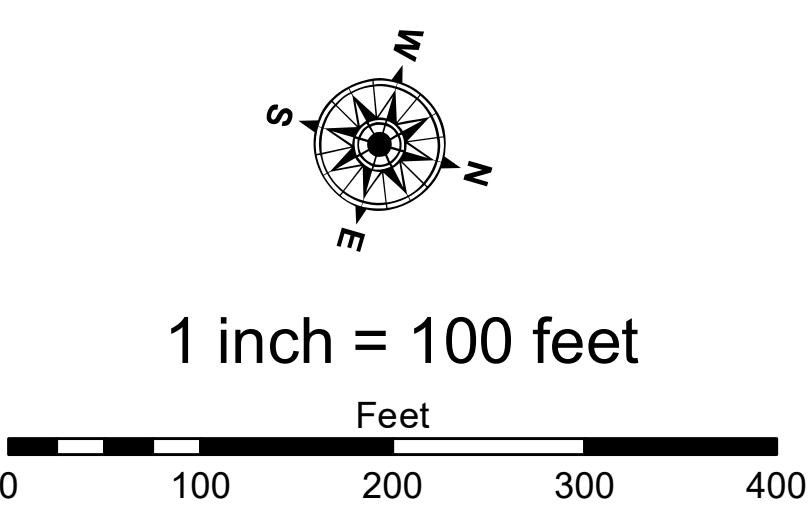


- LEGEND**
- Cable Submarine
 - - Cable Overhead
 - Placement Area
 - Beacon, General
 - Contour Lines
 - Channel_Limits

- SOUNDING LEGEND**
- LESS THAN PROJECT DEPTH
 - PROJECT DEPTH
 - PROJECT DEPTH +1'
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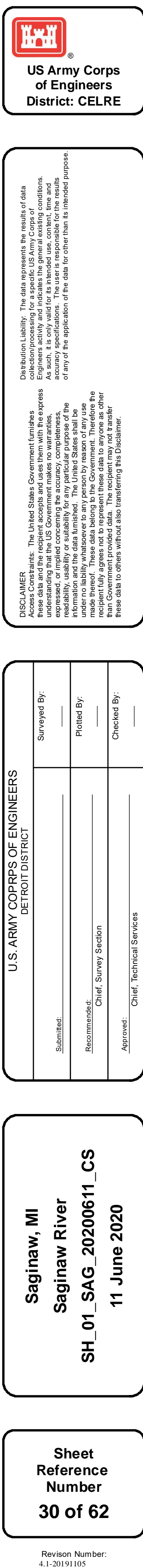
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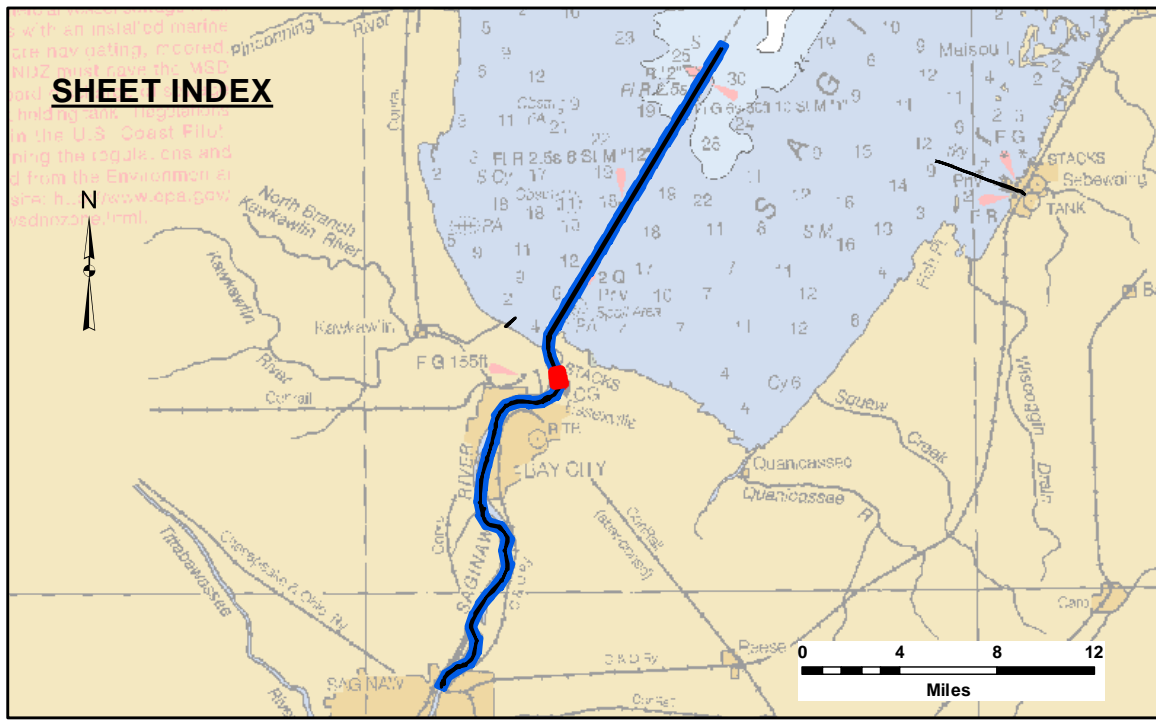
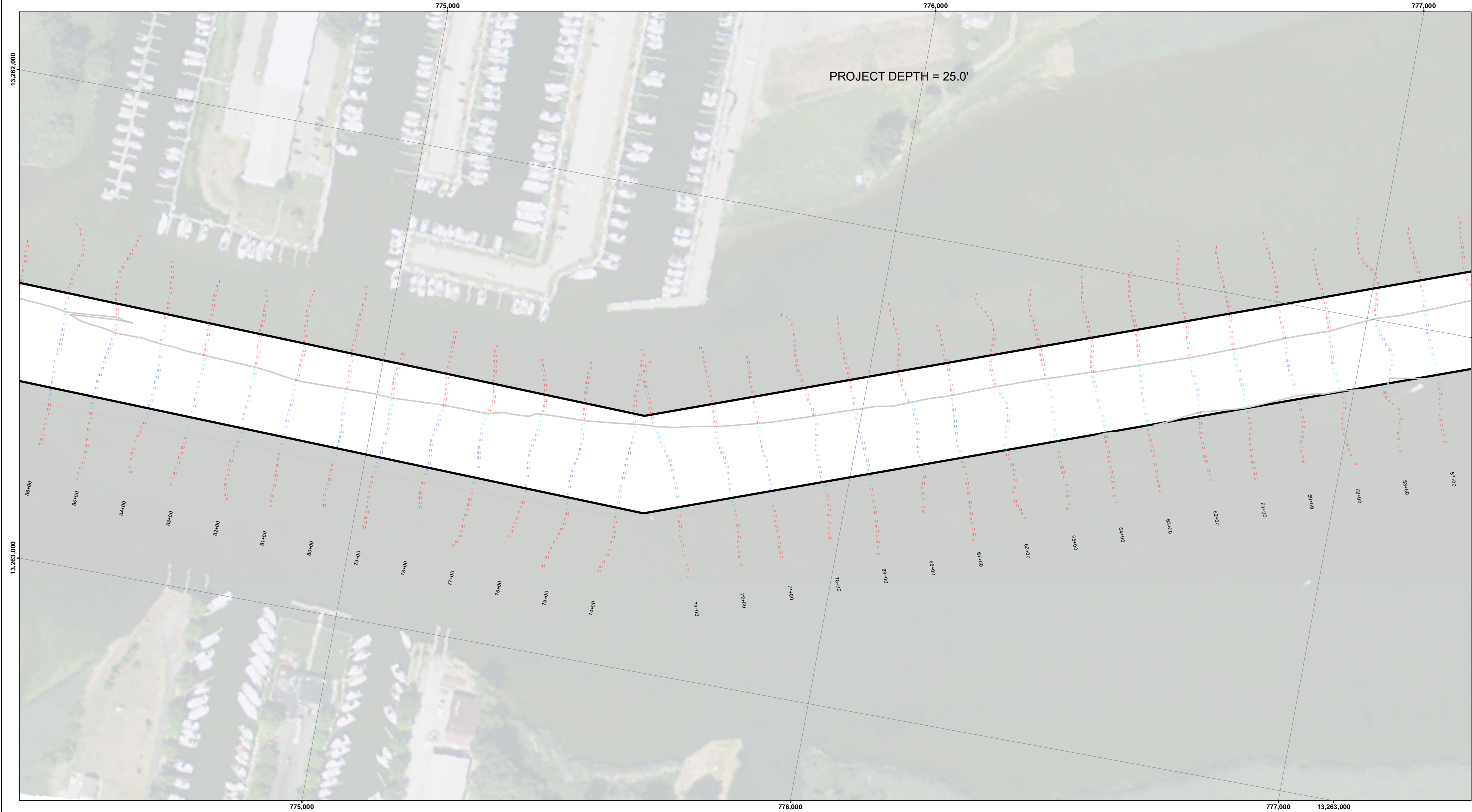
| U.S. ARMY CORPS OF ENGINEERS DETROIT DISTRICT | | |
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| Submitted: | Surveyed By: | |
| Recommended: | Plotted By: | |
| Approved: | Checked By: | |

Saginaw, MI
Saginaw River
SH_01_SAG_20200611_CS
11 June 2020

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Number
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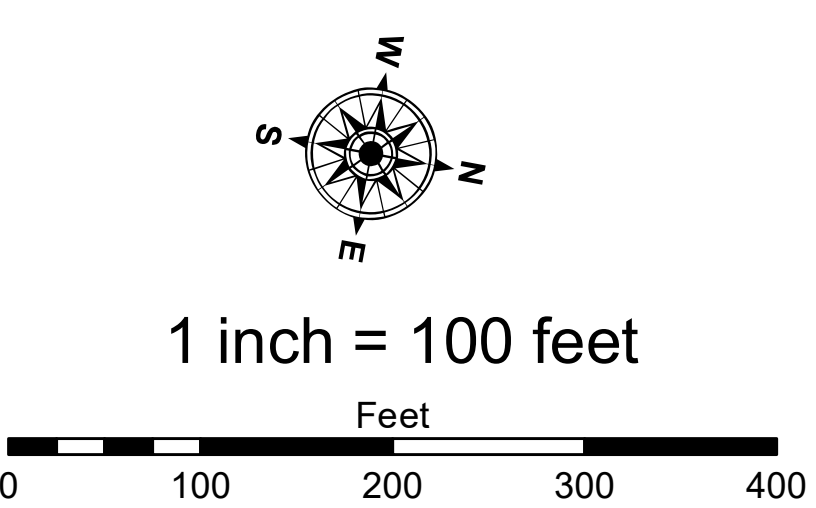
Revision Number:
4.1-20191105





- LEGEND**
- Cable Submarine
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 - Placement Area
 - ⊥ Beacon, General
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SONAR: R2SONIC 2024 (MULTIBEAM) OR ODOM CV-300 (SINGLEBEAM)
SOFTWARE: HYPACK

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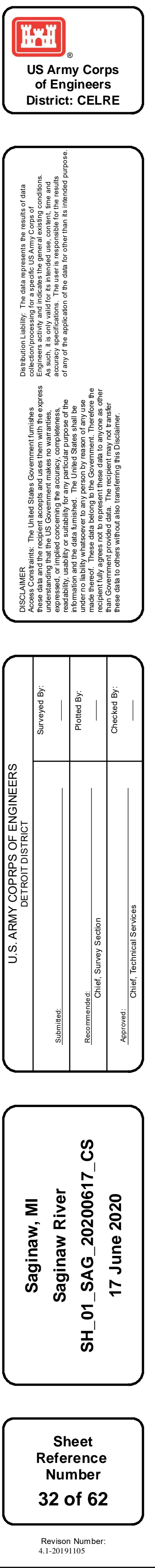


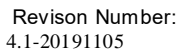
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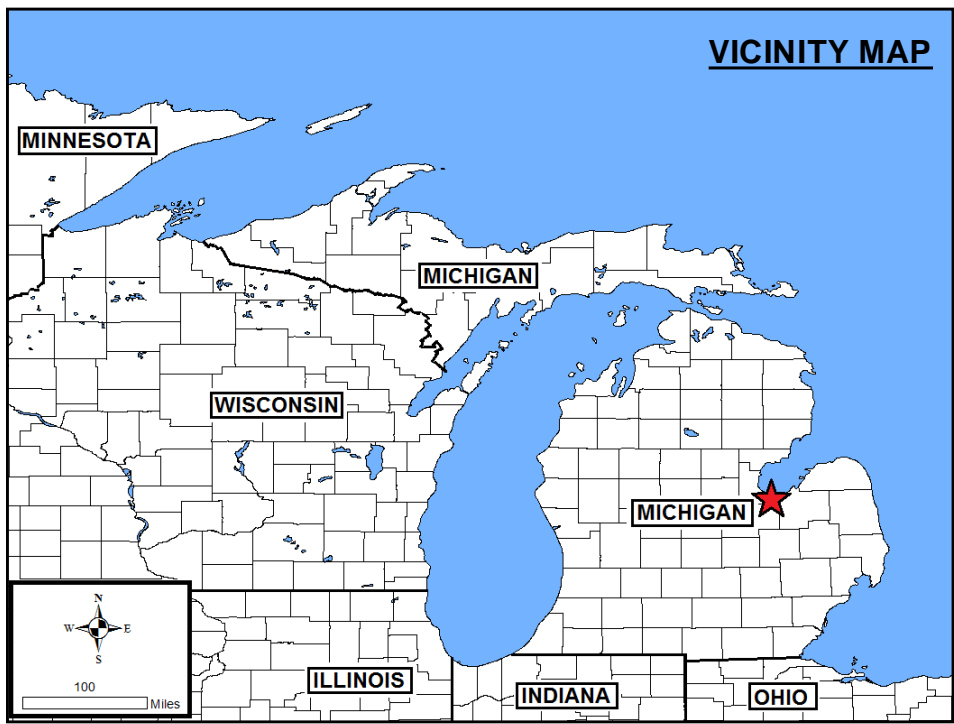
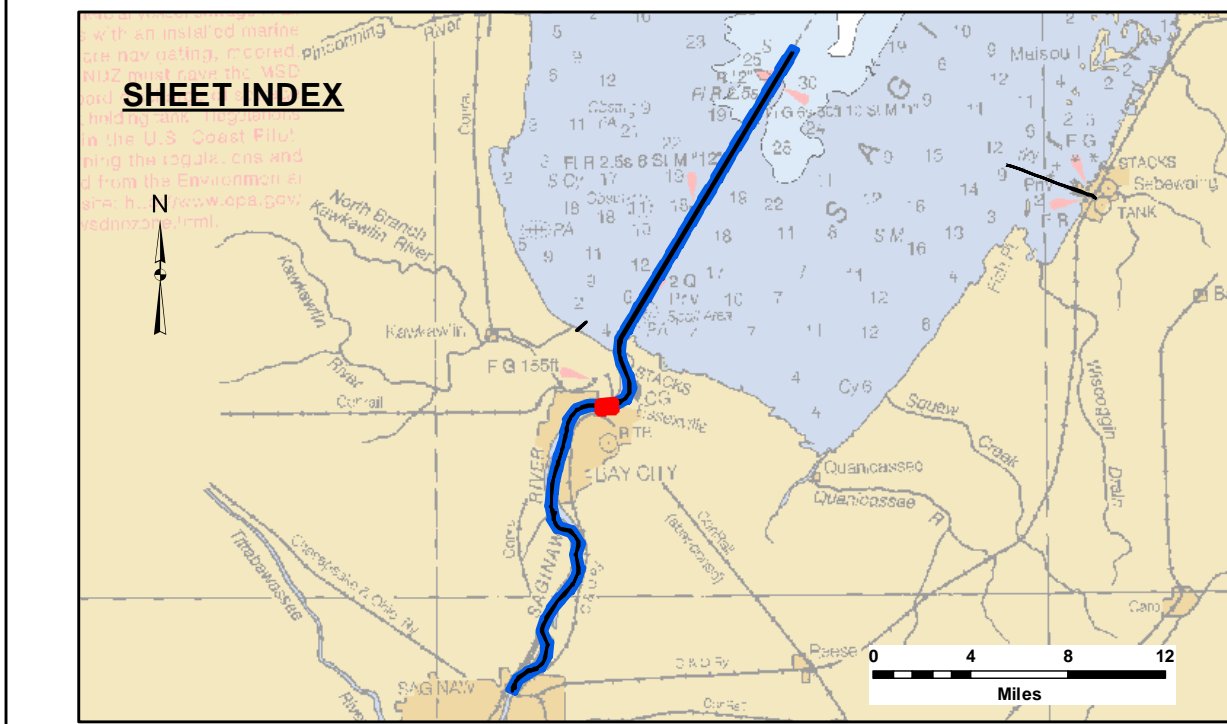
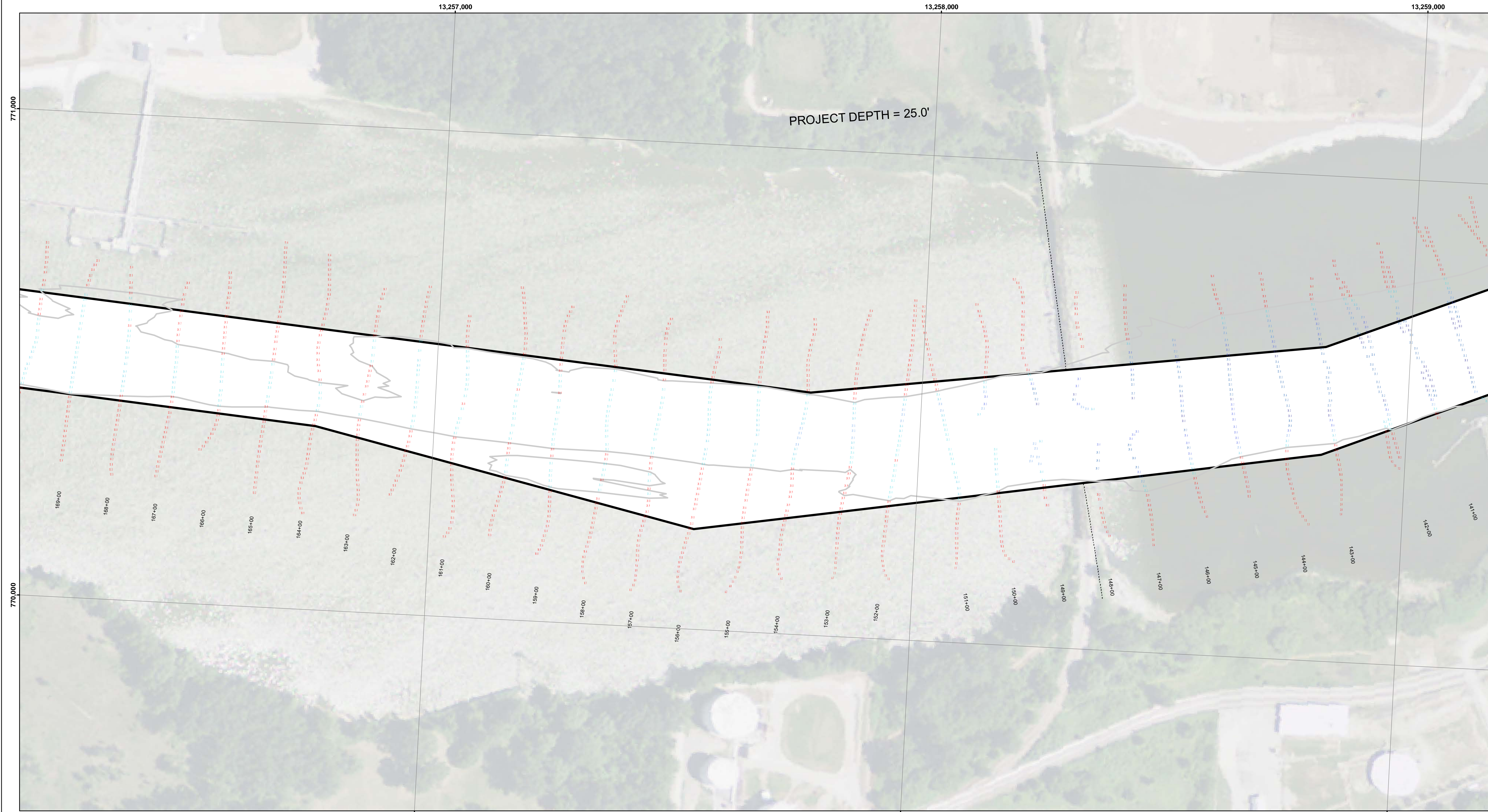
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| U.S. ARMY CORPS OF ENGINEERS DETROIT DISTRICT | | | |
| Submitted: | Surveyed By: | | |
| Recommended: | Plotted By: | | |
| Approved: | Checked By: | | |

Saginaw, MI
Saginaw River
SH_01_SAG_20200611_CS
11 June 2020

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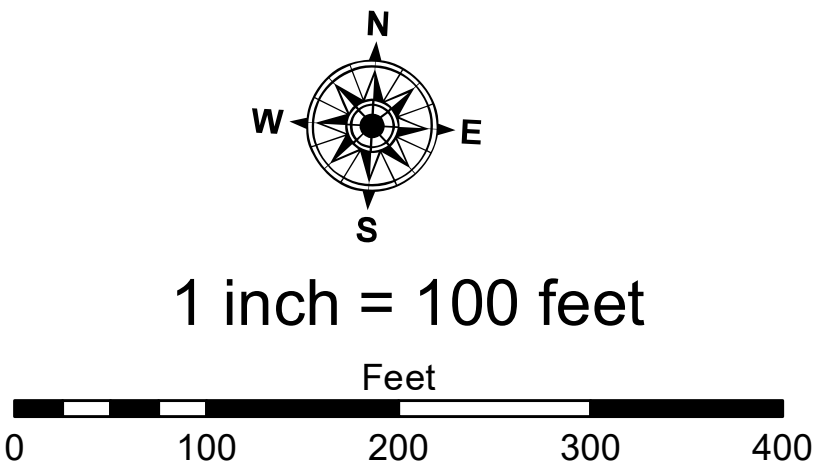






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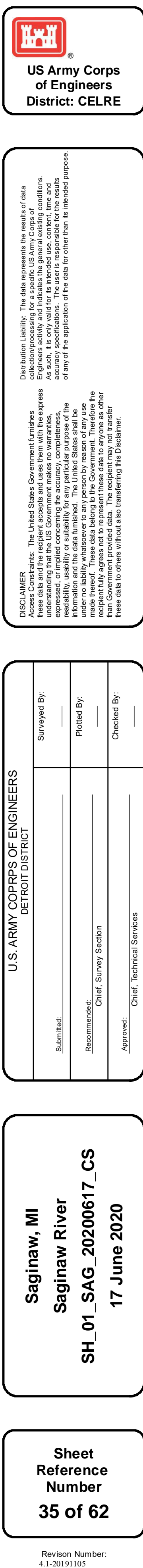
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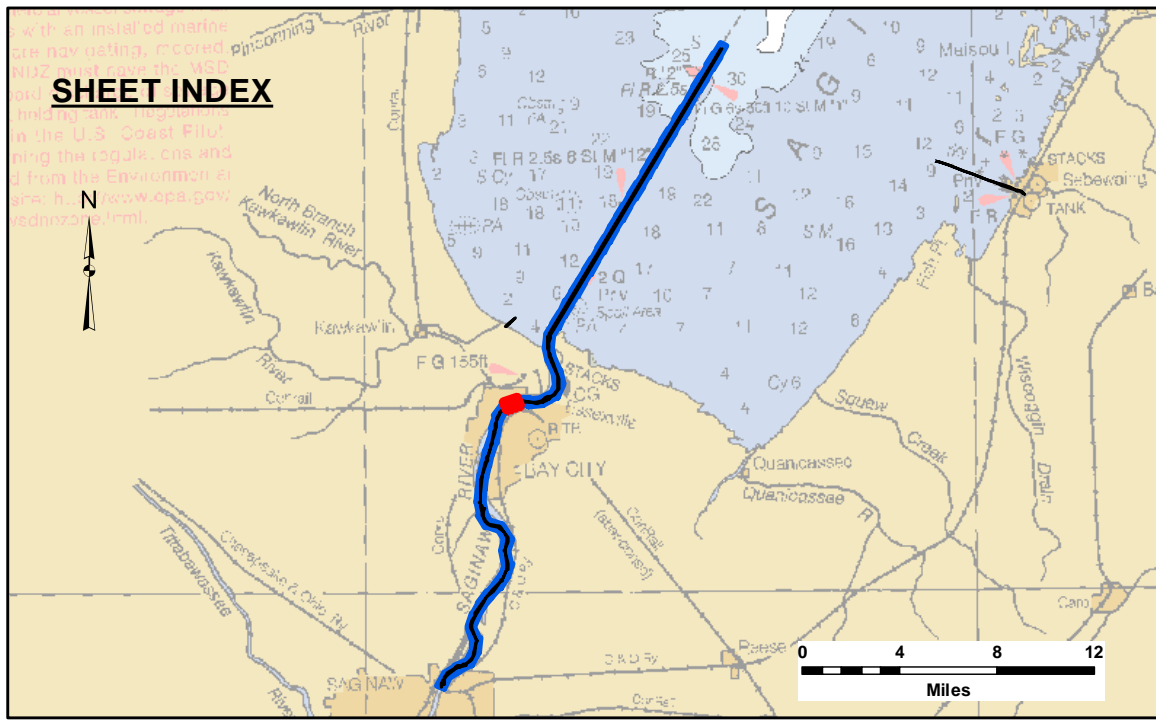
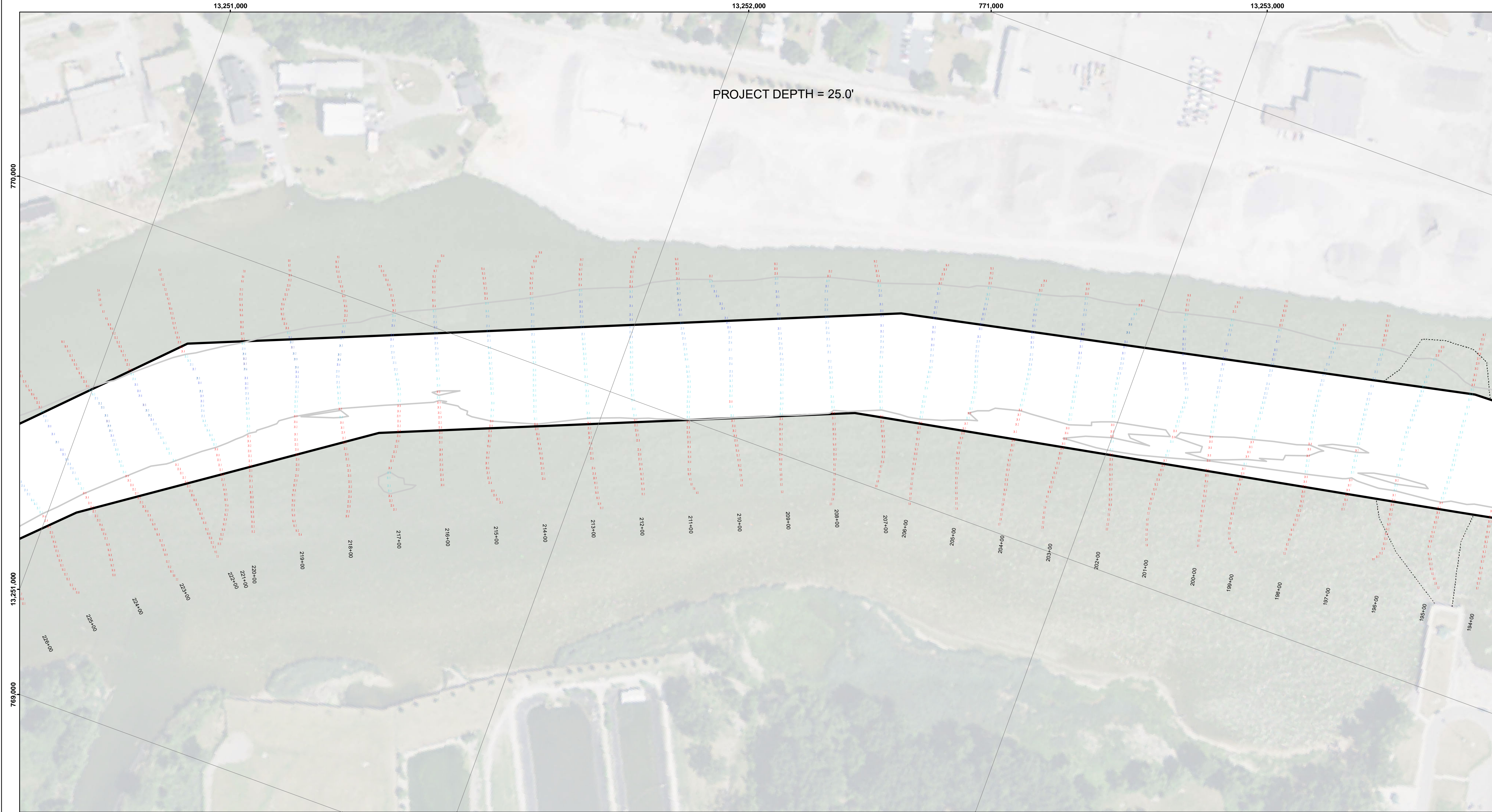
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| U.S. ARMY CORPS OF ENGINEERS DETROIT DISTRICT | Submitted: | Surveyed By: |
| | Recommended: | Plotted By: |
| | Chief, Survey Section | |
| | Approved: | Checked By: |
| | Chief, Technical Services | |

Saginaw, MI
Saginaw River
SH_01_SAG_20200617_CS
17 June 2020

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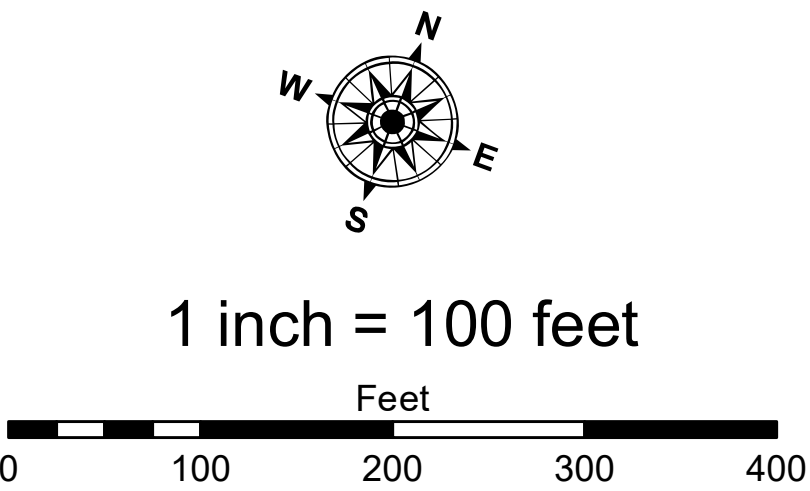
Revision Number:
4.1-20191105





- LEGEND**
- Cable Submarine
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 - Placement Area
 - ⊥ Beacon, General
 - Contour Lines
 - ▭ Channel_Limits

- SOUNDING LEGEND**
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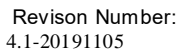
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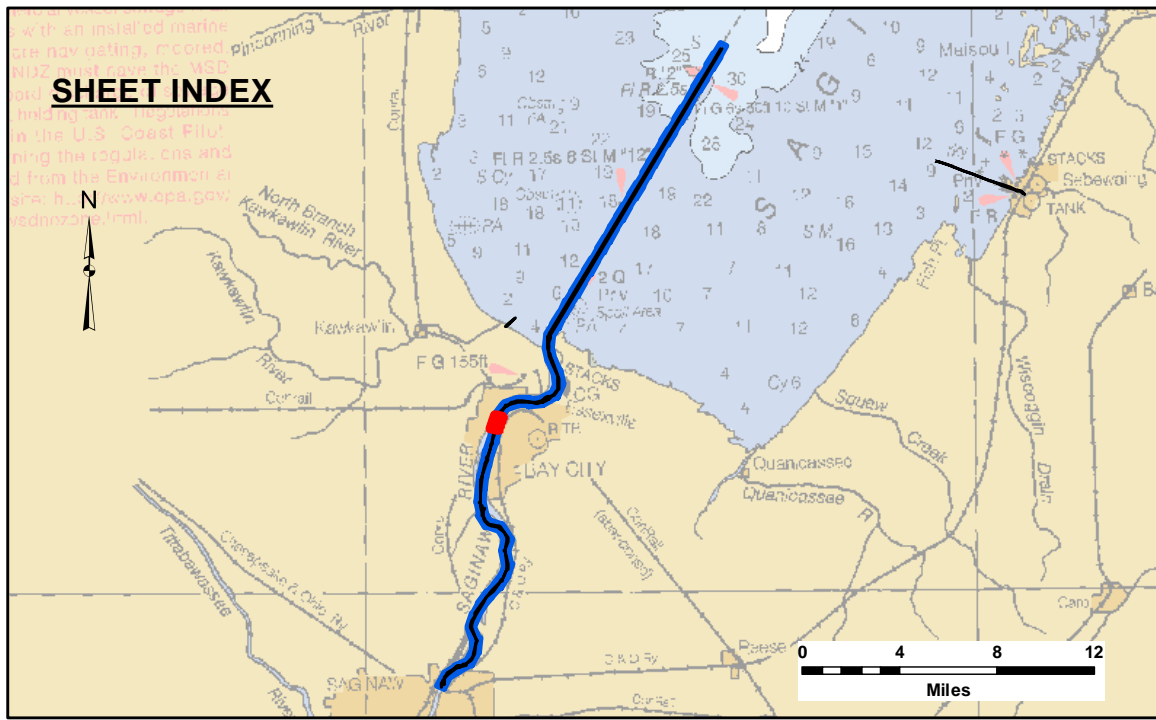
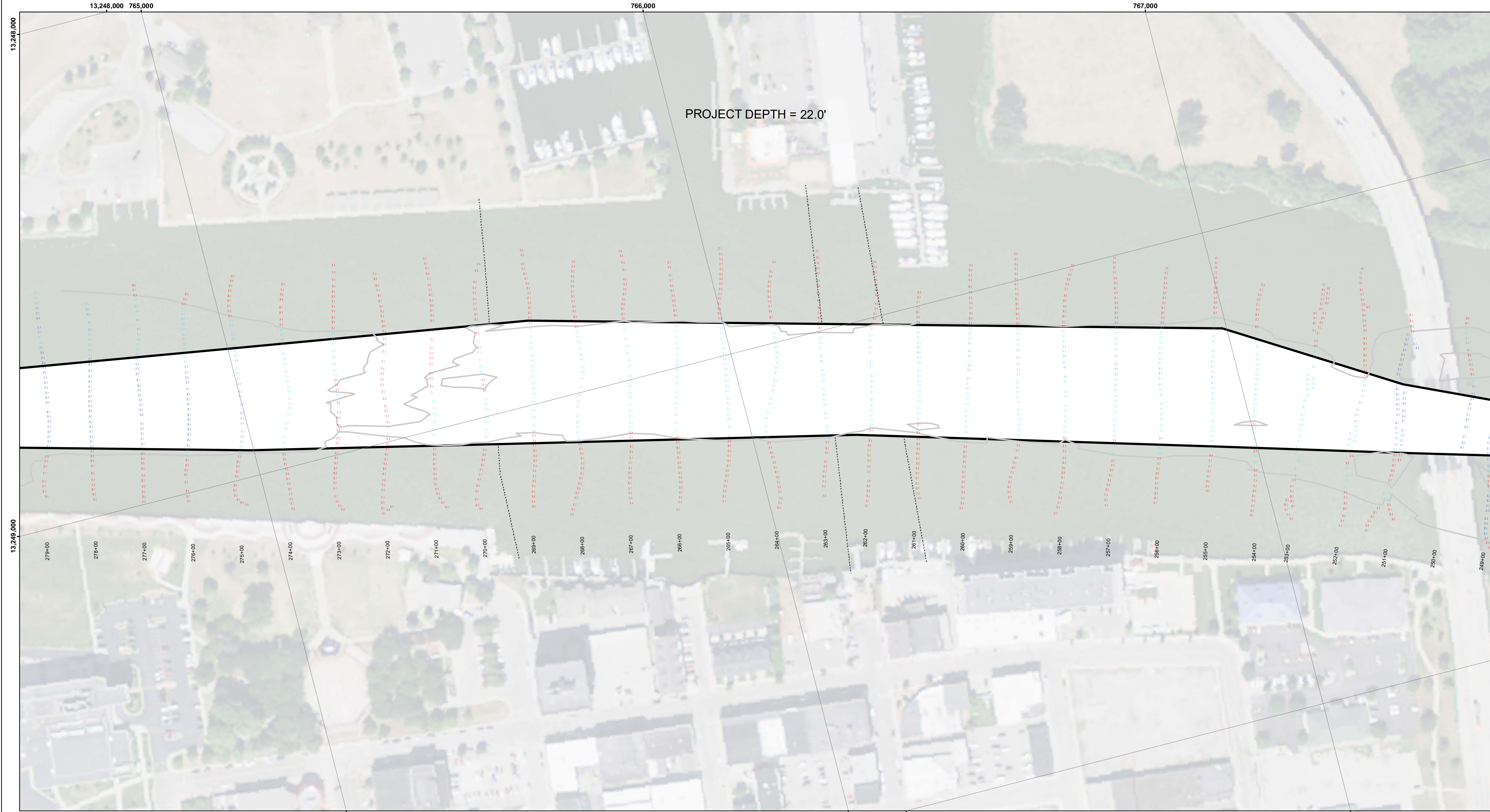
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| Submitted: | Surveyed By: | |
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| Approved: | Chief, Survey Section | |
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Saginaw, MI
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SH_01_SAG_20200617_CS
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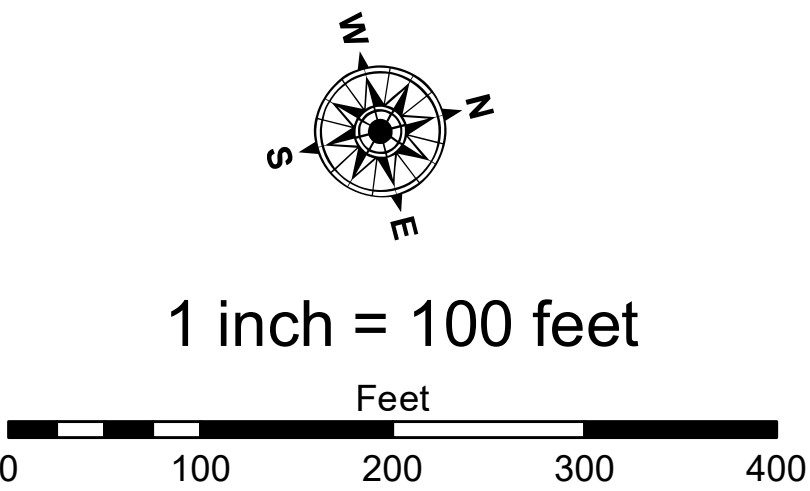
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- LEGEND**
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U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT

Submitted: _____

Recommended: Chief, Survey Section

Approved: Chief, Technical Services

Surveyed By: _____

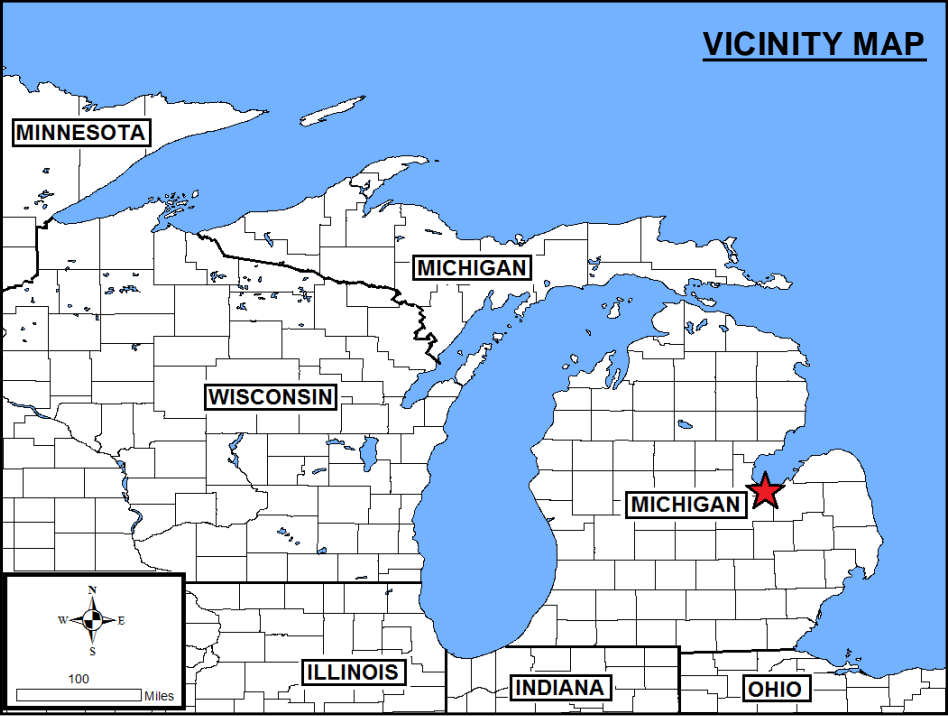
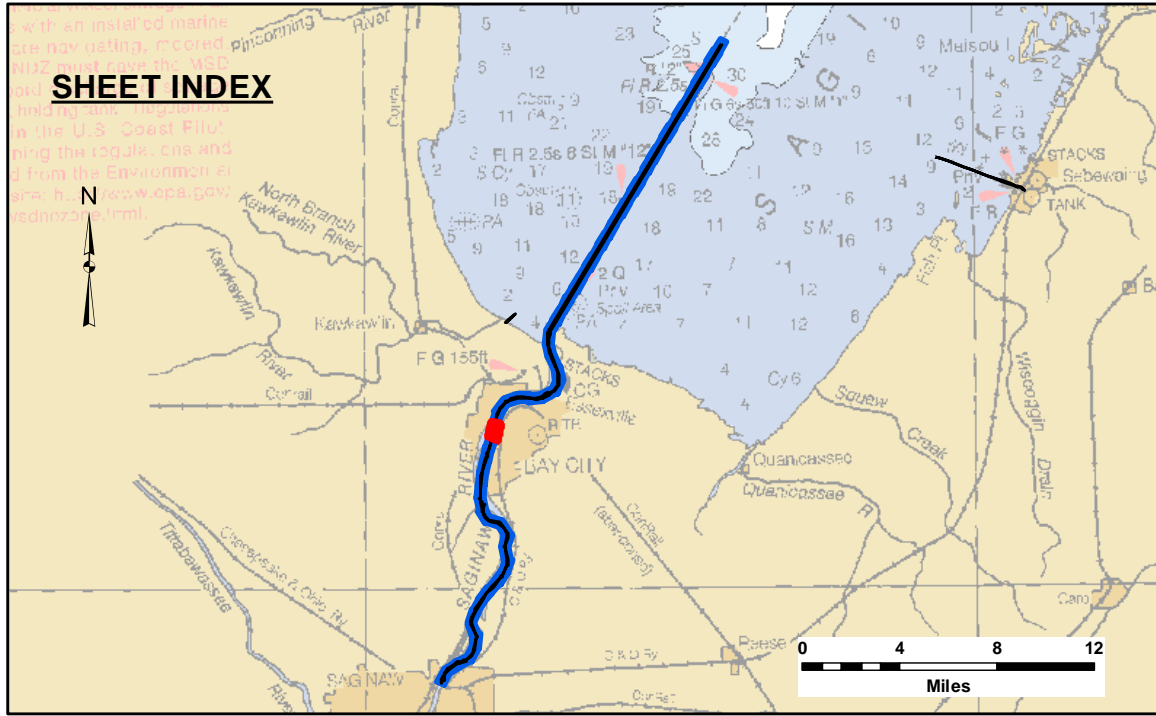
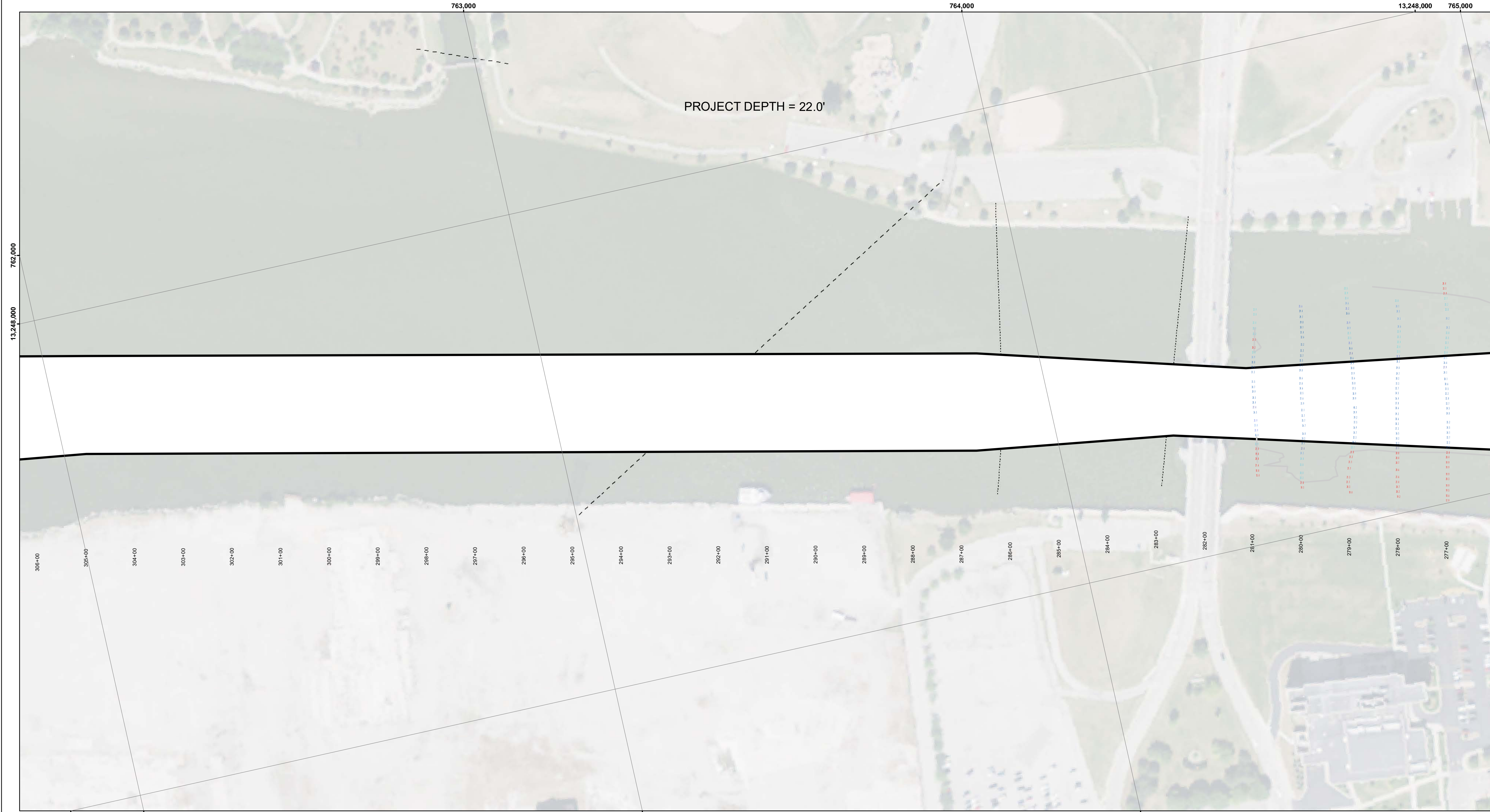
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Saginaw, MI
Saginaw River
SH_01_SAG_20200617_CS
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Revision Number:
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LEGEND

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1 inch = 100 feet

Feet

0 100 200 300 400

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POSITIONING: APPLINX POS-MV4 W/ VRS/RTK OR MARINESTAR GNSS.
MOTION COMPENSATION: APPLINX POS-MV4
SONAR: RESONIC 2024 (MULTIBEAM) OR ODOM CV-300 (SINGLEBEAM)
SOFTWARE: HYPACK

2010 AERIAL PHOTOGRAPHY DATA SOURCE: USGS
ALL COORDINATES ARE IN U.S. SURVEY FEET.


US Army Corps of Engineers
District: CELRE

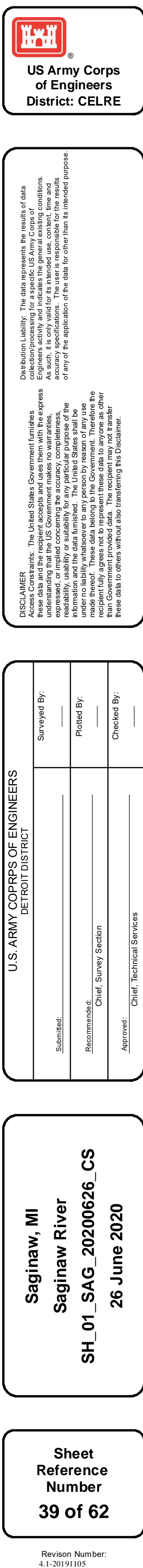
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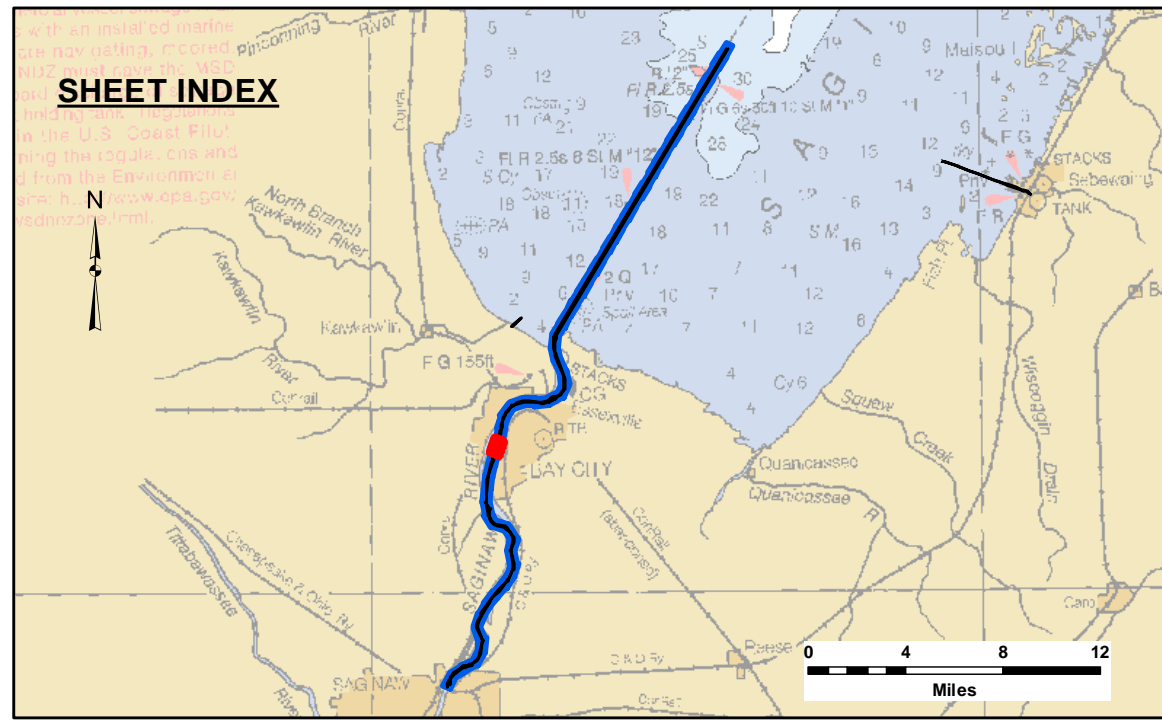
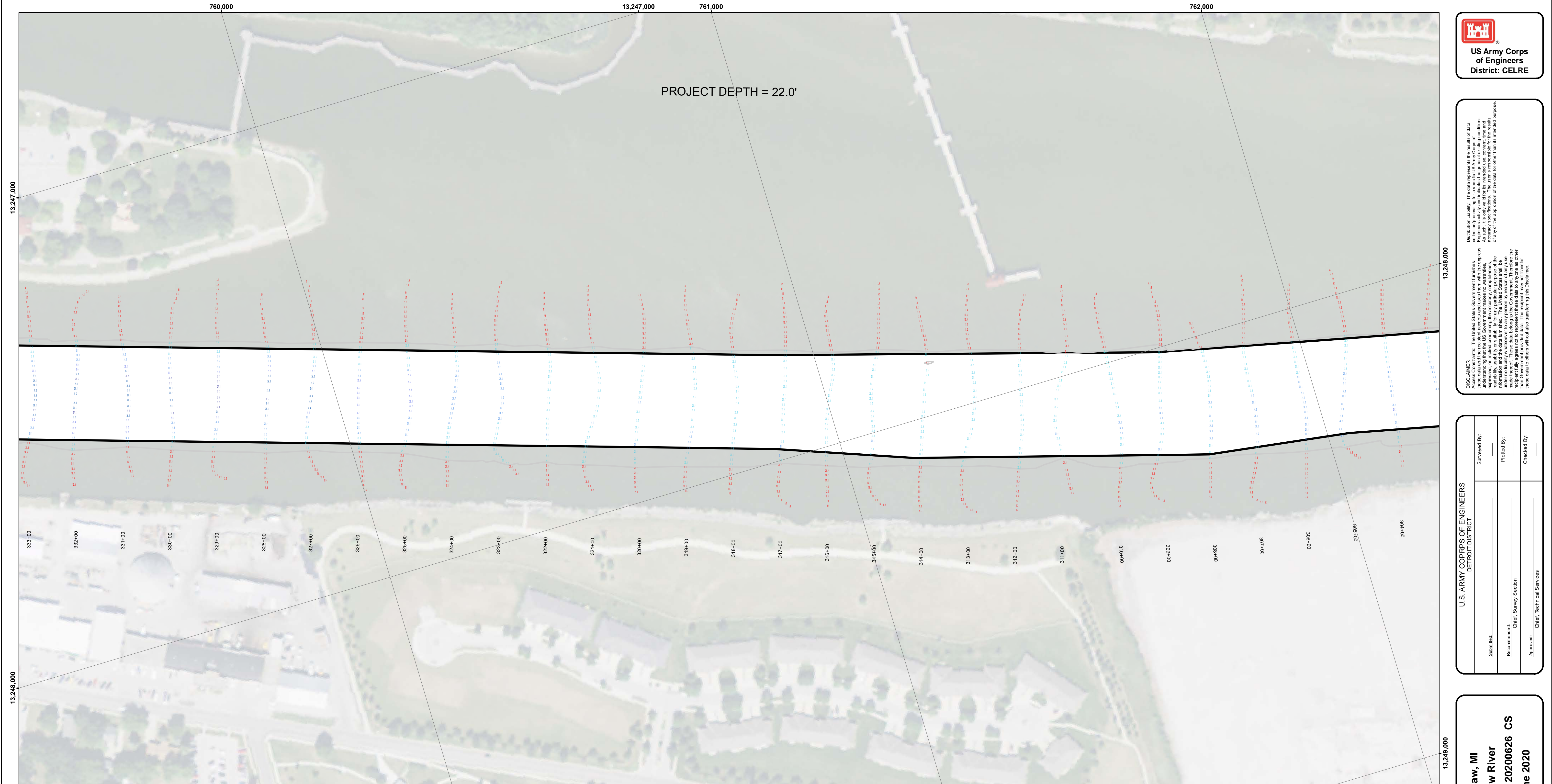
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| U.S. ARMY CORPS OF ENGINEERS DETROIT DISTRICT | |
| Submitted: _____ | Surveyed By: _____ |
| Recommended: _____ | Plotted By: _____ |
| Approved: _____ | Checked By: _____ |

Saginaw, MI
Saginaw River
SH_01_SAG_20200617_CS
17 June 2020

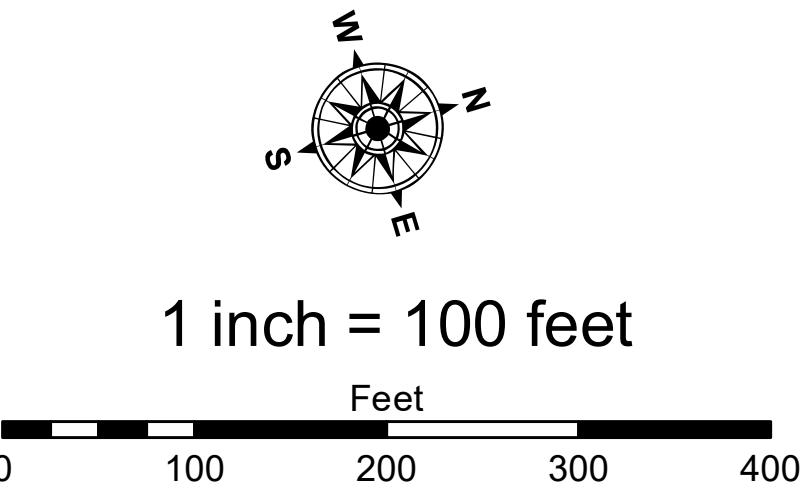
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- LEGEND**
- Cable Submarine
 - - Cable Overhead
 - Placement Area
 - Beacon, General
 - Contour Lines
 - Channel_Limits

- SOUNDING LEGEND**
- LESS THAN PROJECT DEPTH
 - PROJECT DEPTH
 - PROJECT DEPTH +1'
 - PROJECT DEPTH +2'
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 - PROJECT DEPTH +4'
 - PROJECT DEPTH +5'



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MOTION COMPENSATION: APPLANIX POS-MV4

SONAR: R2SONIC 2024 (MULTIBEAM) OR ODOM CV-300 (SINGLEBEAM)

SOFTWARE: HYPACK

2016 AERIAL PHOTOGRAPHY DATA SOURCE: USGS

ALL COORDINATES ARE IN U.S. SURVEY FEET.



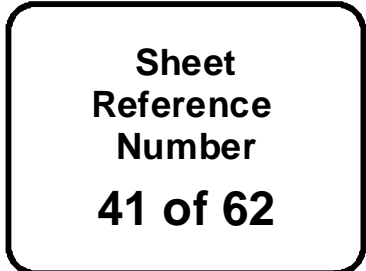
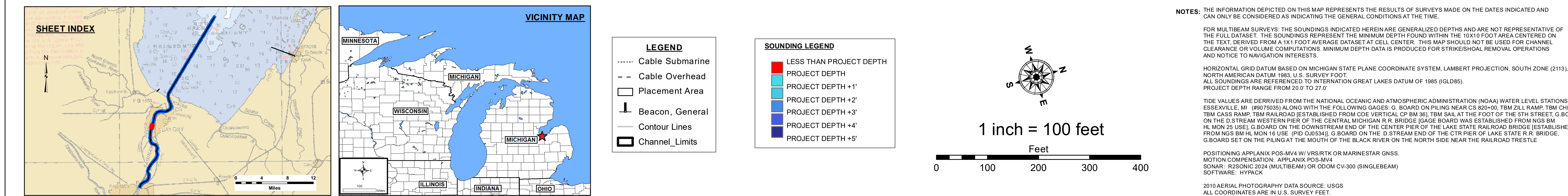
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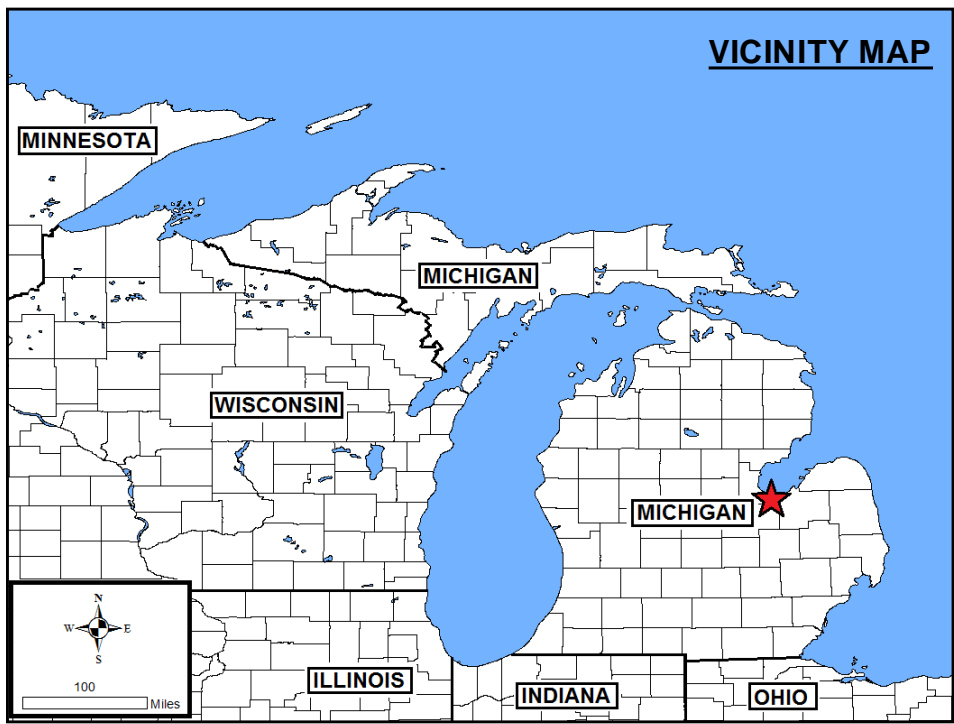
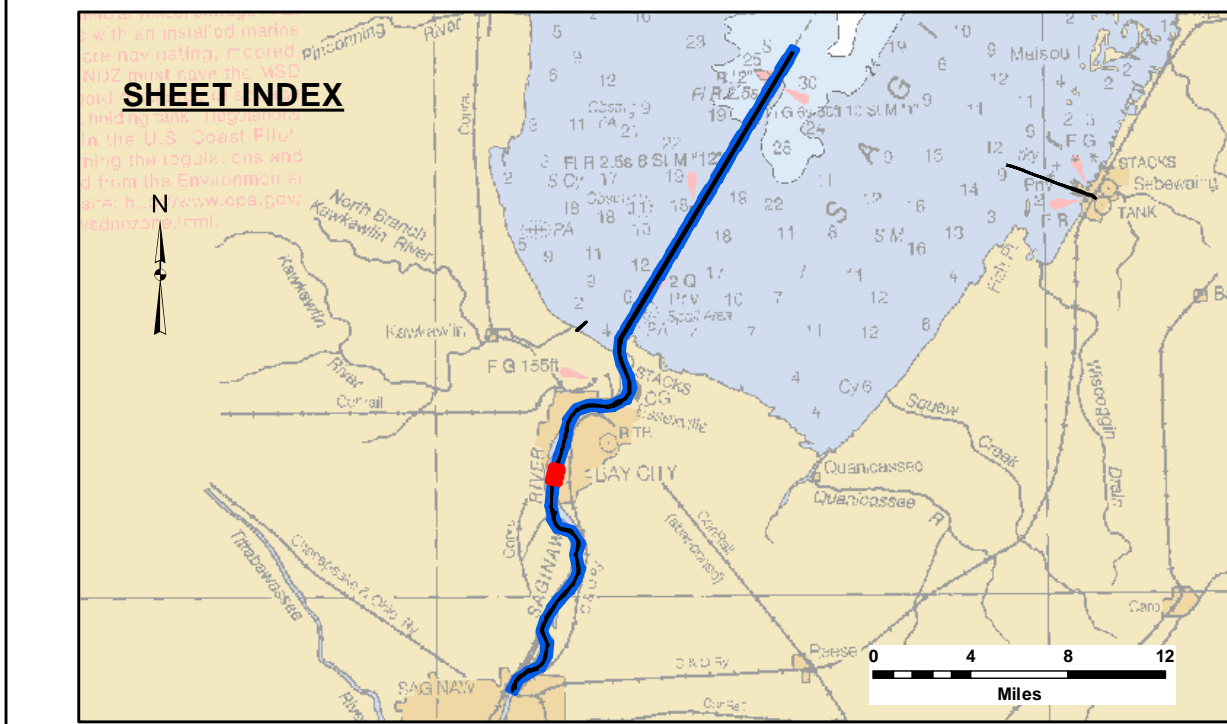
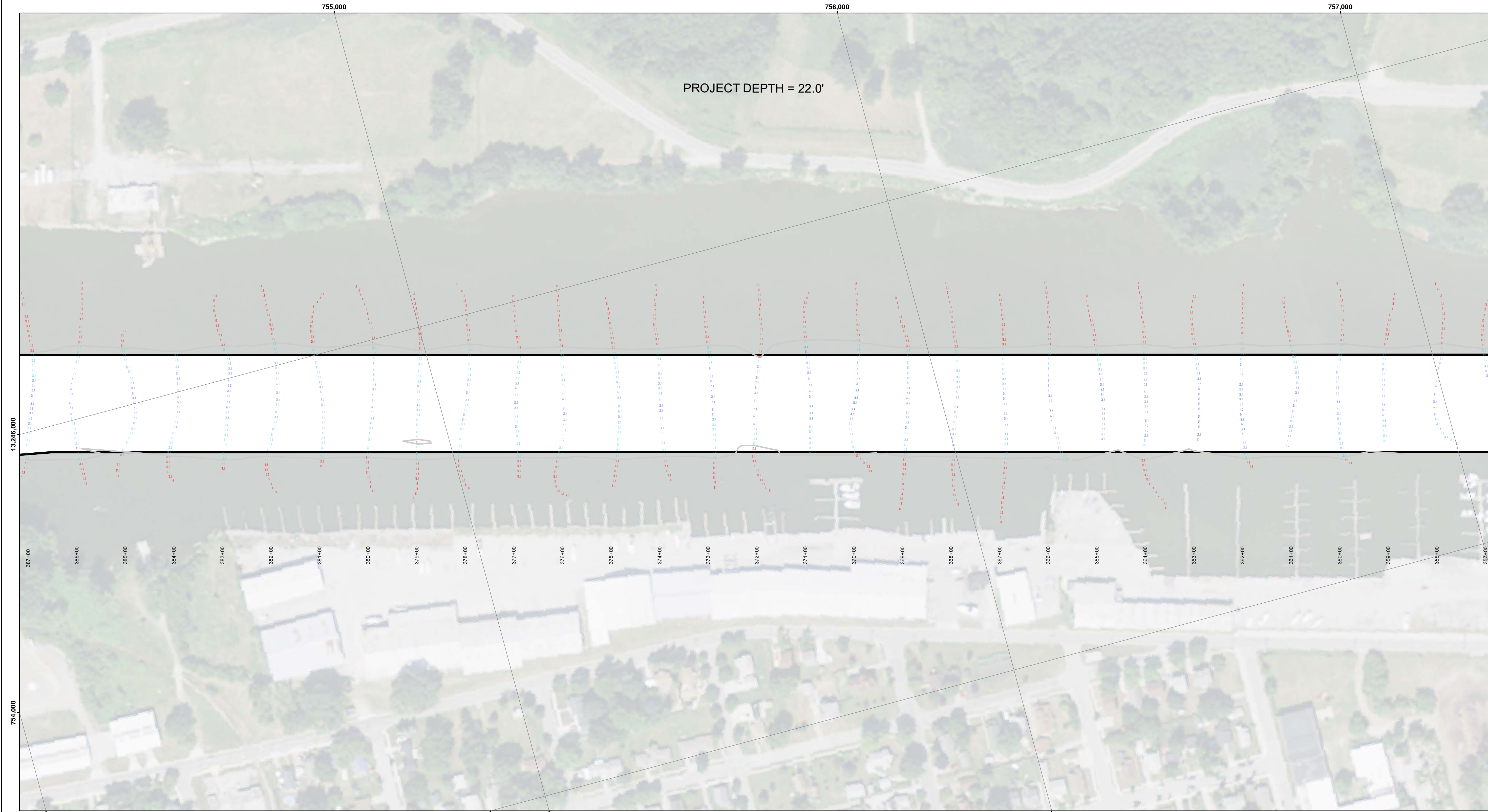
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| U.S. ARMY CORPS OF ENGINEERS DETROIT DISTRICT | Submitted: | Surveyed By: |
| | Recommended: | Plotted By: |
| | Chief, Survey Section | |
| | Approved: | Checked By: |
| | Chief, Technical Services | |

Saginaw, MI
Saginaw River
SH_01_SAG_20200626_CS
26 June 2020

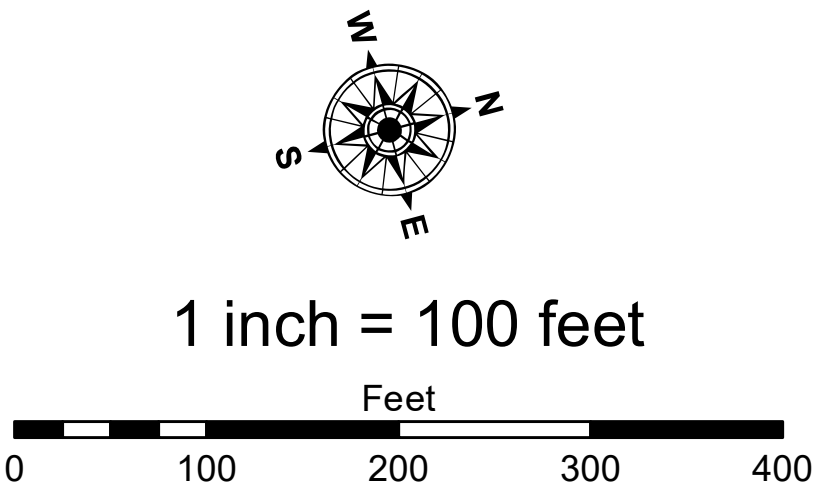
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- LEGEND**
- Cable Submarine
 - - Cable Overhead
 - Placement Area
 - Beacon, General
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 - Channel_Limits

- SOUNDING LEGEND**
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MOTION COMPENSATION: APPLANIX POS-MV4
SONAR: R2SONIC 2024 (MULTIBEAM) OR ODOM CV-300 (SINGLEBEAM)
SOFTWARE: HYPACK

2010 AERIAL PHOTOGRAPHY DATA SOURCE: USGS
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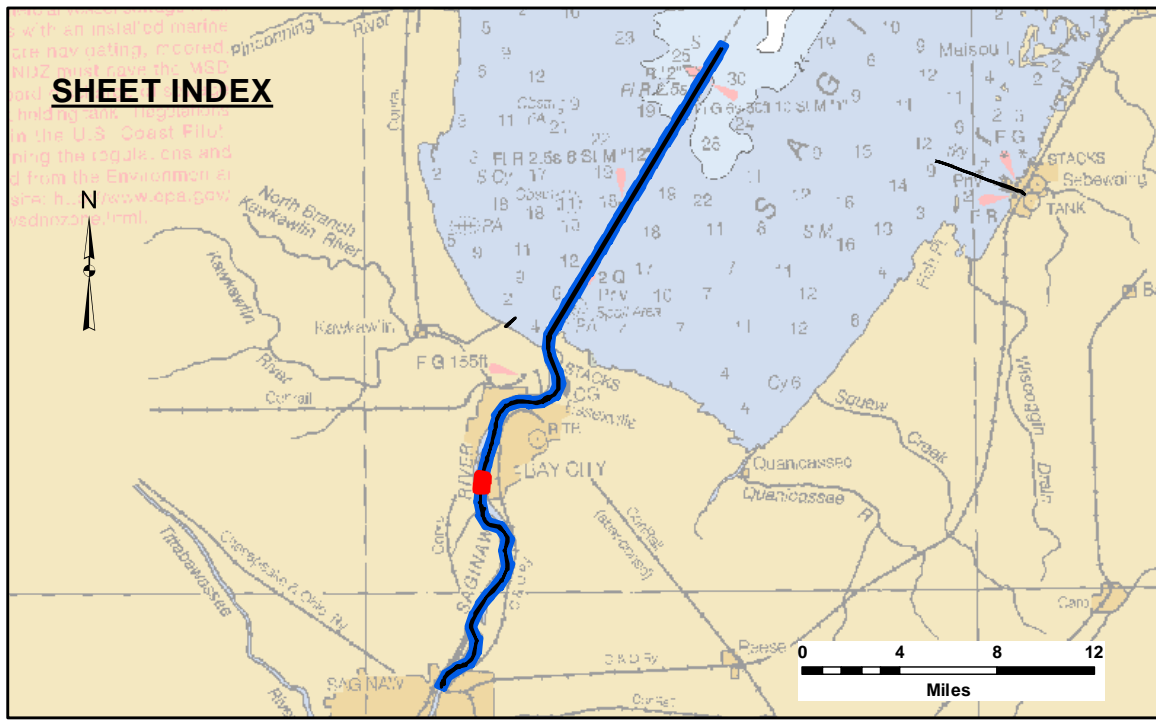
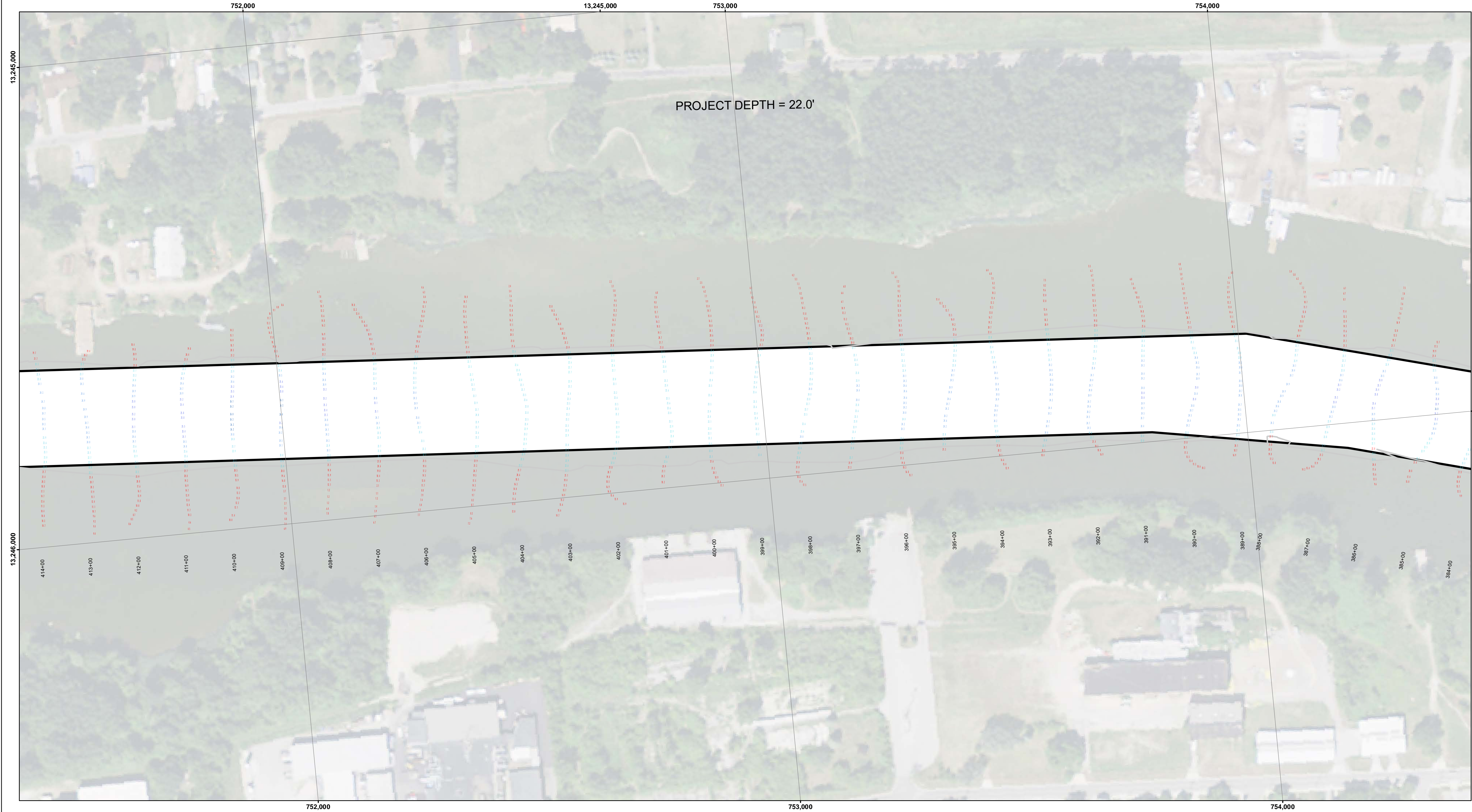
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| U.S. ARMY CORPS OF ENGINEERS DETROIT DISTRICT | |
| Submitted: | Surveyed By: |
| Recommended: | Plotted By: |
| Approved: | Checked By: |

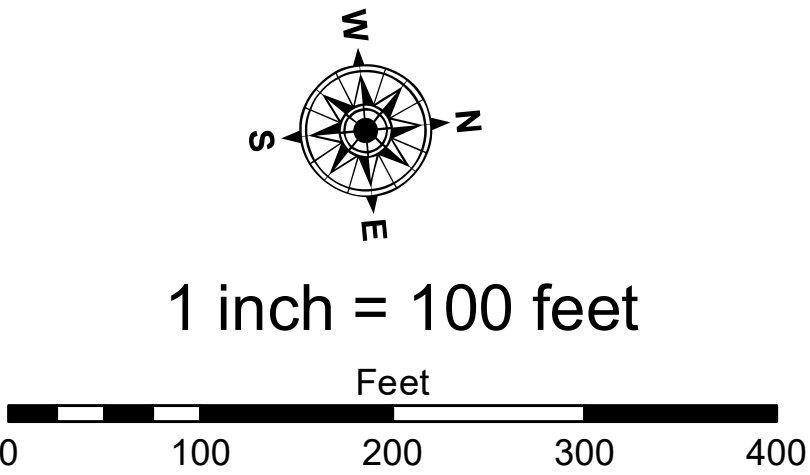
Saginaw, MI
Saginaw River
SH_01_SAG_20200626_CS
26 June 2020

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Number
42 of 62



- LEGEND**
- Cable Submarine
 - - Cable Overhead
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 - Beacon, General
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 - Channel_Limits

- SOUNDING LEGEND**
- LESS THAN PROJECT DEPTH
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2010 AERIAL PHOTOGRAPHY DATA SOURCE: USGS ALL COORDINATES ARE IN U.S. SURVEY FEET.



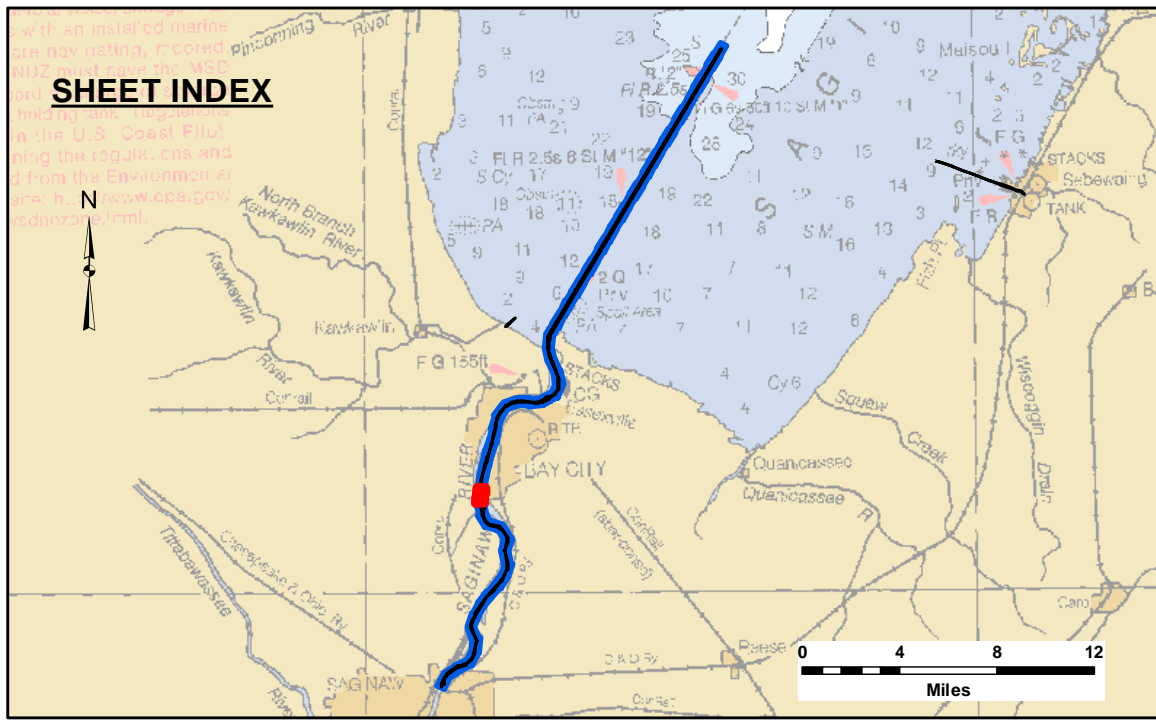
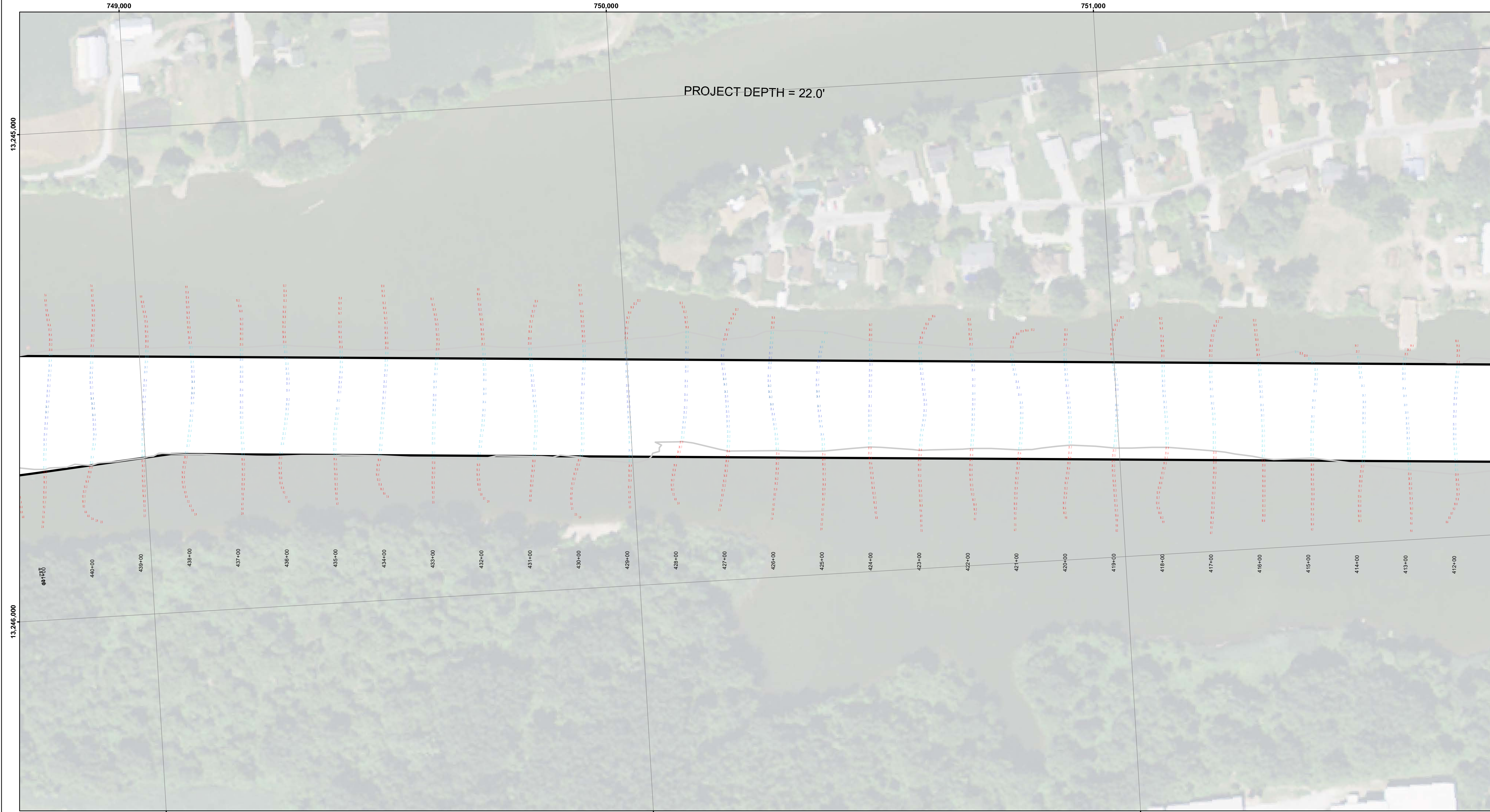
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Saginaw, MI
Saginaw River
SH_01_SAG_20200626_CS
26 June 2020

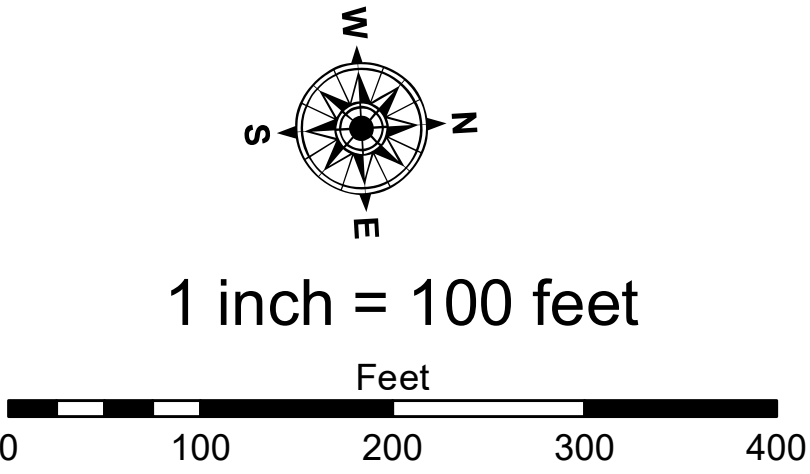
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Number
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Revision Number:
4.1-20191105



- LEGEND**
- Cable Submarine
 - - Cable Overhead
 - Placement Area
 - Beacon, General
 - Contour Lines
 - Channel_Limits

- SOUNDING LEGEND**
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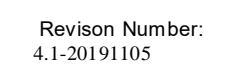
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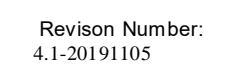
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| Submitted: | Surveyed By: |
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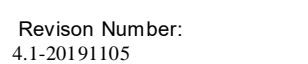
Saginaw, MI
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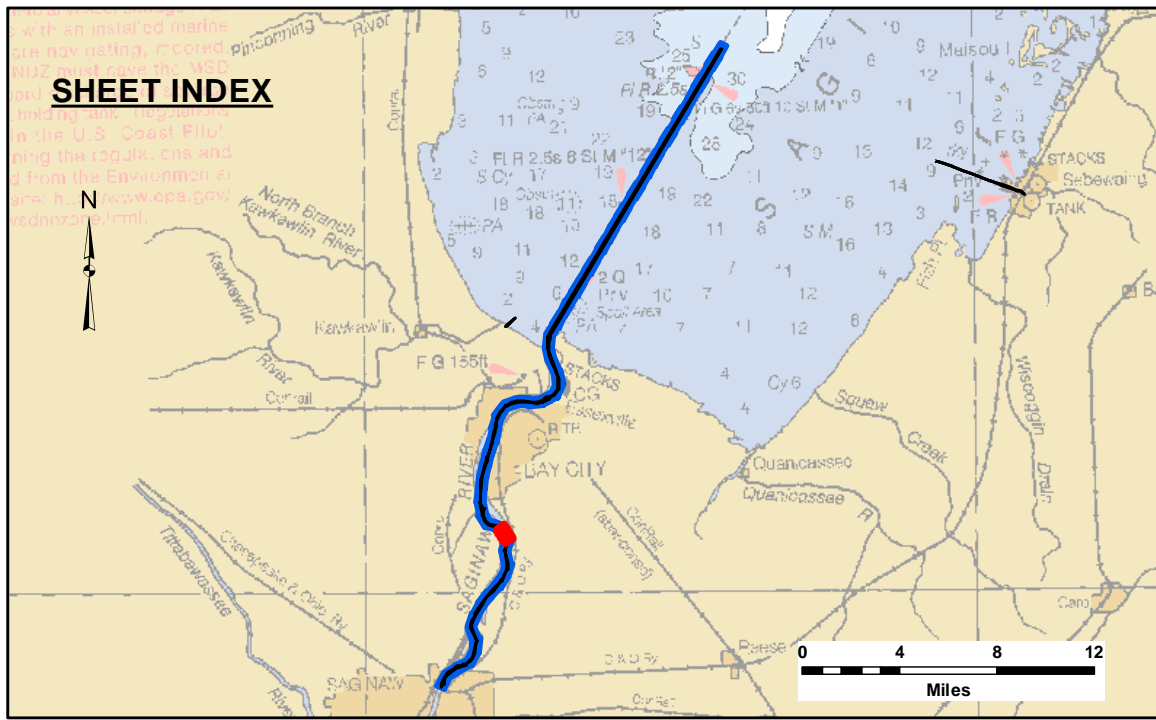
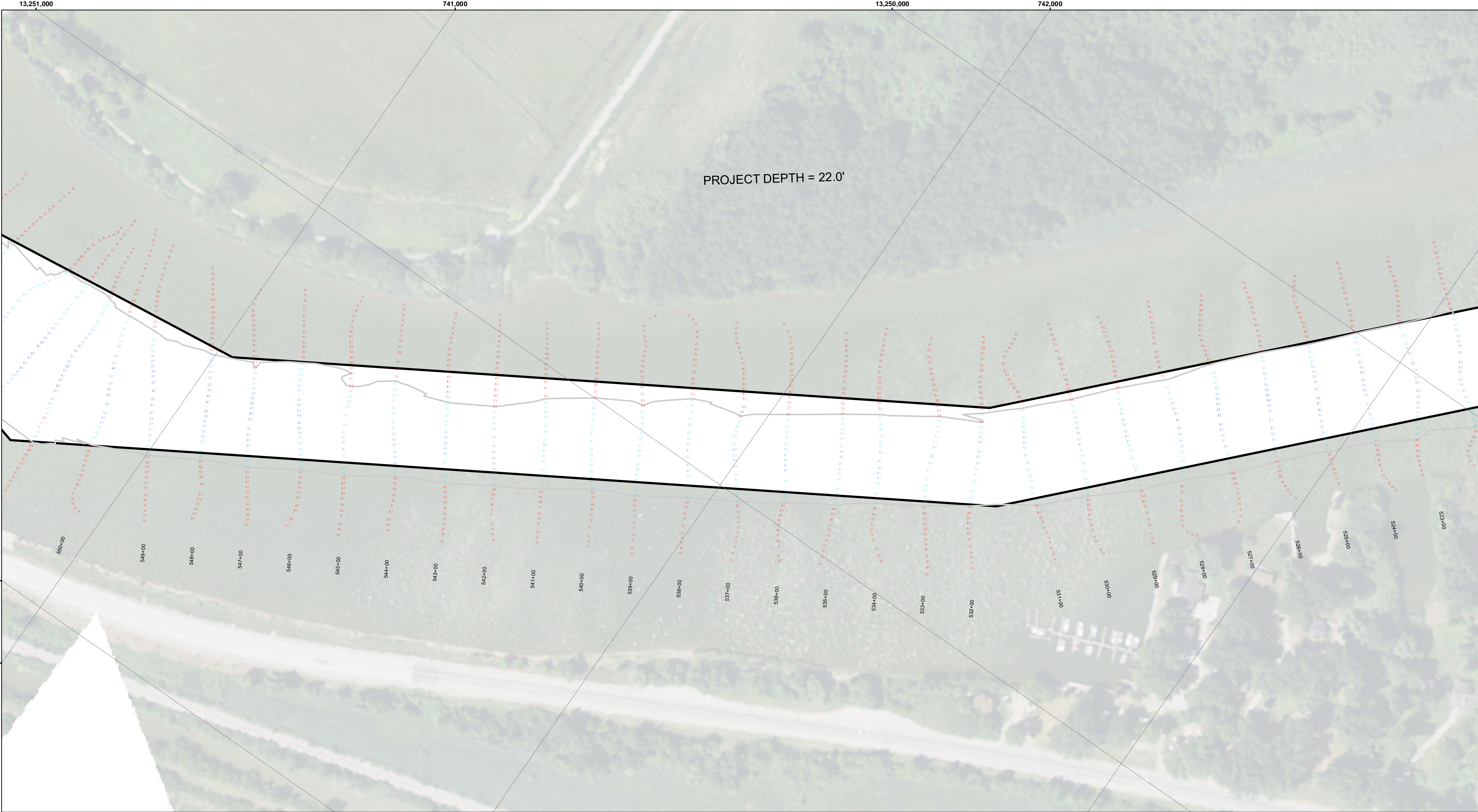
Sheet
Reference
Number
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Revision Number:
4.1-20191105



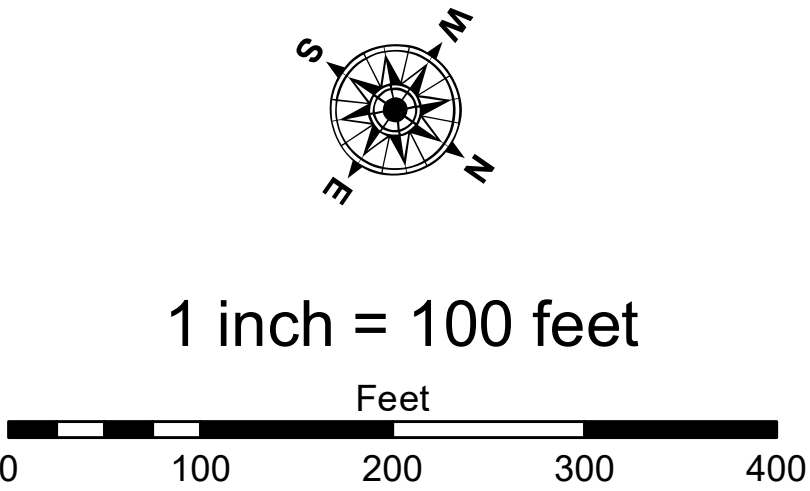






- LEGEND**
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US Army Corps of Engineers
District: CELRE

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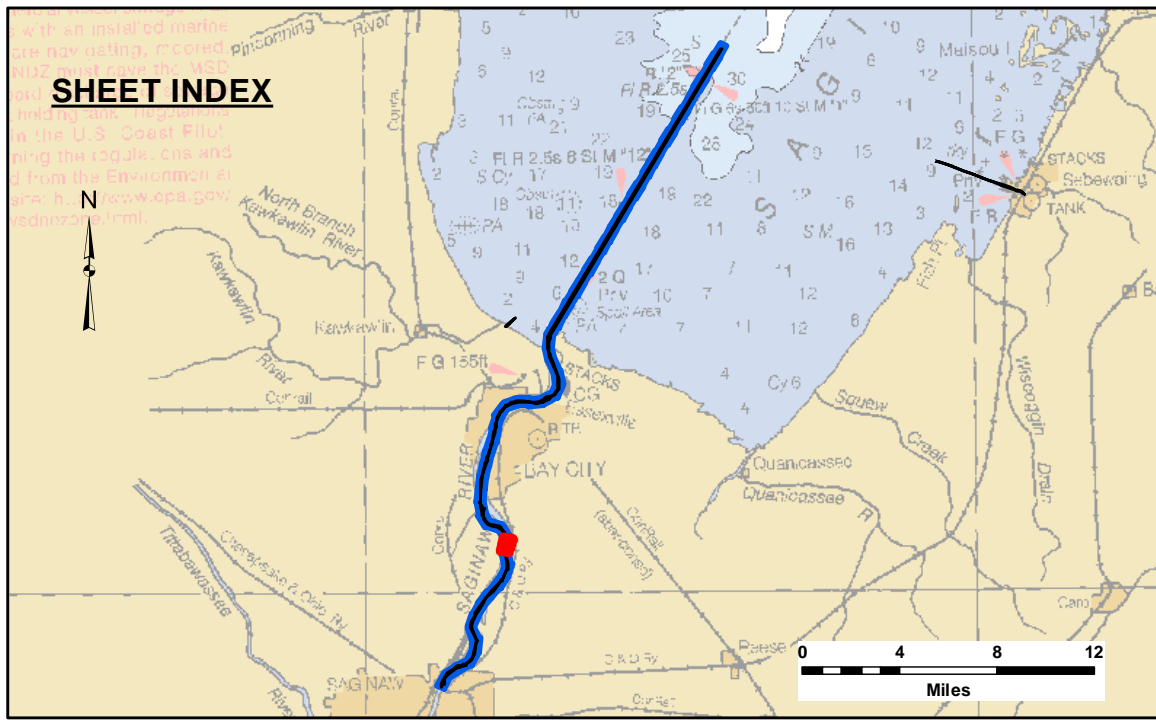
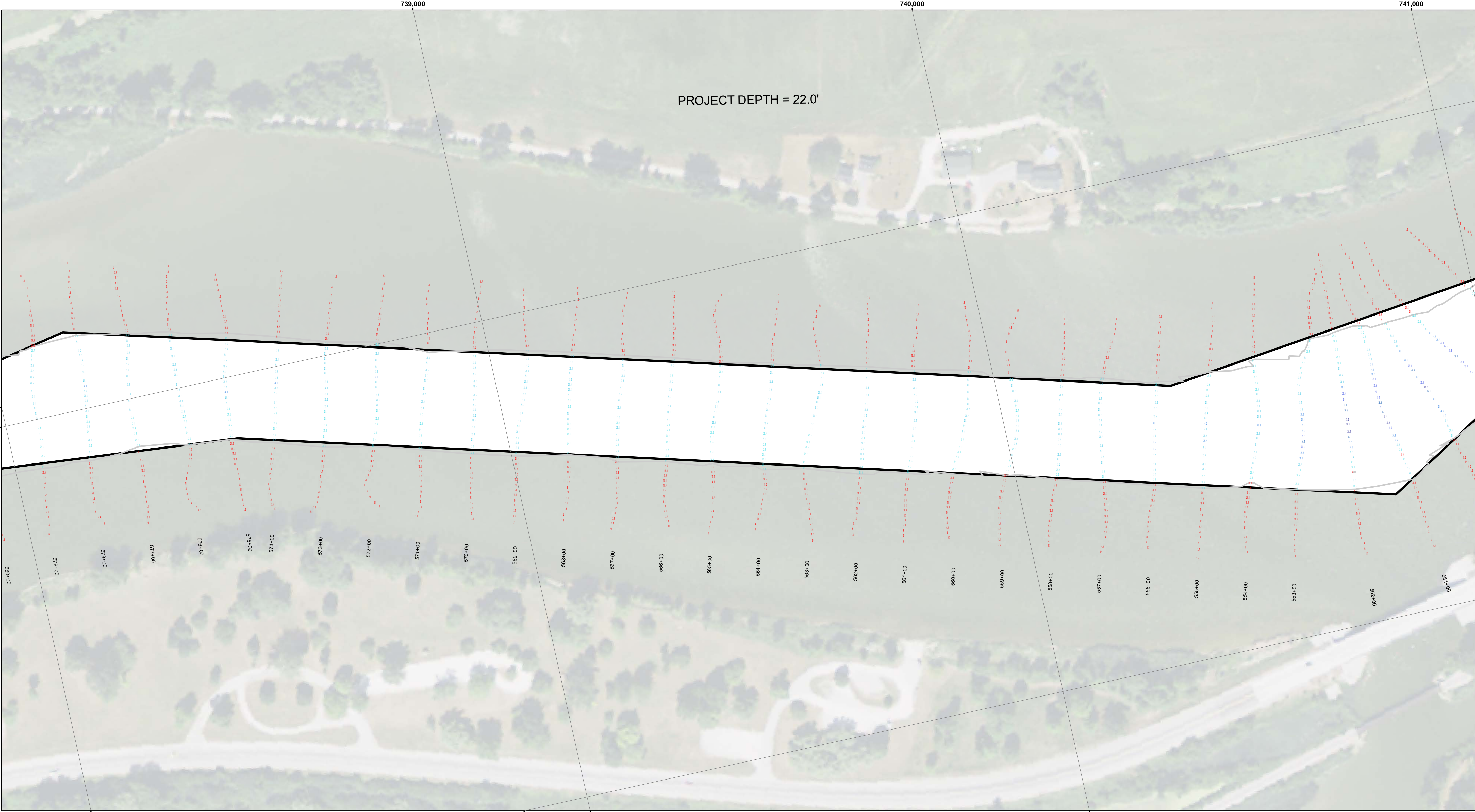
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| Submitted: | Surveyed By: |
| Recommended: | Plotted By: |
| Approved: | Checked By: |

Saginaw, MI
Saginaw River
SH_01_SAG_20200701_CS
01 July 2020

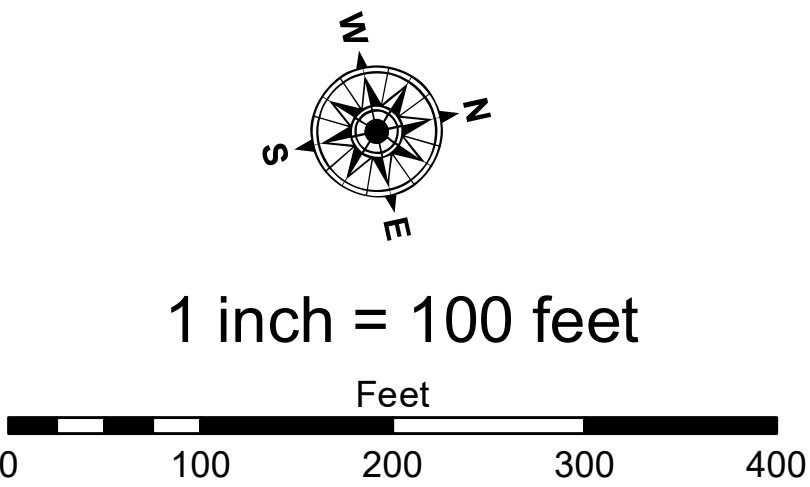
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Revision Number:
4.1-20191105



- LEGEND**
- Cable Submarine
 - - - Cable Overhead
 - Placement Area
 - ⊥ Beacon, General
 - Contour Lines
 - ▭ Channel_Limits

- SOUNDING LEGEND**
- LESS THAN PROJECT DEPTH
 - PROJECT DEPTH
 - PROJECT DEPTH +1'
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 - PROJECT DEPTH +3'
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2016 AERIAL PHOTOGRAPHY DATA SOURCE: USGS ALL COORDINATES ARE IN U.S. SURVEY FEET.



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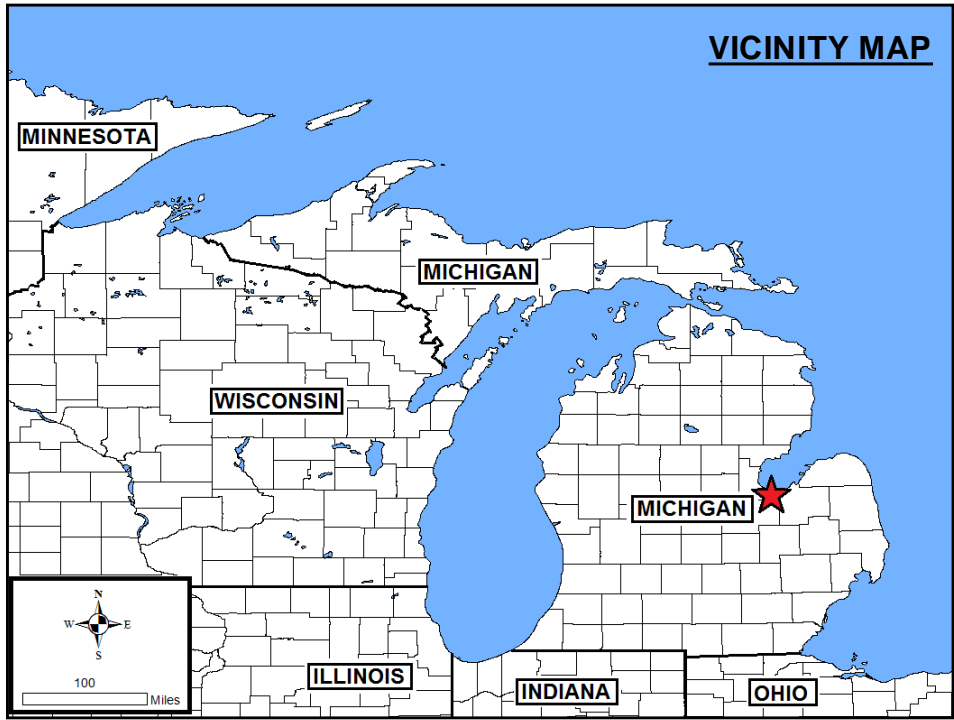
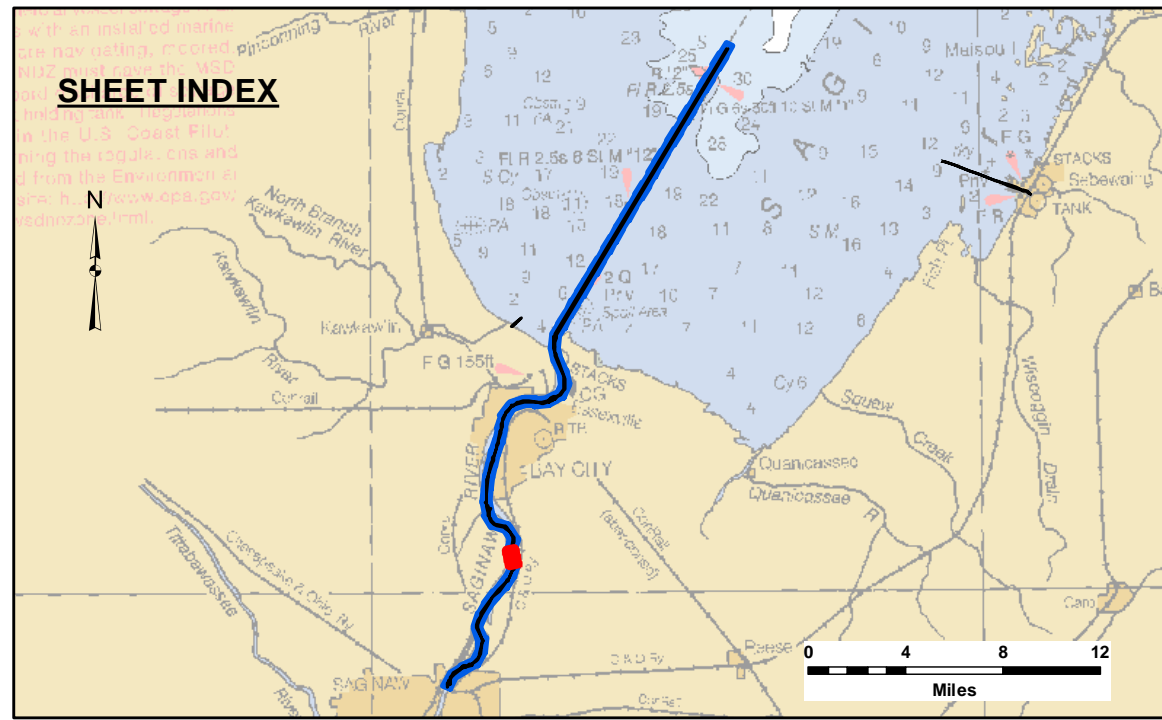
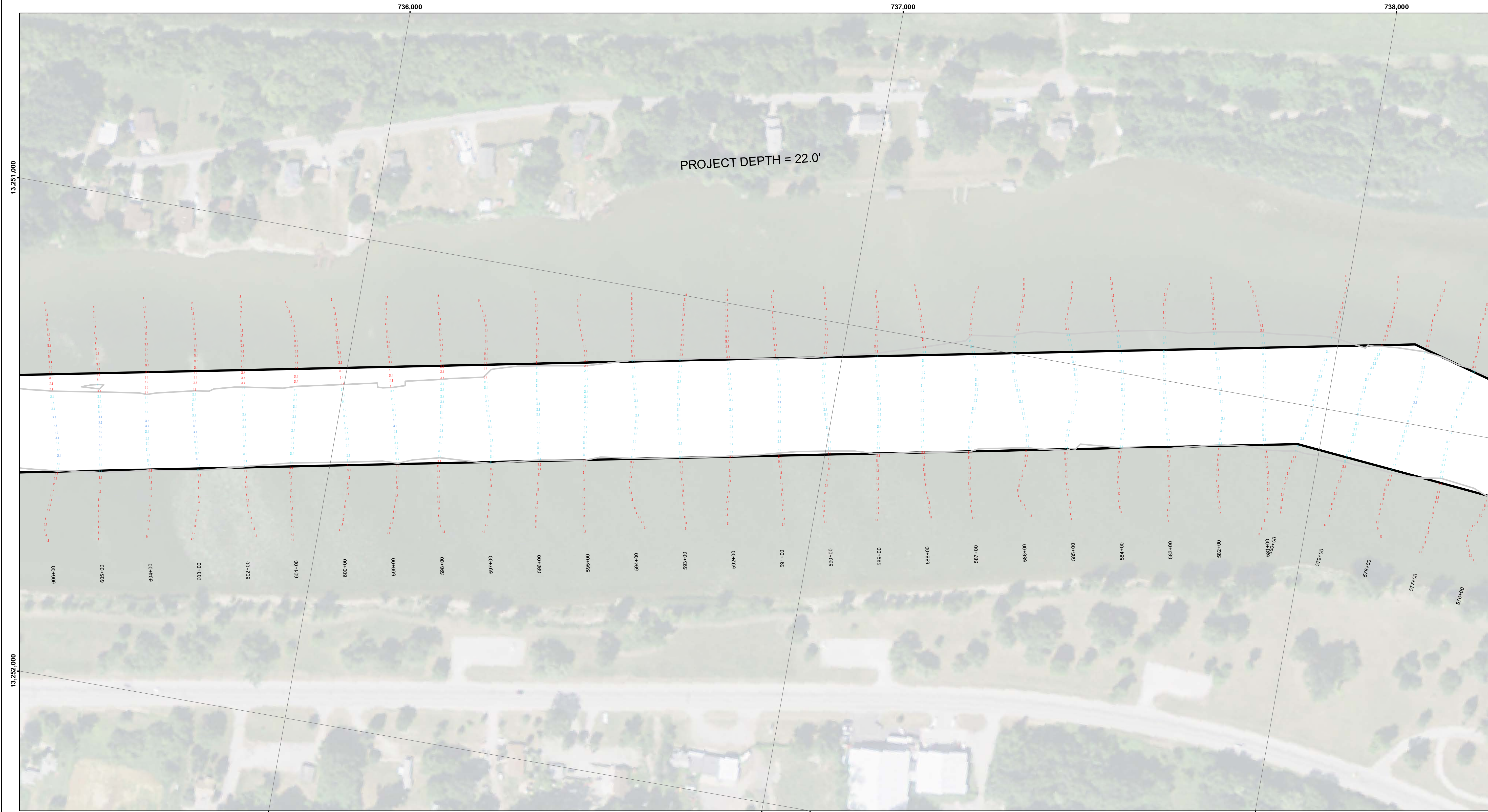
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| Submitted: | Surveyed By: | |
| Recommended: | Plotted By: | |
| Approved: | Chief, Survey Section | |
| | Chief, Technical Services | |

Saginaw, MI
Saginaw River
SH_01_SAG_20200701_CS
01 July 2020

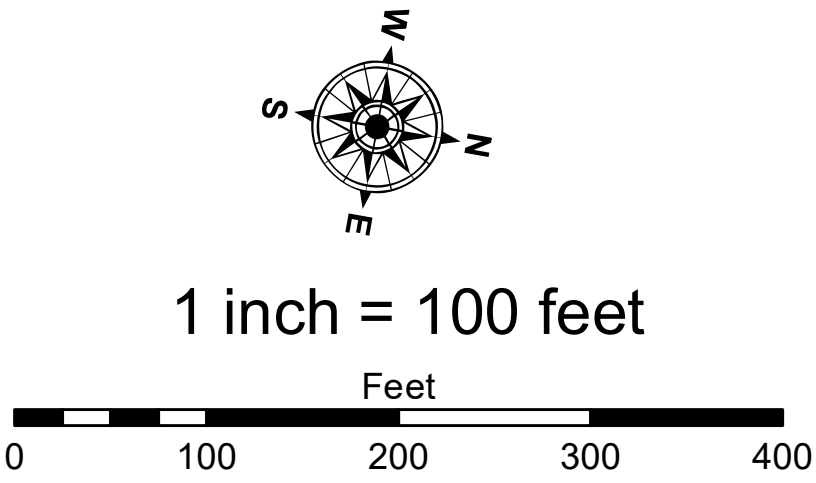
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Revision Number:
4.1-20191105



- LEGEND**
- Cable Submarine
 - - - Cable Overhead
 - Placement Area
 - ⊥ Beacon, General
 - Contour Lines
 - ▭ Channel_Limits

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 - PROJECT DEPTH
 - PROJECT DEPTH +1'
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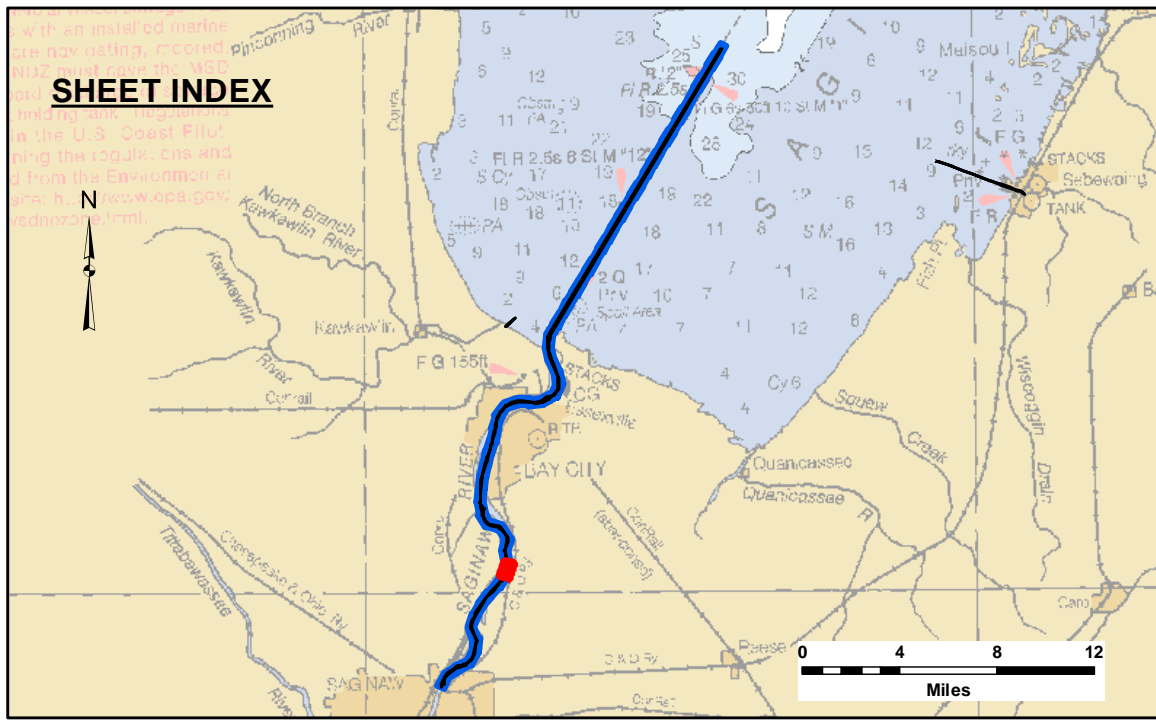
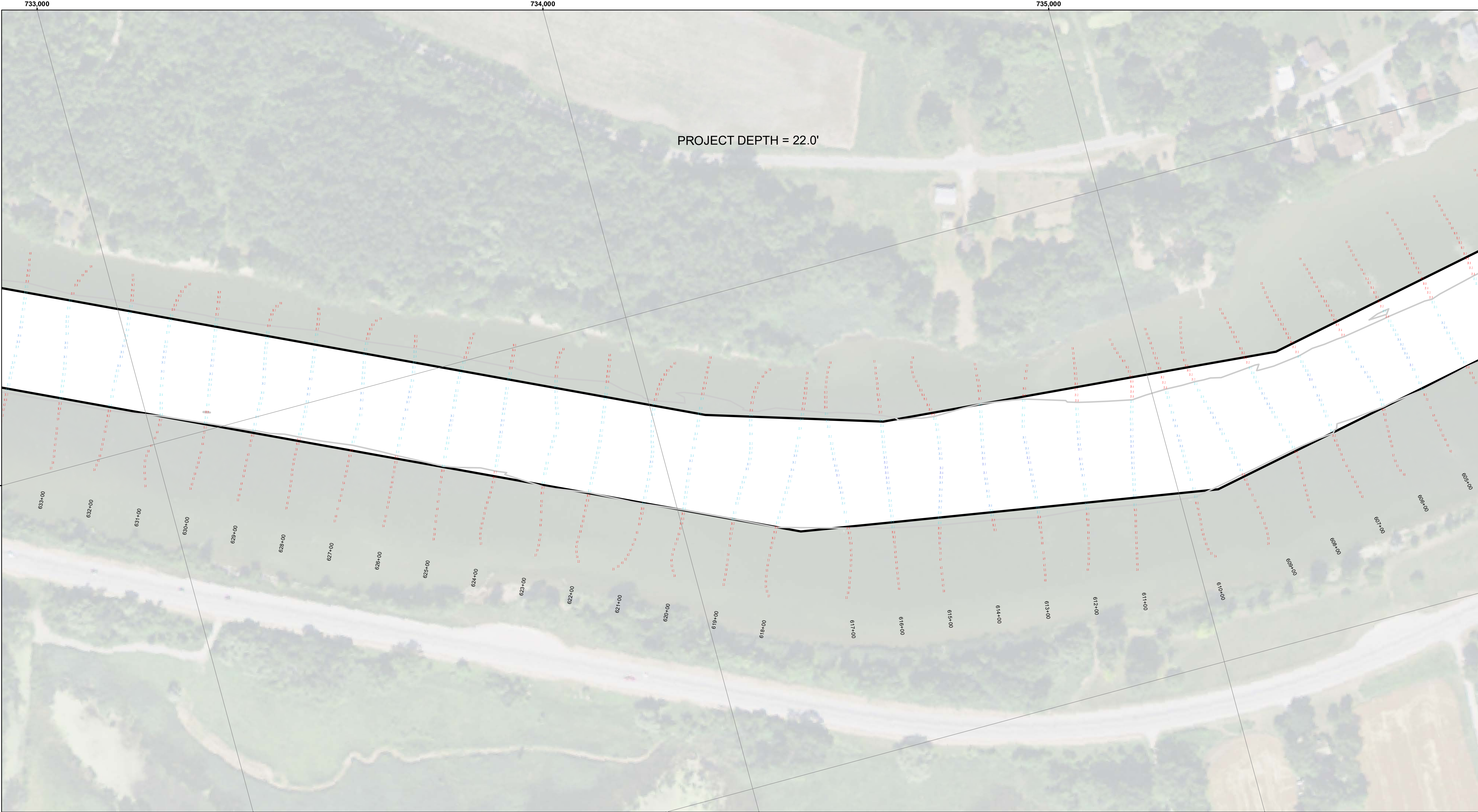
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| U.S. ARMY CORPS OF ENGINEERS DETROIT DISTRICT | | |
| Submitted: | Surveyed By: | |
| Recommended: | Plotted By: | |
| Approved: | Chief, Survey Section | |
| | Chief, Technical Services | |

Saginaw, MI
Saginaw River
SH_01_SAG_20200701_CS
01 July 2020

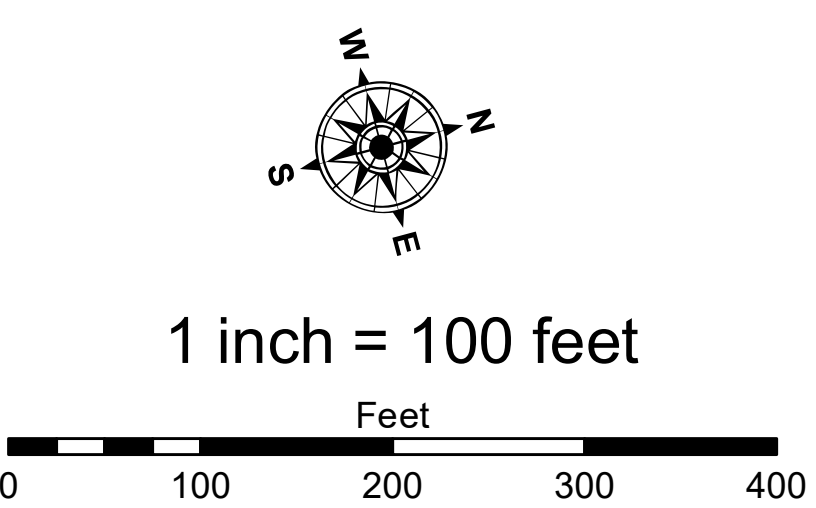
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- LEGEND**
- Cable Submarine
 - - Cable Overhead
 - Placement Area
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 - Contour Lines
 - ▭ Channel_Limits

- SOUNDING LEGEND**
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POSITIONING: APPLANIX POS-MV4 W/ VRS/RTK OR MARINESTAR GNSS.
MOTION COMPENSATION: APPLANIX POS-MV4
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SOFTWARE: HYPACK

2010 AERIAL PHOTOGRAPHY DATA SOURCE: USGS
ALL COORDINATES ARE IN U.S. SURVEY FEET.

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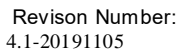
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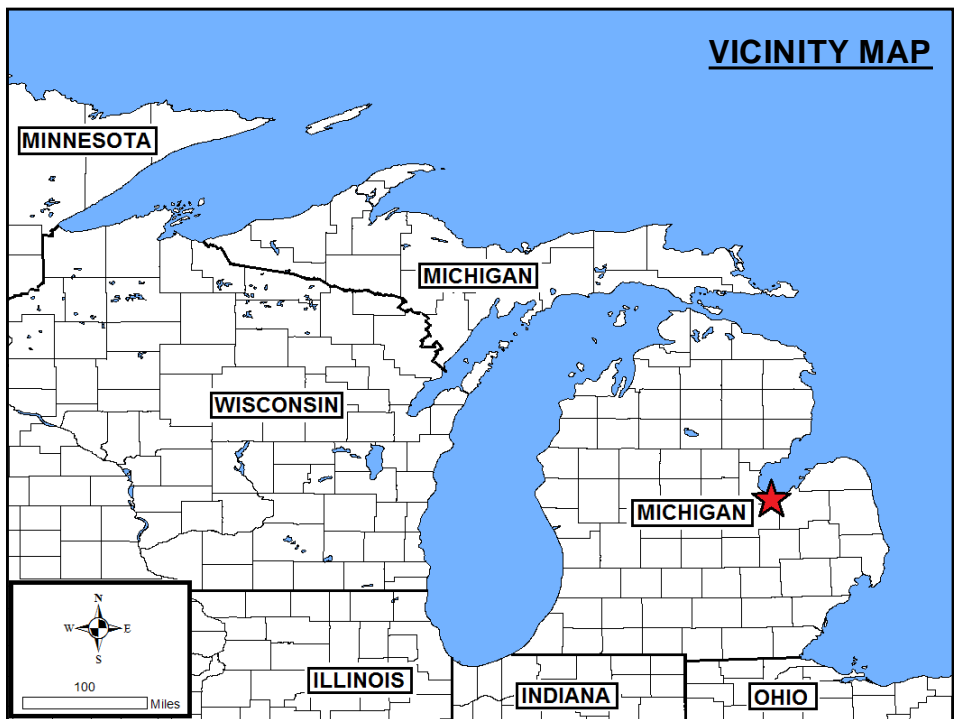
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Saginaw, MI
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SH_01_SAG_20200701_CS
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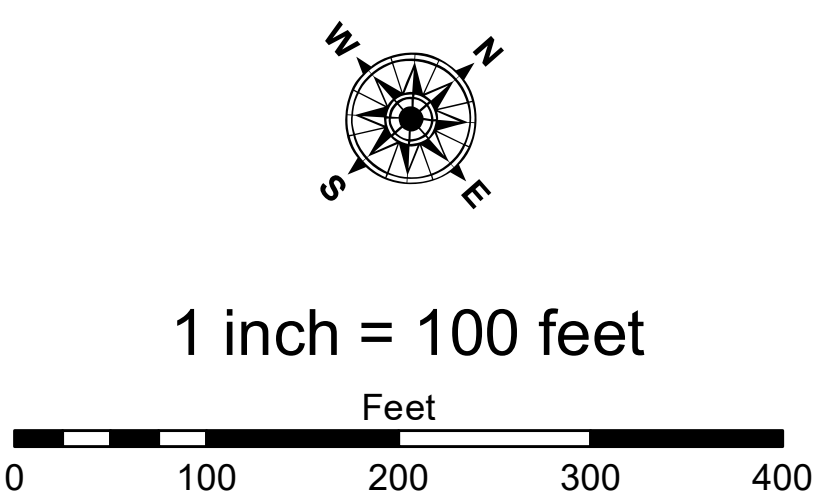
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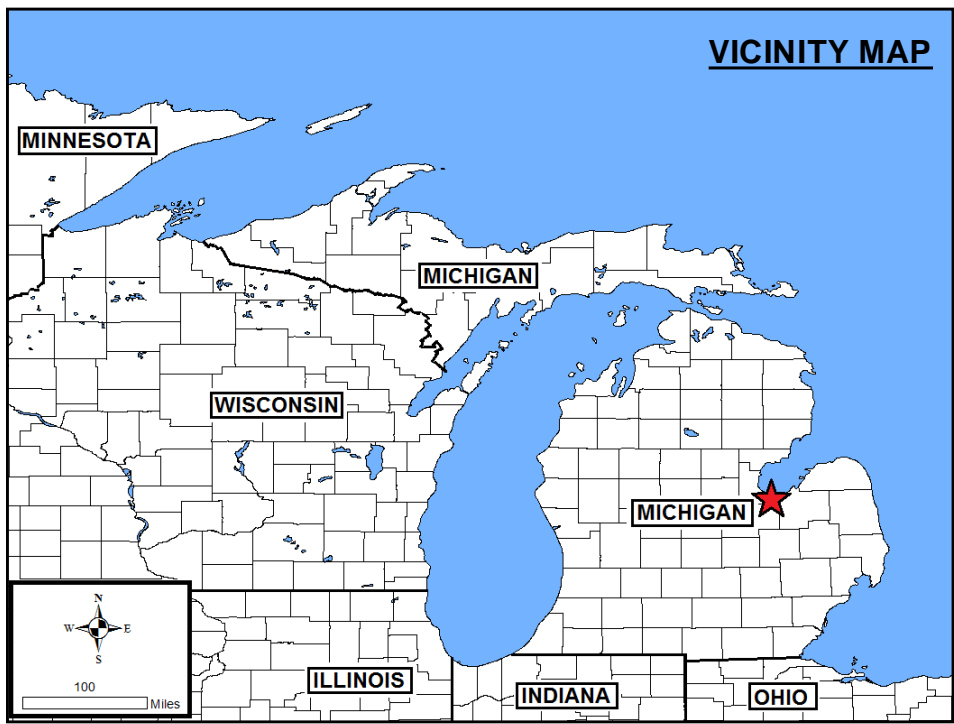
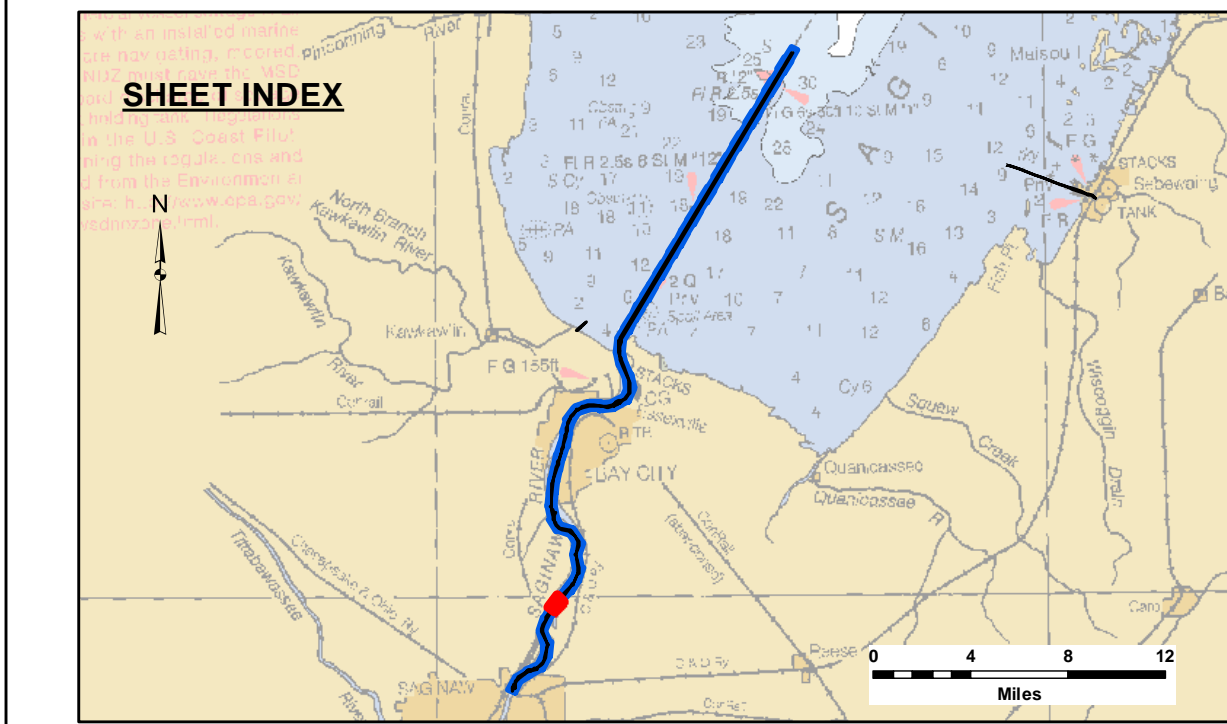
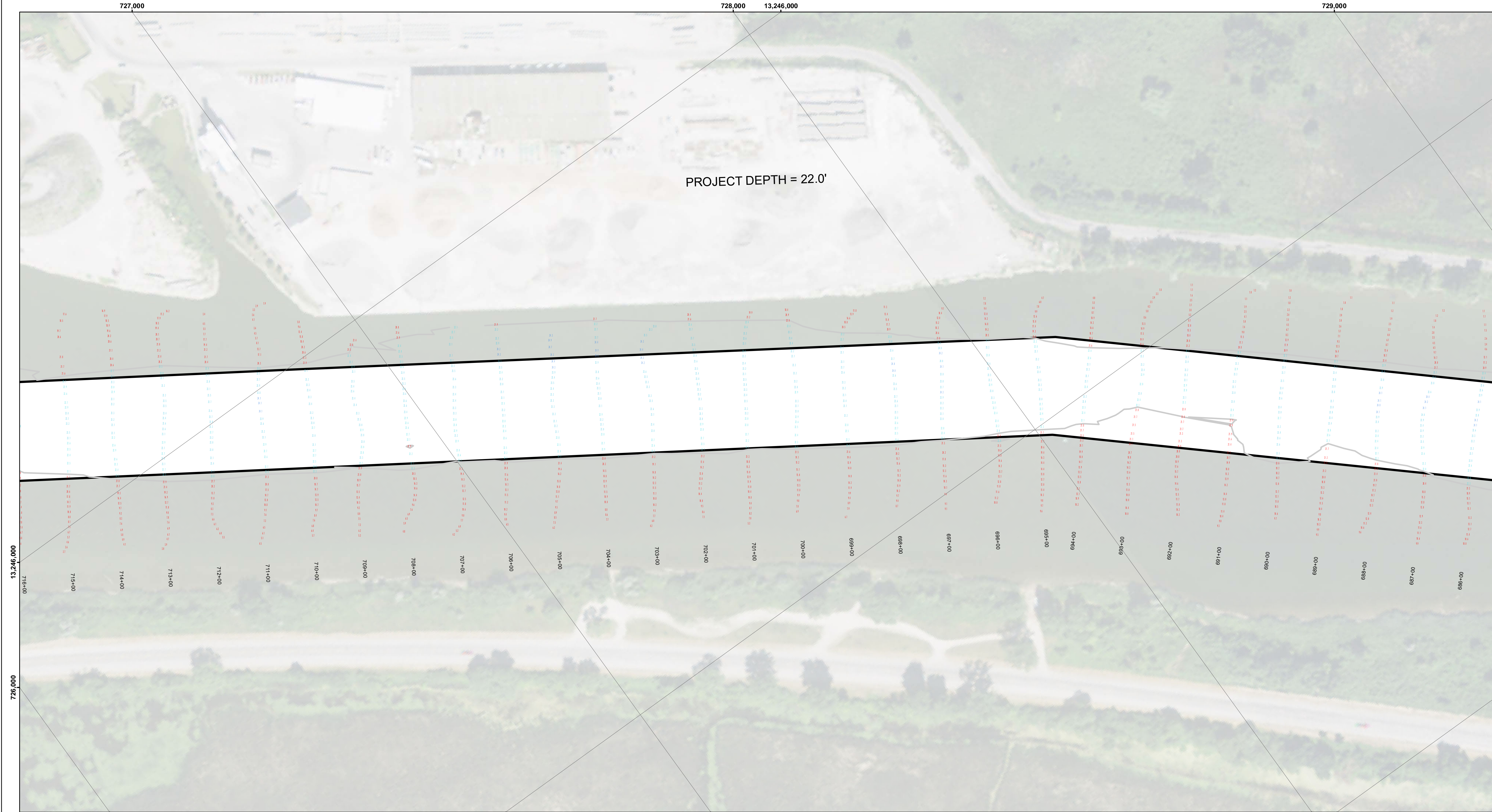
SOUNDING LEGEND

| | |
|---|-------------------------|
|  | LESS THAN PROJECT DEPTH |
|  | PROJECT DEPTH |
|  | PROJECT DEPTH +1' |
|  | PROJECT DEPTH +2' |
|  | PROJECT DEPTH +3' |
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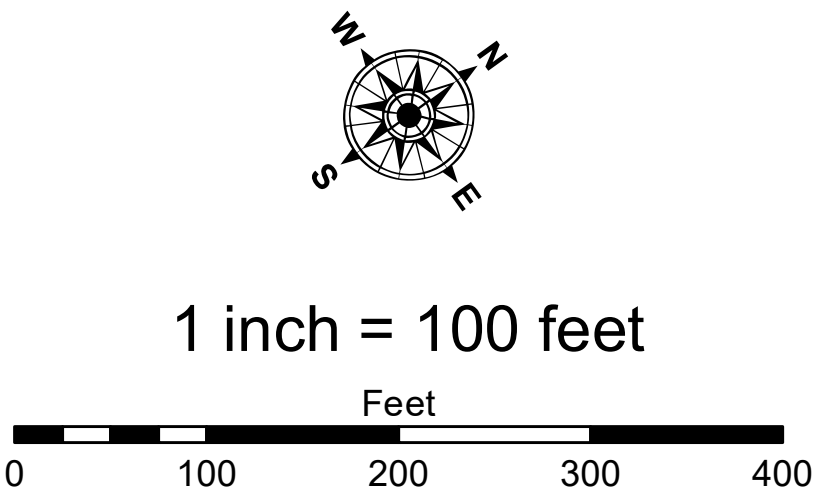
2010 AERIAL PHOTOGRAPHY DATA SOURCE: USGS
ALL COORDINATES ARE IN U.S. SURVEY FEET.

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Reference
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- LEGEND**
- Cable Submarine
 - - - Cable Overhead
 - Placement Area
 - Beacon, General
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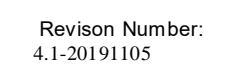
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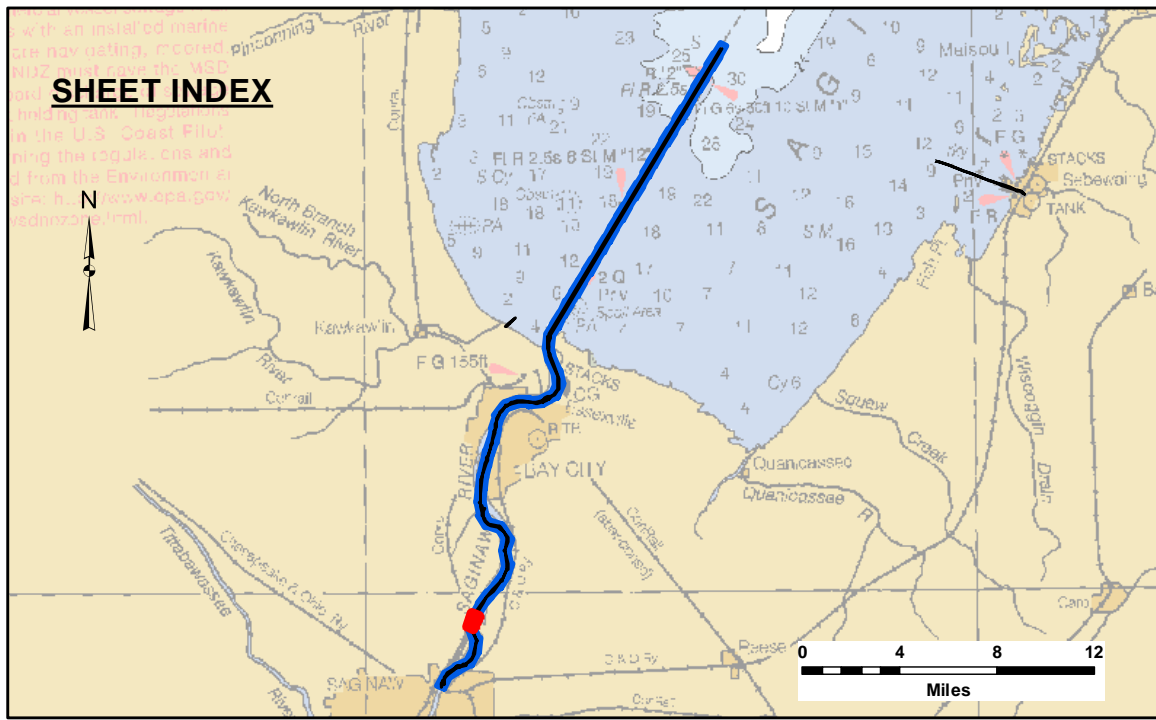
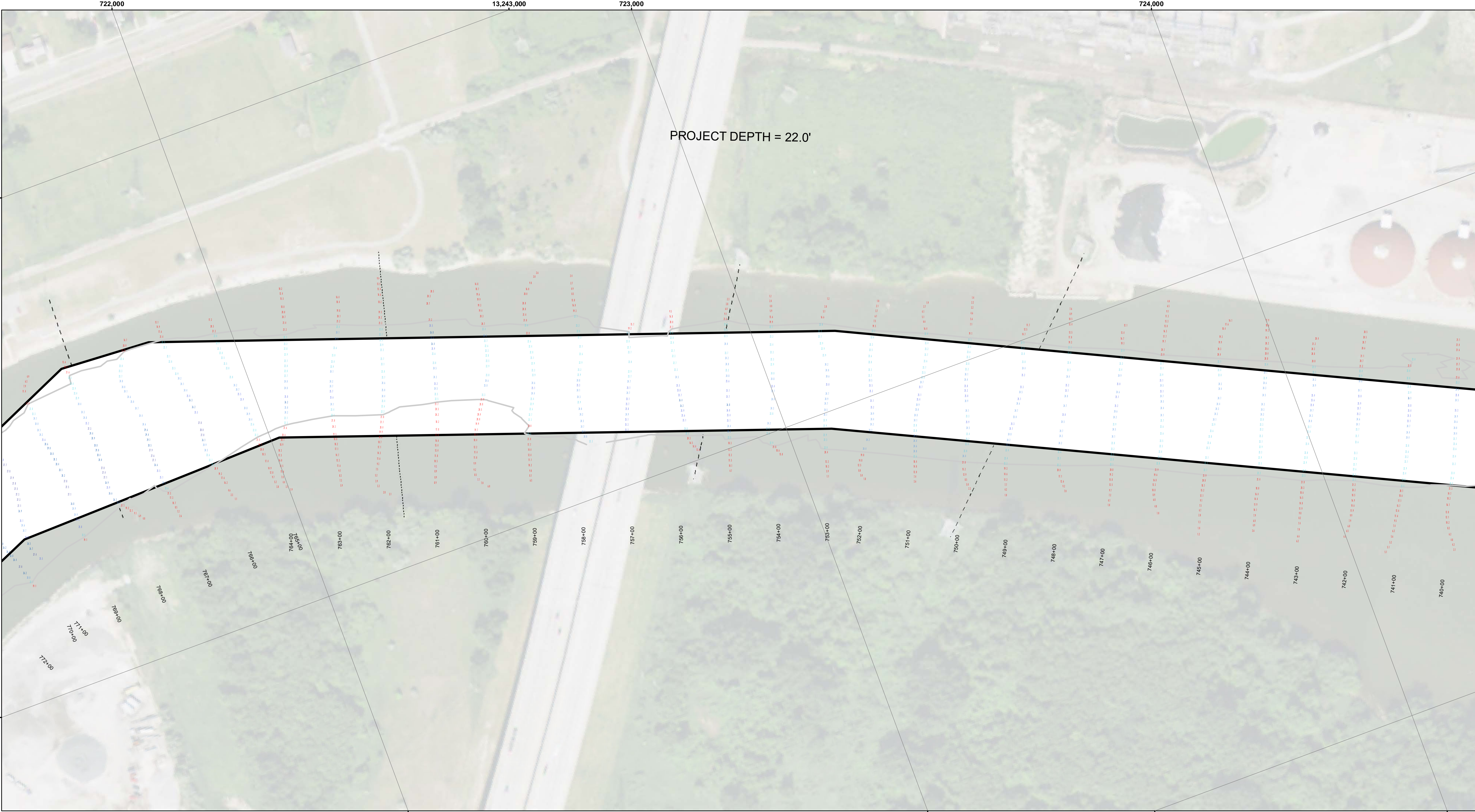
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| Submitted: | Surveyed By: |
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Saginaw, MI
Saginaw River
SH_01_SAG_20200701_CS
01 July 2020

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Reference
Number
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Revision Number:
4.1-20191105





LEGEND

- Cable Submarine
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1 inch = 100 feet

Feet

0 100 200 300 400

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US Army Corps of Engineers
District: CELRE

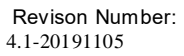
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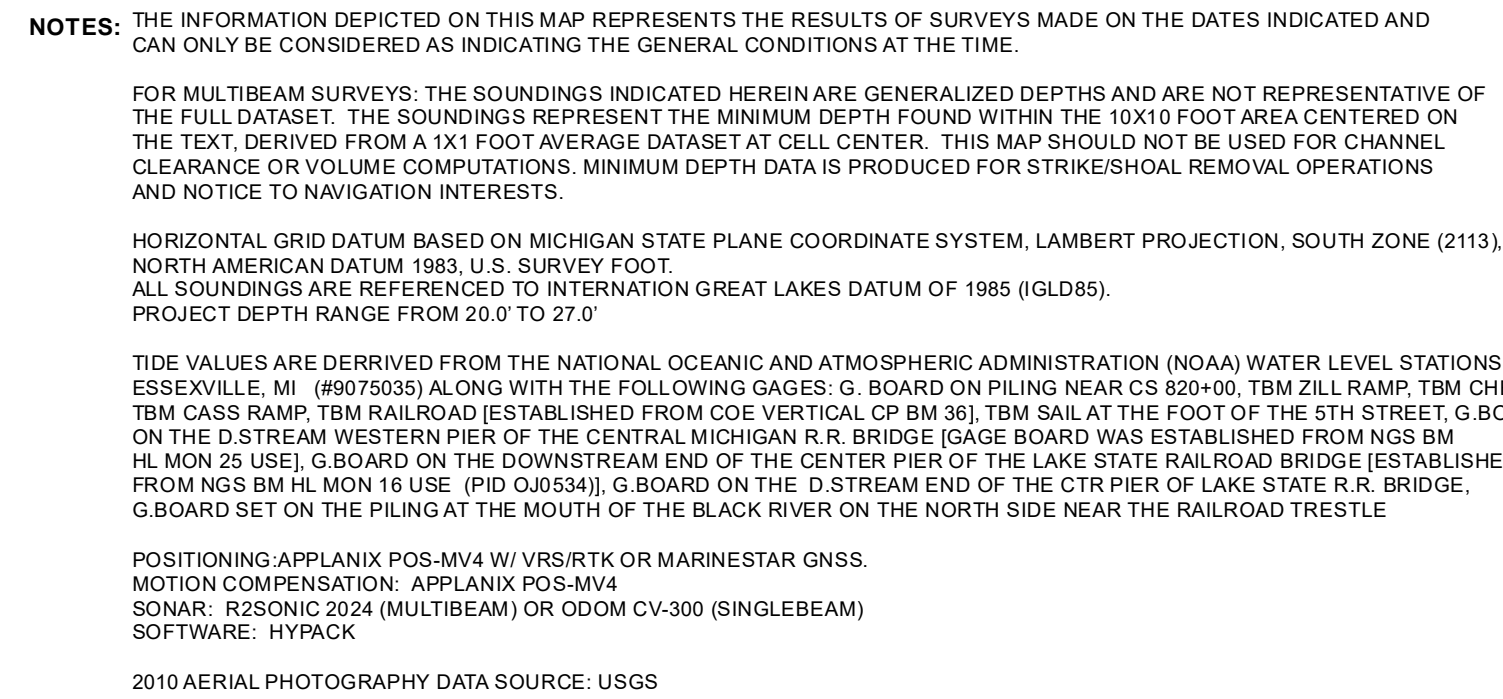
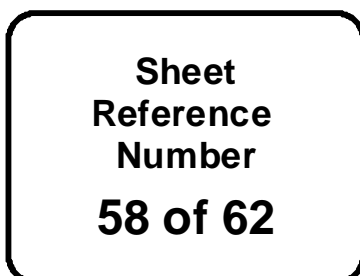
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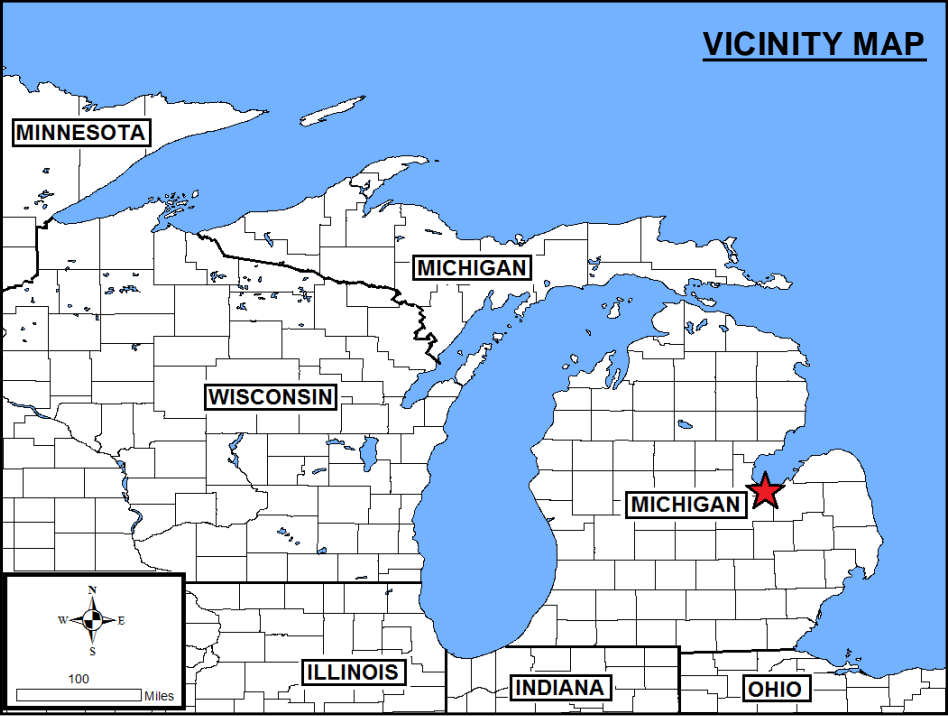
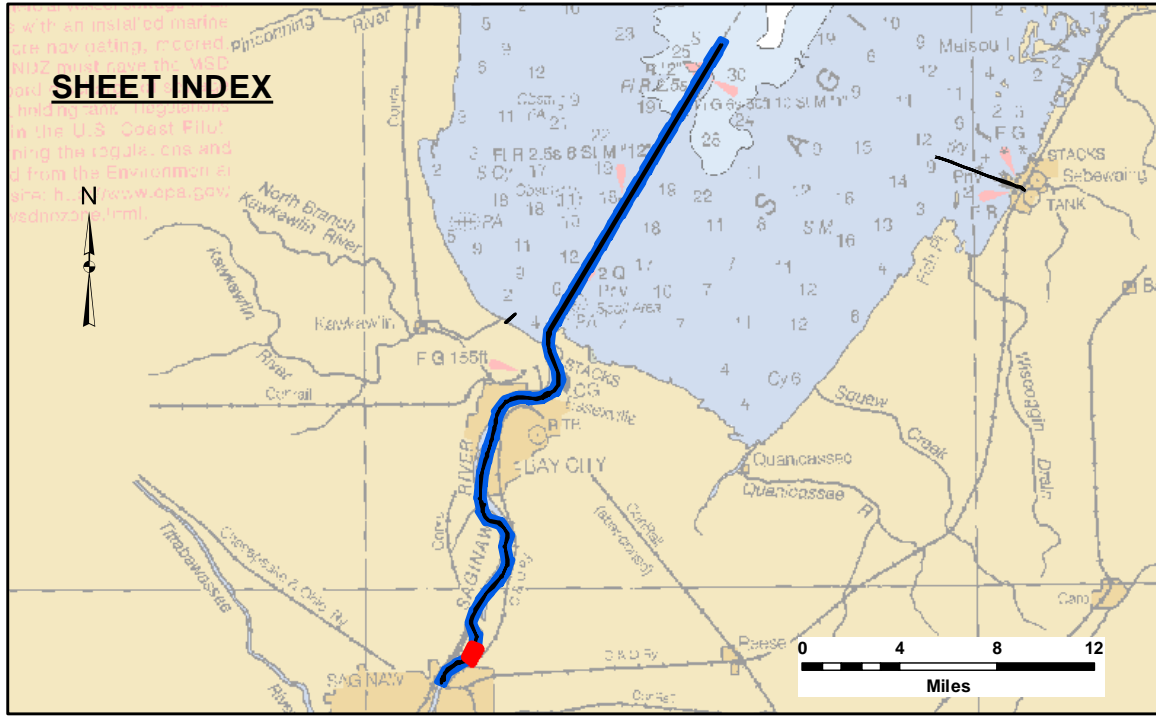
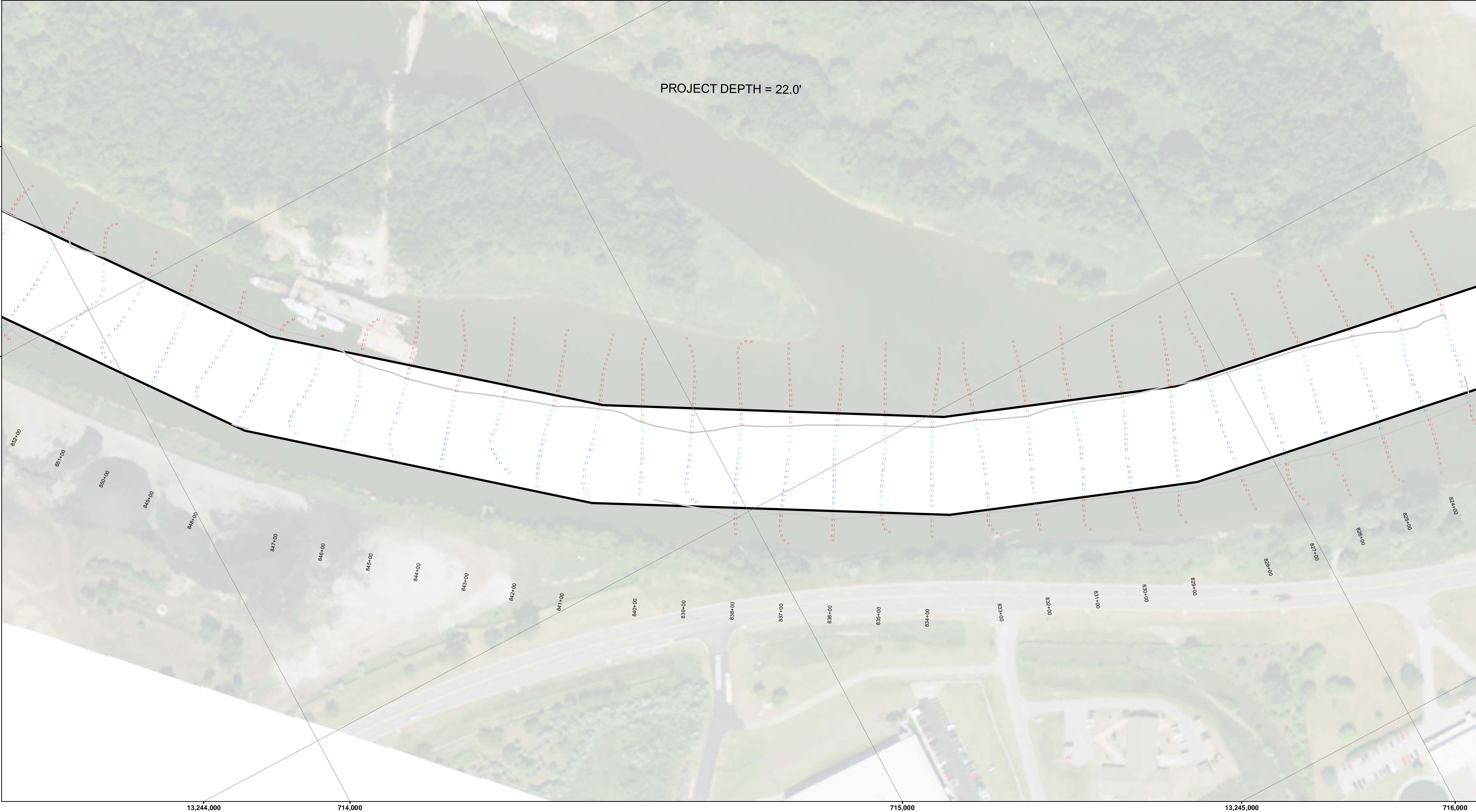
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| U.S. ARMY CORPS OF ENGINEERS DETROIT DISTRICT | |
| Submitted: _____ | Surveyed By: _____ |
| Recommended: _____ | Plotted By: _____ |
| Approved: _____ | Checked By: _____ |
| Chief, Survey Section | |
| Chief, Technical Services | |

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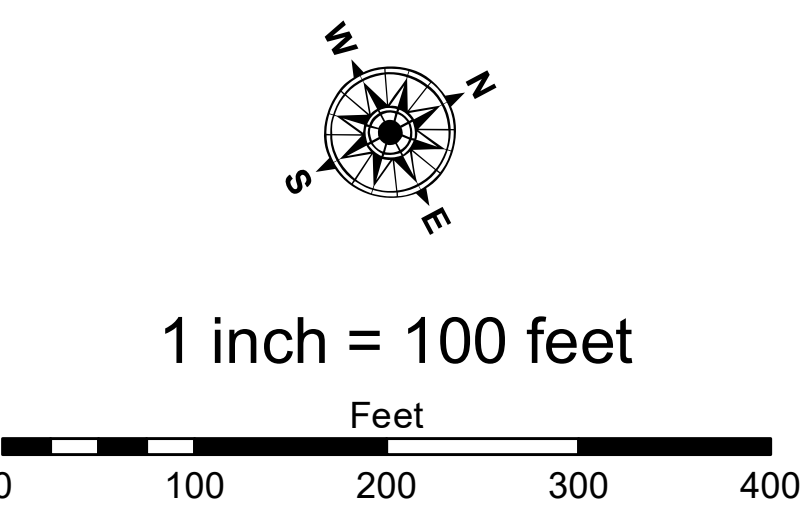






- LEGEND**
- Cable Submarine
 - - Cable Overhead
 - Placement Area
 - Beacon, General
 - Contour Lines
 - Channel_Limits

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



NOTES: 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.

FOR MULTIBEAM SURVEYS: THE SOUNDINGS INDICATED HEREIN ARE GENERALIZED DEPTHS AND ARE NOT REPRESENTATIVE OF THE FULL DATASET. THE SOUNDINGS REPRESENT THE MINIMUM DEPTH FOUND WITHIN THE 10X10 FOOT AREA CENTERED ON THE TEXT. DERIVED FROM A 1X1 FOOT AVERAGE DATASET AT CELL CENTER. THIS MAP SHOULD NOT BE USED FOR CHANNEL CLEARANCE OR VOLUME COMPUTATIONS. MINIMUM DEPTH DATA IS PRODUCED FOR STRIKE/SOAL REMOVAL OPERATIONS AND NOTICE TO NAVIGATION INTERESTS.

HORIZONTAL GRID DATUM BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM, LAMBERT PROJECTION, SOUTH ZONE (2113), NORTH AMERICAN DATUM 1983, U.S. SURVEY FOOT.

ALL SOUNDINGS ARE REFERENCED TO INTERNATIONAL GREAT LAKES DATUM OF 1985 (IGLD85).

PROJECT DEPTH RANGE FROM 20.0 TO 27.0'

TIDE VALUES ARE DERIVED FROM THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) WATER LEVEL STATIONS: ESSEXVILLE, MI (#9075035) ALONG WITH THE FOLLOWING GAGES: G. BOARD ON PILING NEAR CS 620+00, TBM ZILL RAMP, TBM CHEB, TBM CASS RAMP, TBM RAILROAD (ESTABLISHED FROM COE VERTICAL CP BM 36), TBM SAIL AT THE FOOT OF THE 5TH STREET, G. BOARD ON THE D. STREAM WESTERN PIER OF THE CENTRAL MICHIGAN R.R. BRIDGE [GAGE BOARD WAS ESTABLISHED FROM NGS BM HL MON 25 USE], G. BOARD ON THE DOWNSTREAM END OF THE CENTER PIER OF THE LAKE STATE RAILROAD BRIDGE [ESTABLISHED FROM NGS BM HL MON 16 USE (PID 0J0534)], G. BOARD ON THE D. STREAM END OF THE CTR PIER OF LAKE STATE R.R. BRIDGE, G. BOARD SET ON THE PILING AT THE MOUTH OF THE BLACK RIVER ON THE NORTH SIDE NEAR THE RAILROAD TRESTLE

POSITIONING: APPLANIX POS-MV4 W/ VRS/IRTK OR MARINESTAR GNSS.
MOTION COMPENSATION: APPLANIX POS-MV4
SONAR: R2SONIC 2024 (MULTIBEAM) OR ODOM CV-300 (SINGLEBEAM)
SOFTWARE: HYPACK

2010 AERIAL PHOTOGRAPHY DATA SOURCE: USGS
ALL COORDINATES ARE IN U.S. SURVEY FEET.



DISCLAIMER: The data presented in this map represents the results of data collection and processing for a specific project. The U.S. Army Corps of Engineers is not responsible for the accuracy or completeness of the data or the results of any application of the data for other than its intended purpose. The user is responsible for the accuracy and completeness of the data and the results of any application of the data for other than its intended purpose. The user is responsible for the accuracy and completeness of the data and the results of any application of the data for other than its intended purpose.

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