CORPS OF ENGINEERS

U.S. ARMY

92°10'10" W | 92°10'0" W | 92°9'50" W | 92°9'40" W | 92°9'30" W

46°43'10" N

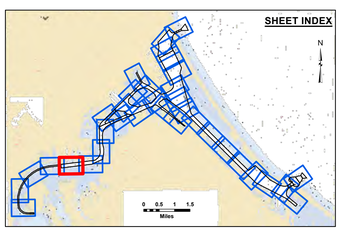
46°43'0" N

46°42'50" N

PROJECT DEPTH 23.0'

275+00 | 274+00 | 273+00 | 272+00 | 271+00 | 270+00 | 269+00 | 268+00 | 267+00 | 266+00 | 265+00 | 264+00 | 263+00 | 262+00 | 261+00 | 260+00 | 259+00 | 258+00 | 257+00 | 256+00 | 255+00 | 254+00 | 253+00 | 252+00 | 251+00 | 250+00 | 249+00 | 248+00 | 247+00 | 246+00 | 245+00 | 244+00 | 243+00 | 242+00 | 241+00 | 240+00 | 239+00 | 238+00 | 237+00 | 236+00

SHEET INDEX



VICINITY MAP



LEGEND

- Cable Submarine
- Cable Overhead
- Contour Lines
- Channel Limits

SOUNDING LEGEND

- LESS THAN PROJECT DEPTH
- PROJECT DEPTH
- PROJECT DEPTH +1'
- PROJECT DEPTH +2'
- PROJECT DEPTH +3'
- PROJECT DEPTH +4'
- PROJECT DEPTH +5'

N
W E
S

1 Inch = 100 Feet

Feet
0 100 200 300 400 500 600

NOTES:

1) THE CHARTED SOUNDINGS REPRESENT THE MINIMUM DEPTH MEASURED AT THE TIME OF THE SURVEY WITHIN THE 10' X 10' AREA CENTERED ON THE TEXT. DERIVED FROM A 1' X 1' AVERAGE DATASET AT CELL CENTER. THIS CHART SHOULD NOT BE USED FOR CHANNEL CLEARANCE OR VOLUME COMPUTATIONS. MINIMUM DEPTH DATA IS PRODUCED FOR STRIKE/SHOAL REMOVAL OPERATIONS AND NOTICE TO NAVIGATION INTERESTS.

2) ALL SOUNDING DEPTHS ARE REFERENCED TO INTERNATIONAL GREAT LAKES DATUM 1985 (IGLD 85) LOW WATER DATUM ELEVATION 601.1 FEET ABOVE MEAN WATER LEVEL AT RIMOUSKI, QUEBEC. WATER LEVEL READINGS WERE OBTAINED WITH REAL TIME KINEMATIC (RTK) GLOBAL POSITIONING SYSTEM (GPS) VALUES THAT HAVE BEEN VERIFIED TO MATCH AUTOMATED NOAA GAGE 9099064 LOCATED AT DULUTH, MINNESOTA. DEPTHS ARE MEASURED USING AN R2SONIC 2024 MULTIBEAM SONAR.

3) HORIZONTAL POSITIONING IS DETERMINED USING RTK GPS CORRECTIONS FROM A BASE STATION LOCATED AT US ARMY CORPS OF ENGINEERS (USACE) CONTROL POINT 100 "CHIMNEY" LOCATED ON THE WAREHOUSE CHIMNEY AT THE USACE VESSEL YARD, 901 MINNESOTA AVENUE, DULUTH, MN. THE GPS RECEIVER IS MANUFACTURED BY APPLANIX MARINE POS/MV VER. 4.0.

4) THE GRID SHOWN REFERENCES LATITUDE/LONGITUDE DISPLAYED AS DEGREES, MINUTES, SECONDS IN 10-SECOND INCRIMENTS.

5) AERIAL PHOTOGRAPHY DATA SOURCE: ESRI, VANTOR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY

US Army Corps of Engineers
District: CELRE

REVISION HISTORY

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U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT

	Surveyed By:	Plotted By:	Checked By:
Submitted:	____	____	____
Recommended: Chief, Survey Section	____	____	____
Approved: Chief, Technical Services	____	____	____

Duluth - Superior Harbor, MN
Duluth Harbor
DH_01_DSH_20260811_CS_31
11 August 2026

Sheet Reference Number
31 of 35

Revision Number:
1.26.04.06-5.26.04.06