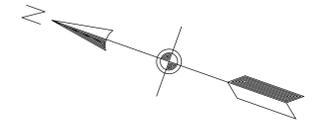


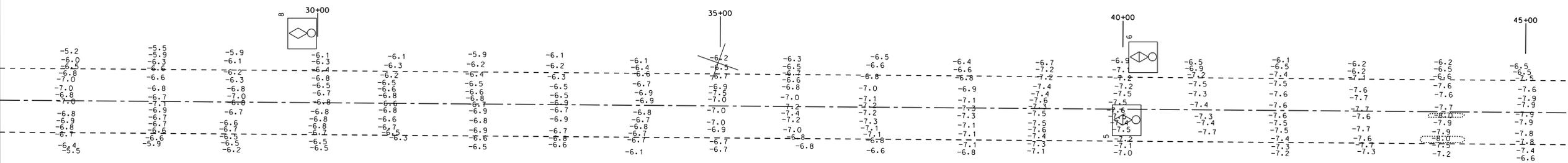


N 134000  
E 13394000

N 133500  
E 13394000

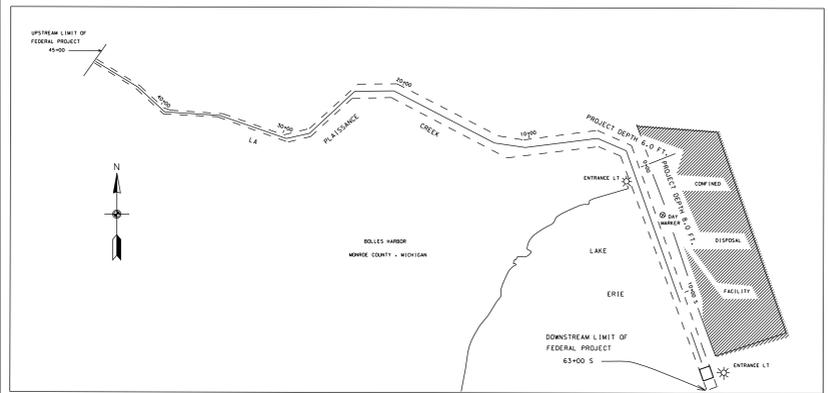


N 137500  
E 13393500



N 134500  
E 13393000

N 133000  
E 13393500



N 134000  
E 13393000

**DIRECTIONS**  
ALL DIRECTIONS ARE GRID AZIMUTHS REFERRED TO NORTH ZERO.

**PROJECT DEPTHS**  
PROJECT DEPTHS ARE AS INDICATED. ALL DEPTHS ARE IN U.S. SURVEY FEET.

**THE AUTOMATED ELECTRONIC SURVEY WAS CONDUCTED BY ROBERT W. POLAK AND ROBERT R. SCHLEME. ABOARD THE USACE SMALL BOAT.**

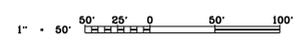
**AUTOMATED EQUIPMENT USED**  
POSITIONING: TRIMBLE DGPS  
SOFTWARE: COASTAL OCEANOGRAPHICS  
SONIC SOUNDER: INNERSPACE 448

**LEGEND**  
THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS AT THE TIME.

**LOW WATER DATUM**  
ELEVATIONS AND PROJECT DEPTHS ARE REFERRED TO INTERNATIONAL GREAT LAKES DATUM (1985). THE LOW WATER DATUM FOR BOLLES HARBOR IS 569.2 FT. ABOVE MEAN SEA LEVEL.

**GRID COORDINATES**  
GRIDS SHOWN ARE BASED ON NATIONAL GEODETIC SURVEY PROJECTION TABLES, STATE OF MICHIGAN, SOUTH ZONE (2113), LAMBERT PROJECTION, 1983 NORTH AMERICAN DATUM.

8.0 FT. PROJECT DEPTH CONTOUR



- NOTES:**
- GAUGES USED WERE REFERENCED FROM A CHISELED MARK ON THE SEA WALL ACROSS THE LA PLAISANCE CREEK FROM THE DNR BOAT RAMP FACILITY. AT APPROXIMATELY CS 2+00N, SET OFF OF THE NGS BM 140TSRR. PID --- MC0305.
  - POSITIONS WERE DETERMINED BY GPS. REFERENCE BEACON 838, LOCATED AT FORT WAYNE, DETROIT, MICHIGAN - FREQUENCY 319 KHZ, 200 BPS.
  - TRANSDUCER FREQUENCY USED TO MEASURE DEPTH DATA WAS 208 KHZ AND THE BEAM ANGLE WAS 3.0 DEGREES.

NO.	DATE	REVISION	BY
1.	21 MAY 2008	SOUNDINGS AND CONTOURS	RWP
2.	21 MAY 2008	UPDATE DIRECTIONS AND NOTES	RWP

**U.S. ARMY ENGINEER DISTRICT, DETROIT  
CORPS OF ENGINEERS  
DETROIT, MICHIGAN**

**BOLLES HARBOR, MICHIGAN  
CONDITION SOUNDINGS  
C.S. 27+00 S TO C.S. 44+00 S  
06 MAY 2008  
DETROIT AREA OFFICE**

DESIGNED BY:	
DRAWN BY:	RWP
CHECKED BY:	
REVIEWED BY:	
SUBMITTED BY:	
APPROVAL RECOMMENDED:	P.E. DATE
CHIEF, PROJ. OPS. SECT.	CHIEF, OPS. BRANCH
APPROVED:	
CHIEF, CONST. DIVISION	P.E. DATE

SCALE AS SHOWN

DRAWING NUMBER: **bol0308c.dgn**  
SHEET 3 OF 6