

### HYDROGRAPHIC SURVEY

U.S. ARMY ENGINEER DISTRICT  
CORPS OF ENGINEERS  
WILMINGTON, NORTH CAROLINA  
Morehead City Harbor

## Cutoff & Range A

NORTH CAROLINA

Survey Date: 06-07 November 2019  
Map Date: 12 November 2019  
Imagery Date: 7 NOVEMBER 2019  
© 2019 DigitalGlobe Nextview License  
Scale: 1:3,000  
File Name: MC\_03\_RGA\_20191106\_CS\_CUTOFF  
Surveyed by: WJC/JBD  
Mapped by: KTOPNAGF  
Processed by: KTOPNAGF

200 100 0 200 400 600 800  
Feet

1. ELEVATIONS ARE IN FEET AND REFER TO NOAA'S REPORTED MEAN LOWER LOW WATER (MLLW) RELATIVE TO THE 1983-2001 TIDAL EPOCH.

2. PROJECT SURVEYED WITH DISTRICT SURVEY VESSEL "SANDERSON", USING RTK GPS HORIZONTAL POSITIONING EQUIPMENT AND 200 KHZ SOUNDING EQUIPMENT.

3. HORIZONTAL DATUM NAD 1983. VERTICAL DATUM M.L.L.W.

4. TIDE GAGE LOCATED AT DUKE MARINE LAB. USE OF TIDE VALUES FOR THIS GAGE ARE RESTRICTED TO QUALITY ASSURANCE PURPOSES FOR VERIFICATION OF RTK TIDES. THE WILMINGTON DISTRICT WILL ONLY USE STAFF GAGE TIDE VALUES FOR FINAL MAPPING AND QUANTITY CALCULATIONS IF RTK GPS IS UNAVAILABLE AT THE TIME OF SURVEY.

5. THIS PROJECT WAS DESIGNED BY THE WILMINGTON 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.

6. 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 SHALING EVENTS. A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REQUIRED BY 33 CFR 209.325.

7. NAVIGATION AIDS LOCATED WITH DISTRICT SURVEY VESSEL. ACCURACY +/- 3 METERS.

8. FOR THE MOST UP TO DATE INFORMATION PLEASE CHECK OUR WEBSITE AT WWW.SAW.USACE.ARMY.MIL

TYPICAL SECTION

M.L.L.W.

PROJECT

DEPTH

NOT TO SCALE

**Aids to Navigation**

- Can
- Nun
- Green Lighted Buoy
- Red Lighted Buoy
- Junction Marker
- Green Light
- Red Light
- Green Daybeacon
- Red Daybeacon
- Danger Sign
- Mileboard
- Tide Gage

**Depth In Feet**

20 25 30 35 38 42 44 45 47

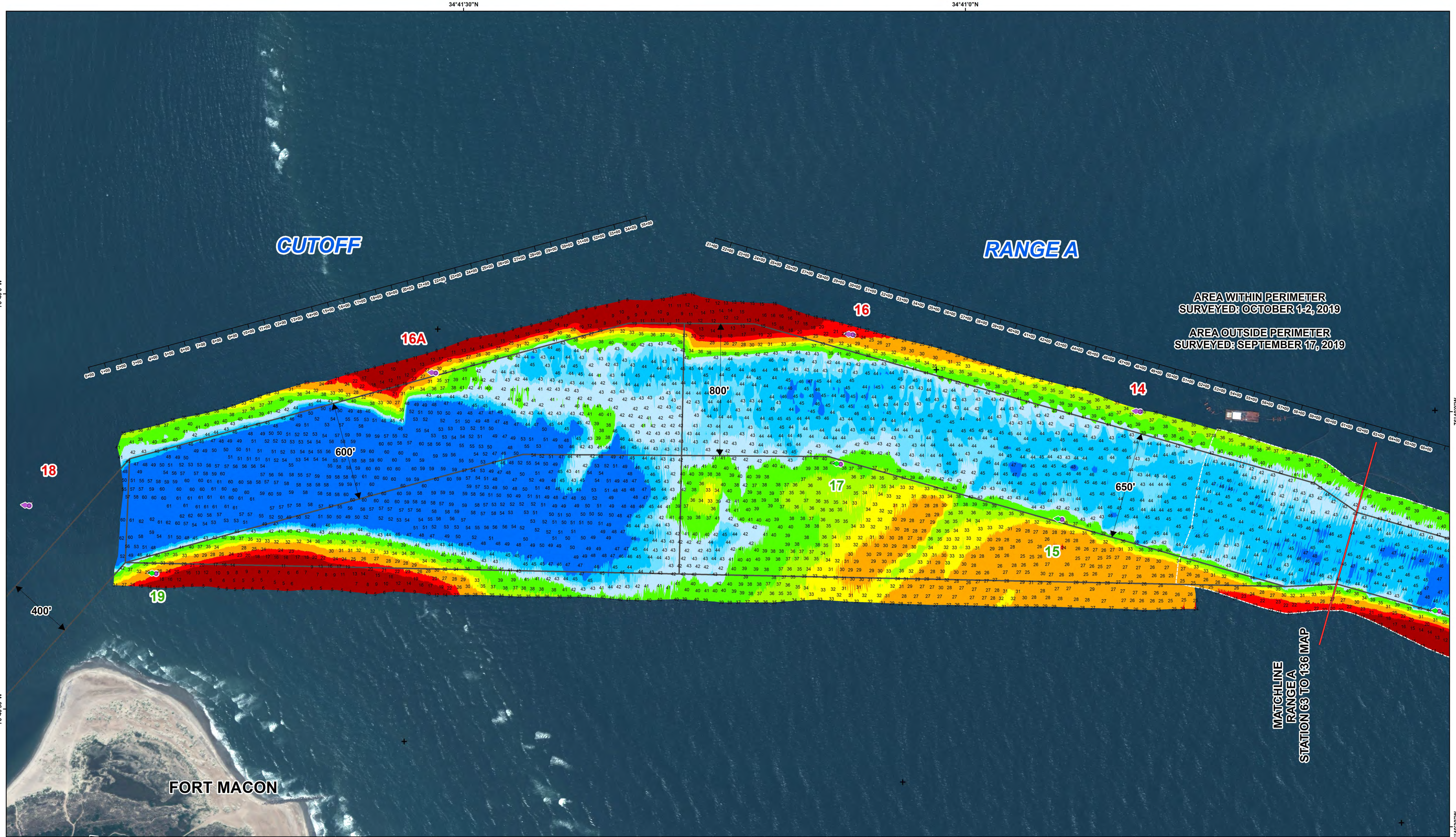
20 and shallower

47 and deeper

Placement Areas

Navigation Channel





**HYDROGRAPHIC SURVEY**  
U.S. ARMY ENGINEER DISTRICT  
CORPS OF ENGINEERS  
WILMINGTON, NORTH CAROLINA  
Morehead City Harbor  
**Cutoff  
& Range A**

NORTH CAROLINA

Cutoff

Survey Date: 17 September & 01-02 October 2019  
Map Date: 03 October 2019  
Imagery Date: 09 August 2019  
© 2019 DigitalGlobe Nextview License  
Scale: 1:3,000  
File Name: MC\_03\_RGA\_20191001\_CS\_CUTOFF  
Surveyed by: RGA, ECL  
Mapped by: KTOPNDJM  
Processed by: KTOPNDJM

200 100 0 200 400 600 800 Feet

1. ELEVATIONS ARE IN FEET AND REFER TO NOAA'S REPORTED MEAN LOWER LOW WATER (MLLW) RELATIVE TO THE 1983-2001 TIDAL EPOCH.  
2. PROJECT SURVEYED WITH DISTRICT SURVEY VESSEL "SWART", USING RTK GPS HORIZONTAL POSITIONING EQUIPMENT AND 200 KHZ SOUNDING EQUIPMENT.  
3. HORIZONTAL DATUM NAD 1983. VERTICAL DATUM M.L.L.W.  
4. TIDE GAGE LOCATED AT DUKE MARINE LAB. USE OF TIDE VALUES FOR THIS GAGE ARE RESTRICTED TO QUALITY ASSURANCE PURPOSES FOR VERIFICATION OF RTK TIDES. THE WILMINGTON DISTRICT WILL ONLY USE STAFF GAGE TIDE VALUES FOR FINAL MAPPING AND QUANTITY CALCULATIONS IF RTK GPS IS UNAVAILABLE AT THE TIME OF SURVEY.  
5. THIS PROJECT WAS DESIGNED BY THE WILMINGTON 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.  
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7. NAVIGATION AIDS LOCATED WITH DISTRICT SURVEY VESSEL. ACCURACY +/- 3 METERS.  
8. FOR THE MOST UP TO DATE INFORMATION PLEASE CHECK OUR WEBSITE AT WWW.SAWUSACE.ARMY.MIL

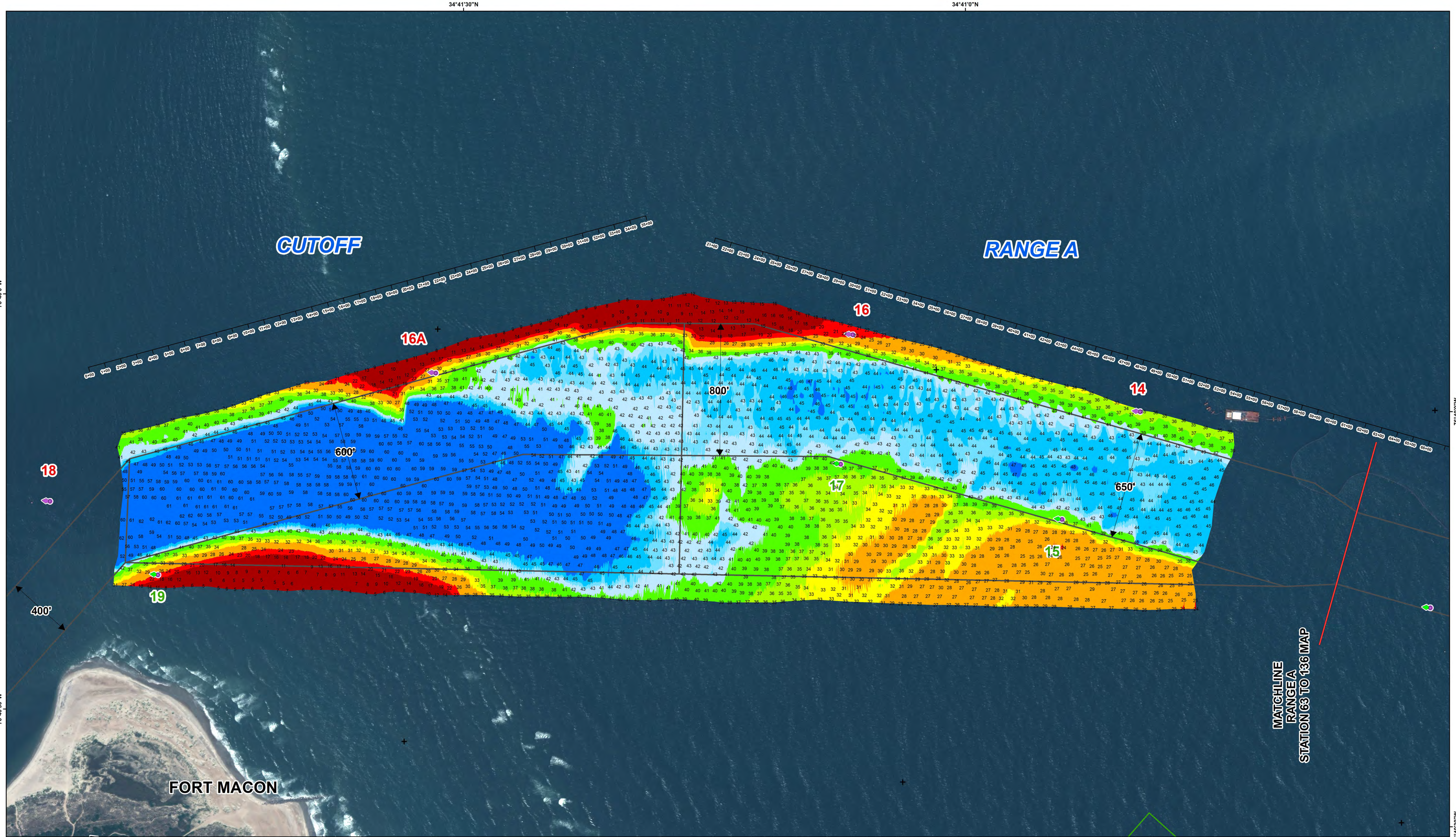
TYPICAL SECTION  
M.L.L.W.  
PROJECT  
DEPTH  
-45' & -47'  
Varies  
NOT TO SCALE

**Aids to Navigation**  
Can  
Nun  
Green Lighted Buoy  
Red Lighted Buoy  
Junction Marker

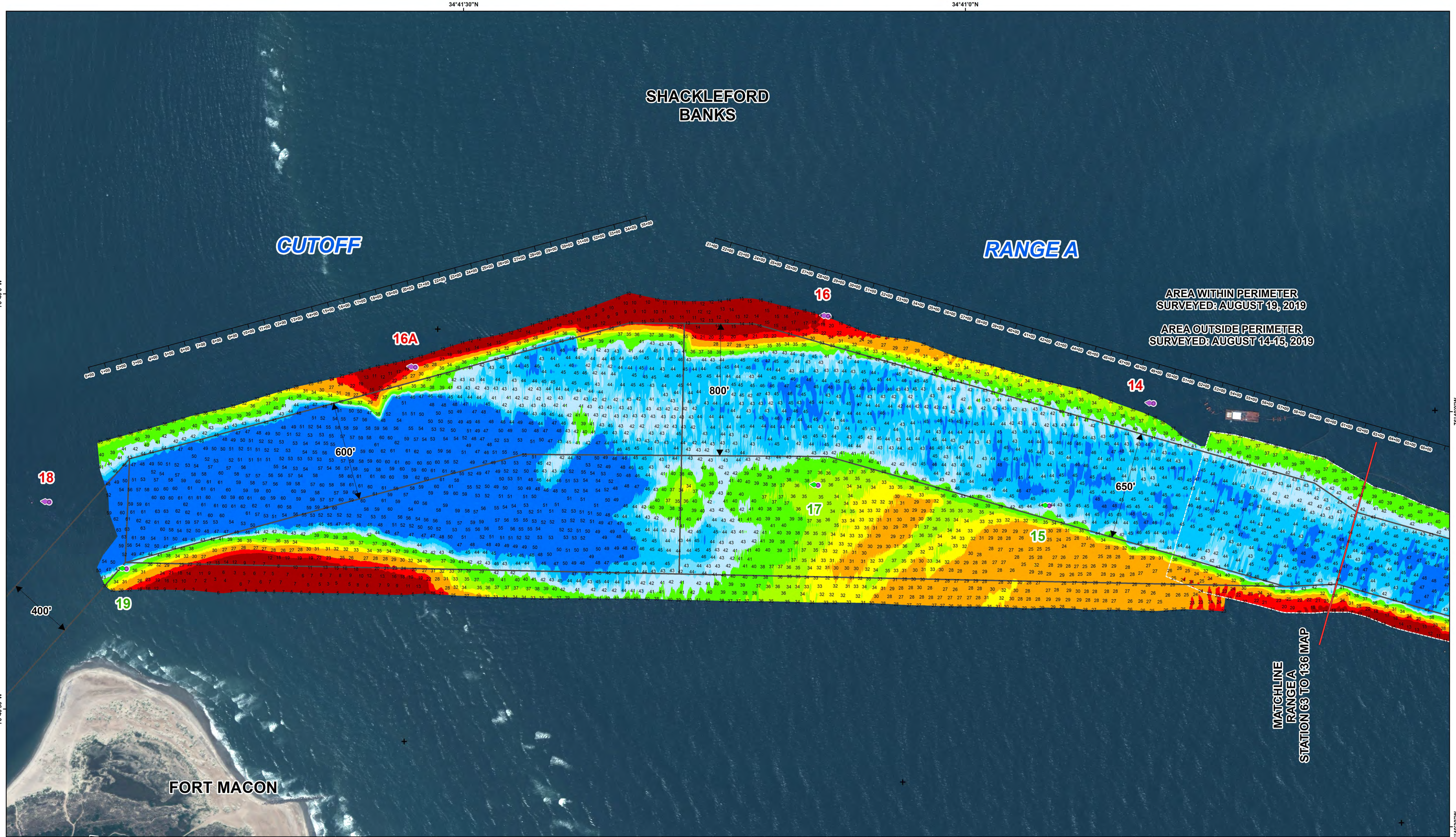
Green Light  
  
Red Light  
  
Green Daybeacon  
  
Red Daybeacon  
  
Danger Sign  
  
Mileboard  
  
Tide Gage

**Depth In Feet**  
  
20 and Shallower  
20-25  
25-32  
32-35  
35-38  
38-42  
42-44  
44-45  
47 and Deeper  
  
Navigation Channel









**HYDROGRAPHIC SURVEY**  
U.S. ARMY ENGINEER DISTRICT  
CORPS OF ENGINEERS  
WILMINGTON, NORTH CAROLINA  
Morehead City Harbor  
**Cutoff  
& Range A**

Survey Date: 14-15 & 19 August 2019  
Map Date: 20 August 2019  
Imagery Date: 09 August 2019  
© 2019 DigitalGlobe Nextview License  
Scale: 1:3,000  
File Name: MC\_03\_RGA\_CUTOFF\_20190819\_CS  
Surveyed by: MAS,WWW,WJC,SRV  
Mapped by: KTOPNDJM  
Processed by: KTOPNDJM

1. ELEVATIONS ARE IN FEET AND REFER TO NOAA'S REPORTED MEAN LOWER LOW WATER (MLLW) RELATIVE TO THE 1983-2001 TIDAL EPOCH.

2. PROJECT SURVEYED WITH DISTRICT SURVEY VESSEL "SWART", USING RTK GPS HORIZONTAL POSITIONING EQUIPMENT AND 200 KHZ SOUNDING EQUIPMENT.

3. HORIZONTAL DATUM NAD 83. VERTICAL DATUM M.L.L.W.

4. TIDE GAGE LOCATED AT DUKE MARINE LAB. USE OF TIDE VALUES FOR THIS GAGE ARE RESTRICTED TO QUALITY ASSURANCE PURPOSES FOR VERIFICATION OF RTK TIDES. THE WILMINGTON DISTRICT WILL ONLY USE STAFF GAGE TIDE VALUES FOR FINAL MAPPING AND QUANTITY CALCULATIONS IF RTK GPS IS UNAVAILABLE AT THE TIME OF SURVEY.

5. THIS PROJECT WAS DESIGNED BY THE WILMINGTON 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.

6. 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

7. NAVIGATION AIDS LOCATED WITH DISTRICT SURVEY VESSEL. ACCURACY +/- 3 METERS.

8. FOR THE MOST UP TO DATE INFORMATION PLEASE CHECK OUR WEBSITE AT WWW.SAWUSACE.ARMY.MIL

**TYPICAL SECTION**  
M.L.L.W.  
PROJECT  
DEPTH  
Varies  
NOT TO SCALE

**Aids to Navigation**

- Can
- Nun
- Green Lighted Buoy
- Red Lighted Buoy
- Junction Marker

**Depth In Feet**

- 20 and Shallow
- 20-25
- 25-32
- 32-35
- 35-38
- 38-42
- 42-44
- 44-45
- 45-47
- 47 and Deeper

**Navigation Channel**

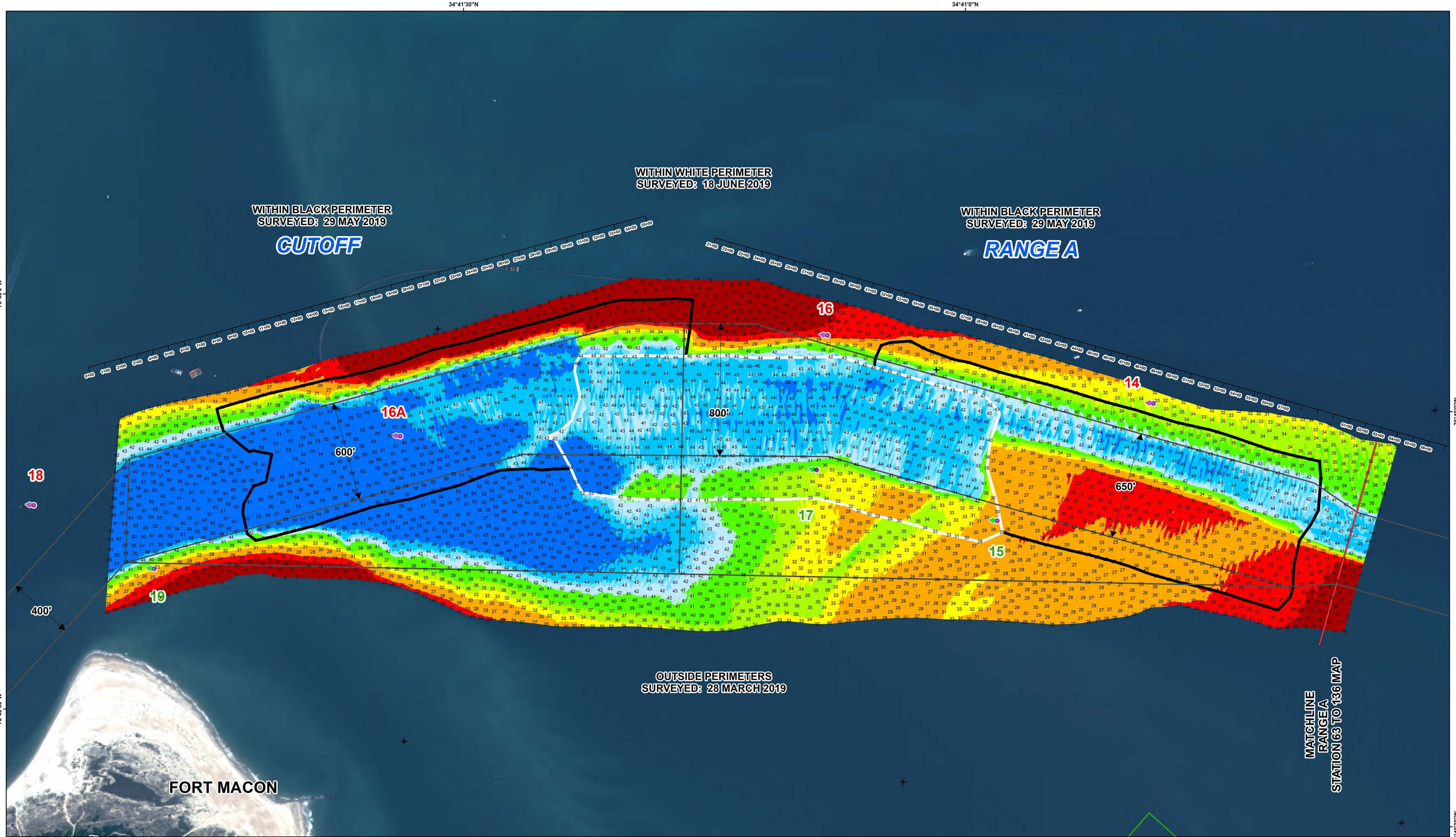
**Aids to Navigation**

- Green Light
- Red Light
- Green Daybeacon
- Red Daybeacon
- Danger Sign
- Mileboard
- Tide Gage

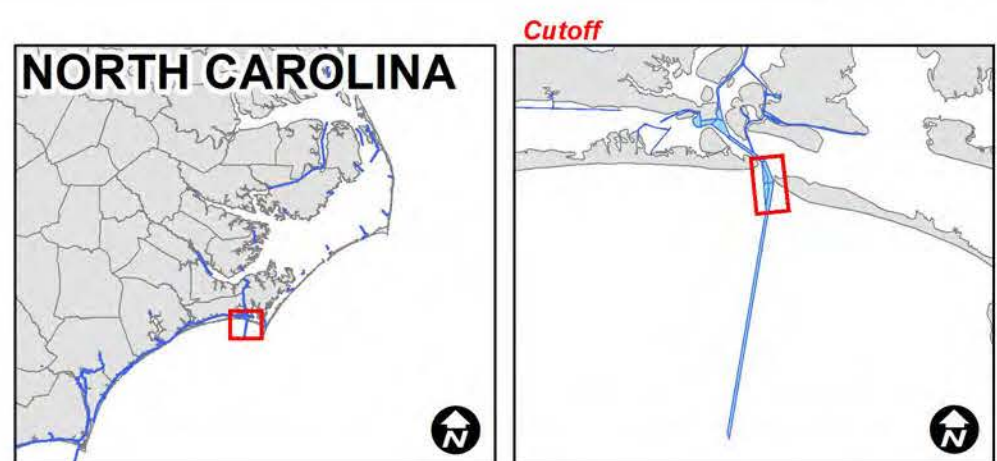








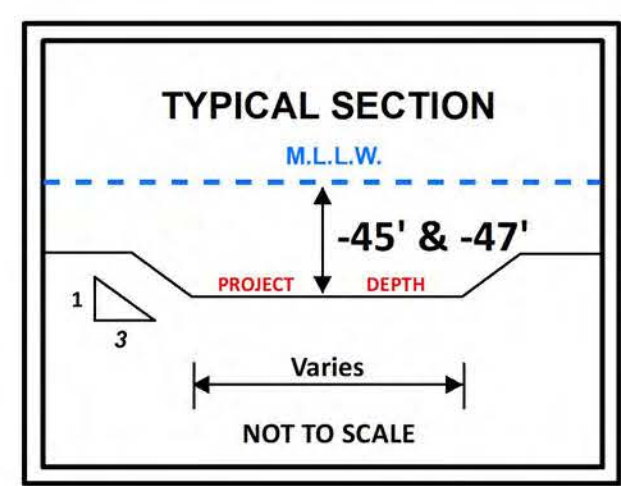
**HYDROGRAPHIC SURVEY**  
U.S. ARMY ENGINEER DISTRICT  
CORPS OF ENGINEERS  
WILMINGTON, NORTH CAROLINA  
Morehead City Harbor  
**Cutoff  
& Range A**



Survey Date: 28 March; 29 May; 18 June 2019  
Map Date: 19 June 2019  
Imagery Date: 09 May 2019  
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Scale: 1:3,000  
File Name: MC\_03\_RGA\_20190618\_AD  
Surveyed by: RWA,ECL  
Mapped by: K7OPNDJM  
Processed by: K7OPNDJM

200 100 0 200 400 600 800 Feet

- ELEVATIONS ARE IN FEET AND REFER TO NOAA'S REPORTED MEAN LOWER LOW WATER (MLLW) RELATIVE TO THE 1983-2001 TIDAL EPOCH.
- PROJECT SURVEYED WITH DISTRICT SURVEY VESSEL "BEAUFORT", USING RTK GPS HORIZONTAL POSITIONING EQUIPMENT AND 200 KHZ SOUNDING EQUIPMENT.
- HORIZONTAL DATUM NAD 83. VERTICAL DATUM M.L.L.W.
- TIDE GAGE LOCATED AT DUKE MARINE LAB. USE OF TIDE VALUES FOR THIS GAGE ARE RESTRICTED TO QUALITY ASSURANCE PURPOSES FOR VERIFICATION OF RTK TIDES. THE WILMINGTON DISTRICT WILL ONLY USE STAFF GAGE TIDE VALUES FOR FINAL MAPPING AND QUANTITY CALCULATIONS IF RTK GPS IS UNAVAILABLE AT THE TIME OF SURVEY.
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- NAVIGATION AIDS LOCATED WITH DISTRICT SURVEY VESSEL. ACCURACY +/- 3 METERS.
- FOR THE MOST UP TO DATE INFORMATION PLEASE CHECK OUR WEBSITE AT WWW.SAW.USACE.ARMY.MIL



**Aids to Navigation**

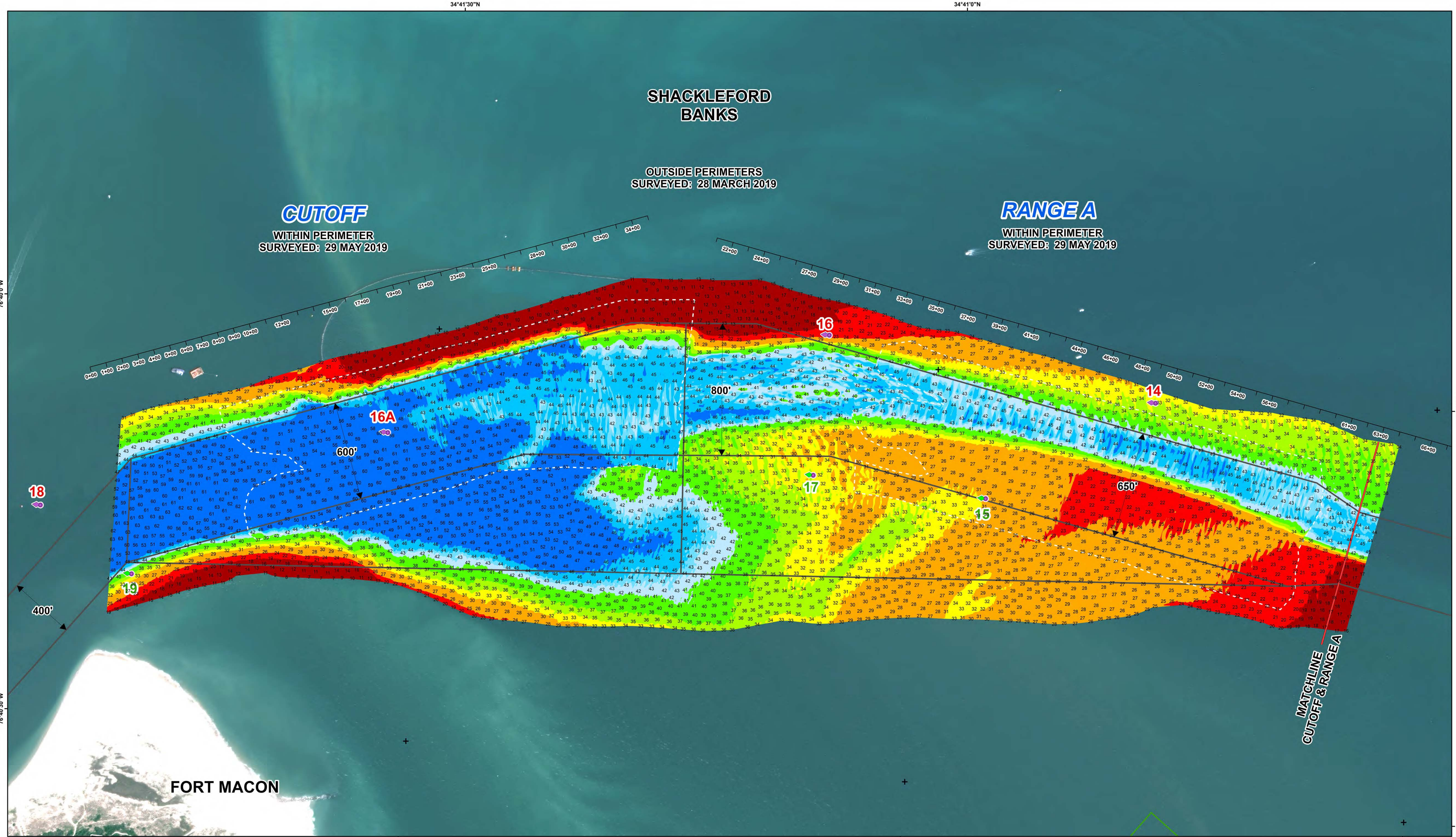
- Can
- Nun
- Green Lighted Buoy
- Red Lighted Buoy
- Junction Marker
- Green Light
- Red Light
- Green Daybeacon
- Red Daybeacon
- Danger Sign
- Mileboard
- Tide Gage

**Depth In Feet**

20 and Shallower  
20-25  
25-32  
32-35  
35-38  
38-42  
42-44  
44-45  
45-47  
47 and Deeper

Placement Areas  
Navigation Channel





### HYDROGRAPHIC SURVEY

U.S. ARMY ENGINEER DISTRICT  
CORPS OF ENGINEERS  
WILMINGTON, NORTH CAROLINA  
Morehead City Harbor

## Cutoff & Range A

**NORTH CAROLINA**

**Cutoff**

Survey Date: 28 March & 29 May 2019  
Map Date: 03 June 2019  
Imagery Date: 09 MAY 2019  
© 2019 DigitalGlobe Nextview License  
Scale: 1:3,000  
File Name: MC\_03\_RGA\_20190529\_BD  
Surveyed by: ECL,RWA  
Mapped by: K7PDPSGD  
Processed by: K7PNDJDM

200 100 0 200 400 600 800  
Feet

1. ELEVATIONS ARE IN FEET AND REFER TO NOAA'S REPORTED MEAN LOWER LOW WATER (MLLW) RELATIVE TO THE 1983-2001 TIDAL EPOCH.  
2. PROJECT SURVEYED WITH DISTRICT SURVEY VESSEL "BEAUFORT", USING RTK GPS HORIZONTAL POSITIONING EQUIPMENT AND 200 KHZ SOUNDING EQUIPMENT.  
3. HORIZONTAL DATUM NAD 1983. VERTICAL DATUM M.L.L.W.  
4. TIDE GAGE LOCATED AT DUKE MARINE LAB. USE OF TIDE VALUES FOR THIS GAGE ARE RESTRICTED TO QUALITY ASSURANCE PURPOSES FOR VERIFICATION OF RTK TIDES. THE WILMINGTON DISTRICT WILL ONLY USE STAFF GAGE TIDE VALUES FOR FINAL MAPPING AND QUANTITY CALCULATIONS IF RTK GPS IS UNAVAILABLE AT THE TIME OF SURVEY.  
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7. NAVIGATION AIDS LOCATED WITH DISTRICT SURVEY VESSEL. ACCURACY +/- 3 METERS.  
8. FOR THE MOST UP TO DATE INFORMATION PLEASE CHECK OUR WEBSITE AT WWW.SAW.USACE.ARMY.MIL

**TYPICAL SECTION**

1  
3  
PROJECT  
DEPTH  
-45' & -47'  
Varies  
NOT TO SCALE

**Aids to Navigation**

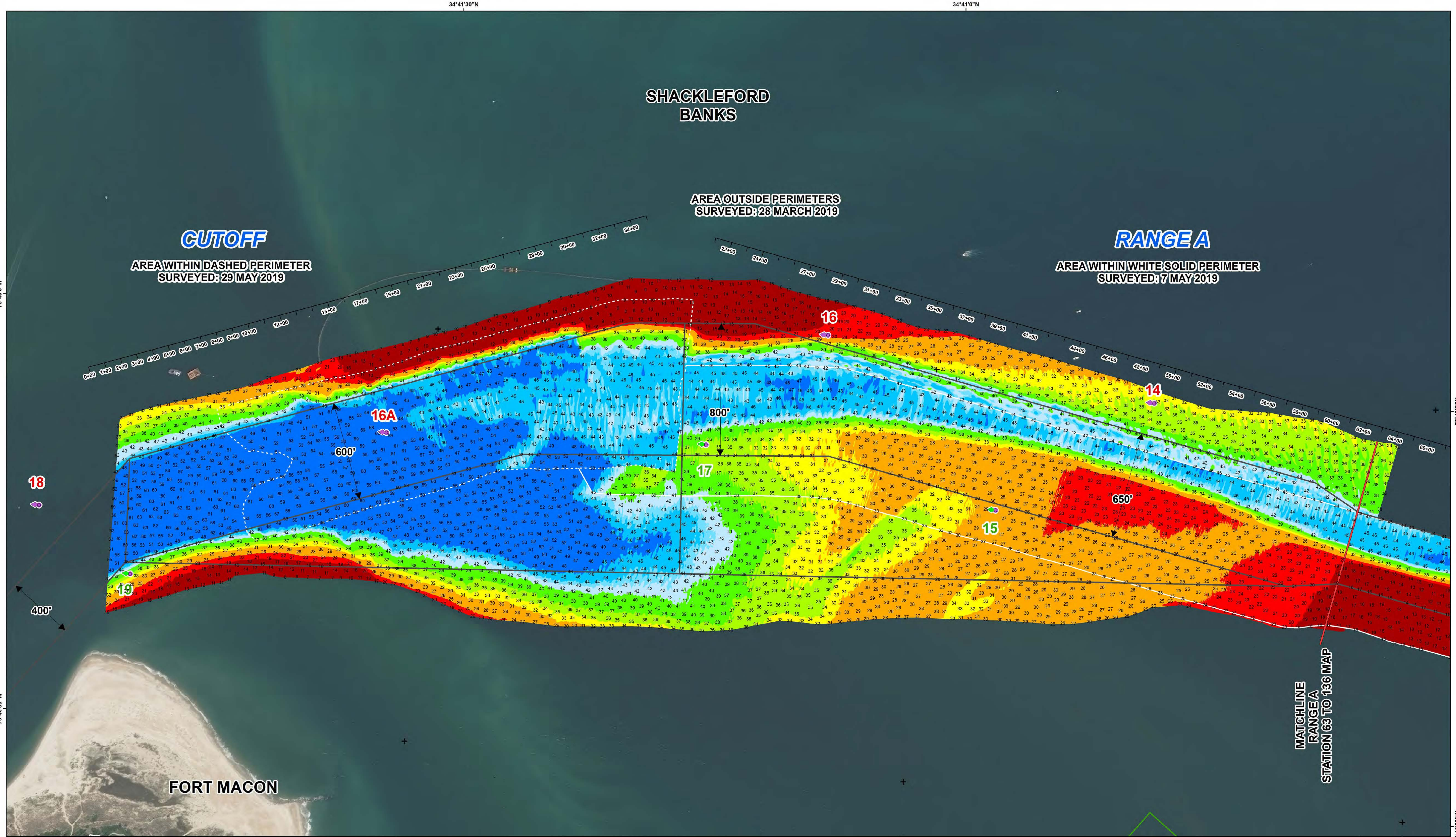
- Can
- Nun
- Green Lighted Buoy
- Red Lighted Buoy
- Junction Marker
- Green Light
- Red Light
- Green Daybeacon
- Red Daybeacon
- Danger Sign
- Mileboard
- Tide Gage

**Depth In Feet**

20-25  
26-32  
33-35  
36-38  
39-42  
43-44  
45-47  
47 and Deeper

Placement Areas  
Navigation Channel





### HYDROGRAPHIC SURVEY

U.S. ARMY ENGINEER DISTRICT  
CORPS OF ENGINEERS  
WILMINGTON, NORTH CAROLINA  
Morehead City Harbor

## Cutoff & Range A

NORTH CAROLINA

Survey Date: 28 March, 07 & 29 May 2019  
Map Date: 31 May 2019  
Imagery Date: 09 May 2019  
© 2019 DigitalGlobe Nextview License  
Scale: 1:3,000  
File Name: MC\_03\_RGA\_20190529\_AD  
Surveyed by: RWA,ECL,JBG,CRP  
Mapped by: k7opnlac  
Processed by: k7opnlac

0 100 200 400 600 800 1,000 Feet

1. ELEVATIONS ARE IN FEET AND REFER TO NOAA'S REPORTED MEAN LOWER LOW WATER (MLLW) RELATIVE TO THE 1983-2001 TIDAL EPOCH.  
2. PROJECT SURVEYED WITH DISTRICT SURVEY VESSEL "BEAUFORT", USING RTK GPS HORIZONTAL POSITIONING EQUIPMENT AND 200 KHZ SOUNDING EQUIPMENT.  
3. HORIZONTAL DATUM NAD 1983. VERTICAL DATUM M.L.L.W.  
4. TIDE GAGE LOCATED AT DUKE MARINE LAB. USE OF TIDE VALUES FOR THIS GAGE ARE RESTRICTED TO QUALITY ASSURANCE PURPOSES FOR VERIFICATION OF RTK TIDES. THE WILMINGTON DISTRICT WILL ONLY USE STAFF GAGE TIDE VALUES FOR FINAL MAPPING AND QUANTITY CALCULATIONS IF RTK GPS IS UNAVAILABLE AT THE TIME OF SURVEY.  
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7. NAVIGATION AIDS LOCATED WITH DISTRICT SURVEY VESSEL. ACCURACY +/- 3 METERS.  
8. FOR THE MOST UP TO DATE INFORMATION PLEASE CHECK OUR WEBSITE AT WWW.SAW.USACE.ARMY.MIL

**TYPICAL SECTION**

M.L.L.W.

45' & -47'

Varies

NOT TO SCALE

**Aids to Navigation**

- Can
- Nun
- Green Lighted Buoy
- Red Lighted Buoy
- Junction Marker
- Green Light
- Red Light
- Green Daybeacon
- Red Daybeacon
- Danger Sign
- Mileboard
- Tide Gage

**Depth In Feet**

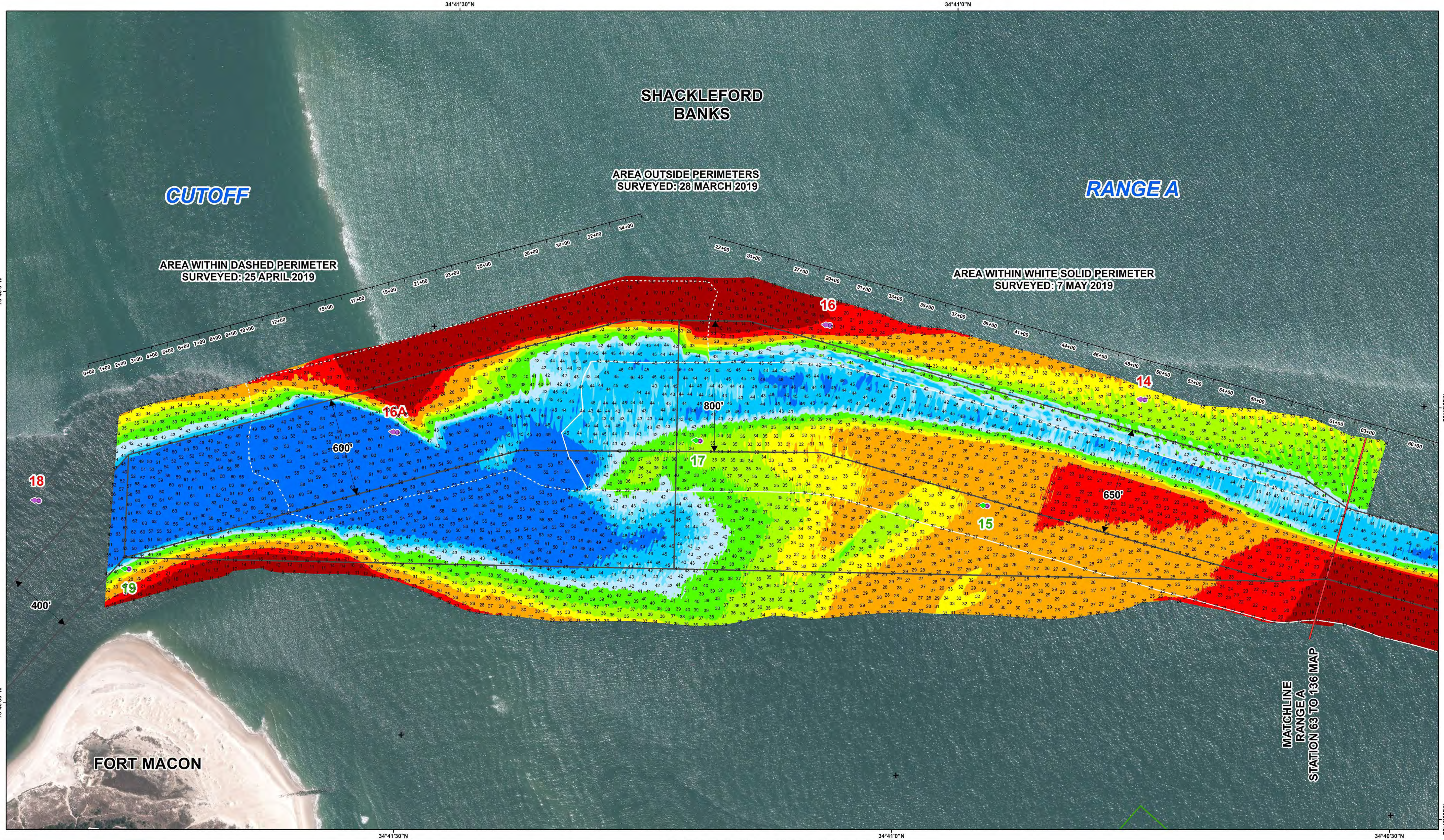
20 and Shallower

20-25 25-32 32-35 35-38 38-42 42-44 44-45 45-47 and Deeper

Placement Areas

Navigation Channel





**HYDROGRAPHIC SURVEY**  
U.S. ARMY ENGINEER DISTRICT  
CORPS OF ENGINEERS  
WILMINGTON, NORTH CAROLINA  
Morehead City Harbor  
**Cutoff  
& Range A**

Survey Date: 28 March, 25 April, & 07 May 2019  
Map Date: 08 May 2019  
Imagery Date: 01 February 2019  
© 2019 DigitalGlobe Nextview License  
Scale: 1:3,000  
File Name: MC\_03\_RGA\_20190507\_BD\_Cutoff  
Surveyed by: RWA,JBG,CRP,ECL  
Mapped by: k7opnlac  
Processed by: k7opnlac

1. ELEVATIONS ARE IN FEET AND REFER TO NOAA'S REPORTED MEAN LOWER LOW WATER (MLLW) RELATIVE TO THE 1983-2001 TIDAL EPOCH.

2. PROJECT SURVEYED WITH DISTRICT SURVEY VESSEL "BEAUFORT", USING RTK GPS HORIZONTAL POSITIONING EQUIPMENT AND 200 KHZ SOUNDING EQUIPMENT.

3. HORIZONTAL DATUM NAD 1983. VERTICAL DATUM M.L.L.W.

4. TIDE GAGE LOCATED AT DUKE MARINE LAB. USE OF TIDE VALUES FOR THIS GAGE ARE RESTRICTED TO QUALITY ASSURANCE PURPOSES FOR VERIFICATION OF RTK TIDES. THE WILMINGTON DISTRICT WILL ONLY USE STAFF GAGE TIDE VALUES FOR FINAL MAPPING AND QUANTITY CALCULATIONS IF RTK GPS IS UNAVAILABLE AT THE TIME OF SURVEY.

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7. NAVIGATION AIDS LOCATED WITH DISTRICT SURVEY VESSEL. ACCURACY +/- 3 METERS.

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**TYPICAL SECTION**  
M.L.L.W.  
-45' & -47'  
Varies  
NOT TO SCALE

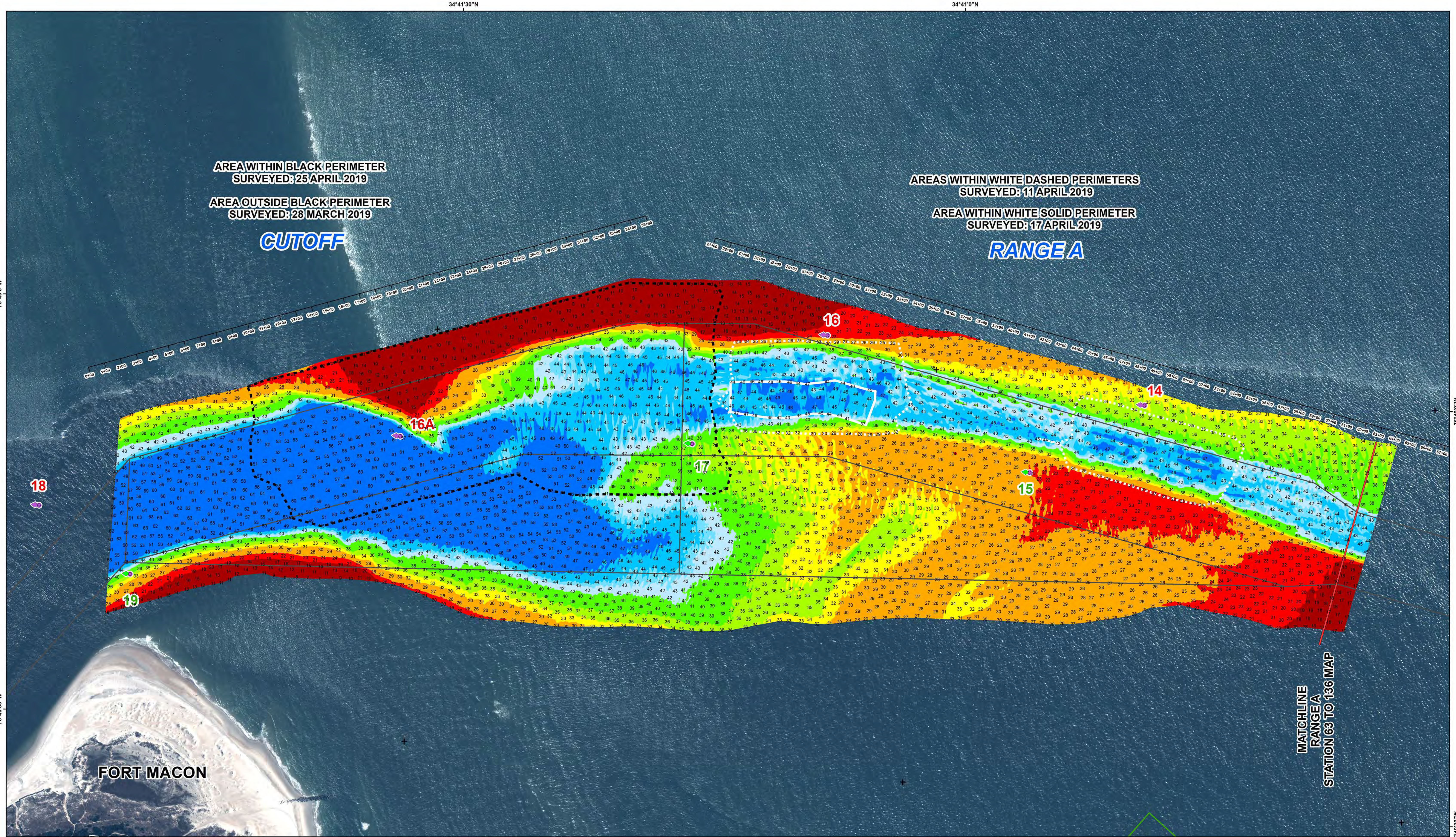
**Aids to Navigation**

- Can
- Nun
- Green Lighted Buoy
- Red Lighted Buoy
- Junction Marker

**Green Light**  
**Red Light**  
**Green Daybeacon**  
**Red Daybeacon**  
**Danger Sign**  
**Mileboard**  
**Tide Gage**

**Depth in Feet**  
20-25  
25-32  
32-35  
35-38  
38-42  
42-44  
44-45  
45-47  
47 and Deeper  
**Placement Areas**  
**Navigation Channel**





### HYDROGRAPHIC SURVEY

U.S. ARMY ENGINEER DISTRICT  
CORPS OF ENGINEERS  
WILMINGTON, NORTH CAROLINA  
Morehead City Harbor

## Cutoff & Range A

**NORTH CAROLINA**

Survey Date: 28 March, 11 & 17 April 2019  
Map Date: 26 April 2019  
Imagery Date: 01 February 2019  
© 2019 DigitalGlobe Nextview License  
Scale: 1:3,000  
File Name: MC\_03\_RGA\_20190425\_BD  
Surveyed by: JBG,RWA,CRP,ECL  
Mapped by: K7OPNDJM  
Processed by: k7opnlac

200 100 0 200 400 600 800  
Feet

1. ELEVATIONS ARE IN FEET AND REFER TO NOAA'S REPORTED MEAN LOWER LOW WATER (MLLW) RELATIVE TO THE 1983-2001 TIDAL EPOCH.

2. PROJECT SURVEYED WITH DISTRICT SURVEY VESSEL "BEAUFORT", USING RTK GPS HORIZONTAL POSITIONING EQUIPMENT AND 200 & 400 KHZ SOUNDING EQUIPMENT.

3. HORIZONTAL DATUM NAD 83. VERTICAL DATUM M.L.L.W.

4. TIDE GAGE LOCATED AT DUKE MARINE LAB. USE OF TIDE VALUES FOR THIS GAGE ARE RESTRICTED TO QUALITY ASSURANCE PURPOSES FOR VERIFICATION OF RTK TIDES. THE WILMINGTON DISTRICT WILL ONLY USE STAFF GAGE TIDE VALUES FOR FINAL MAPPING AND QUANTITY CALCULATIONS IF RTK GPS IS UNAVAILABLE AT THE TIME OF SURVEY.

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7. NAVIGATION AIDS LOCATED WITH DISTRICT SURVEY VESSEL. ACCURACY +/- 3 METERS.

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**TYPICAL SECTION**

PROJECT DEPTH

MLLW

-45' & -47'

Varies

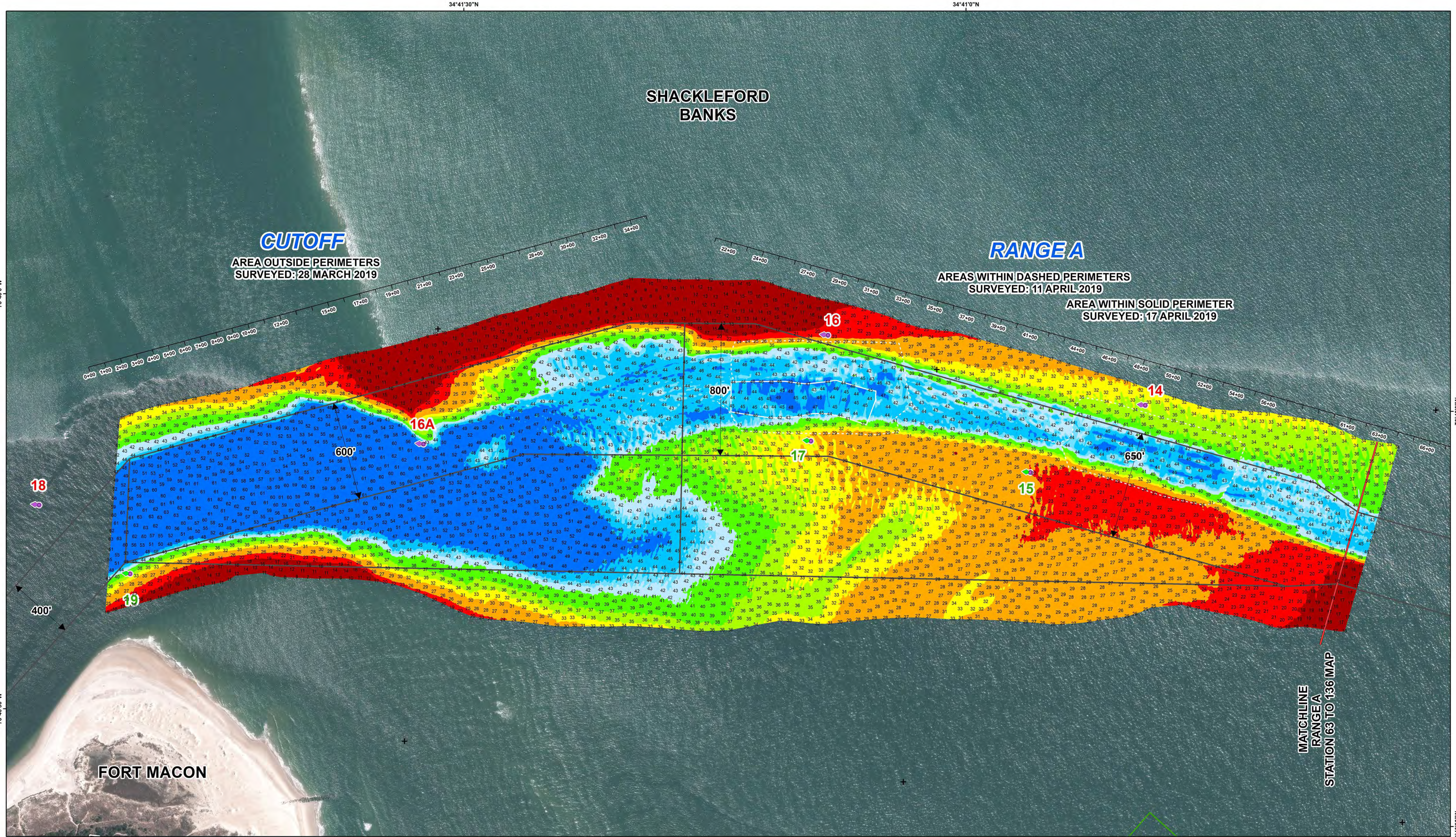
NOT TO SCALE

Depth In Feet

20-25 25-32 32-35 35-38 38-42 42-44 44-45 45-47 47 and Deeper

20 and Shallower





### HYDROGRAPHIC SURVEY

U.S. ARMY ENGINEER DISTRICT  
CORPS OF ENGINEERS  
WILMINGTON, NORTH CAROLINA  
Morehead City Harbor

# Cutoff & Range A

Survey Date: 28 March, 11 & 17 April 2019  
Map Date: 18 April 2019  
Imagery Date: 01 February 2019  
© 2019 DigitalGlobe Nextview License  
Scale: 1:3,000  
File Name: MC\_03\_RGA\_20190417\_AD\_Cutoff  
Surveyed by: JBG,RWA,CRP,ECL  
Mapped by: k7opnlac  
Processed by: k7opnlac

1. ELEVATIONS ARE IN FEET AND REFER TO NOAA'S REPORTED MEAN LOWER LOW WATER (MLLW) RELATIVE TO THE 1983-2001 TIDAL EPOCH.

2. PROJECT SURVEYED WITH DISTRICT SURVEY VESSEL "BEAUFORT", USING RTK GPS HORIZONTAL POSITIONING EQUIPMENT AND 200 & 400 KHZ SOUNDING EQUIPMENT.

3. HORIZONTAL DATUM NAD 1983. VERTICAL DATUM M.L.L.W.

4. TIDE GAGE LOCATED AT DUKE MARINE LAB. USE OF TIDE VALUES FOR THIS GAGE ARE RESTRICTED TO QUALITY ASSURANCE PURPOSES FOR VERIFICATION OF RTK TIDES. THE WILMINGTON DISTRICT WILL ONLY USE STAFF GAGE TIDE VALUES FOR FINAL MAPPING AND QUANTITY CALCULATIONS IF RTK GPS IS UNAVAILABLE AT THE TIME OF SURVEY.

5. THIS PROJECT WAS DESIGNED BY THE WILMINGTON 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.

6. 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 SHALING EVENTS. A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REQUIRED BY 33 CFR 209.325

7. NAVIGATION AIDS LOCATED WITH DISTRICT SURVEY VESSEL. ACCURACY +/- 3 METERS.

8. FOR THE MOST UP TO DATE INFORMATION PLEASE CHECK OUR WEBSITE AT WWW.SAW.USACE.ARMY.MIL

#### Aids to Navigation

- Can
- Nun
- Green Lighted Buoy
- Red Lighted Buoy
- Junction Marker

#### Depth In Feet

20 and Shallower

20-25, 25-32, 32-35, 35-38, 38-42, 42-44, 44-45, 45-47 and Deeper

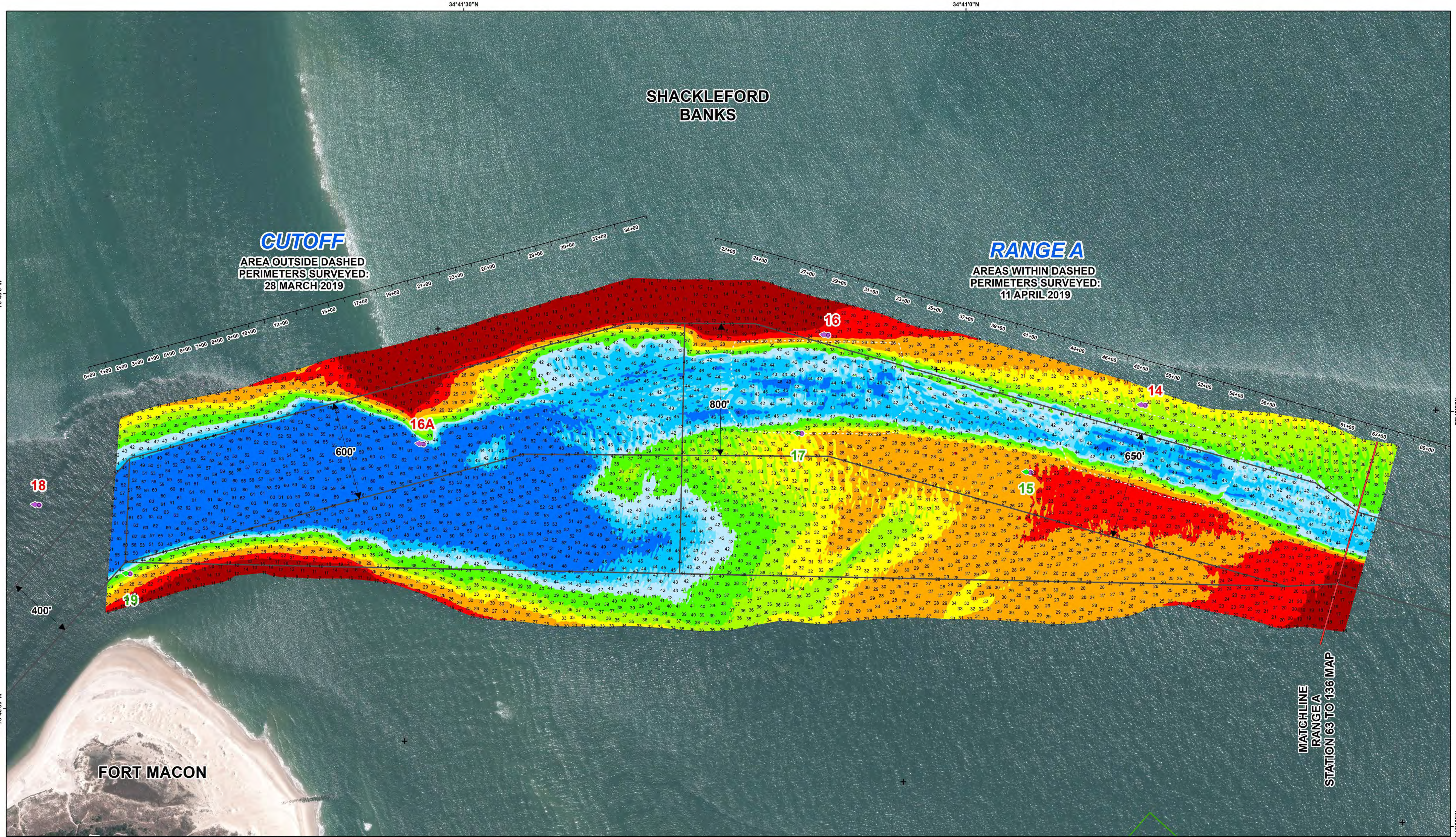
Placement Areas

Navigation Channel

#### Legend

- Green Light
- Red Light
- Green Daybeacon
- Red Daybeacon
- Danger Sign
- Mileboard
- Tide Gage





### HYDROGRAPHIC SURVEY

U.S. ARMY ENGINEER DISTRICT  
CORPS OF ENGINEERS  
WILMINGTON, NORTH CAROLINA  
Morehead City Harbor

## Cutoff & Range A

**NORTH CAROLINA**

Survey Date: 28 March & 11 April 2019  
Map Date: 12 April 2019  
Imagery Date: 01 February 2019  
© 2019 DigitalGlobe Nextview License  
Scale: 1:3,000  
File Name: MC\_03\_RGA\_20190411\_AD\_cutoff  
Surveyed by: JBG,RWA,CRP  
Mapped by: k7opnlac  
Processed by: k7opnlac

#### 1. ELEVATIONS ARE IN FEET AND REFER TO NOAA'S REPORTED MEAN LOWER LOW WATER (MLLW) RELATIVE TO THE 1983-2001 TIDAL EPOCH.

#### 2. PROJECT SURVEYED WITH DISTRICT SURVEY VESSEL "BEAUFORT", USING RTK GPS HORIZONTAL POSITIONING EQUIPMENT AND 200 & 400 KHZ SOUNDING EQUIPMENT.

#### 3. HORIZONTAL DATUM NAD 1983. VERTICAL DATUM M.L.L.W.

#### 4. TIDE GAGE LOCATED AT DUKE MARINE LAB. USE OF TIDE VALUES FOR THIS GAGE ARE RESTRICTED TO QUALITY ASSURANCE PURPOSES FOR VERIFICATION OF RTK TIDES. THE WILMINGTON DISTRICT WILL ONLY USE STAFF GAGE TIDE VALUES FOR FINAL MAPPING AND QUANTITY CALCULATIONS IF RTK GPS IS UNAVAILABLE AT THE TIME OF SURVEY.

#### 5. THIS PROJECT WAS DESIGNED BY THE WILMINGTON 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 ER110-1-8152.

#### 6. 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 SHALING EVENTS. A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REQUIRED BY 33 CFR 209.325

#### 7. NAVIGATION AIDS LOCATED WITH DISTRICT SURVEY VESSEL. ACCURACY +/- 3 METERS.

#### 8. FOR THE MOST UP TO DATE INFORMATION PLEASE CHECK OUR WEBSITE AT WWW.SAW.USACE.ARMY.MIL

#### TYPICAL SECTION

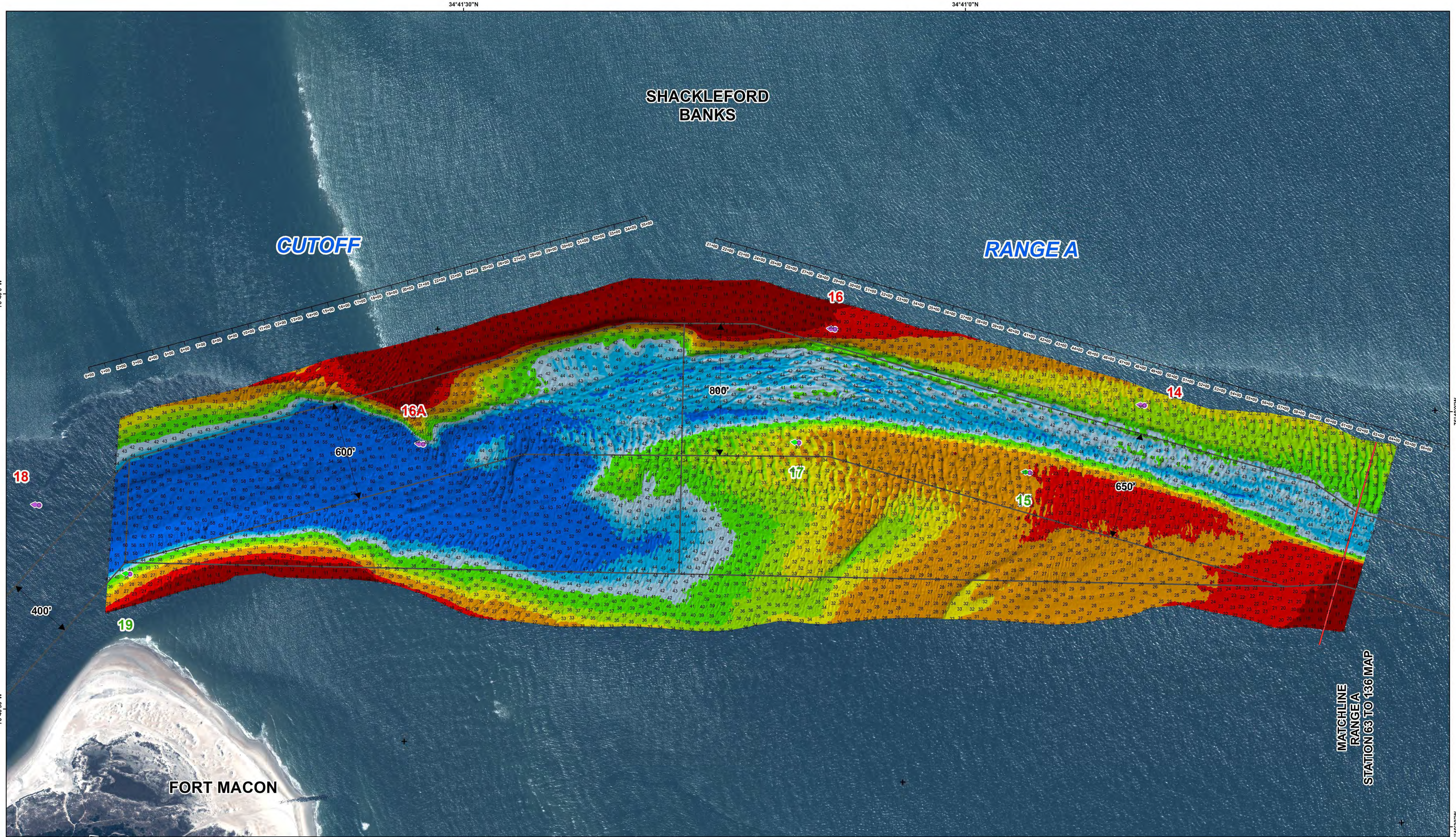
1  
3  
PROJECT  
NOT TO SCALE

#### Aids to Navigation

- Can
- Nun
- Green Lighted Buoy
- Red Lighted Buoy
- Junction Marker
- Green Light
- Red Light
- Green Daybeacon
- Red Daybeacon
- Danger Sign
- Mileboard
- Tide Gage

#### Depth In Feet





### HYDROGRAPHIC SURVEY

U.S. ARMY ENGINEER DISTRICT  
CORPS OF ENGINEERS  
WILMINGTON, NORTH CAROLINA  
Morehead City Harbor

## Cutoff & Range A

NORTH CAROLINA

Survey Date: 28 March 2019  
Map Date: 01 April 2019  
Imagery Date: 01 February 2019  
© 2019 DigitalGlobe Nextview License  
Scale: 1:3,000  
File Name: MC\_03\_RGA\_20190328\_CS  
Surveyed by: CRP,JBG  
Mapped by: K7OPNDJM  
Processed by: K7OPNDJM

200 100 0 200 400 600 800  
Feet

1. ELEVATIONS ARE IN FEET AND REFER TO NOAA'S REPORTED MEAN LOWER LOW WATER (MLLW) RELATIVE TO THE 1983-2001 TIDAL EPOCH.  
2. PROJECT SURVEYED WITH DISTRICT SURVEY VESSEL "BEAUFORT", USING RTK GPS HORIZONTAL POSITIONING EQUIPMENT AND 400 KHZ SOUNDING EQUIPMENT.  
3. HORIZONTAL DATUM NAD 83. VERTICAL DATUM M.L.L.W.  
4. TIDE GAGE LOCATED AT DUKE MARINE LAB. USE OF TIDE VALUES FOR THIS GAGE ARE RESTRICTED TO QUALITY ASSURANCE PURPOSES FOR VERIFICATION OF RTK TIDES. THE WILMINGTON DISTRICT WILL ONLY USE STAFF GAGE TIDE VALUES FOR FINAL MAPPING AND QUANTITY CALCULATIONS IF RTK GPS IS UNAVAILABLE AT THE TIME OF SURVEY.  
5. THIS PROJECT WAS DESIGNED BY THE WILMINGTON 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.  
6. 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  
7. NAVIGATION AIDS LOCATED WITH DISTRICT SURVEY VESSEL. ACCURACY +/- 3 METERS.  
8. FOR THE MOST UP TO DATE INFORMATION PLEASE CHECK OUR WEBSITE AT WWW.SAW.USACE.ARMY.MIL

#### TYPICAL SECTION

MLLW  
-45' & -47'  
PROJECT DEPTH  
Varies  
NOT TO SCALE

#### Aids to Navigation

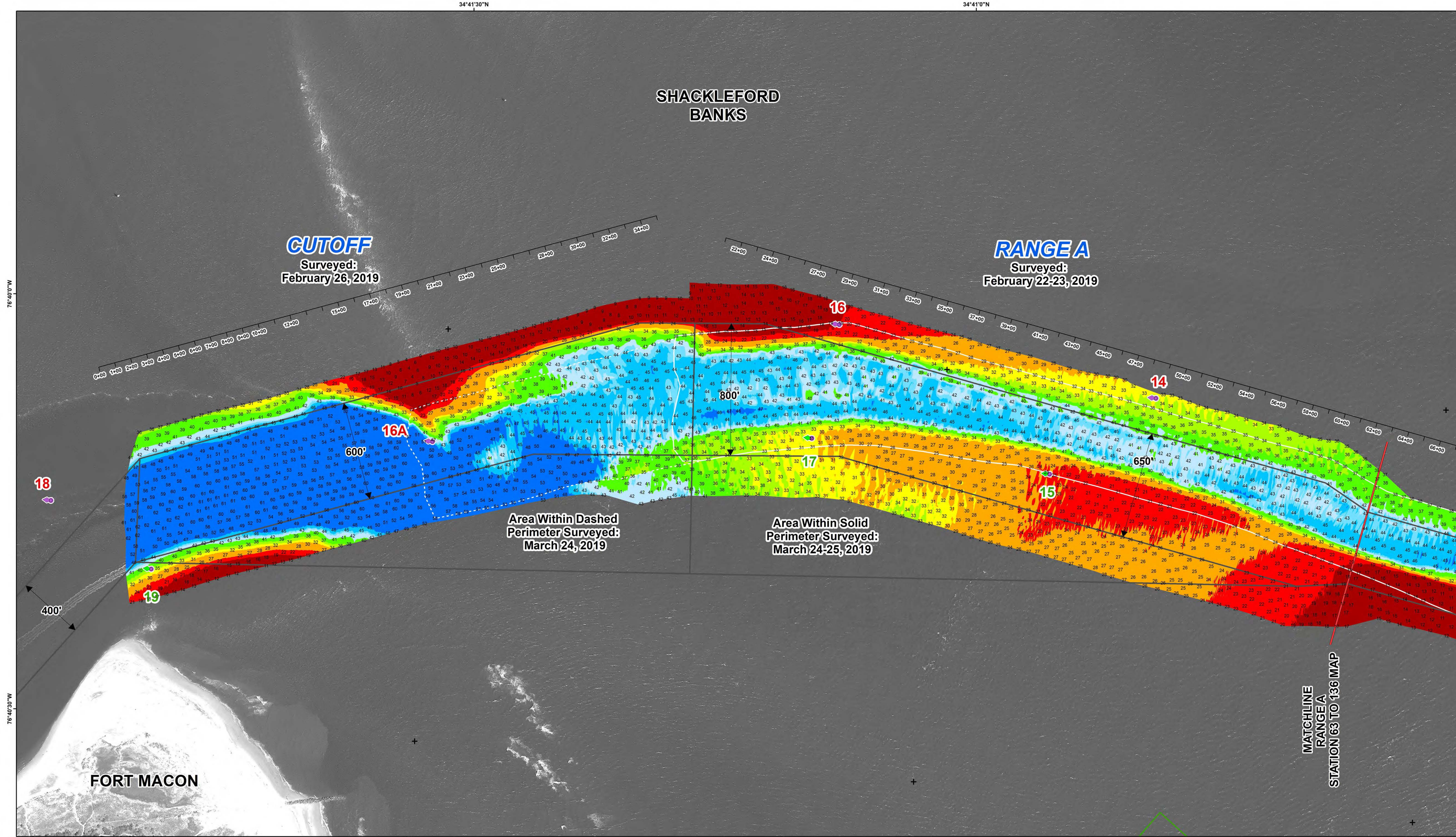
- Can
- Nun
- Green Lighted Buoy
- Red Lighted Buoy
- Junction Marker
- Green Light
- Red Light
- Green Daybeacon
- Red Daybeacon
- Danger Sign
- Mileboard
- Tide Gage

#### Depth In Feet

20 and Shallower  
20-25  
25-32  
32-35  
35-38  
38-42  
42-44  
44-45  
45-47  
47 and Deeper

Navigation Channel





**HYDROGRAPHIC SURVEY**  
U.S. ARMY ENGINEER DISTRICT  
CORPS OF ENGINEERS  
WILMINGTON, NORTH CAROLINA  
Morehead City Harbor  
**Cutoff  
& Range A**

NORTH CAROLINA

Cutoff

Survey Date: 22-23 & 26 February, 24-25 March 2019  
Map Date: 26 March 2019  
Imagery Date: 23 March 2019  
© 2019 DigitalGlobe Nextview License  
Scale: 1:3,000  
File Name: MC\_03\_RGA\_20190324\_AD\_Cutoff  
Surveyed by: WWW,MKA,RWA,ECL  
Mapped by: k7opnlac  
Processed by: k7opnlac

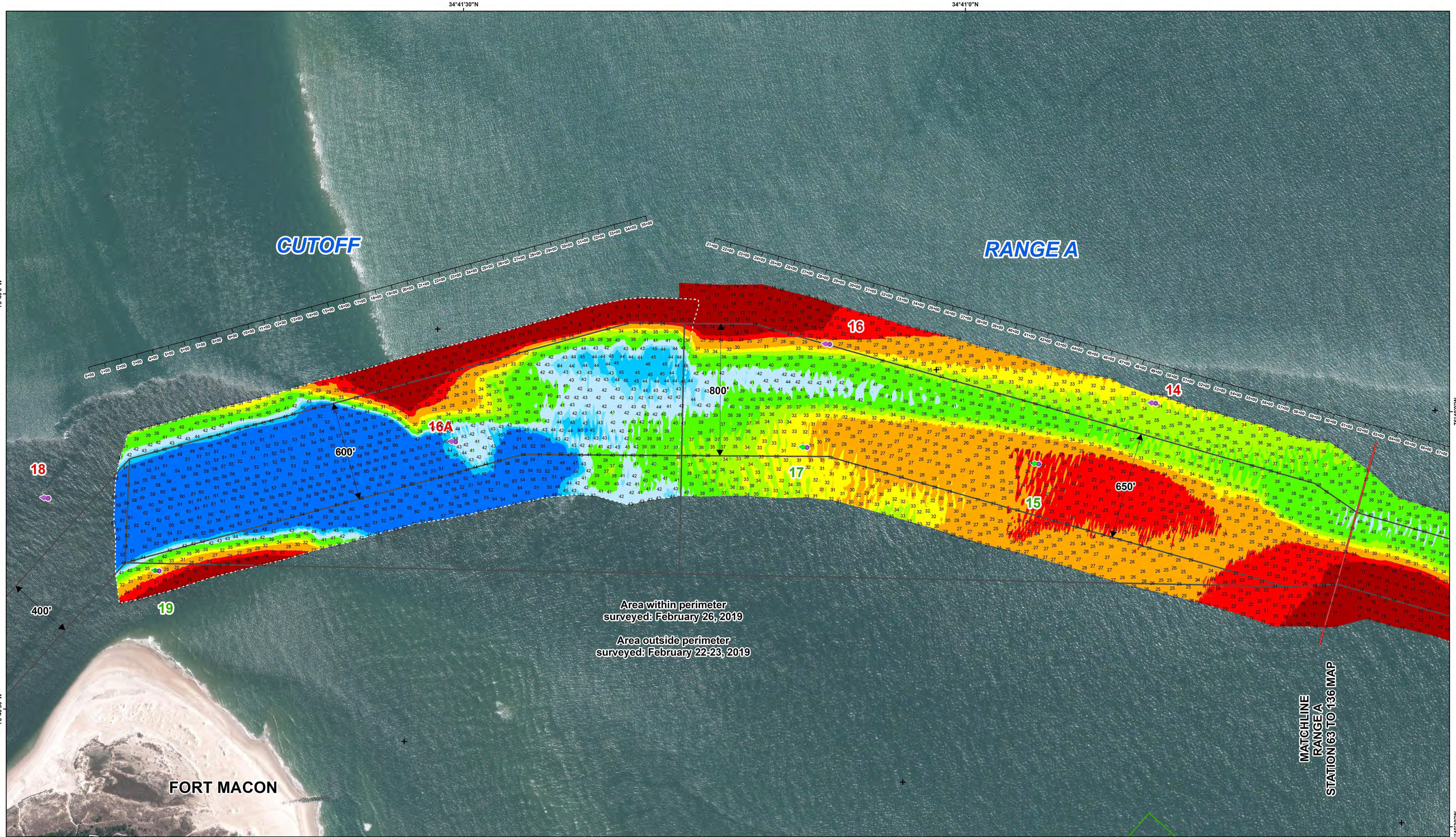
**1. ELEVATIONS ARE IN FEET AND REFER TO NOAA'S REPORTED MEAN LOWER LOW WATER (MLLW) RELATIVE TO THE 1983-2001 TIDAL EPOCH.**  
**2. PROJECT SURVEYED WITH DISTRICT SURVEY VESSEL "BEAUFORT", USING RTK GPS HORIZONTAL POSITIONING EQUIPMENT AND 200 KHZ SOUNDING EQUIPMENT.**  
**3. HORIZONTAL DATUM NAD 1983. VERTICAL DATUM M.L.L.W.**  
**4. TIDE GAGE LOCATED AT DUKE MARINE LAB. USE OF TIDE VALUES FOR THIS GAGE ARE RESTRICTED TO QUALITY ASSURANCE PURPOSES FOR VERIFICATION OF RTK TIDES. THE WILMINGTON DISTRICT WILL ONLY USE STAFF GAGE TIDE VALUES FOR FINAL MAPPING AND QUANTITY CALCULATIONS IF RTK GPS IS UNAVAILABLE AT THE TIME OF SURVEY.**  
**5. THIS PROJECT WAS DESIGNED BY THE WILMINGTON 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 ER110-1-8152.**  
**6. 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 SHALING EVENTS. A PRUDENT MARINER SHOULD NOT RELY EXCLUSIVELY ON THE INFORMATION PROVIDED HERE. REQUIRED BY 33 CFR 209.325.**  
**7. NAVIGATION AIDS LOCATED WITH DISTRICT SURVEY VESSEL. ACCURACY +/- 3 METERS.**  
**8. FOR THE MOST UP TO DATE INFORMATION PLEASE CHECK OUR WEBSITE AT WWW.SAW.USACE.ARMY.MIL**

TYPICAL SECTION  
M.L.L.W.  
-45' & -47'  
Varies  
NOT TO SCALE

**Aids to Navigation**  
Can  
Nun  
Green Lighted Buoy  
Red Lighted Buoy  
Junction Marker

**Depth in Feet**  
20-25  
25-32  
32-35  
35-38  
38-42  
42-44  
44-45  
45-47  
20 and Shallower  
Placement Areas  
Navigation Channel





### HYDROGRAPHIC SURVEY

U.S. ARMY ENGINEER DISTRICT  
CORPS OF ENGINEERS  
WILMINGTON, NORTH CAROLINA  
Morehead City Harbor

## Cutoff & Range A

Survey Date: 22-23 & 26 February 2019  
Map Date: 01 March 2019  
Imagery Date: 01 February 2019  
© 2019 DigitalGlobe Nextview License  
Scale: 1:3,000  
File Name: MC\_03\_RGA\_20190226\_BD  
Surveyed by: RWA,EL  
Mapped by: K7OPNDJM  
Processed by: K7OPNDJM

- ELEVATIONS ARE IN FEET AND REFER TO NOAA'S REPORTED MEAN LOWER LOW WATER (MLLW) RELATIVE TO THE 1983-2001 TIDAL EPOCH.
- PROJECT SURVEYED WITH DISTRICT SURVEY VESSEL "BEAUFORT", USING RTK GPS HORIZONTAL POSITIONING EQUIPMENT AND 200 KHZ SOUNDING EQUIPMENT.
- HORIZONTAL DATUM NAD 1983. VERTICAL DATUM M.L.L.W.
- TIDE GAUGE LOCATED AT DUKE MARINE LAB. USE OF TIDE VALUES FOR THIS GAUGE ARE RESTRICTED TO QUALITY ASSURANCE PURPOSES FOR VERIFICATION OF RTK TIDES. THE WILMINGTON DISTRICT WILL ONLY USE STAFF GAUGE TIDAL VALUES FOR FINAL MAPPING AND QUANTITY CALCULATIONS IF RTK GPS IS UNAVAILABLE AT THE TIME OF SURVEY.
- THIS PROJECT WAS DESIGNED BY THE WILMINGTON 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
- NAVIGATION AIDS LOCATED WITH DISTRICT SURVEY VESSEL. ACCURACY +/- 3 METERS.
- FOR THE MOST UP TO DATE INFORMATION PLEASE CHECK OUR WEBSITE AT WWW.SAWUSACE.ARMY.MIL

#### TYPICAL SECTION

1  
3

PROJECT DEPTH

Varies

NOT TO SCALE

#### Aids to Navigation

- Can
- Nun
- Green Lighted Buoy
- Red Lighted Buoy
- Junction Marker
- Green Light
- Red Light
- Green Daybeacon
- Red Daybeacon
- Danger Sign
- Mileboard
- Tide Gauge

#### Depth In Feet

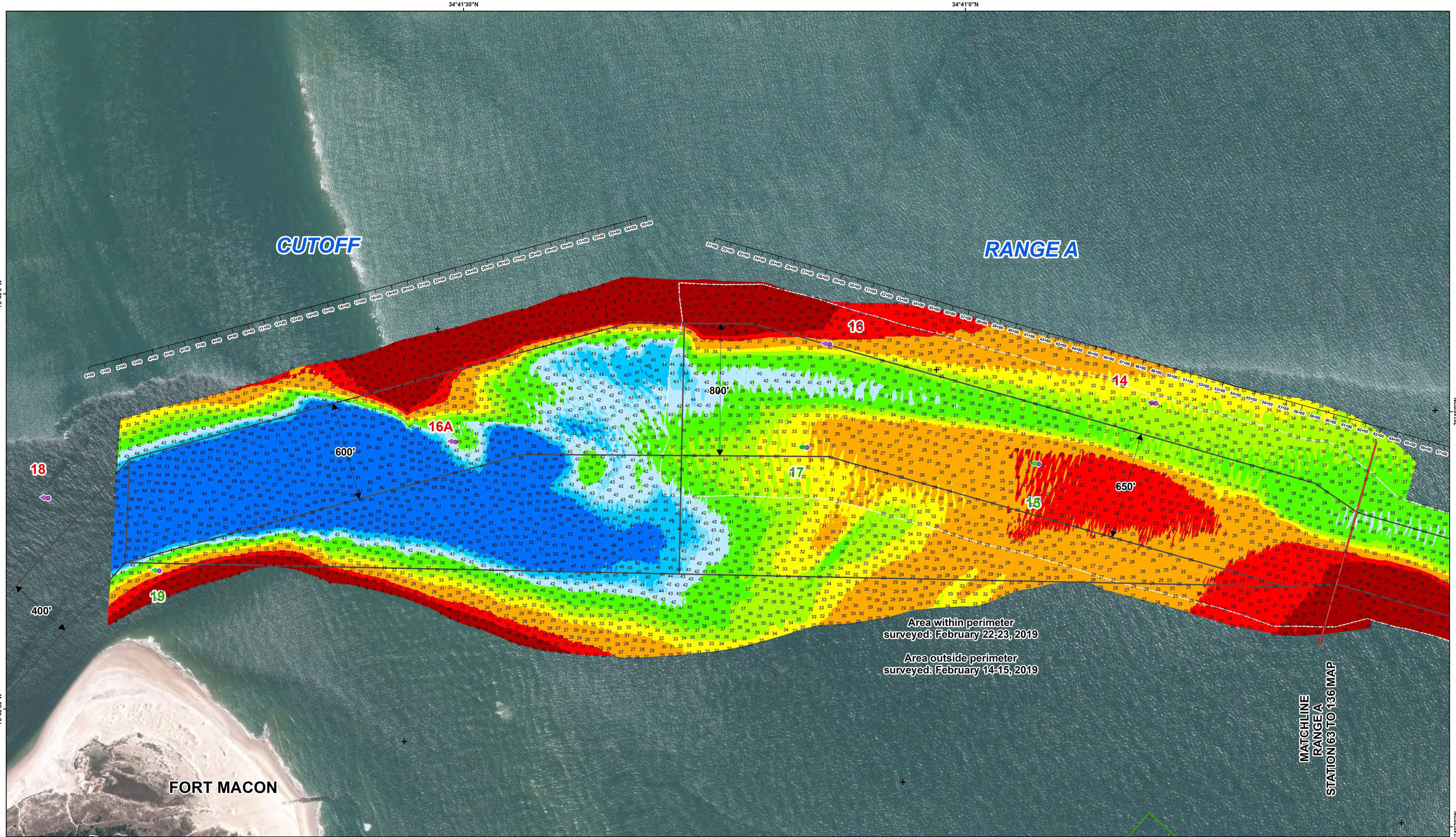
20 and Shallow

47 and Deeper

Placement Areas

Navigation Channel





### HYDROGRAPHIC SURVEY

U.S. ARMY ENGINEER DISTRICT  
CORPS OF ENGINEERS  
WILMINGTON, NORTH CAROLINA  
Morehead City Harbor

## Cutoff & Range A

**NORTH CAROLINA**

Survey Date: 14-15 & 22-23 February 2019  
Map Date: 25 February 2019  
Imagery Date: 01 February 2019  
© 2019 DigitalGlobe Nextview License  
Scale: 1:3,000  
File Name: MC\_03\_RGA\_20190222\_BD\_CUTOFF  
Surveyed by: RWA,EL  
Mapped by: K7OPNDJM  
Processed by: K7OPNDJM

1. ELEVATIONS ARE IN FEET AND REFER TO NOAA'S REPORTED MEAN LOWER LOW WATER (MLLW) RELATIVE TO THE 1983-2001 TIDAL EPOCH.

2. PROJECT SURVEYED WITH DISTRICT SURVEY VESSEL "BEAUFORT", USING RTK GPS HORIZONTAL POSITIONING EQUIPMENT AND 200 KHZ SOUNDING EQUIPMENT.

3. HORIZONTAL DATUM NAD 1983. VERTICAL DATUM M.L.L.W.

4. TIDE GAUGE LOCATED AT DUKE MARINE LAB. USE OF TIDE VALUES FOR THIS GAUGE ARE RESTRICTED TO QUALITY ASSURANCE PURPOSES FOR VERIFICATION OF RTK TIDES. THE WILMINGTON DISTRICT WILL ONLY USE STAFF GAUGE TIDE VALUES FOR FINAL MAPPING AND QUANTITY CALCULATIONS IF RTK GPS IS UNAVAILABLE AT THE TIME OF SURVEY.

5. THIS PROJECT WAS DESIGNED BY THE WILMINGTON 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.

6. 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.

7. NAVIGATION AIDS LOCATED WITH DISTRICT SURVEY VESSEL. ACCURACY +/- 3 METERS.

8. FOR THE MOST UP TO DATE INFORMATION PLEASE CHECK OUR WEBSITE AT WWW.SAWJUSACE.ARMY.MIL

**TYPICAL SECTION**

1  
3

**Aids to Navigation**

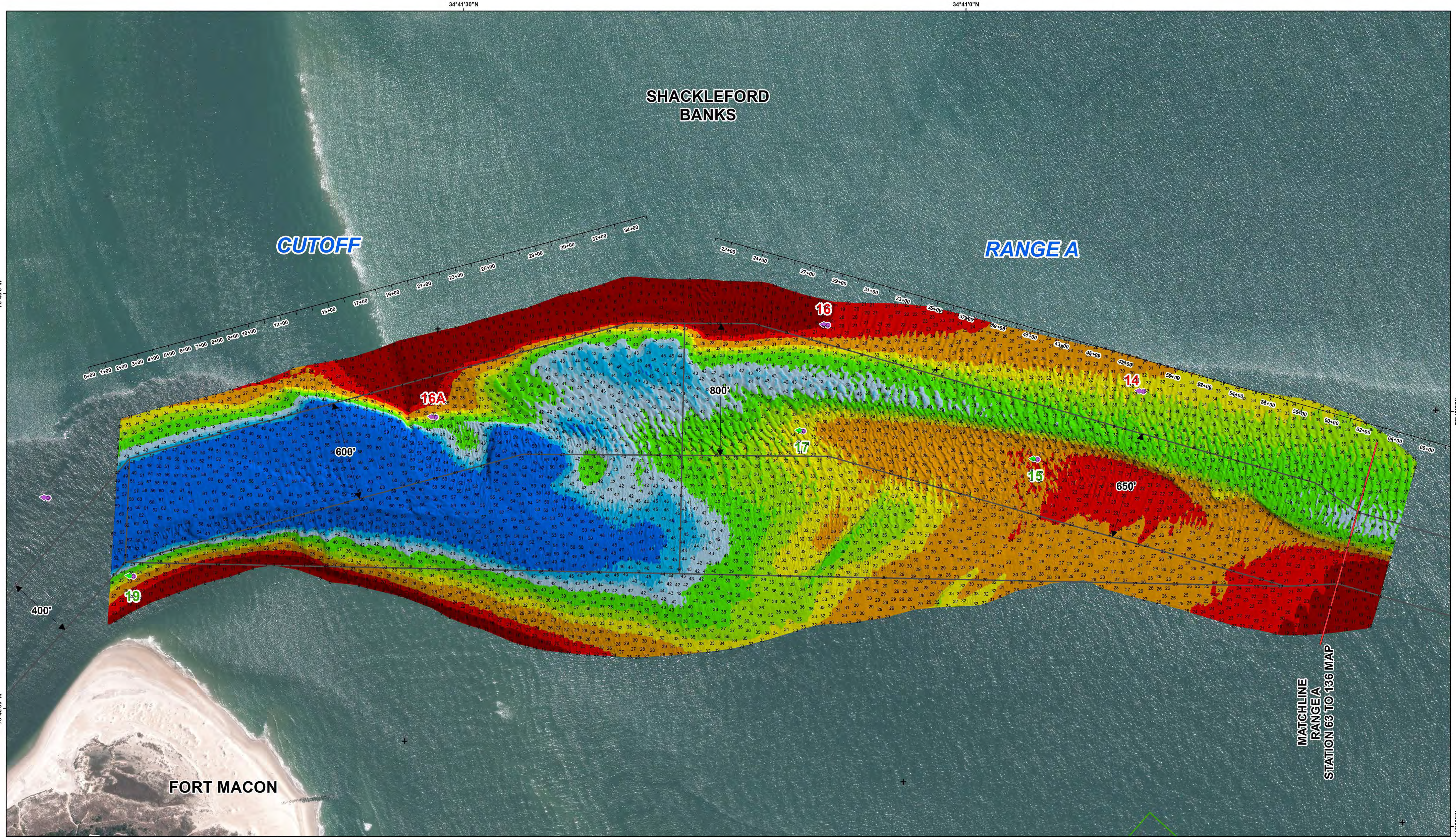
- Can
- Nun
- Green Lighted Buoy
- Red Lighted Buoy
- Junction Marker
- Green Light
- Red Light
- Green Daybeacon
- Red Daybeacon
- Danger Sign
- Mileboard
- Tide Gauge

**Depth In Feet**

20 and Shallower

- Placement Areas
- Navigation Channel





### HYDROGRAPHIC SURVEY

U.S. ARMY ENGINEER DISTRICT  
CORPS OF ENGINEERS  
WILMINGTON, NORTH CAROLINA  
Morehead City Harbor

## Cutoff & Range A

NORTH CAROLINA

Survey Date: 14-15 February 2019  
Map Date: 20 February 2019  
Imagery Date: 01 February 2019  
© 2019 DigitalGlobe Nextview License  
Scale: 1:3,000  
File Name: MC\_03\_RGA\_20190214\_CS  
Surveyed by: JBG,CRP  
Mapped by: k7opnlac  
Processed by: k7opnlac

200 100 0 200 400 600 800 Feet

1. ELEVATIONS ARE IN FEET AND REFER TO NOAA'S REPORTED MEAN LOWER LOW WATER (MLLW) RELATIVE TO THE 1983-2001 TIDAL EPOCH.

2. PROJECT SURVEYED WITH DISTRICT SURVEY VESSEL "BEAUFORT", USING RTK GPS HORIZONTAL POSITIONING EQUIPMENT AND 200 KHZ SOUNDING EQUIPMENT.

3. HORIZONTAL DATUM NAD 1983. VERTICAL DATUM M.L.L.W.

4. TIDE GAGE LOCATED AT DUKE MARINE LAB. USE OF TIDE VALUES FOR THIS GAGE ARE RESTRICTED TO QUALITY ASSURANCE PURPOSES FOR VERIFICATION OF RTK TIDES. THE WILMINGTON DISTRICT WILL ONLY USE STAFF GAGE TIDE VALUES FOR FINAL MAPPING AND QUANTITY CALCULATIONS IF RTK GPS IS UNAVAILABLE AT THE TIME OF SURVEY.

5. THIS PROJECT WAS DESIGNED BY THE WILMINGTON 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.

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7. NAVIGATION AIDS LOCATED WITH DISTRICT SURVEY VESSEL. ACCURACY +/- 3 METERS.

8. FOR THE MOST UP TO DATE INFORMATION PLEASE CHECK OUR WEBSITE AT WWW.SAW.USACE.ARMY.MIL

#### Aids to Navigation

- Can
- Nun
- Green Lighted Buoy
- Red Lighted Buoy
- Junction Marker

#### Depth In Feet

20-25 25-32 32-35 35-38 38-42 42-44 44-45 45-47 and Deeper

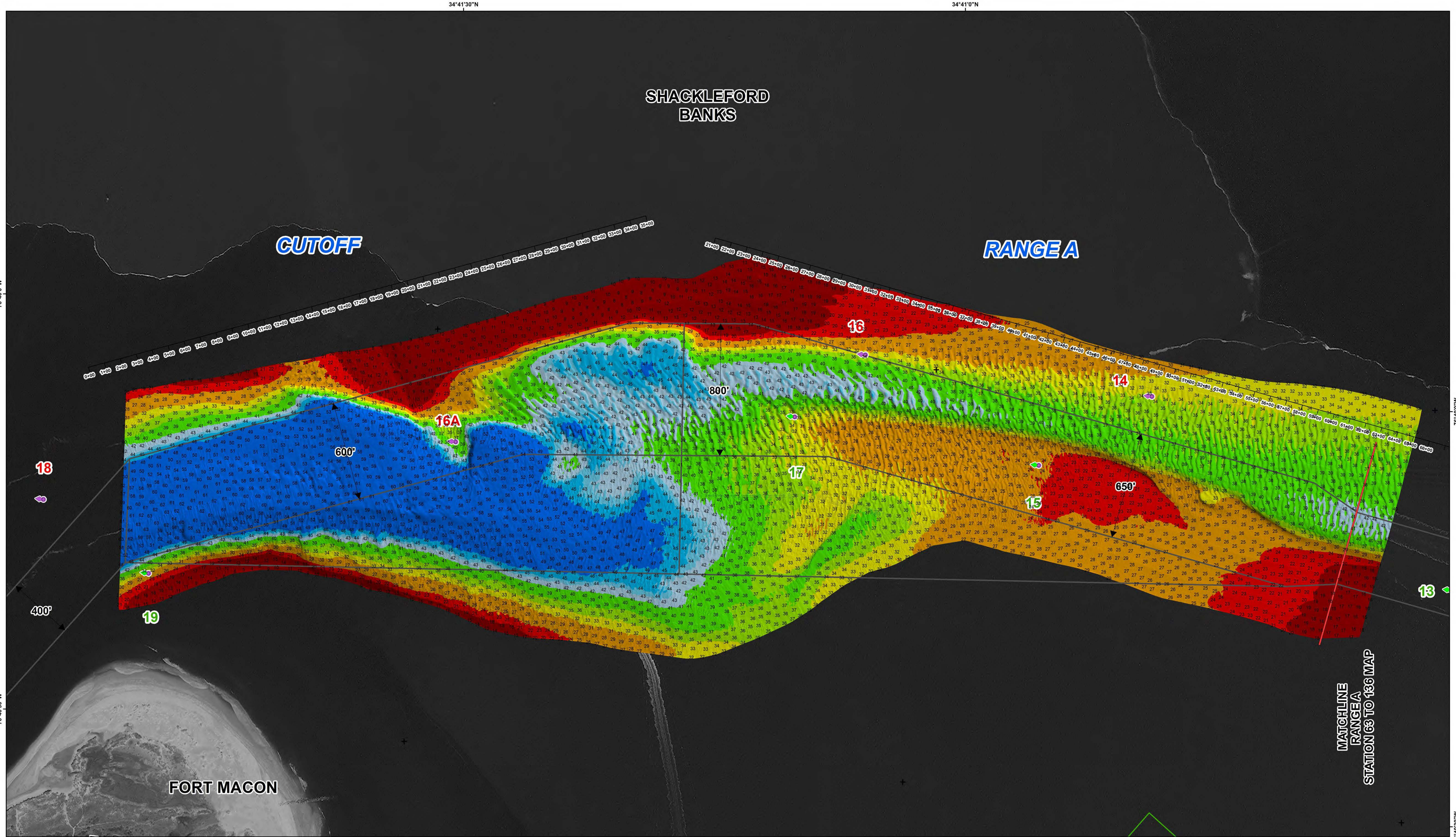
Placement Areas

Navigation Channel

#### Legend

- Green Light
- Red Light
- Green Daybeacon
- Red Daybeacon
- Danger Sign
- Mileboard
- Tide Gage





**HYDROGRAPHIC SURVEY**  
U.S. ARMY ENGINEER DISTRICT  
CORPS OF ENGINEERS  
WILMINGTON, NORTH CAROLINA  
Morehead City Harbor  
**Cutoff  
& Range A**

Survey Date: 16-17 January 2019  
Map Date: 22 January 2019  
Imagery Date: 22 September 2018  
© 2018 DigitalGlobe Nextview License  
Scale: 1:3,000  
File Name: MC\_03\_RGA\_20190116\_CS  
Surveyed by: CRP,JBG  
Mapped by: K7OPNDJM  
Processed by: K7OPNDJM

1. ELEVATIONS ARE IN FEET AND REFER TO NOAA'S REPORTED MEAN LOWER LOW WATER (MLLW) RELATIVE TO THE 1983-2011 TIDAL EPOCH.

2. PROJECT SURVEYED WITH DISTRICT SURVEY VESSEL "BEAUFORT", USING RTK GPS HORIZONTAL POSITIONING EQUIPMENT AND 200 KHZ SOUNDING EQUIPMENT.

3. HORIZONTAL DATUM NAD 1983. VERTICAL DATUM M.L.L.W.

4. TIDE GAGE LOCATED AT DUKE MARINE LAB. USE OF TIDE VALUES FOR THIS GAGE ARE RESTRICTED TO QUALITY ASSURANCE PURPOSES FOR VERIFICATION OF RTK TIDES. THE WILMINGTON DISTRICT WILL ONLY USE STAFF GAGE TIDE VALUES FOR FINAL MAPPING AND QUANTITY CALCULATIONS IF RTK GPS IS UNAVAILABLE AT THE TIME OF SURVEY.

5. THIS PROJECT WAS DESIGNED BY THE WILMINGTON 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.

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7. NAVIGATION AIDS LOCATED WITH DISTRICT SURVEY VESSEL. ACCURACY +/- 3 METERS.

8. FOR THE MOST UP TO DATE INFORMATION PLEASE CHECK OUR WEBSITE AT WWW.SAWUSACE.ARMY.MIL

**TYPICAL SECTION**  
M.L.L.W.  
-45' & -47'  
PROJECT DEPTH  
Varies  
NOT TO SCALE

**Aids to Navigation**  
Can  
Nun  
Green Lighted Buoy  
Red Lighted Buoy  
Junction Marker  
Green Light  
Red Light  
Green Daybeacon  
Red Daybeacon  
Danger Sign  
Mileboard  
Tide Gage

**Depth In Feet**  
20-25  
25-32  
32-35  
35-38  
38-42  
42-44  
44-45  
45-47  
47 and Deeper  
Placement Areas  
Navigation Channel