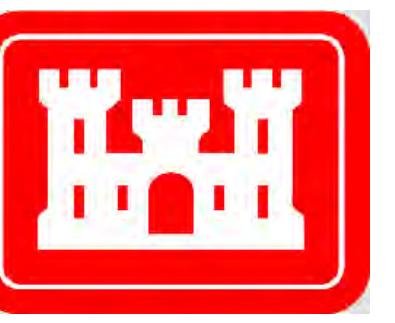
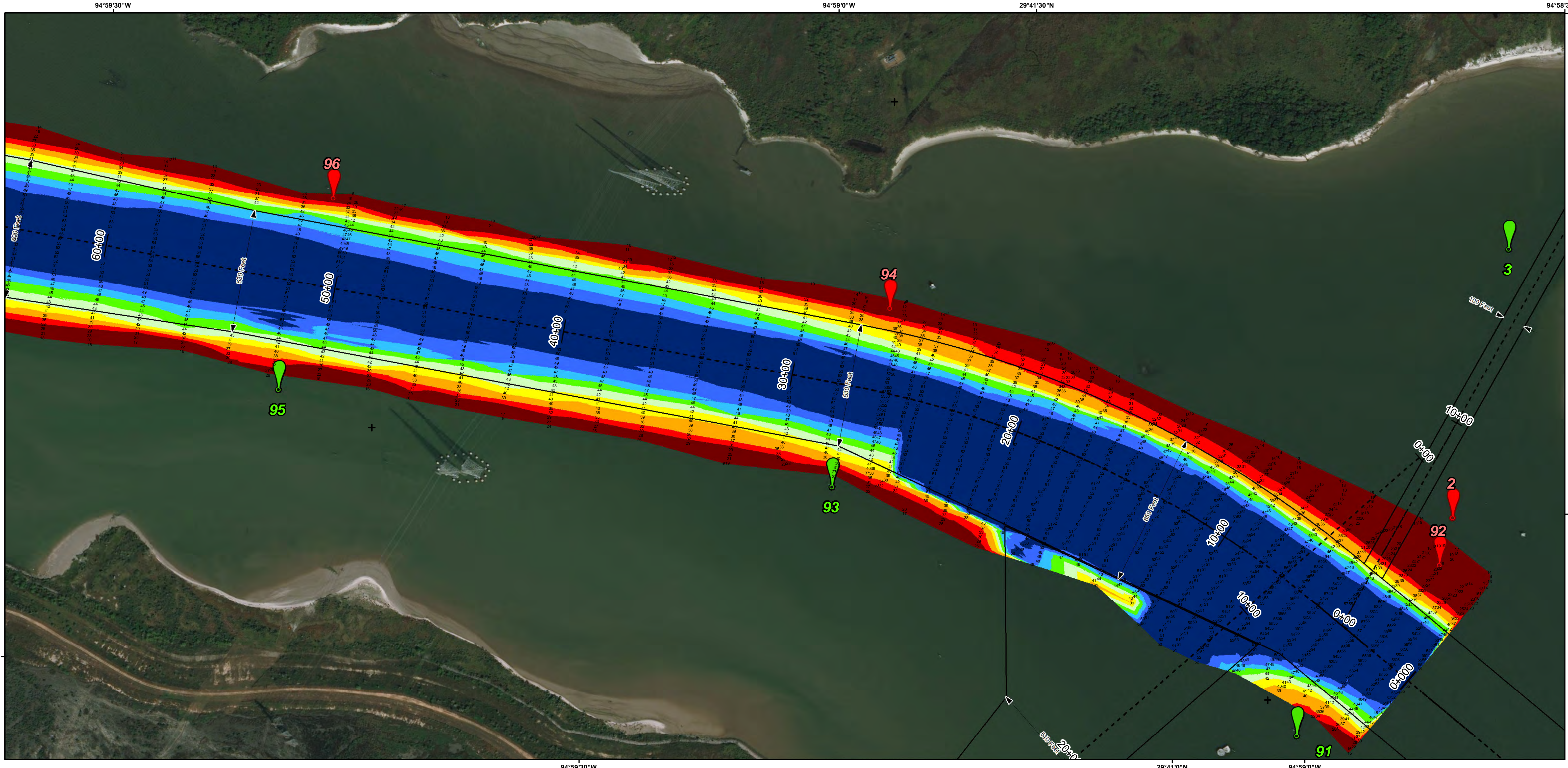
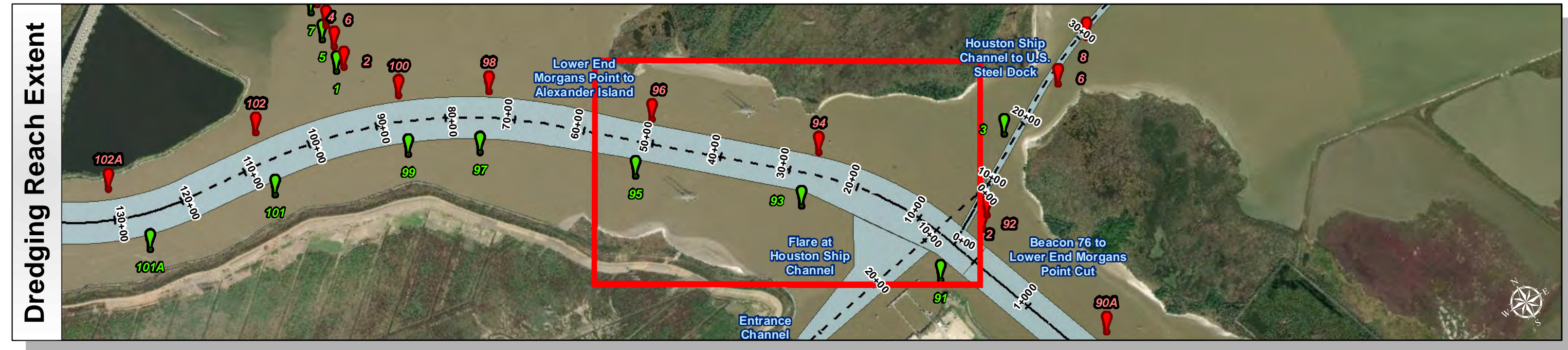
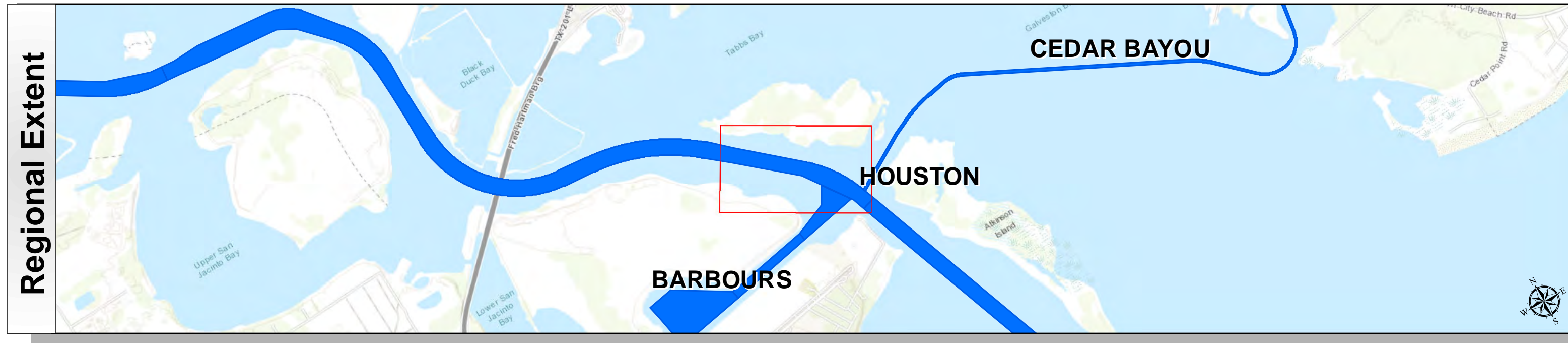


# Houston Ship Channel: Lower End Morgans Point to Alexander Island



U.S. Army Corps of Engineers  
Galveston District



|                              |   |
|------------------------------|---|
| Survey Date(s): 31 July 2019 | Authorized Depth: -46.5ft.              |
| Page: 25 of 61               | Side Slope Ratio: (Rise : Run)          |
| Scale: 1:2,500               | Additional Imagery: © DigitalGlobe Inc. |
| Mapped by: MSAOX PAC         | Print Date: 12/16/2019                  |
| Additional Info:             |   |

**Channel Features**

- Channel Toe
- Channel Center Line
- Channel Station Lines
- Channel Dimensions

**Aids to Navigation**

- Green Side Aids
- Red Side Aids
- Lights

**MLLW**

|        |         |         |         |         |         |         |         |      |
|--------|---------|---------|---------|---------|---------|---------|---------|------|
| 0 - 30 | 30 - 35 | 35 - 40 | 40 - 42 | 42 - 44 | 44 - 46 | 46 - 48 | 48 - 50 | < 50 |
|--------|---------|---------|---------|---------|---------|---------|---------|------|

**NOAA Bathymetry (DREDGING REACH EXTENT)**

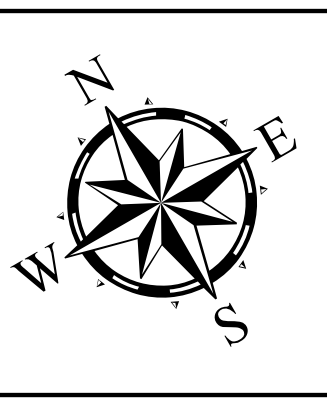
|        |         |         |         |         |         |
|--------|---------|---------|---------|---------|---------|
| 0 - 10 | 10 - 15 | 15 - 20 | 20 - 25 | 25 - 30 | 30 - 50 |
|--------|---------|---------|---------|---------|---------|

**NOTES:**

- HORIZONTAL COORDINATES ARE REFERENCED TO TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE NAD83 US SURVEY FEET.
- ELEVATIONS ARE REFERENCED TO MEAN LOWER LOW TIDE (MLLW) DATUM.
- THIS PROJECT WAS DESIGNED BY THE GALVESTON DISTRICT OF THE U.S. ARMY CORPS OF ENGINEERS. THE INITIALS AND SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER1110-1-8152.

- THE INFORMATION DEPICTED ON THIS SURVEY MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME. THESE CONDITIONS ARE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS. A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REQUIRED BY 33 CFR 209.325
- FOR THE MOST UP TO DATE INFORMATION PLEASE CHECK OUR WEBSITE AT: [HTTP://WWW.SWG.USACE.ARMY.MIL/MISSIONS/NAVIGATION/HYDROGRAPHIC-SURVEYS/](http://www.swg.usace.army.mil/missions/navigation/hydrographic-surveys/)
- NOAA BATHYMETRY CONTOURS PRODUCED FROM HISTORIC BATHYMETRIC (HYDROGRAPHIC) SURVEYS CONDUCTED BY THE NOAA NATIONAL OCEAN SERVICE/COAST SURVEY, AVAILABLE FROM THE NATIONAL GEOPHYSICAL DATA CENTER. SURVEYS VARY AS TO SOUNDING DENSITY, ACCURACY OF DEPTH, ACCURACY OF NAVIGATION, ZERO DATUM, DATE OF SURVEY AND TYPE OF INSTRUMENTATION.

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community  
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community  
Esri, Garmin, GEBCO, NOAA NGDC, and other contributors



Coordinate System: NAD 1983 StatePlane Texas South Central FIPS 4204 Feet  
Projection: Lambert Conformal Conic, Datum: North American 1983

**Dredging Reach Extent**

**Hydrographic Survey Extent**

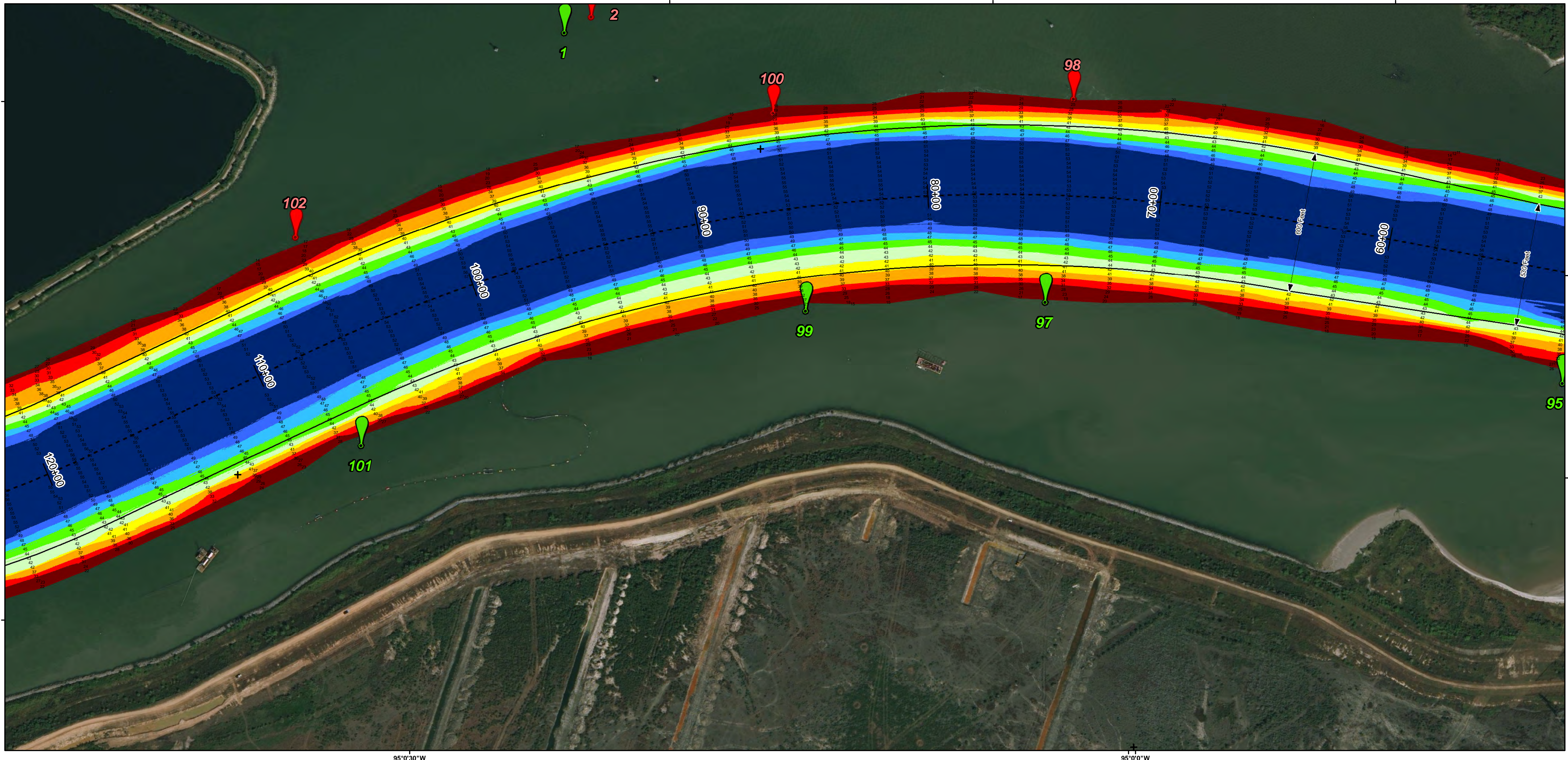
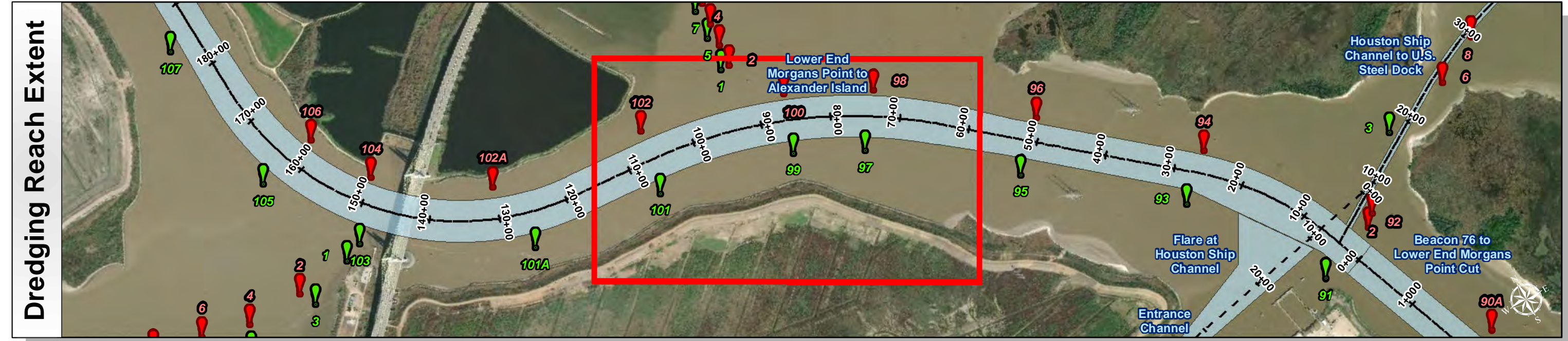
**HYDROGRAPHIC SURVEY**  
U.S. ARMY ENGINEER DISTRICT  
CORPS OF ENGINEERS  
GALVESTON, TEXAS

**Station: 0+000 to 295+00**  
**HOUSTON**  
HOUSTON, TEXAS

# Houston Ship Channel: Lower End Morgans Point to Alexander Island



U.S. Army Corps of Engineers  
Galveston District



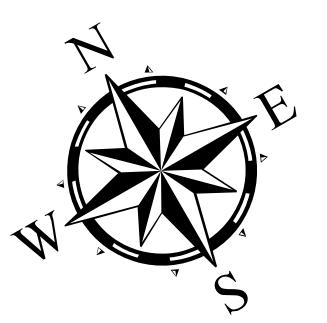
|                              |   |
|------------------------------|---|
| Survey Date(s): 31 July 2019 | Authorized Depth: -46.5ft.              |
| Page: 26 of 61               | Side Slope Ratio: (Rise : Run)          |
| Scale: 1:2,500               | Additional Imagery: © DigitalGlobe Inc. |
| Mapped by: MSAOX PAC         | Print Date: 12/16/2019                  |
| Additional Info:             |   |

| Channel Features  | Aids to Navigation   | MLLW   |
|---|--|--|
| <ul style="list-style-type: none"> <li>Channel Toe</li> <li>Channel Center Line</li> <li>Channel Station Lines</li> <li>Channel Dimensions</li> </ul> | <ul style="list-style-type: none"> <li>Green Side Aids</li> <li>Red Side Aids</li> <li>Lights</li> </ul> | <p>NOAA Bathymetry (DREDGING REACH EXTENT)</p> <p>0 - 10   10 - 15   15 - 20   20 - 25   25 - 30   30 - 50</p> |

**NOTES:**

- HORIZONTAL COORDINATES ARE REFERENCED TO TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE NAD83 US SURVEY FEET.
- ELEVATIONS ARE REFERENCED TO MEAN LOWER LOW TIDE (MLLW) DATUM.
- THIS PROJECT WAS DESIGNED BY THE GALVESTON DISTRICT OF THE U.S. ARMY CORPS OF ENGINEERS. THE INITIALS AND SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER1110-1-8152.
- THE INFORMATION DEPICTED ON THIS SURVEY MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME. THESE CONDITIONS ARE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS. A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REQUIRED BY 33 CFR 209.325
- FOR THE MOST UP TO DATE INFORMATION PLEASE CHECK OUR WEBSITE AT: [HTTP://WWW.SWG.USACE.ARMY.MIL/MISSIONS/NAVIGATION/HYDROGRAPHIC/SURVEYS/](http://www.swg.usace.army.mil/missions/navigation/hydrographic/surveys/)
- NOAA BATHYMETRY CONTOURS PRODUCED FROM HISTORIC BATHYMETRIC (HYDROGRAPHIC) SURVEYS CONDUCTED BY THE NOAA NATIONAL OCEAN SERVICE COAST SURVEY, AVAILABLE FROM THE NATIONAL GEOPHYSICAL DATA CENTER. SURVEYS VARY AS TO SOUNDING DENSITY, ACCURACY OF DEPTH, ACCURACY OF NAVIGATION, ZERO DATUM, DATE OF SURVEY AND TYPE OF INSTRUMENTATION.

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community  
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community  
Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

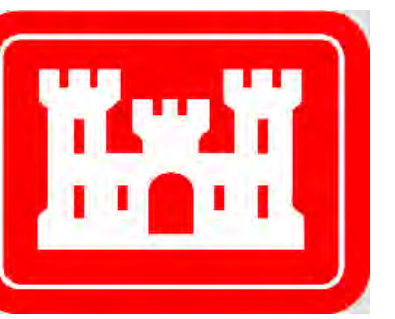


|  |
|--|
| Coordinate System: NAD 1983 StatePlane Texas South Central FIPS 4204 Feet<br>Projection: Lambert Conformal Conic /Datum: North American 1983 |
| Dredging Reach Extent<br>0   0.25   0.5   1<br>Miles   |
| Hydrographic Survey Extent<br>0   215   430   860<br>Feet  |

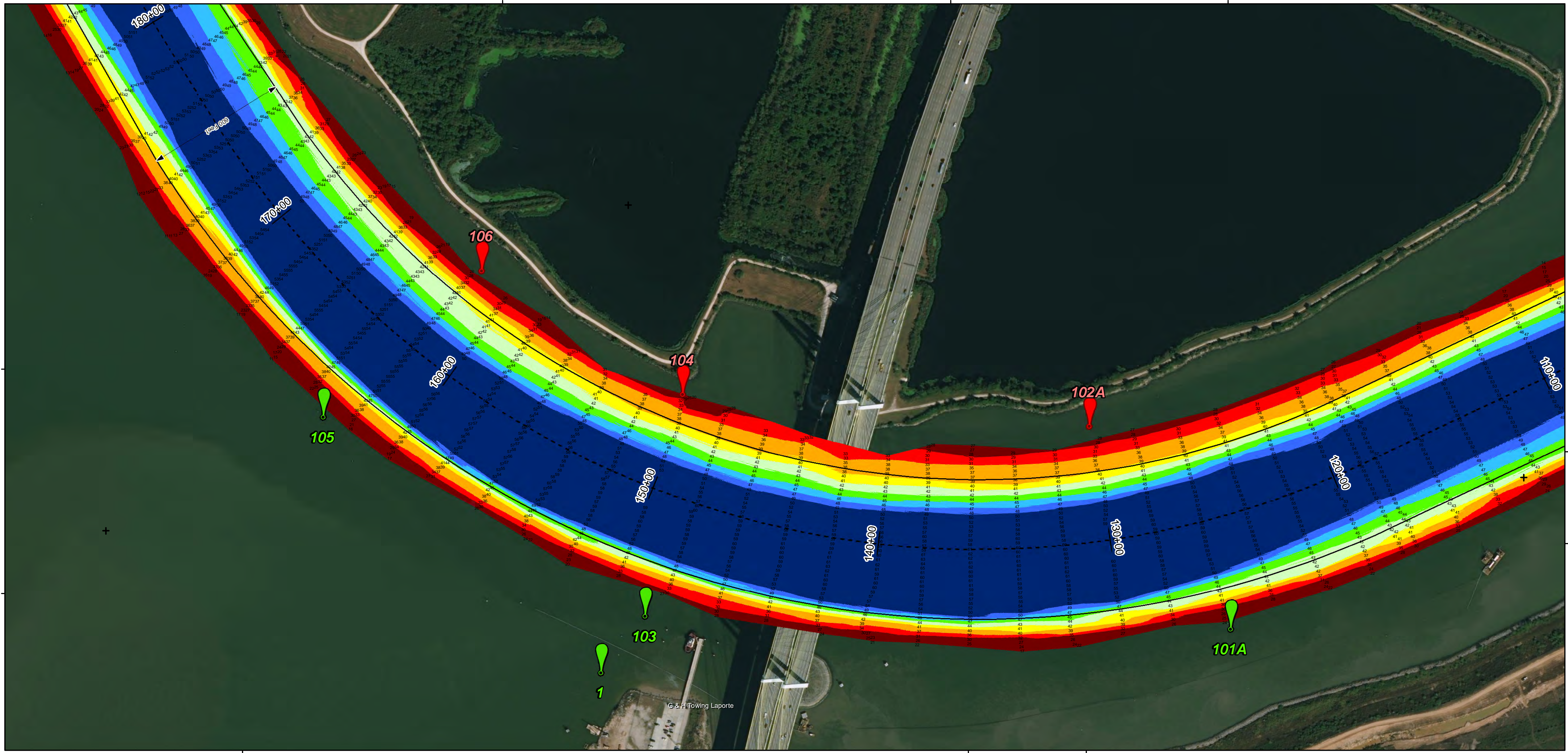
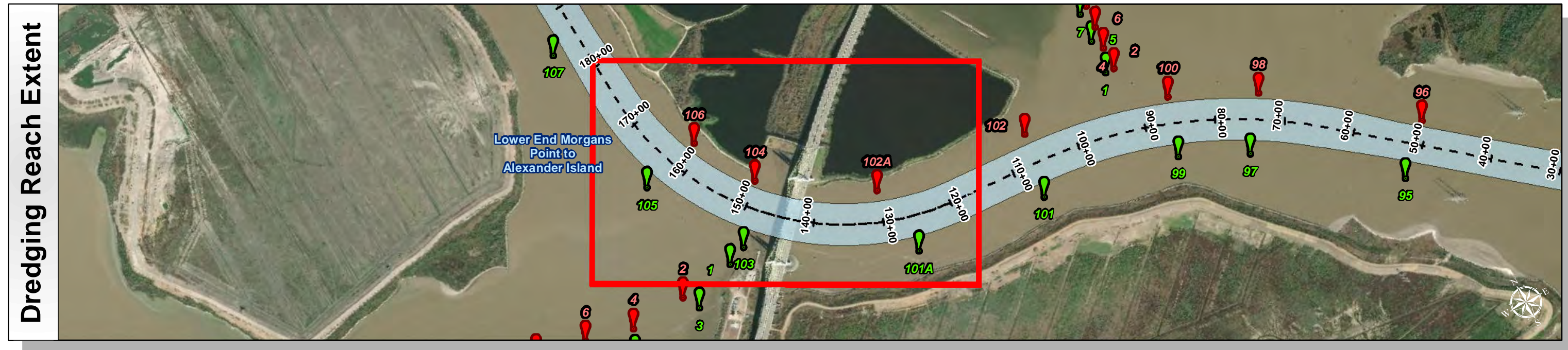
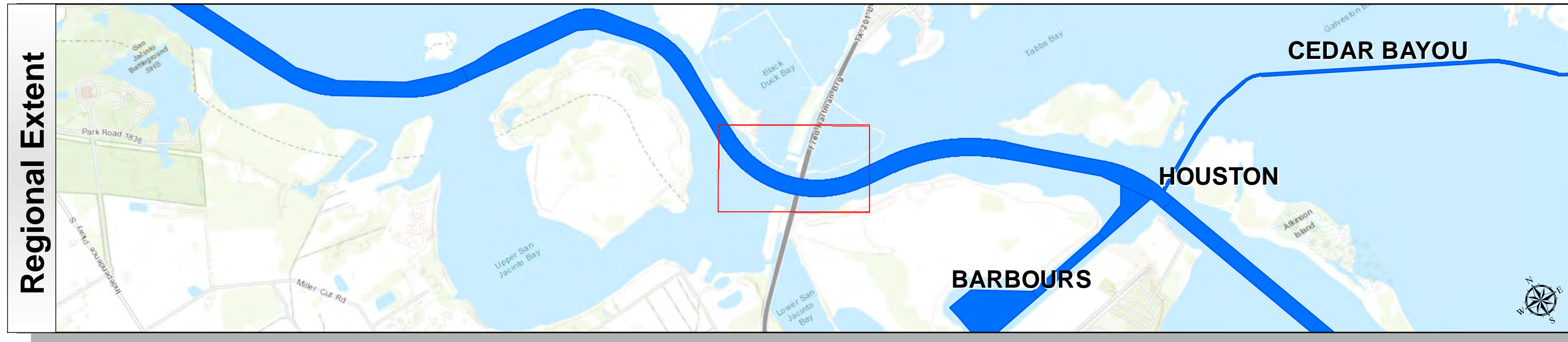
**HYDROGRAPHIC SURVEY**  
U.S. ARMY ENGINEER DISTRICT  
CORPS OF ENGINEERS  
GALVESTON, TEXAS

**Station: 0+000 to 295+00**  
**HOUSTON**  
HOUSTON, TEXAS

# Houston Ship Channel: Lower End Morgans Point to Alexander Island



U.S. Army Corps of Engineers  
Galveston District



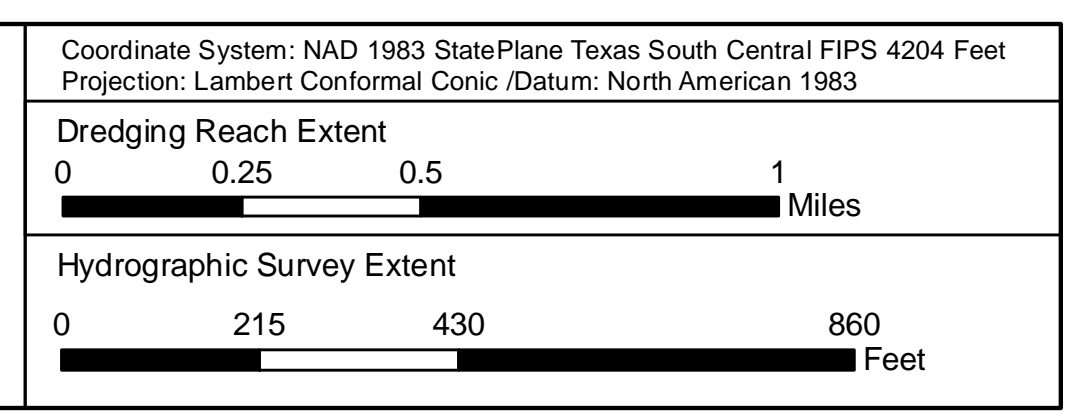
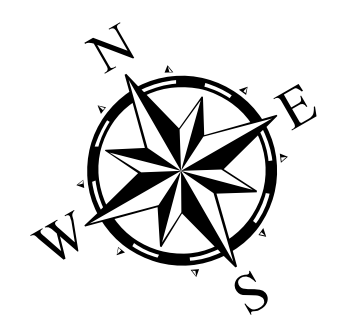
|                              |   |
|------------------------------|---|
| Survey Date(s): 31 July 2019 | Authorized Depth: -46.5ft.              |
| Page: 27 of 61               | Side Slope Ratio: (Rise : Run)          |
| Scale: 1:2,500               | Additional Imagery: © DigitalGlobe Inc. |
| Mapped by: MSAOX PAC         | Print Date: 12/16/2019                  |
| Additional Info:             |   |

| Channel Features  | Aids to Navigation   | MLLW   |
|---|--|--|
| <ul style="list-style-type: none"> <li>Channel Toe</li> <li>Channel Center Line</li> <li>Channel Station Lines</li> <li>Channel Dimensions</li> </ul> | <ul style="list-style-type: none"> <li>Green Side Aids</li> <li>Red Side Aids</li> <li>Lights</li> </ul> | <p>0 - 30   30 - 35   35 - 40   40 - 42   42 - 44   44 - 46   46 - 48   48 - 50   &lt; 50</p> <p>NOAA Bathymetry (DREDGING REACH EXTENT)</p> <p>0 - 10   10 - 15   15 - 20   20 - 25   25 - 30   30 - 50</p> |

**NOTES:**

- HORIZONTAL COORDINATES ARE REFERENCED TO TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE NAD83 US SURVEY FEET.
- ELEVATIONS ARE REFERENCED TO MEAN LOWER LOW TIDE (MLLW) DATUM.
- THIS PROJECT WAS DESIGNED BY THE GALVESTON DISTRICT OF THE U.S. ARMY CORPS OF ENGINEERS. THE INITIALS AND SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER1110-1-8152.
- THE INFORMATION DEPICTED ON THIS SURVEY MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME. THESE CONDITIONS ARE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS. A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REQUIRED BY 33 CFR 209.325
- FOR THE MOST UP TO DATE INFORMATION PLEASE CHECK OUR WEBSITE AT: [HTTP://WWW.SWG.USACE.ARMY.MIL/MISSIONS/NAVIGATION/HYDROGRAPHIC-SURVEYS/](http://www.swg.usace.army.mil/missions/navigation/hydrographic-surveys/)
- NOAA BATHYMETRY CONTOURS PRODUCED FROM HISTORIC BATHYMETRIC (HYDROGRAPHIC) SURVEYS CONDUCTED BY THE NOAA NATIONAL OCEAN SERVICE/OCEAN SURVEY, AVAILABLE FROM THE NATIONAL GEOPHYSICAL DATA CENTER. SURVEYS VARY AS TO SOUNDING DENSITY, ACCURACY OF DEPTH, ACCURACY OF NAVIGATION, ZERO DATUM, DATE OF SURVEY AND TYPE OF INSTRUMENTATION.

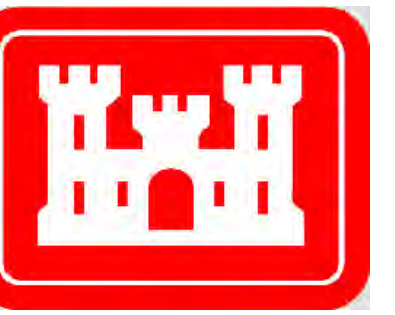
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community  
Sources: Esri, HERE, Garmin, Intermap, Increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community  
Esri, Garmin, GEBCO, NOAA NGDC, and other contributors



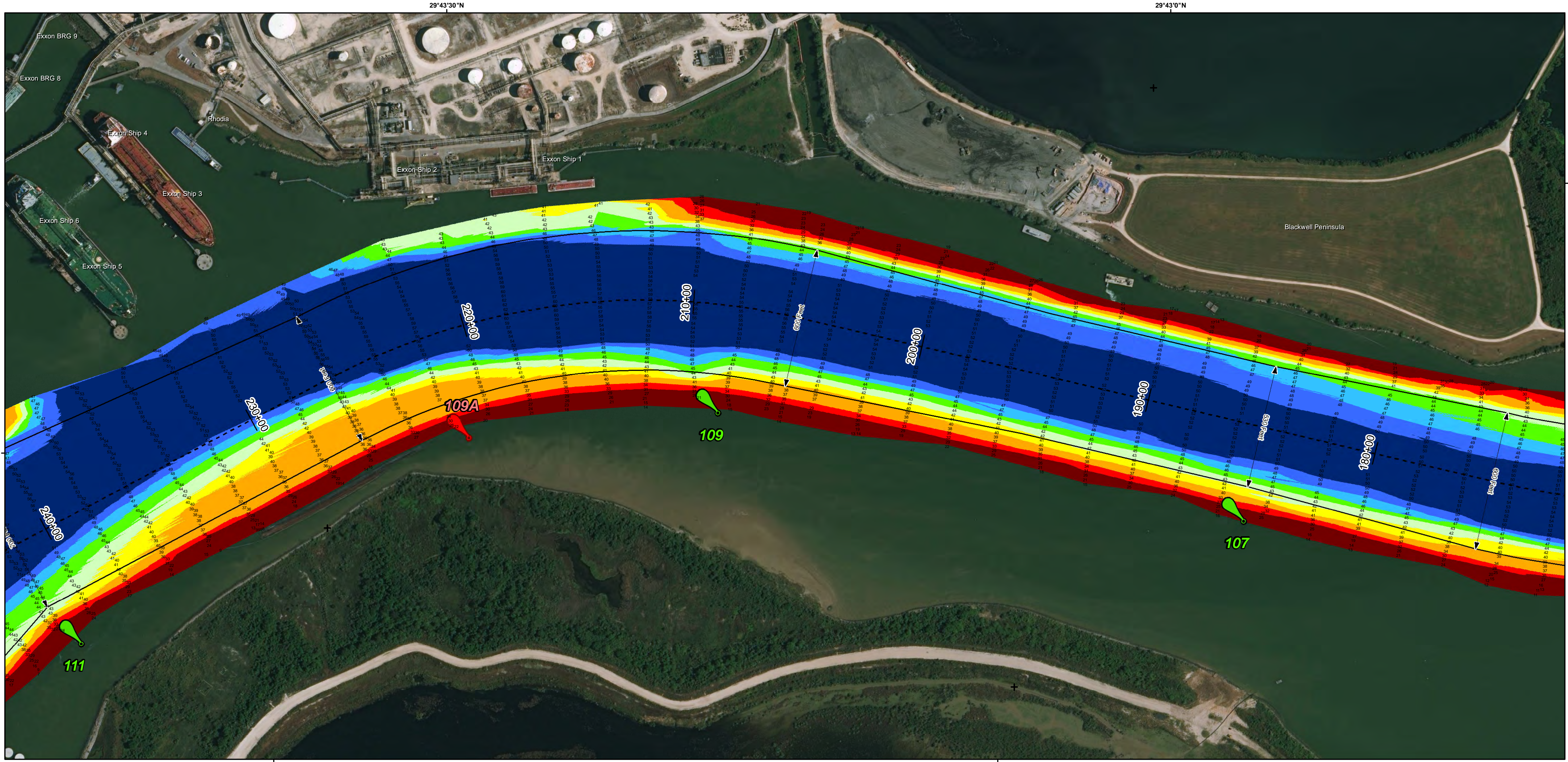
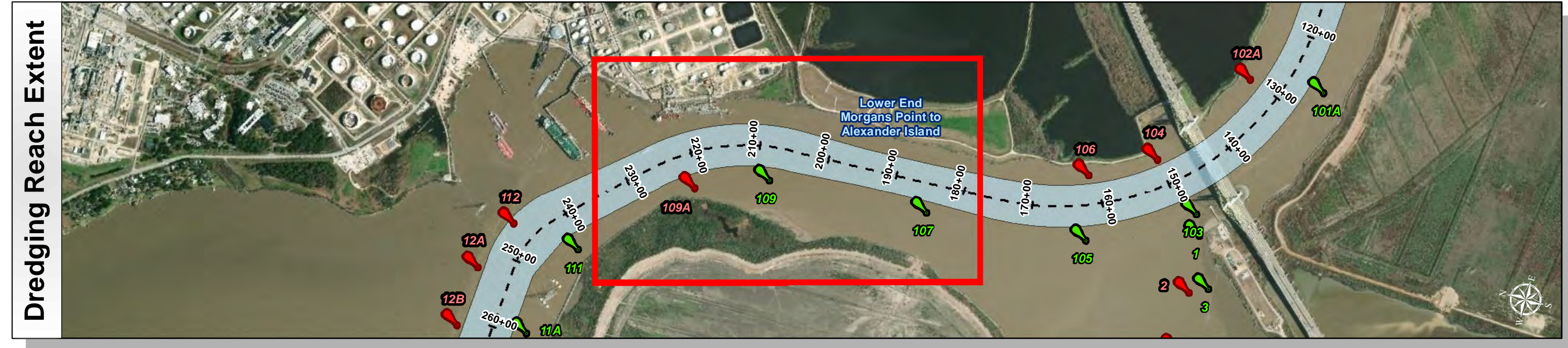
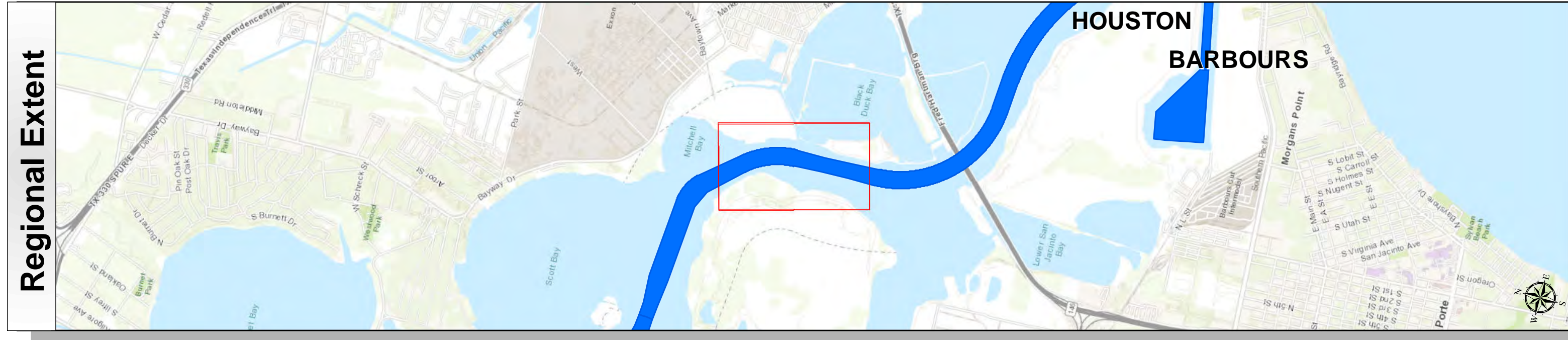
**HYDROGRAPHIC SURVEY**  
U.S. ARMY ENGINEER DISTRICT  
CORPS OF ENGINEERS  
GALVESTON, TEXAS

**Station: 0+000 to 295+00**  
**HOUSTON**  
HOUSTON, TEXAS

# Houston Ship Channel: Lower End Morgans Point to Alexander Island



U.S. Army Corps of Engineers  
Galveston District

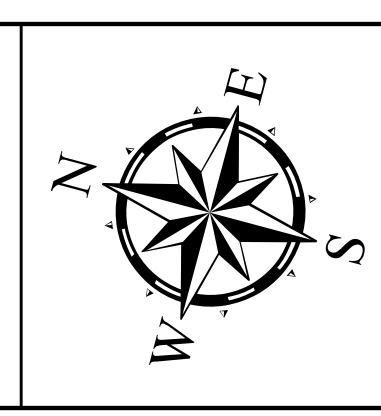


| Channel Features          | Aids to Navigation | MLLW                                    |
|---------------------------|--------------------|---|
| — Channel Toe             | Green Side Aids    | 0 - 30                                  |
| - - - Channel Center Line | Red Side Aids      | 30 - 35                                 |
| — Channel Station Lines   | Lights             | 35 - 40                                 |
| ↔ Channel Dimensions      |                    | 40 - 42                                 |
|                           |                    | 42 - 44                                 |
|                           |                    | 44 - 46                                 |
|                           |                    | 46 - 48                                 |
|                           |                    | 48 - 50                                 |
|                           |                    | < 50                                    |
|                           |                    | NOAA Bathymetry (DREDGING REACH EXTENT) |
|                           |                    | 0 - 10                                  |
|                           |                    | 10 - 15                                 |
|                           |                    | 15 - 20                                 |
|                           |                    | 20 - 25                                 |
|                           |                    | 25 - 30                                 |
|                           |                    | 30 - 50                                 |

**NOTES:**

- HORIZONTAL COORDINATES ARE REFERENCED TO TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE NAD83 US SURVEY FEET.
- ELEVATIONS ARE REFERENCED TO MEAN LOWER LOW TIDE (MLLW) DATUM.
- THIS PROJECT WAS DESIGNED BY THE GALVESTON DISTRICT OF THE U.S. ARMY CORPS OF ENGINEERS. THE INITIALS AND SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER1110-1-8152.
- THE INFORMATION DEPICTED ON THIS SURVEY MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME. THESE CONDITIONS ARE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS. A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REQUIRED BY 33 CFR 209.325
- FOR THE MOST UP TO DATE INFORMATION PLEASE CHECK OUR WEBSITE AT: [HTTP://WWW.SWG.USACE.ARMY.MIL/MISSIONS/NAVIGATION/HYDROGRAPHIC/SURVEYS/](http://www.swg.usace.army.mil/missions/navigation/hydrographic/surveys/)
- NOAA BATHYMETRY CONTOURS PRODUCED FROM HISTORIC BATHYMETRIC (HYDROGRAPHIC) SURVEYS CONDUCTED BY THE NOAA NATIONAL OCEAN SERVICE COAST SURVEY, AVAILABLE FROM THE NATIONAL GEOPHYSICAL DATA CENTER. SURVEYS VARY AS TO SOUNDING DENSITY, ACCURACY OF DEPTH, ACCURACY OF NAVIGATION, ZERO DATUM, DATE OF SURVEY AND TYPE OF INSTRUMENTATION.

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community  
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community  
Esri, Garmin, GEBCO, NOAA NGDC, and other contributors



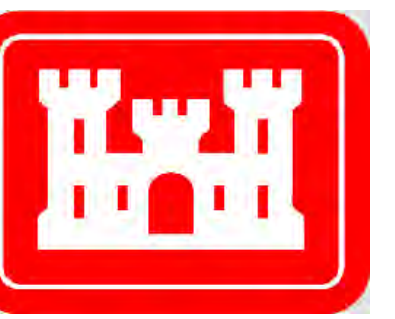
|   |
|---|
| Coordinate System: NAD 1983 StatePlane Texas South Central FIPS 4204 Feet<br>Projection: Lambert Conformal Conic / Datum: North American 1983 |
| Dredging Reach Extent<br>0 0.25 0.5 1 Miles   |
| Hydrographic Survey Extent<br>0 215 430 860 Feet  |

|                              |   |
|------------------------------|---|
| Survey Date(s): 31 July 2019 | Authorized Depth: -46.5ft.              |
| Page: 28 of 61               | Side Slope Ratio: (Rise : Run)          |
| Scale: 1:2,500               | Additional Imagery: © DigitalGlobe Inc. |
| Mapped by: MSAOX PAC         | Print Date: 12/16/2019                  |
| Additional Info:             |   |

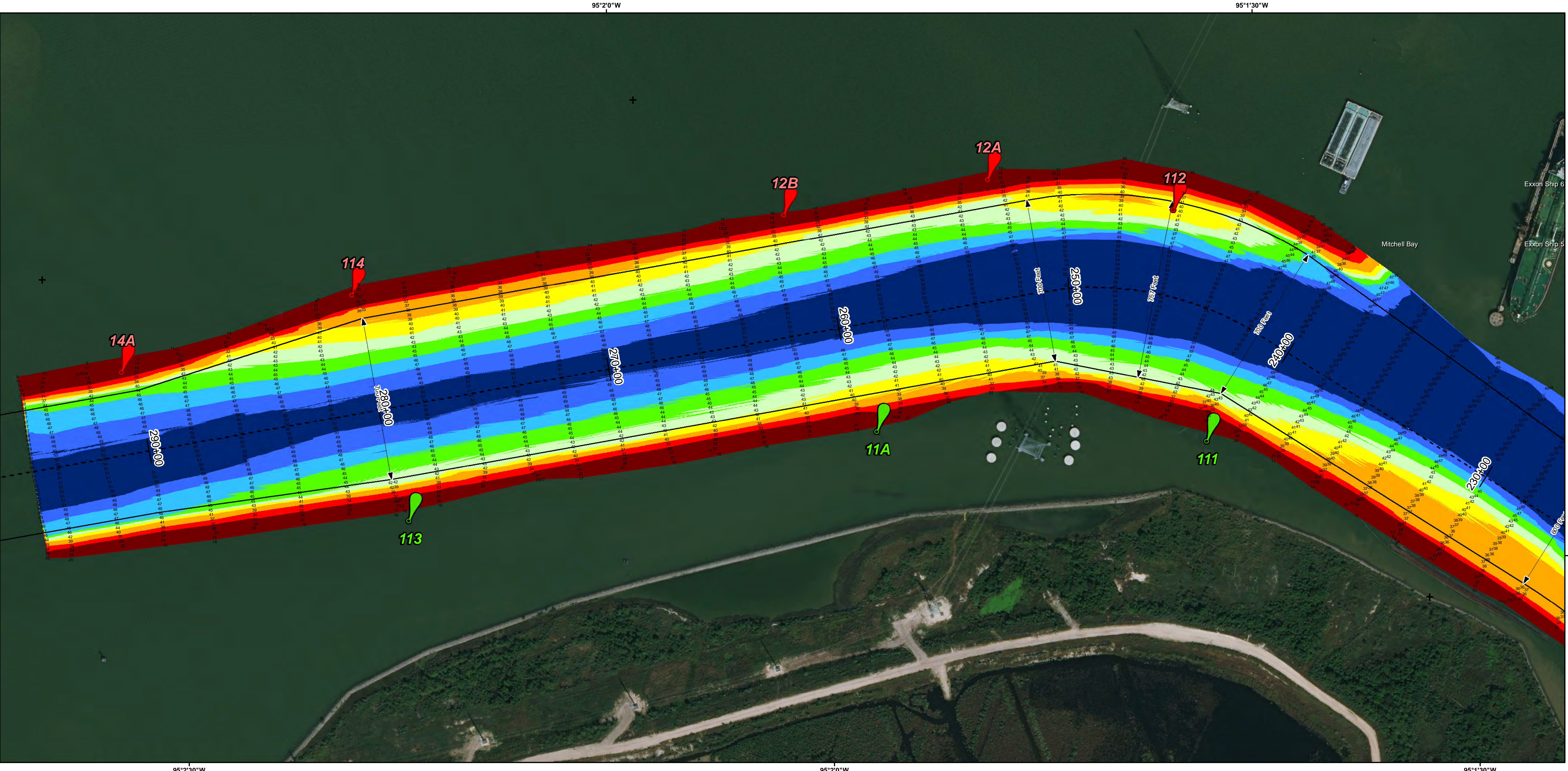
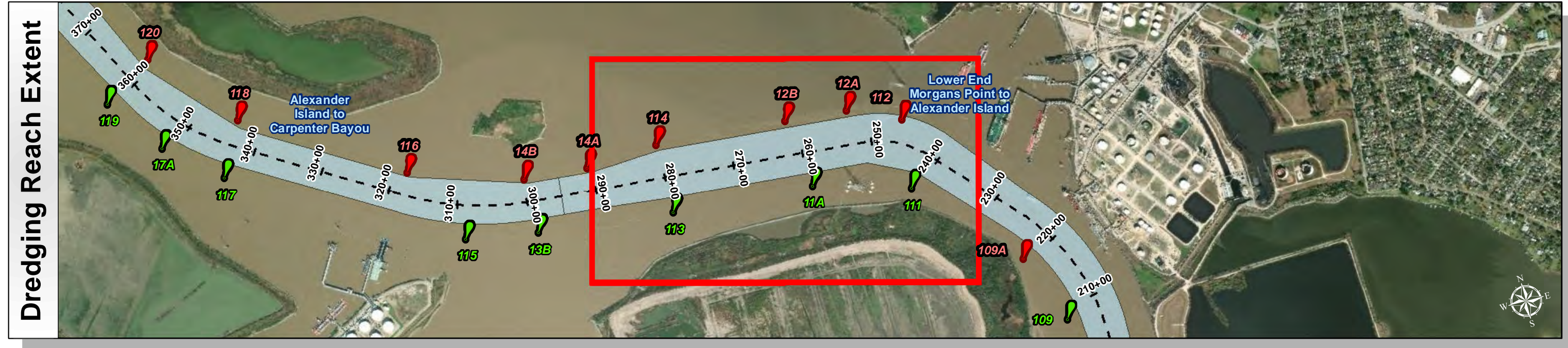
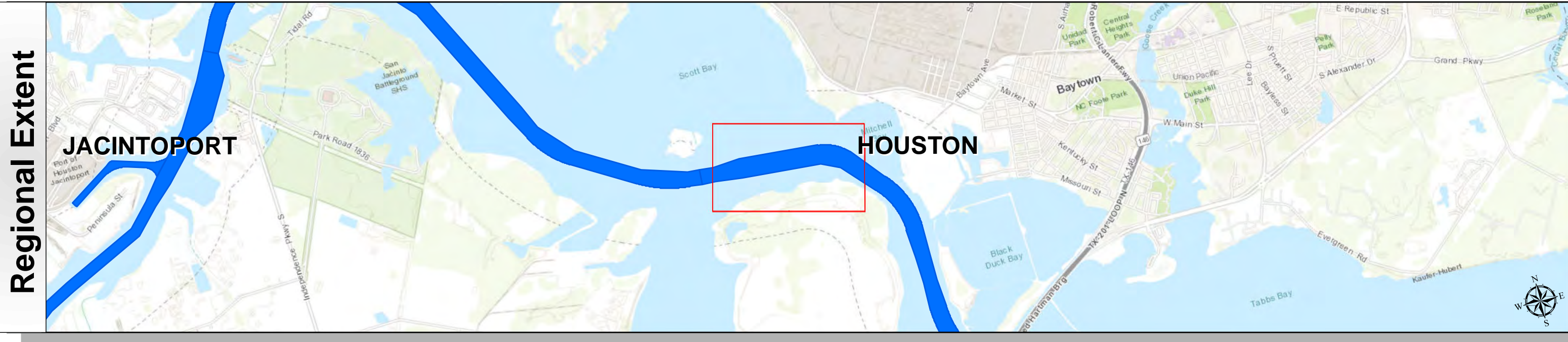
**HYDROGRAPHIC SURVEY**  
U.S. ARMY ENGINEER DISTRICT  
CORPS OF ENGINEERS  
GALVESTON, TEXAS

**Station: 0+00 to 295+00**  
**HOUSTON**  
HOUSTON, TEXAS

# Houston Ship Channel: Lower End Morgans Point to Alexander Island



U.S. Army Corps of Engineers  
Galveston District



|                              |   |
|------------------------------|---|
| Survey Date(s): 31 July 2019 | Authorized Depth: -46.5ft.              |
| Page: 29 of 61               | Side Slope Ratio: (Rise : Run)          |
| Scale: 1:2,500               | Additional Imagery: © DigitalGlobe Inc. |
| Mapped by: MSAOX PAC         | Print Date: 12/16/2019                  |
| Additional Info:             |   |

**Channel Features**

- Channel Toe
- Channel Center Line
- Channel Station Lines
- Channel Dimensions

**Aids to Navigation**

- Green Side Aids
- Red Side Aids
- Lights

**MLLW**

|        |         |         |         |         |         |         |         |      |
|--------|---------|---------|---------|---------|---------|---------|---------|------|
| 0 - 30 | 30 - 35 | 35 - 40 | 40 - 42 | 42 - 44 | 44 - 46 | 46 - 48 | 48 - 50 | < 50 |
|--------|---------|---------|---------|---------|---------|---------|---------|------|

**NOAA Bathymetry (DREDGING REACH EXTENT)**

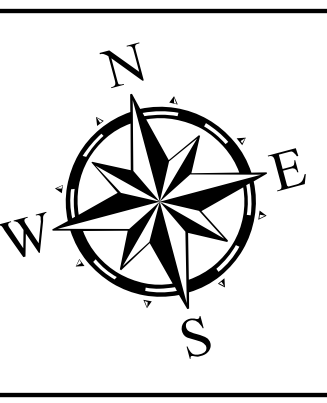
|        |         |         |         |         |         |
|--------|---------|---------|---------|---------|---------|
| 0 - 10 | 10 - 15 | 15 - 20 | 20 - 25 | 25 - 30 | 30 - 50 |
|--------|---------|---------|---------|---------|---------|

**NOTES:**

- HORIZONTAL COORDINATES ARE REFERENCED TO TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE NAD83 US SURVEY FEET.
- ELEVATIONS ARE REFERENCED TO MEAN LOWER LOW TIDE (MLLW) DATUM.
- THIS PROJECT WAS DESIGNED BY THE GALVESTON DISTRICT OF THE U.S. ARMY CORPS OF ENGINEERS. THE INITIALS AND SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER1110-1-8152.

- THE INFORMATION DEPICTED ON THIS SURVEY MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME. THESE CONDITIONS ARE SUBJECT TO RAPID CHANGE DUE TO SHOALING EVENTS. A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REQUIRED BY 33 CFR 209.325
- FOR THE MOST UP TO DATE INFORMATION PLEASE CHECK OUR WEBSITE AT: [HTTP://WWW.SWG.USACE.ARMY.MIL/MISSIONS/NAVIGATION/HYDROGRAPHIC/SURVEYS/](http://www.swg.usace.army.mil/missions/navigation/hydrographic/surveys/)
- NOAA BATHYMETRY CONTOURS PRODUCED FROM HISTORIC BATHYMETRIC (HYDROGRAPHIC) SURVEYS CONDUCTED BY THE NOAA NATIONAL OCEAN SERVICE/COAST SURVEY, AVAILABLE FROM THE NATIONAL GEOPHYSICAL DATA CENTER. SURVEYS VARY AS TO SOUNDING DENSITY, ACCURACY OF DEPTH, ACCURACY OF NAVIGATION, ZERO DATUM, DATE OF SURVEY AND TYPE OF INSTRUMENTATION.

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community  
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community  
Esri, Garmin, GEBCO, NOAA NGDC, and other contributors



Coordinate System: NAD 1983 StatePlane Texas South Central FIPS 4204 Feet  
Projection: Lambert Conformal Conic /Datum: North American 1983

**Dredging Reach Extent**

**Hydrographic Survey Extent**

**HYDROGRAPHIC SURVEY**  
U.S. ARMY ENGINEER DISTRICT  
CORPS OF ENGINEERS  
GALVESTON, TEXAS

**Station: 0+000 to 295+00**  
**HOUSTON**  
HOUSTON, TEXAS