ FIELD INSPECTION OPERATION ☒ FIELD EDIT OPERATION

OPERATION		NAME	DATE
1. CHIEF OF FIELD PARTY		CDR Frank P. Rossi	
2. HORIZONTAL CONTROL	RECOVERED BY	E. Steigerwald	7/81
	ESTABLISHED BY		
	PRE-MARKED OR IDENTIFIED BY		
3. VERTICAL CONTROL	RECOVERED BY	NA	
	ESTABLISHED BY		
	PRE-MARKED OR IDENTIFIED BY		
4. LANDMARKS AND AIDS TO NAVIGATION	RECOVERED (*Triangulation Stations*) BY	E. Steigerwald, L. Neterer	6/81
	LOCATED (*Field Methods*) BY		
	IDENTIFIED BY		
5. GEOGRAPHIC NAMES INVESTIGATION	TYPE OF INVESTIGATION ☐ COMPLETE ☐ SPECIFIC NAMES ONLY ☒ NO INVESTIGATION — BY		
6. PHOTO INSPECTION	CLARIFICATION OF DETAILS BY	E. Steigerwald, L. Neterer	6/81
7. BOUNDARIES AND LIMITS	SURVEYED OR IDENTIFIED BY	NA	

II. SOURCE DATA

1. HORIZONTAL CONTROL IDENTIFIED

2. VERTICAL CONTROL IDENTIFIED
NA

PHOTO NUMBER	STATION NAME	PHOTO NUMBER	STATION DESIGNATION
80 EC 5735	Duluth TV Station WEBC, Mast 1952 Duluth Cath. or Me. Church Spire, 1905 Duluth General Elevator Flagstaff, 1952 Duluth Central HS Cupola Spire ~~Aerial Bridge SW Column Of N Pier~~		

3. PHOTO NUMBERS (*Clarification of details*)
80 EC 5737, 5738

4. LANDMARKS AND AIDS TO NAVIGATION IDENTIFIED

PHOTO NUMBER	OBJECT NAME	PHOTO NUMBER	OBJECT NAME
80 EC 5735	Stack		
5737	Tank		
5737	Tank		
5737	Flagpole		
5737	TV Mast, Taller of Two		

5. GEOGRAPHIC NAMES: ☐ REPORT ☒ NONE

6. BOUNDARY AND LIMITS: ☐ REPORT ☒ NONE

7. SUPPLEMENTAL MAPS AND PLANS
None

8. OTHER FIELD RECORDS (*Sketch books, etc.* DO NOT *list data submitted to the Geodesy Division*)
Master Field Edit Print, Plane Table Print, Photos 80EC5737, 5738, 5735, Form 76-40's (3), Field Edit Report.

*U.S. GOVERNMENT PRINTING OFFICE:1977-765-092

NOAA FORM 76-36D
(3-72)

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

RECORD OF SURVEY USE

TP-01078

I. MANUSCRIPT COPIES

COMPILATION STAGES			DATE MANUSCRIPT FORWARDED	
DATA COMPILED	DATE	REMARKS	MARINE CHARTS	HYDRO SUPPORT
Shoreline, Offshore, Alongshore and Hydro. Postions	Apr 1981	Class III Manuscript Pending Field Edit		April 1981
Field Edit Applied	Sept 1981	Class I Manuscript Pending Final Review	None	
Field Edit Unreviewed		Class I Manuscript Pending Final Review		May 1982
Final Review	May 1982	Final Map	Aug 1982	July 1982

II. LANDMARKS AND AIDS TO NAVIGATION

1. REPORTS TO MARINE CHART DIVISION, NAUTICAL DATA BRANCH

NUMBER	CHART LETTER NUMBER ASSIGNED	DATE FORWARDED	REMARKS
Pages 4	76-40 (S)	Aug 1982	

2. ☐ REPORT TO MARINE CHART DIVISION, COAST PILOT BRANCH. DATE FORWARDED: _____
3. ☐ REPORT TO AERONAUTICAL CHART DIVISION, AERONAUTICAL DATA SECTION. DATE FORWARDED: _____

III. FEDERAL RECORDS CENTER DATA **

1. [XX] BRIDGING PHOTOGRAPHS; [X] DUPLICATE BRIDGING REPORT; [X] COMPUTER READOUTS.
2. ☐ CONTROL STATION IDENTIFICATION CARDS; ☐ FORM NOS 567 SUBMITTED BY FIELD PARTIES.
3. [X] SOURCE DATA *(except for Geographic Names Report)* AS LISTED IN SECTION II, NOAA FORM 76-36C.

ACCOUNT FOR EXCEPTIONS:

** All indicated data will be forwarded to the Federal Record Center upon completion of the entire project.

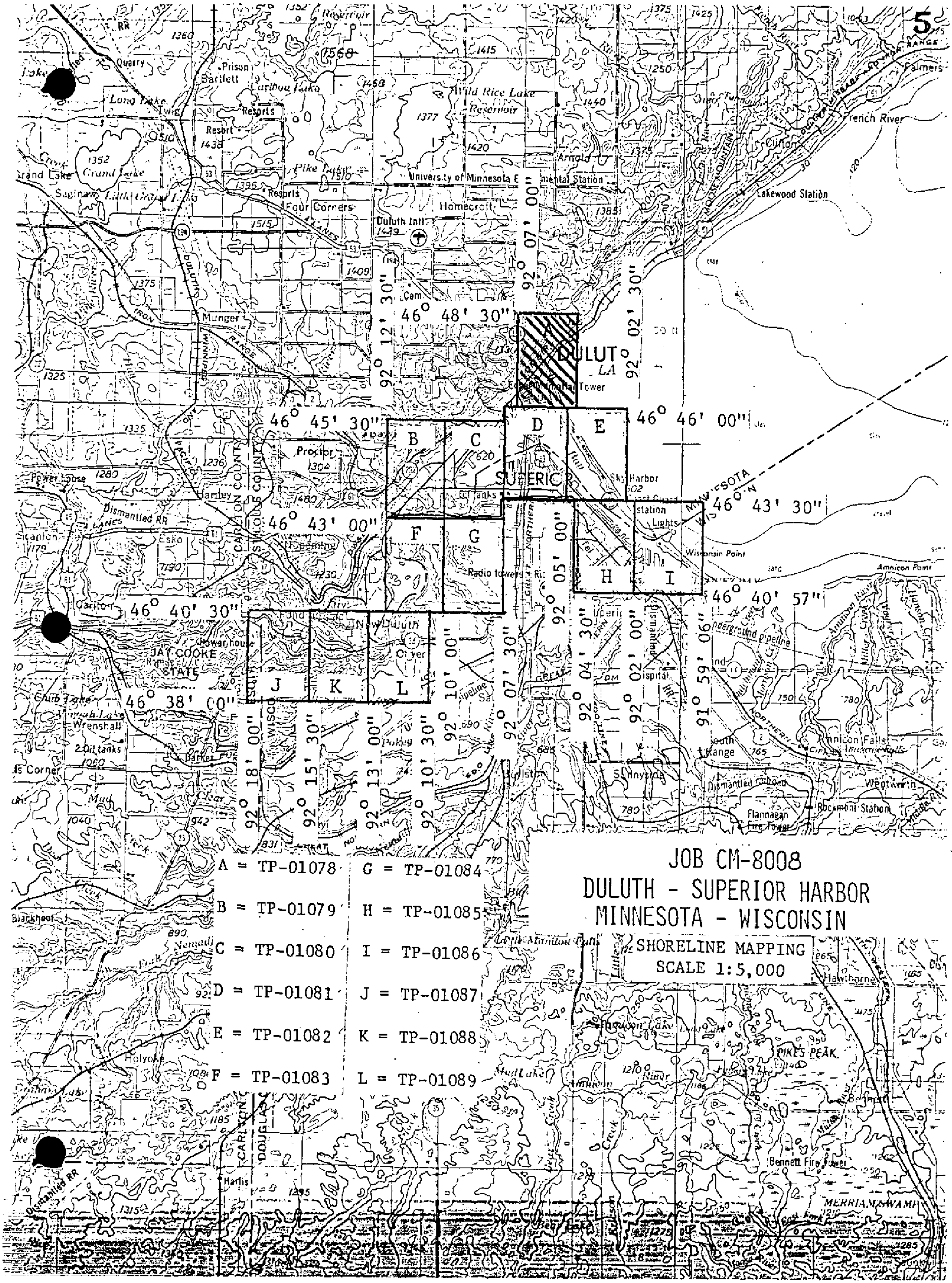
4. ☐ DATA TO FEDERAL RECORDS CENTER. DATE FORWARDED: SEPTEMBER 14, 1982

IV. SURVEY EDITIONS *(This section shall be completed each time a new map edition is registered)*

	SURVEY NUMBER	JOB NUMBER	TYPE OF SURVEY / MAP CLASS
SECOND EDITION	TP - _____ (2)	PH - _____	☐ REVISED ☐ RESURVEY ☐ II. ☐ III. ☐ IV. ☐ V. ☐ FINAL
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	
THIRD EDITION	TP - _____ (3)	PH - _____	☐ REVISED ☐ RESURVEY ☐ II. ☐ III. ☐ IV. ☐ V. ☐ FINAL
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	
FOURTH EDITION	TP - _____ (4)	PH - _____	☐ REVISED ☐ RESURVEY ☐ II. ☐ III. ☐ IV. ☐ V. ☐ FINAL
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	

NOAA FORM 76-36D

★U. S. GOVERNMENT PRINTING OFFICE: 1973--778075/1077 REGION NO. 6


JOB CM-8008
DULUTH - SUPERIOR HARBOR
MINNESOTA - WISCONSIN
SHORELINE MAPPING
SCALE 1:5,000
A = TP-01078
B = TP-01079
C = TP-01080
D = TP-01081
E = TP-01082
F = TP-01083
G = TP-01084
H = TP-01085
I = TP-01086
J = TP-01087
K = TP-01088
L = TP-01089
46° 48' 30"
46° 46' 00"
46° 45' 30"
46° 43' 30"
46° 43' 00"
46° 40' 57"
46° 40' 30"
46° 38' 00"
92° 18' 00"
92° 15' 30"
92° 13' 00"
92° 12' 30"
92° 10' 30"
92° 10' 00"
92° 07' 30"
92° 07' 00"
92° 05' 00"
92° 04' 30"
92° 02' 30"
92° 02' 00"
91° 59' 06"
DULUTH
SUPERIOR
Proctor
Hermantown
Carlton
Esko
Scanlon
Saginaw
Munger
Four Corners
Homecroft
Duluth Intl
Lakewood Station
French River
Wisconsin Point
Oliver
New Duluth
Wrenshall
Holyoke
Sunnyside
Wentworth
Pikes Peak
Hawthorne
Bennett Fire Tower
JAY COOKE STATE
CARLTON COUNTY
ST LOUIS COUNTY
MINNESOTA
WISCONSIN

Summary

TP-01078

This map is one of twelve 1:5,000 scale shoreline maps that comprise Job CM-8008. The purpose of this job is to provide contemporary shoreline data for the support of hydrographic operations and to furnish data for nautical chart revision.

This map portrays the shoreline and alongshore detail of Duluth Superior Harbor, Minnesota and Wisconsin.

Field operations were not planned for TP-01078 through TP-01082, TP-01085 and TP-01086 prior to aerotriangulation. It was anticipated that geodetic intersection stations and photo points established in 1972, by the Lake Survey for CM-7313, TP-00680 be used for horizontal control. In May 1981 field operations provided horizontal control for the lower portion of CM-8008 for the aerotriangulation of TP-01083, TP-01084 and TP-01087 through TP-01089.

Natural color photographs were taken August 31, 1980, with the Wild RC-8(E) camera at 1:15,000 scale which were provided to aerotriangulation and compilation.

Aerotriangulation was performed at the Washington Science Center, Rockville, Maryland. The 1:15,000 natural color photographs were bridged using analytic aerotriangulation methods.

Compilation was performed at the Washington Science Center, Rockville, Maryland, by the Coastal Mapping Section. The interior was limited to detail to the first road adjacent to the shoreline. Detail within this area was kept to a minimum.

Field edit was performed in June 1981 by personnel assigned to the Atlantic Marine Center. Refer to the Field Edit Report bound with this Decriptive Report.

Application of field edit was performed at the Washington Science Center, Rockville, Maryland.

Final Review for this map was performed at the Washington Science Center, Rockville, Maryland, in May 1981. This map complies with the National Standards of Map Accuracy.

A chart Maintenance Print was prepared during the final review and forwarded to the Marine Chart Division. Also, a print copy with notes to the hydrographer was forwarded to the Hydrographic Survey Division, which supercedes the Class III print forwarded April 1981. Accompanying the

above forwarded print copies, are 76-40 forms, listings of landmarks and nonfloating aids to navigation.

The context of this Descriptive Report contains all pertinent reports and listings of data used to compile this Final Map.

A stable base positive copy of this Final Map and the Descriptive Report will be registered in the NOS Archives.

FIELD INSPECTION
TP-01078

There was no field inspection prior to compilation. Field work accomplished was limited to the photo coverage for aerotriangulation and compilation.

Photogrammetric Plot Report

Duluth-Superior Harbor
Minnesota-Wisconsin

CM-8008
December 1980

21. Area Covered

This report covers seven 1:5,000 scale sheets, TP-01078, TP-01079, TP-01080, TP-01081, TP-01082, TP-01085 and TP-01086 of Duluth-Superior Harbor, Minnesota-Wisconsin.

22. Method

Four strips of 1:15,000 scale photography were bridged by analytic aerotriangulation methods and adjusted to ground on the Wisconsin State Plane Coordinate System, Wisconsin North Zone. These four strips provided horizontal and vertical control for compilation. Aids and landmarks were located during the bridging. Using photo control point 31 South Cover Land Spit (761831) as a terminal control point to adjust strip three, it was determined that there is some field discrepancy in the position of this point. Strip three was again adjusted using photo point 35 South Breakwater Light (762804) as a terminal control point. In this adjustment a position for tie point 761804 was established to be used as a terminal control station in adjusting strip four.

Since 761831 is common to strips three and four, strip four was bridged measuring 761831 to provide a terminal control point position for adjusting strip three.

23. Adequacy of Control

Photo control points position within 1.0 and 2.0 meters provided by Great Lakes Revisory Section, geodetic control and tie points were office identified. Although, control held within the accuracy required by National Standards of Maps at 1:15,000 scale, it did not meet NOS requirements. To meet NOS requirements it will be necessary for a photo field party to establish and photoidentify control or to panel control and refly the project.

24. Supplemental Data

Local shoreline and US Geological Survey quadrangles were used to provide vertical elevations for vertical adjustments of bridges.

25. Photography

RC-8 EC photography was used for the four bridging strips. Photography was adequate as to coverage and definition.

Submitted by,

Robert B. Kelly

Approved and Forwarded:

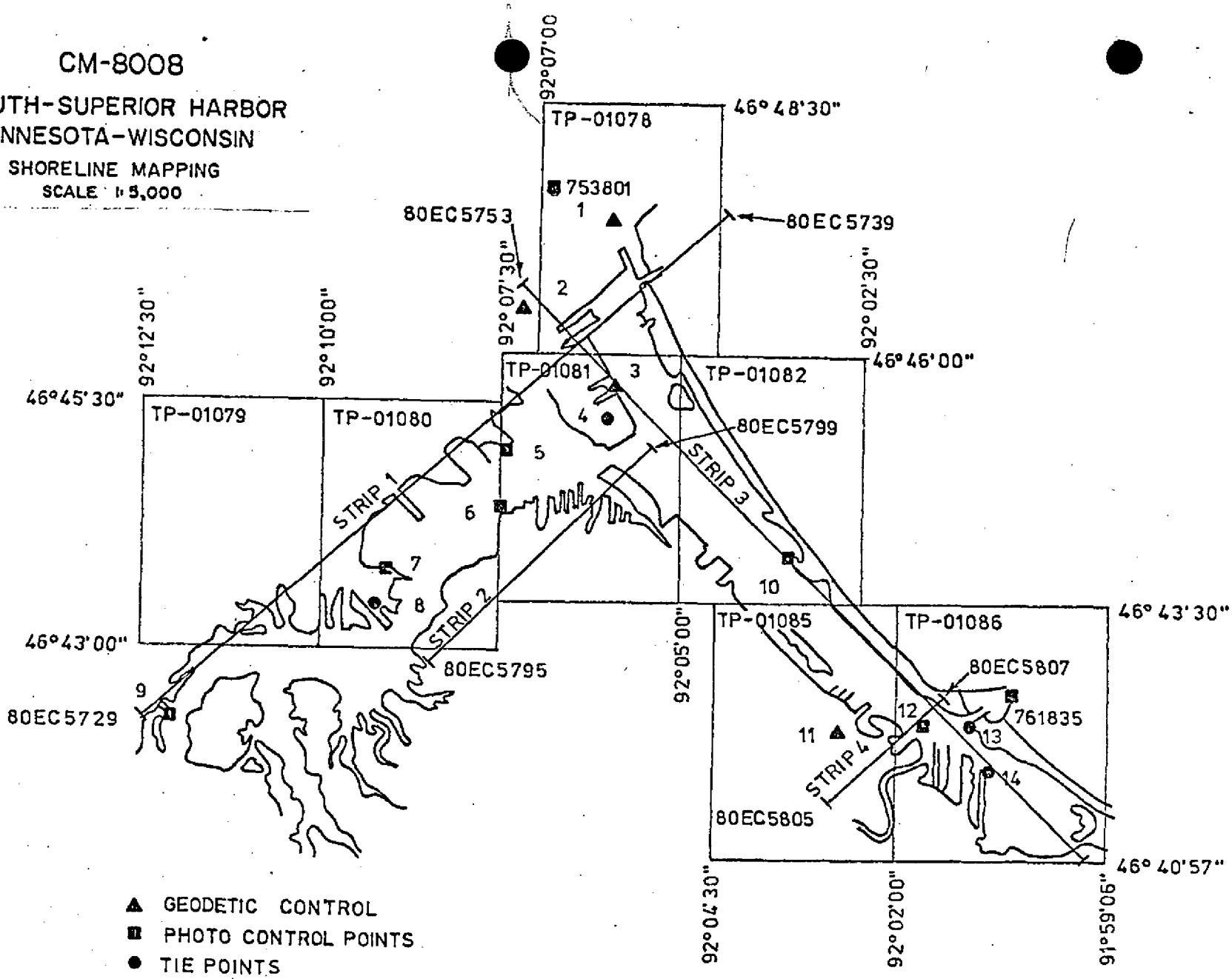
Don O. Norman

Don O. Norman
Chief, Aerotriangulation Section

CM-8008

DULUTH-SUPERIOR HARBOR
MINNESOTA-WISCONSIN

SHORELINE MAPPING
SCALE 1:5,000



Closures to Control
(in feet)

		X	Y
Strip 1			
729870	South Corner Middle Dock	0.0	0.1
733862	Minn. Power & Light Co. Tk.	-0.3	-1.0
735856	West Corner Lakehead Dock	0.1	1.1
738103	Duluth Centrol High Sch. Cupola Spire	0.0	-0.2
Strip 2			
732801	Tie Point	0.0	0.0
797849	West Corner Superior Terminal Dock	0.0	0.0
799801	Tie Point	0.0	0.0
Strip 3			
753120	Duluth Enger Memorial Tower	-0.3	-0.1
736110	Duluth Peavey Elevator Co. Stack, 1921	1.2	0.4
759817	Corner Park Dock	-3.0	0.1
806137	Superior St. Francis Xavier Cath. Church Spire, 1952	2.9	0.9
763831	Tie Point	-0.8	-1.3
Strip 4			
806137	Superior St. Francis Xavier Cath. Church Spire, 1952	0.0	0.0
761843	End Northern Pacific Ry Wall	0.0	0.0
761804	Tie Point	0.0	0.0

ADDENDUM TO CM-8008
DULUTH-SUPERIOR HARBOR
MINNESOTA-WISCONSIN
APRIL 1981

Strip three was remeasured and adjusted to determine positions for hydrographic points and additional landmarks.

Strip four should not be used, because of inadequacy of control.

CLOSURES TO CONTROL FOR STRIP THREE

		X	Y
753801	DULUTH TV STA. WEBC MAST	-1.7	2.3
736120	DULUTH ENGER MEMORIAL TOWER	1.2	-1.3
736110	DULUTH PEAVEY ELEVATOR CO. STACK, 1921	3.2	-1.0
759817	CORNER PARK DOCK	-4.0	-0.3
806137	SUPERIOR ST. FRANCIS XAVIER CATH. CHURCH SPIRE, 1952	1.3	-0.3
761835	SOUTH BREAKWATER LIGHT	1.3	0.4

NOAA FORM 76-41 (6-75)

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

DESCRIPTIVE REPORT CONTROL RECORD

MAP NO.	JOB NO.	GEODETIC DATUM	ORIGINATING ACTIVITY
TP-01078	CM-8008	NA-1927	

COORDINATES IN FEET — STATE: WISCONSIN — ZONE: NORTH

STATION NAME	SOURCE OF INFORMATION (Index)	AEROTRI-ANGULATION POINT NUMBER	COORDINATES IN FEET	GEOGRAPHIC POSITION φ LATITUDE λ LONGITUDE	REMARKS
DULUTH, CATH. OR METH. CHURCH SPIRE 1905	460921 1041	102	x= 1,472,646. ✓	φ 46 47 15.92 ✓	NOT VERIFIED IN
			y= 598,135. ✓	λ 92 06 18.96	AEROTRIANGULATION
DULUTH CENTRAL HIGH SCHOOL, CUPOLA SPIRE 1905	460921 1042	103	x= 1,473,988.40 ✓	φ 46 47 20.60 ✓	VERIFIED IN
			y= 598,573.54 ✓	λ 92 05 59.84 ✓	AEROTRIANGULATION
DULUTH, TV STATION WEBC; MAST, 1952	460921 1059	104	x= 1,470,506.67 ✓	φ 46 47 25.77	verified in
			y= 599,190.45 ✓	λ 92 06 50.09 ✓	AEROTRIANGULATION
[illegible]			x=	φ	
			y=	λ	
AERIAL BRIDGE SW COLUMN OF N. PIER, 1905	460921 1028	107	x= 1,475,620. ✓	φ 46 46 46.13 ✓	NOT IDENTIFIABLE
			y= 595,037. ✓	λ 92 05 35.07 ✓	on photo
~~DULUTH, U.S.C.G. LOOKOUT TOWER, 1952~~	~~460921 1062~~	~~108~~	~~x= 1,476,403.28~~	~~φ 46 46 20.89~~	~~Approx. triangulated~~
			~~y= 592,458.79~~	~~λ 92 05 22.83~~	
[illegible]	[illegible]	112	x= [illegible]	φ [illegible]	[illegible]
			y= [illegible]	λ [illegible]	
DULUTH, GENERAL ELEV. FLAGSTAFF, 1952	460921 1048	121	x= 1,471,138. ✓	φ 46 46 11.55	Not Identifiable
			y= 591,651. ✓	λ 92 06 38.14	on photo
			x=	φ	
			y=	λ	
			x=	φ	
			y=	λ	

COMPUTED BY	DATE	COMPUTATION CHECKED BY	DATE
LISTED BY J. TAYLOR	DATE 3-81	LISTING CHECKED BY P. DEMPSEY	DATE 3-81
HAND PLOTTING BY	DATE	HAND PLOTTING CHECKED BY	DATE

SUPERSEDES NOAA FORM 76-41, 2-71 EDITION WHICH IS OBSOLETE.

Compilation Report
TP-01078

31. Delineation

This map manuscript was compiled using the B-8 stereoplotter holding to pass points established by the Aerotriangulation Section. Compilation was limited to a narrow band adjacent to the shoreline. Detail within this area was kept to a minimum. Refer to Item 46.

32. Control

Refer to the Aerotriangulation Report for the adequacy of the horizontal control.

The vertical control was taken from USGS quadrangle maps and used in leveling during instrument compilation.

33. Supplemental Data - None

34. Contours and Drainage

Contours are not applicable. Drainage was compiled as shown on photos.

35. Shoreline and Alongshore Detail

The shoreline was compiled as shown on the photography using the water level at the time of the photography. The shoreline and alongshore detail was compiled by office interpretation of the photography.

36. Offshore Detail

Numerous rocks, pier ruins, and piling were delineated as shown on the photography.

37. Landmarks and Aids

The position for three aids to navigation were furnished by the Aerotriangulation Section.

The positions for ten landmarks were furnished by the Aerotriangulation Section. One landmark was located in compilation using the B-8 stereoplotter.

38. Control for Future Surveys

Photo-hydro points were established for use by the hydrographer. Positions were determined by analytical methods and a copy bound with this report.

39. Junctions

Junctions were made with TP-01082 to the southeast and TP-01081 to the southwest. There are no contemporary surveys to the north, east, and west of this manuscript.

40. through 45. Inapplicable

46. Comparison with Existing Maps

Continued comparison was made with TP-00680, compiled at a scale of 1:15,000 using the format for chart 14975 and intended as a new base for this chart, but has yet to be applied. Although, some duplication of features exist, the interior detail shown on TP-01078 consists mainly of features that have been constructed or changed since TP-00680 was compiled. This survey is not intended to supercede the interior portion of TP-00680 but should be used only to add those new features compiled.

Comparison was made with the following USGS 7.5 minute quadrangle map:

Duluth, Minn., 1953, photorevised by 1967 and 1975 photography, scale 1:24,000

47. Comparison with Nautical Charts

Refer to Item 46. Comparison was made with Nautical Chart 14975, 26th Edition, dated April 26, 1980, scale of 1:15,000.

Items to be applied to Nautical Charts immediately - None

Items to be carried forward - None

Submitted by,

James Taylor

J. Taylor

Approved and Forwarded:

Frank Wright

F. Wright
Chief, Coastal Mapping Section

ADDENDUM TO COMPILATION REPORT

Photogrammetric data previously furnished (during the 1981 field season) for use as possible hydrographic control signal sites in the Duluth-Superior Harbor area should not be used and was not bound with this report.

Robert B. Kelly

FIELD EDIT REPORT
TP-01076

51. Method

A 19-foot MonArk outboard boat was used to inspect the entire shoreline from the water. All changes were noted on the master field edit print and photographs 80EC5737 and 5738. A plane table survey was used to verify landmarks and fixed aids to navigation.

52. Adequacy of Compilation

Compilation of this manuscript was very good. The scale of the photography, and the fact that it was flown so recently helped make the field edit go smoothly. The biggest discrepancy was in areas which had been compiled as grassy areas, but turned out to be simply shallow water. There were also some minor discrepancies in the shoreline interpretation of areas in ruin, but these were easily resolved by field inspection.

53. Map Accuracy

Refer to Photogrammetric Plot Report, CM-8008 for statement of map accuracy of horizontal control.

54. Recommendations

Photo centers should be shown on all manuscripts. This will make it easier for the field editor to orient the photos, and to determine which photos to use to locate features.
Some chronopaque photos for this manuscript were not sent with the project. All these photos should be supplied.
Assistance with field edit by office compilers should be continued. Office personnel will benefit from the field experience, and can offer valuable expertise to the ships.

55. Examination of Proof Copy

No statement.

Chief of Party

Frank P. Rossi

CDR Frank P. Rossi

Respectfully submitted,

Lowell O. Neterer, Jr.

Elizabeth A. Steigerwald

ENS Elizabeth A. Steigerwald

Review Report
Shoreline Survey
TP-01078

61. General Statement

A final review was performed for this shoreline map. No major discrepancies were encountered. For a complete analysis of compilation, refer to the Compilation Report bound with this Descriptive Report.

62. Comparison with Registered Topographic Surveys - None

63. Comparison with Maps of Other Agencies

Refer to the Compilation, paragraph 46, bound with this Descriptive Report.

64. Comparison with Contemporary Hydrographic Surveys - None

65. Comparison with Nautical Charts

Refer to the Compilation Report, paragraph 47, bound with this Descriptive Report.

66. Adequacy of Results and Future Surveys

This map complies with photogrammetric instructions for shoreline mapping and meets accuracy required by National Standards of Maps.

Submitted by,

Robert B. Kelly
Final Reviewer

Approved:

George M. Ball
Chief, Photogrammetric Branch

for John D. Bossler, Jr.
Walter S. Simmons
Chief, Photogrammetry Division

June 3, 1982

GEOGRAPHIC NAMES

FINAL NAME SHEET

CM-8008, (Duluth-Superior Harbor, Minn. - Wis.)

TP-01078

Duluth

Duluth Missabe and Iron Range (RY)

Duluth Ship Canal

Lake Superior

Minnesota Point

Rices Point

Soo Line (RR)

Superior Bay

Approved by:

Charles E. Harrington

Charles E. Harrington
Chief Geographer, OA/C3x5

Information on Dissemination of Project Material

CM-8008

Duluth-Superior Harbor Minnesota & Winconsin

National Archives/Federal Record Center

Aerotriangulation Photographs

Plot Report

Computer Printouts

Control Identification Cards (Horizontal)

NOAA Form(s) 76-41 (Descriptive Report Control Record)

Master Field Edit Sheets

Project Diagrams

Listing of Hydrographic Control Points

Listing of Plotted Points

Ratio Photographs

Bureau Archives

- Registered Maps
- Descriptive Reports

Reproduction Division

- 8X Reduction Negative of Each Map

Office of Staff Geographer

- Geographer Names Standard

Marine Chart Division

- Chart Maintenance Print

SVY TP-01078	RPT UNIT CMD, ROCKVILLE MD.	PAGE 1 OF 4	
JOB CM8008	STATE MINNESOTA-WISCONSIN		
PRJ .	LOCALITY DULUTH SUPERIOR HBR	ORIGINATING ACTIVITY	
DTM NAD1927	DATE 09/01/81	COMPILATION	

OBJECTS INSPECTED FROM SEAWARD	E.STEIGERWALD, L.NETERER	HYDROGRAPHIC PARTY
POSITIONS DETERMINED AND/OR VERIFIED BY FIELD AND OFFICE ACTIVITIES	E.STEIGERWALD, W.DEWHURST	FIELD REPRESENTATIVE
	JAMES H.TAYLOR	OFFICE COMPILER
	N/A	DIGITIZER
	ALFRED BETHEA	DATA PROCESSER

KEY FOR ENTRIES UNDER METHOD AND DATE OF LOCATION

OFFICE

1. OFFICE IDENTIFIED AND LOCATED OBJECTS. THE NUMBER AND DATE (INCLUDING MONTH, DAY AND YEAR) OF THE PHOTOGRAPH USED TO IDENTIFY AND LOCATE THE OBJECT ARE SHOWN.
   EXAMPLE 75E(C)6042
   8-12-77

FIELD

1. NEW POSITION DETERMINED OR VERIFIED
   KEY TO SYMBOLS

F-FIELD	P-PHOTOGRAMMETRIC
L-LOCATED	VIS-VISUALLY
V-VERIFIED	
1-TRIANGULATION	5-FIELD IDENTIFIED
2-TRAVERSE	6-THEODOLITE
3-INTERSECTION	7-PLANETABLE
4-RESECTION	8-SEXTANT

   A. FIELD POSITIONS* SHOW THE METHOD OF LOCATION AND DATE OF FIELD WORK.
   EXAMPLE F-2-6-L
   8-12-76

*FIELD POSITIONS ARE DETERMINED BY FIELD OBSERVATIONS BASED ENTIRELY UPON GROUND SURVEY METHODS

FIELD(CONT,D)

B. PHOTOGRAMMETRIC FIELD POSITIONS** SHOW THE METHOD OF LOCATION OR VERIFICATION, DATE OF FIELD WORK AND NUNBER OF PHOTOGRAPH USED TO LOCATE AND IDENTIFY THE OBJECT.
EXAMPLE P-8-V
8-12-77
74L(C)2982

2. TRIANGULATION STATION RECOVERED
   WHEN A LANDMARK OR AID WHICH IS ALSO A TRIANGULATION STATION IS RECOVERED, A TRIANG. REC. WITH DATE OF RECOVERY IS SHOWN.
   EXAMPLE TRIANG. REC.
   8-12-76

3. POSITION VERIFIED VISUALLY ON PHOTOGRAPH SHOWN BY V-VIS AND DATE.
   EXAMPLE V-VIS
   8-12-75

**PHOTOGRAMMETRIC FIELD POSITIONS ARE DEPENDENT ENTIRELY, OR IN PART, UPON CONTROL ESTABLISHED BY PHOTOGRAMMETRIC METHODS.

NOTE: WHERE THE NAME OF AN AID INCLUDES THE IMMEDIATE GEOGRAPHIC HEADING UNDER WHICH IT IS LISTED, A DASH (-) IS USED TO INDICATE THE GEOGRAPHIC HEADING WHICH IS PART OF THE OFFICIAL NAME.

76-40 LISTING

PHOTOGRAMMETRIC BRANCH
PHOTOGRAMMETRY DIVISION

NATIONAL OCEAN SURVEY NOAA
DEPARTMENT OF COMMERCE USA

DATATAB VERSION 782707

SVY TP-01078		RPT UNIT CMD, ROCKVILLE MD.	PAGE 2 OF 4	
JOB CM8008	NONFLOATING AIDS FOR CHARTS	STATE MINNESOTA-WISCONSIN		
PRJ .	TO BE REVISED	LOCALITY DULUTH SUPERIOR HBR	ORIGINATING ACTIVITY	
DTM NAD1927		DATE 09/01/81	COMPILATION	

THE FOLLOWING OBJECTS HAVE NOT BEEN INSPECTED FROM SEAWARD TO DETERMINE THEIR VALUE AS LANDMARKS

CHARTING NAME	DESCRIPTION RECORD REASON FOR DELETION PUT TRIANGULATION NAMES IN ( )	POSITION LATITUDE LONGITUDE	DM DP	CMD ALTEK DGTZD	METHOD AND DATE OF LOCATION OFFICE	FIELD	CHARTS AFFECTED
	DULUTH-SUPERIOR HARBOR						
	DULUTH HARBOR						
-LIGHT	SOUTH BREAKWATER OUTER LIGHT	46 46 48.46 92 05 15.02	1496.4 318.6	NOT DGTZD	80EC5737 08/31/80	V-VIS 06/ /81	14975
-LIGHT	NORTH PIER LIGHT	46 46 51.55 92 05 17.06	1591.8 361.9	NOT DGTZD	80EC5737 08/31/80	V-VIS 06/ /81	14975 14966
-LIGHT	SOUTH BREAKWATER INNER LIGHT	46 46 43.58 92 05 30.53	1345.7 647.7	NOT DGTZD	80EC5737 08/31/80	V-VIS 06/ /81	14975 14966
-LIGHT 2	MARINA LIGHT 2	46 46 23.13 92 05 38.73	714.2 821.7	NOT DGTZD		P-5 06/ /81 80EC(C)5717	14975
-LIGHT 4	MARINA LIGHT 4	46 46 17.85 92 05 35.22	551.2 747.3	NOT DGTZD		P-5 06/ /81 80EC(C)5717	14975

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SVY TP-01078 | JOB CM8008 | PRJ . | DTM NAD1927

LANDMARKS FOR CHARTS TO BE REVISED

RPT UNIT CMD, ROCKVILLE MD. | STATE MINNESOTA-WISCONSIN | LOCALITY DULUTH SUPERIOR HBR | DATE 09/01/81

ORIGINATING ACTIVITY: COMPILATION

THE FOLLOWING OBJECTS HAVE BEEN INSPECTED FROM SEAWARD TO DETERMINE THEIR VALUE AS LANDMARKS

CHARTING NAME	DESCRIPTION: RECORD REASON FOR DELETION; PUT TRIANGULATION NAMES IN ( )	POSITION: LATITUDE / LONGITUDE	DM / DP	CMD ALTEK / DGTZD	METHOD AND DATE OF LOCATION: OFFICE	FIELD	CHARTS AFFECTED
RTR	(DULUTH TV STATION WEBC,MAST, 1952)	46 47 25.78 92 06 50.09	796.1 1062.4	NOT DGTZD	TRIANG	TRIANG REC 07/12/81	14975 14966
TOWER	(DULUTH CENTRAL HIGH SCHOOL, CUPOLA,SPIRE, 1905)	46 47 20.60 92 05 59.84	636.1 1269.2	NOT DGTZD	TRIANG	TRIANG REC 07/12/81	14975
STACK		46 47 08.64 92 05 48.14	266.8 1021.1	NOT DGTZD	80EC5737 08/31/80	F-3-7-V 07/12/81	14975
TANK		46 46 58.78 92 05 45.46	1815.1 964.3	NOT DGTZD	80EC5737 08/31/80	F-3-7-V 07/12/81	14975
TANK		46 46 58.95 92 05 44.96	1820.3 953.7	NOT DGTZD	80EC5737 08/31/80	F-3-7-V 07/12/81	14975
FLAG POLE		46 46 48.84 92 05 32.39	1508.2 687.1	NOT DGTZD	80EC5737 08/31/80	F-3-7-V 07/12/81	14975
FLAG POLE	(DULUTH GENERAL ELEVATOR FLAGSTAFF,1952)	46 46 11.55 92 06 38.14	356.7 809.2	NOT DGTZD	TRIANG	TRIANG REC	14975
TV MAST	TALLER OF TWO	46 47 21.35 92 06 50.72	659.3 1075.8	NOT DGTZD	80EC5737 08/31/80	F-3-7-V 07/12/81	14975 14966

76-40 LISTING

PHOTOGRAMMETRIC BRANCH
PHOTOGRAMMETRY DIVISION

NATIONAL OCEAN SURVEY NOAA
DEPARTMENT OF COMMERCE USA

DATATAB VERSION 782707

SVY TP-01078	LANDMARKS FOR CHARTS TO BE DELETED	RPT UNIT CMD, ROCKVILLE MD.	PAGE 4 OF 4
JOB CM8008		STATE MINNESOTA-WISCONSIN	
PRJ .		LOCALITY DULUTH SUPERIOR HBR	ORIGINATING ACTIVITY
DTM NAD1927		DATE 09/01/81	COMPILATION

THE FOLLOWING OBJECTS HAVE BEEN INSPECTED FROM SEAWARD TO DETERMINE THEIR VALUE AS LANDMARKS

CHARTING NAME	DESCRIPTION RECORD REASON FOR DELETION PUT TRIANGULATION NAMES IN ( )	POSITION LATITUDE LONGITUDE	DM DP	CMD ALTEK DGTZD	METHOD AND DATE OF LOCATION OFFICE	FIELD	CHARTS AFFECTED
RTR	DESTROYED	46 46 18.53 92 05 26.19	572.2 555.7	NOT DGTZD	80EC5737 08/31/80	07/ /81	14975
TOWER	(DULUTH U.S.C.G. LOOKOUT TOWER .1952) DESTROYED	46 46 20.89 92 05 22.84	645.1 484.6	NOT DGTZD	TRIANG	07/ /81	14975
TV MAST	NOT OF LANDMARK VALUE	46 47 18.00 92 06 48.00	555.8 1018.1	NOT DGTZD		07/ /81	14975
NEON SIGN	DESTROYED LETTER "NC"	46 47 00.00 92 06 06.00	.0 127.3	NOT DGTZD		07/ /81	14975
NEON SIGN	DESTROYED FIGURE "1"	46 47 06.00 92 06 00.00	185.3 .0	NOT DGTZD		07/ /81	14975
WS SIG STA	DESTROYED	46 46 24.00 92 05 24.00	741.1 509.2	NOT DGTZD		07/ /81	14975 14966
CHY	NOT OF LANDMARK VALUE	46 46 24.00 92 05 24.00	741.1 509.2	NOT DGTZD		07/ /81	14975
SPIRE	(DULUTH CATH. OR ME. CHURCH, SPIRE, 1905) NOT OF LANDMARK VALUE	46 47 15.92 92 06 18.96	491.6 402.2	NOT DGTZD	TRIANG	07/ /81	14975

FORM C&GS-8352
(3-25-63)

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. ____________________

INSTRUCTIONS

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

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

CHART	DATE	CARTOGRAPHER	REMARKS
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
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