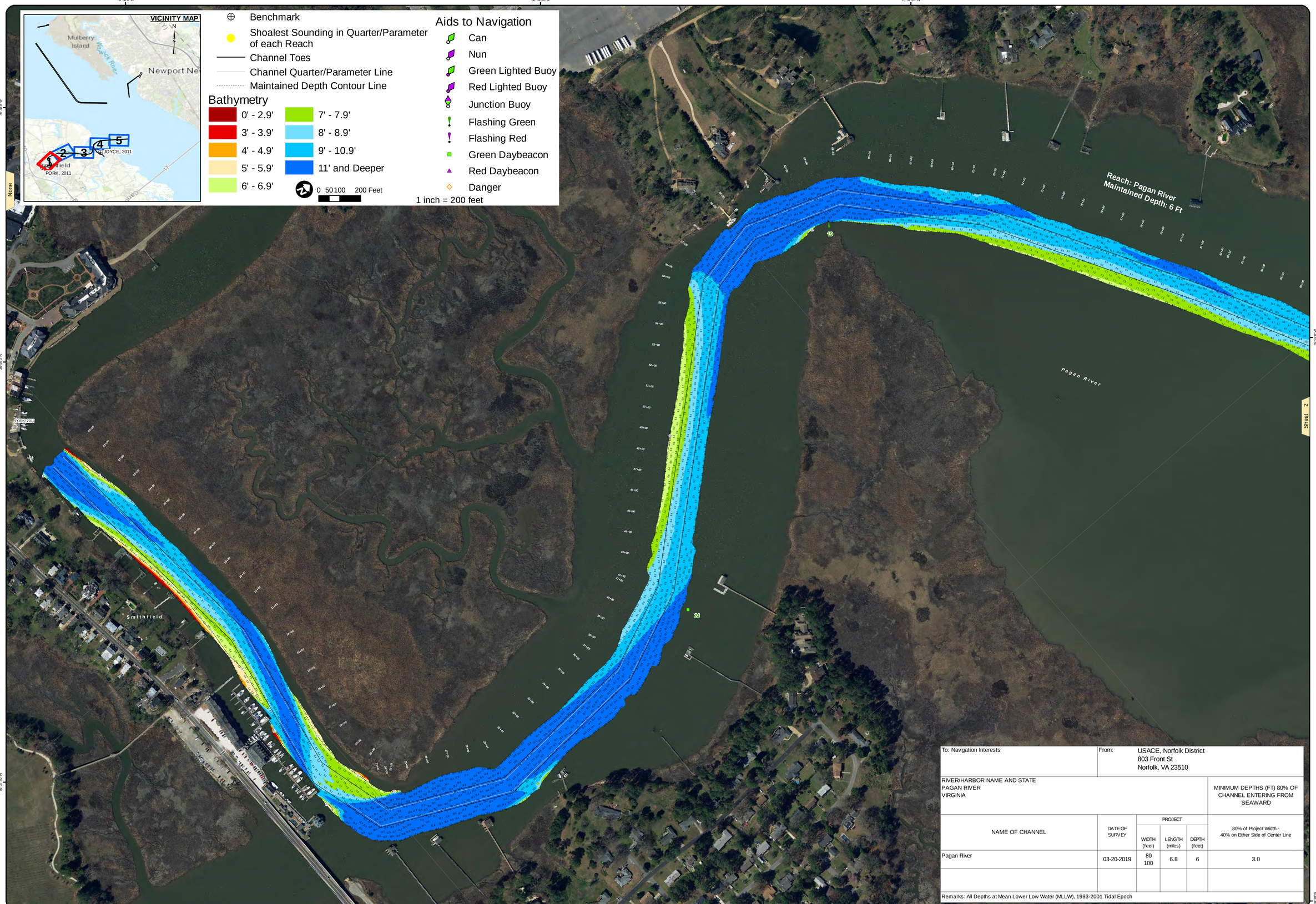


US Army Corps of Engineers
Norfolk District

NOTES:

1. A CHANNEL 10 FEET DEEP AND 80 FEET WIDE BETWEEN SMITHFIELD AND THE 10 FOOT CONTOUR IN THE JAMES RIVER. A 6 FOOT DEEP AND 80 FOOT WIDE CHANNEL WILL BE MAINTAINED UNTIL TRAFFIC INDICATES THE NEED FOR A CHANGE.
2. NOT FOR NAVIGATION USE. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATE(S) INDICATED & CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. SOUNDINGS: SHOWN IN FEET CENTERED ON POINT OF SHOALEST DEPTH IN 25 FT RADIUS GENERATED FROM HYDROSURVEY DATA.
4. BACKGROUND: VIRGINIA BASE MAPPING PROGRAM MOST RECENT IMAGERY GIS WEB SERVICE.
5. AIDS TO NAVIGATION LOCATED WITH SURVEY VESSEL +/- 10 FEET.
6. SURVEY XYZ (*.XYZ) AND METADATA (*.MET) FILE NAME REFERENCED BY eHYDRO FILE NAME.

PROJECTED COORDINATE SYSTEM: STATE PLANE
PRIMARY DATUM: NAD83
HORIZONTAL ZONE: VIRGINIA SOUTH ZONE
PROJECTED COORDINATE UNITS: US SURVEY FEET
ESTIMATED HORIZONTAL ACCURACY: +/- 1.FOOT
HORIZONTAL CONTROL: RTK/LEICA SMART NET

VERTICAL REFERENCE DATUM: NOS MLLW
TIDAL EPOCH: 1983-2001
IMPLIED VERTICAL ACCURACY: +/- 0.5 FEET
VERTICAL CONTROL: RTK/LEICA SMART NET
TYPE OF ACQUISITION: RTK/DGPS AVG TOTAL MDL
SYSTEM/METHOD: MULTI-BEAM
BIN SIZE: 5X5
BIN SELECTION METHOD: AVERAGE CELL CENTER

GEODETIC CONTROL MONUMENTS

MONUMENT	MLLW	NAVD88	MEAN RANGE OF TIDE
CE "PORK, 2011"	5.63'	4.09'(GEOID12B)	2.51'
CE "JOYCE, 2011"	4.20'	2.66'(GEOID12B)	2.51'

AREA
0+00' to 100+00
101+00' to 358+31

PAGAN RIVER
PROJECT CONDITION SURVEY

SURVEY DATES:
March 20 & 22, 2019

SURVEY BY: USACE Team Lead: Joseph Moore, Jr.
eHYDRO FILE: PG_01_PAG_20190320_CS

SHEET 1 of 5
Map Produced: 4/3/2019

APPROVED:
Jeff Swallow
Digitally signed by Jeff Swallow
Date: 2019.05.31 08:57:00 -04'00'
Chief, Navigation Analysis Section

APPROVED:
Digitally signed by Eric Legaspi
Date: 2019.05.31 13:36:12 -04'00'
Chief, Navigation Support and Survey Section

To: Navigation Interests

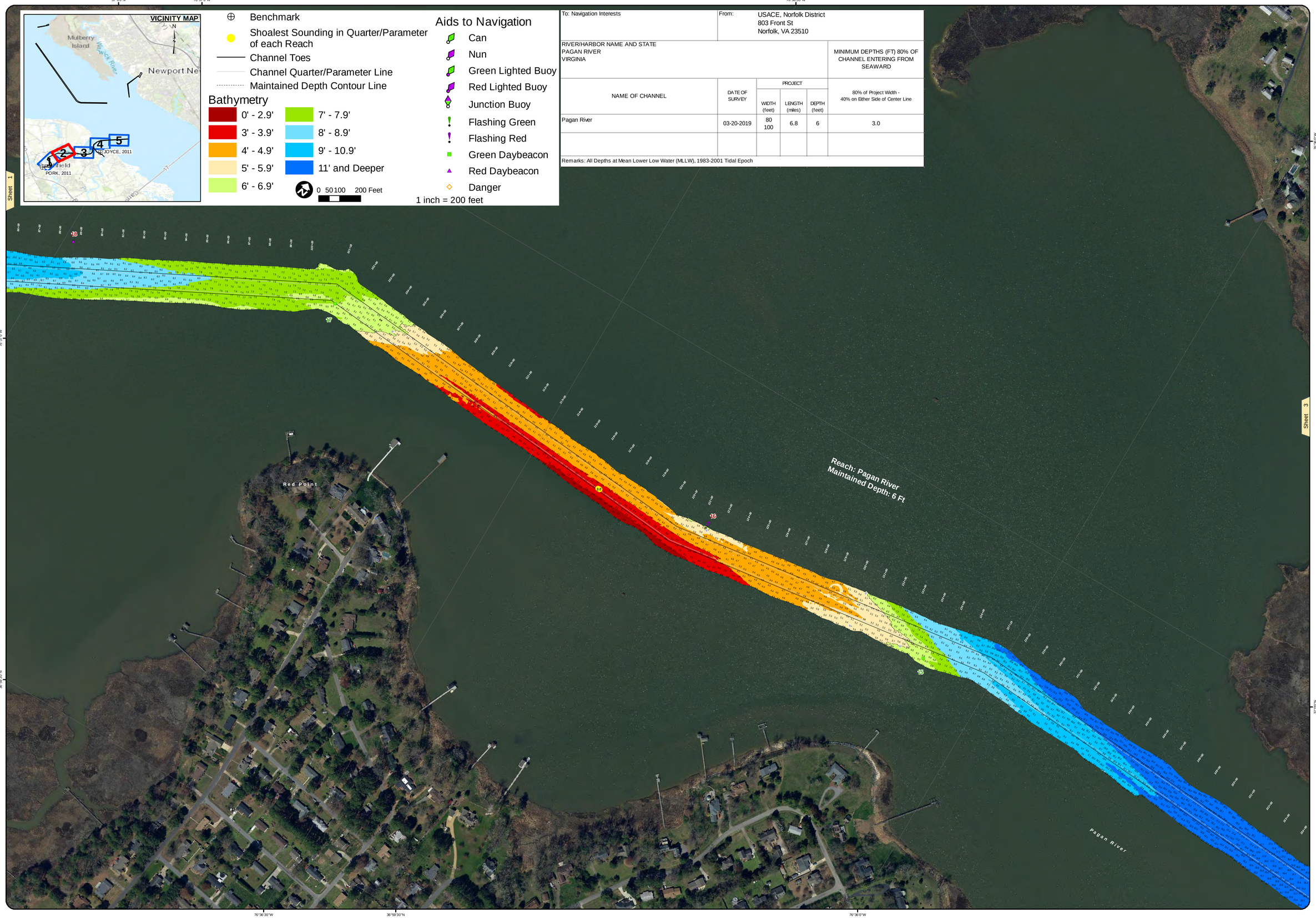
From: USACE, Norfolk District
803 Front St
Norfolk, VA 23510

RIVER/HARBOR NAME AND STATE
PAGAN RIVER
VIRGINIA

MINIMUM DEPTHS (FT) 80% OF CHANNEL ENTERING FROM SEAWARD

NAME OF CHANNEL	DATE OF SURVEY	PROJECT WIDTH (feet)	PROJECT LENGTH (miles)	PROJECT DEPTH (feet)	80% of Project Width - 40% on Either Side of Center Line
Pagan River	03-20-2019	80 100	6.8	6	3.0

Remarks: All Depths at Mean Lower Low Water (MLLW), 1983-2001 Tidal Epoch



To: Navigation Interests	From: USACE, Norfolk District 803 Front St Norfolk, VA 23510				
RIVER/HARBOR NAME AND STATE PAGAN RIVER VIRGINIA					MINIMUM DEPTHS (FT) 80% OF CHANNEL ENTERING FROM SEAWARD
NAME OF CHANNEL	DATE OF SURVEY	PROJECT			80% of Project Width - 40% on Either Side of Center Line
		WIDTH (feet)	LENGTH (miles)	DEPTH (feet)	
Pagan River	03-20-2019	80 100	6.8	6	3.0

Remarks: All Depths at Mean Lower Low Water (MLLW), 1983-2001 Tidal Epoch

US Army Corps of Engineers
Norfolk District

NOTES:

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2. NOT FOR NAVIGATION USE. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATE(S) INDICATED & CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. SOUNDINGS: SHOWN IN FEET CENTERED ON POINT OF SHOALEST DEPTH IN 25 FT RADIUS GENERATED FROM HYDROSURVEY DATA.
4. BACKGROUND: VIRGINIA BASE MAPPING PROGRAM MOST RECENT IMAGERY GIS WEB SERVICE.
5. AIDS TO NAVIGATION LOCATED WITH SURVEY VESSEL +/- 10 FEET.
6. SURVEY XYZ (*.XYZ) AND METADATA (*.MET) FILE NAME REFERENCED BY eHYDRO FILE NAME.

PROJECTED COORDINATE SYSTEM: STATE PLANE
DATUM NAME: NAD 83
HORIZONTAL ZONE: VIRGINIA SOUTH ZONE
PROJECTED COORDINATE UNITS: US SURVEY FEET
IMPLIED HORIZONTAL ACCURACY: +/- 1 FOOT
HORIZONTAL CONTROL: RTK/LEICA SMART NET

VERTICAL REFERENCE DATUM: NOS MLLW
TIDAL EPOCH: 1983-2001
IMPLIED VERTICAL ACCURACY: +/- 0.5 FEET
VERTICAL CONTROL: RTK/LEICA SMART NET
TIDE APPLICATION: RTK/NOAA VDATUM MDL
SYSTEM/METHOD: MULTI-BEAM
BIN SIZE: 5x5'
BIN SELECTION METHOD: AVERAGE CELL CENTER

GEODETIC CONTROL MONUMENTS

MONUMENT	MLLW	NAVD88	MEAN RANGE OF TIDE	AREA
CE "PORK, 2011"	5.63'	4.09'(GEOID12B)	2.51'	0+00 to 100+00
CE "JOYCE, 2011"	4.20'	2.66'(GEOID12B)	2.51'	101+00 to 358+31

PAGAN RIVER
PROJECT CONDITION SURVEY

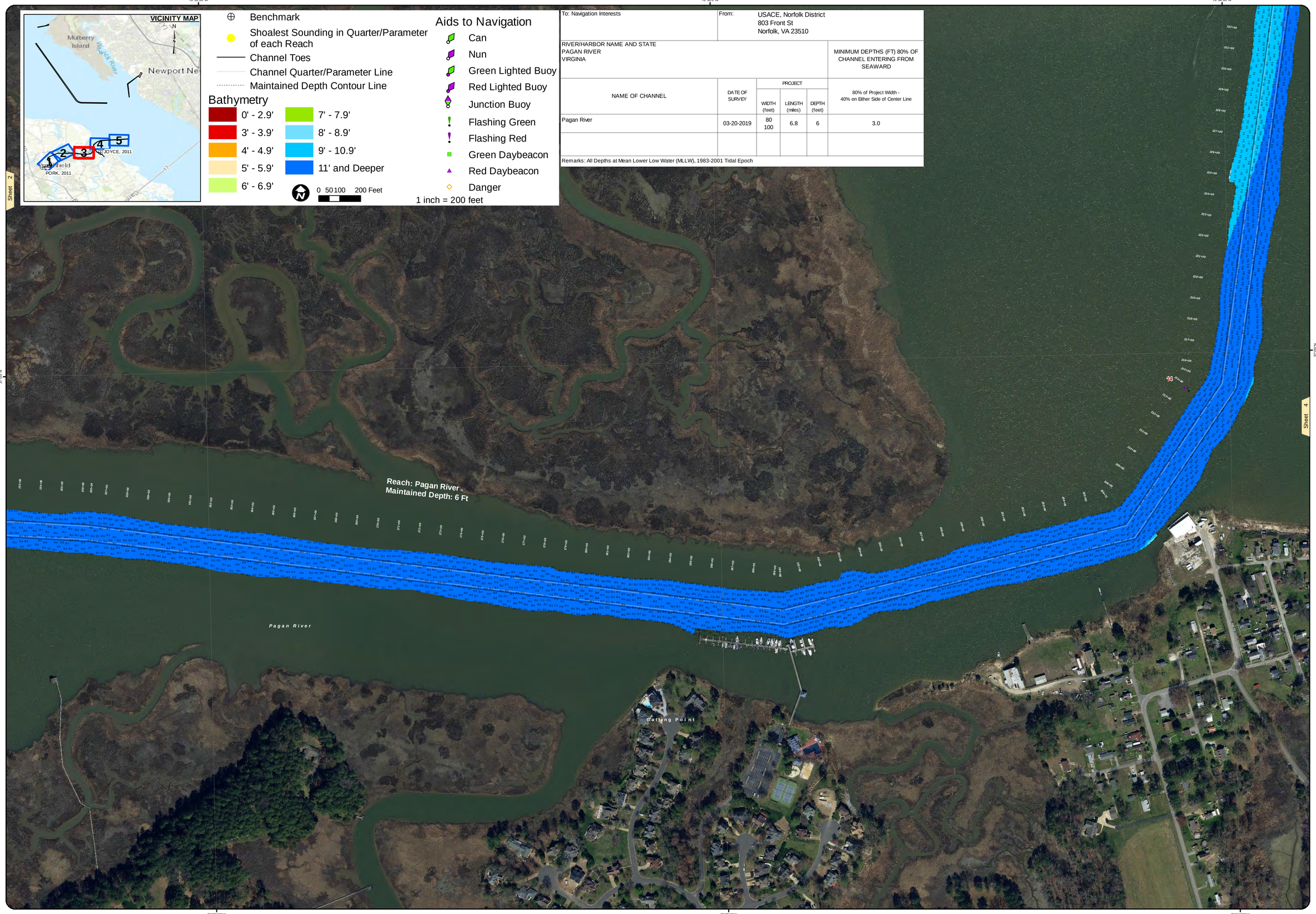
SURVEY DATES:
March 20 & 22, 2019

SURVEY BY: USACE Team Lead: Joseph Moore, Jr.
eHYDRO FILE: PG_01_PAG_20190320_CS

SHEET 2 of 5
Map Produced: 4/3/2019

APPROVED:
Chief, Navigation Analysis Section

APPROVED:
Chief, Navigation Support and Survey Section



To: Navigation Interests	From: USACE, Norfolk District 803 Front St Norfolk, VA 23510				
RIVER/HARBOR NAME AND STATE PAGAN RIVER VIRGINIA					MINIMUM DEPTHS (FT) 80% OF CHANNEL ENTERING FROM SEAWARD
NAME OF CHANNEL	DATE OF SURVEY	PROJECT			80% of Project Width - 40% on Either Side of Center Line
		WIDTH (feet)	LENGTH (miles)	DEPTH (feet)	
Pagan River	03-20-2019	80 100	6.8	6	3.0

Remarks: All Depths at Mean Lower Low Water (MLLW), 1983-2001 Tidal Epoch

US Army Corps of Engineers
Norfolk District

NOTES:

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3. SOUNDINGS: SHOWN IN FEET CENTERED ON POINT OF SHOALEST DEPTH IN 25 FT RADIUS GENERATED FROM HYDROSURVEY DATA.
4. BACKGROUND: VIRGINIA BASE MAPPING PROGRAM MOST RECENT IMAGERY GIS WEB SERVICE.
5. AIDS TO NAVIGATION LOCATED WITH SURVEY VESSEL +/- 10 FEET.
6. SURVEY XYZ (*.XYZ) AND METADATA (*.MET) FILE NAME REFERENCED BY eHYDRO FILE NAME.

PROJECTED COORDINATE SYSTEM: STATE PLANE
DATUM NAME: NAD 83
HORIZONTAL ZONE: VIRGINIA SOUTH ZONE
PROJECTED COORDINATE UNITS: US SURVEY FEET
IMPLIED HORIZONTAL ACCURACY: +/- 1 FOOT
HORIZONTAL CONTROL: RTK/LEICA SMART NET

VERTICAL REFERENCE DATUM: NOS MLLW
TIDAL EPOCH: 1983-2001
IMPLIED VERTICAL ACCURACY: +/- 0.5 FEET
VERTICAL CONTROL: RTK/LEICA SMART NET
TIDE APPLICATION: RTK/NOAA VDATUM MDL
SYSTEM/METHOD: MULTI-BEAM
BIN SIZE: 5x5'
BIN SELECTION METHOD: AVERAGE CELL CENTER

GEODETIC CONTROL MONUMENTS

MONUMENT	MLLW	NAVD88	MEAN RANGE OF TIDE	AREA
CE "PORK, 2011"	5.63'	4.09'(GEOID12B)	2.51'	0+00 to 100+00
CE "JOYCE, 2011"	4.20'	2.66'(GEOID12B)	2.51'	101+00 to 358+31

PAGAN RIVER
PROJECT CONDITION SURVEY

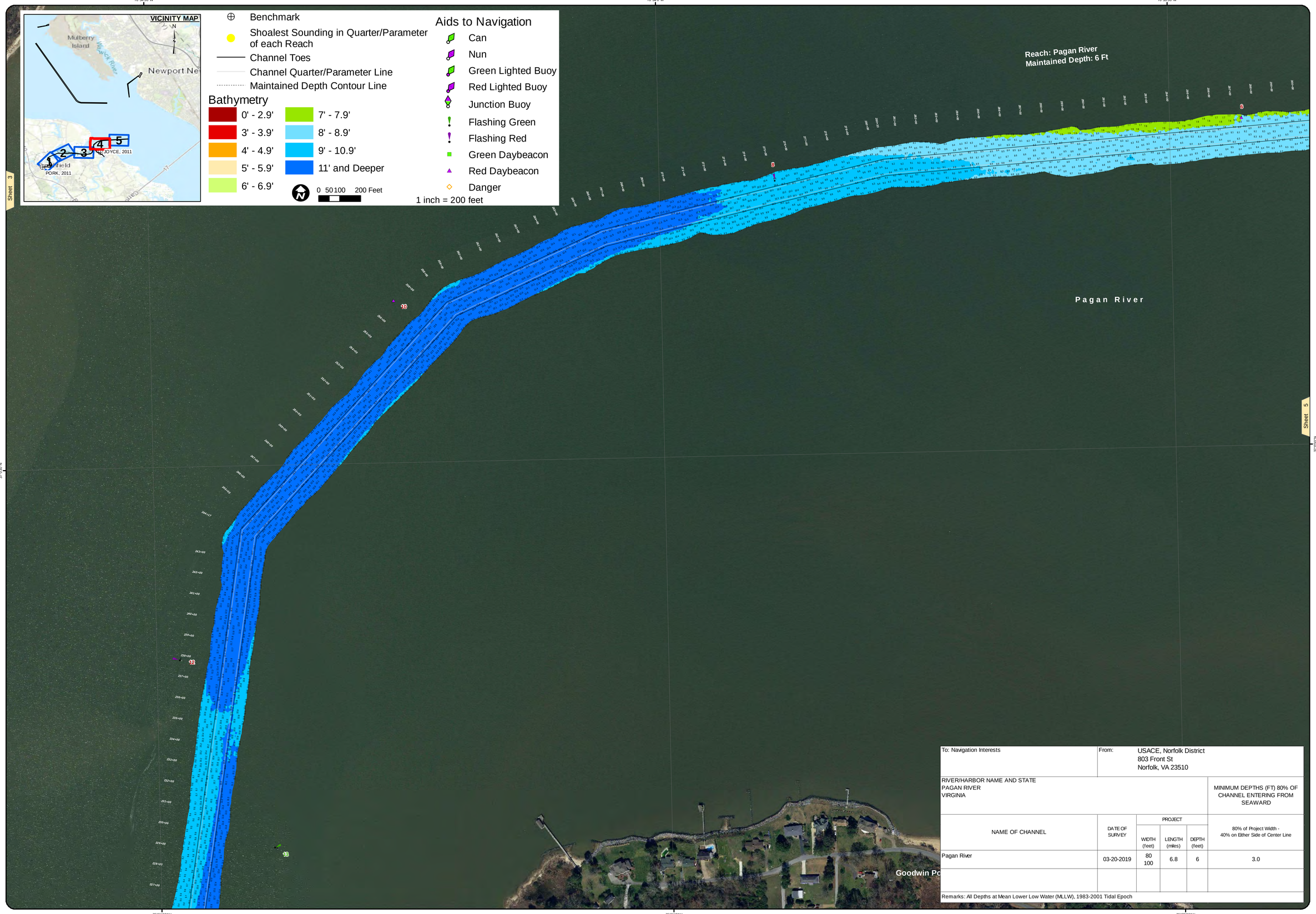
SURVEY DATES:
March 20 & 22, 2019

SURVEY BY: USACE Team Lead: Joseph Moore, Jr.
eHYDRO FILE: PG_01_PAG_20190320_CS

SHEET 3 of 5
Map Produced: 4/3/2019

APPROVED:
Chief, Navigation Analysis Section

APPROVED:
Chief, Navigation Support and Survey Section



To: Navigation Interests	From: USACE, Norfolk District 803 Front St Norfolk, VA 23510				
RIVER/HARBOR NAME AND STATE PAGAN RIVER VIRGINIA					MINIMUM DEPTHS (FT) 80% OF CHANNEL ENTERING FROM SEAWARD
NAME OF CHANNEL	DATE OF SURVEY	PROJECT			80% of Project Width - 40% on Either Side of Center Line
		WIDTH (feet)	LENGTH (miles)	DEPTH (feet)	
Pagan River	03-20-2019	80 100	6.8	6	3.0
Remarks: All Depths at Mean Lower Low Water (MLLW), 1983-2001 Tidal Epoch					

US Army Corps of Engineers
Norfolk District

NOTES:

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2. NOT FOR NAVIGATION USE. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATE(S) INDICATED & CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME.
3. SOUNDINGS: SHOWN IN FEET CENTERED ON POINT OF SHOALEST DEPTH IN 25 FT RADIUS GENERATED FROM HYDROSURVEY DATA.
4. BACKGROUND: VIRGINIA BASE MAPPING PROGRAM MOST RECENT IMAGERY GIS WEB SERVICE.
5. AIDS TO NAVIGATION LOCATED WITH SURVEY VESSEL +/- 10 FEET.
6. SURVEY XYZ (*.XYZ) AND METADATA (*.MET) FILE NAME REFERENCED BY eHYDRO FILE NAME.

PROJECTED COORDINATE SYSTEM: STATE PLANE
DATUM NAME: NAD 83
HORIZONTAL ZONE: VIRGINIA SOUTH ZONE
PROJECTED COORDINATE UNITS: US SURVEY FEET
MAPPED HORIZONTAL ACCURACY: +/- 1.0FOOT 95%
HORIZONTAL CONTROL: RTK/LEICA SMART NET

VERTICAL REFERENCE DATUM: NOS MLLW
DATUM NAME: 1983-2001
IMPLIED VERTICAL ACCURACY: +/- 0.5 FEET
VERTICAL CONTROL: RTK/LEICA SMART NET
VERTICAL SOUNDING SYSTEM/METHOD: RTK/VARIOUS SOUTHERN MDL MULTI-BEAM
BIN SIZE: 5x5
BIN SELECTION METHOD: AVERAGE CELL CENTER

GEODETIC CONTROL MONUMENTS

MONUMENT	MLLW	NAVD88	MEAN RANGE OF TIDE	AREA
CE "PORK, 2011"	5.63'	4.09'(GEOID12B)	2.51'	0+00' to 100+00
CE "JOYCE, 2011"	4.20'	2.66'(GEOID12B)	2.51'	101+00' to 358+33

PAGAN RIVER
PROJECT CONDITION SURVEY

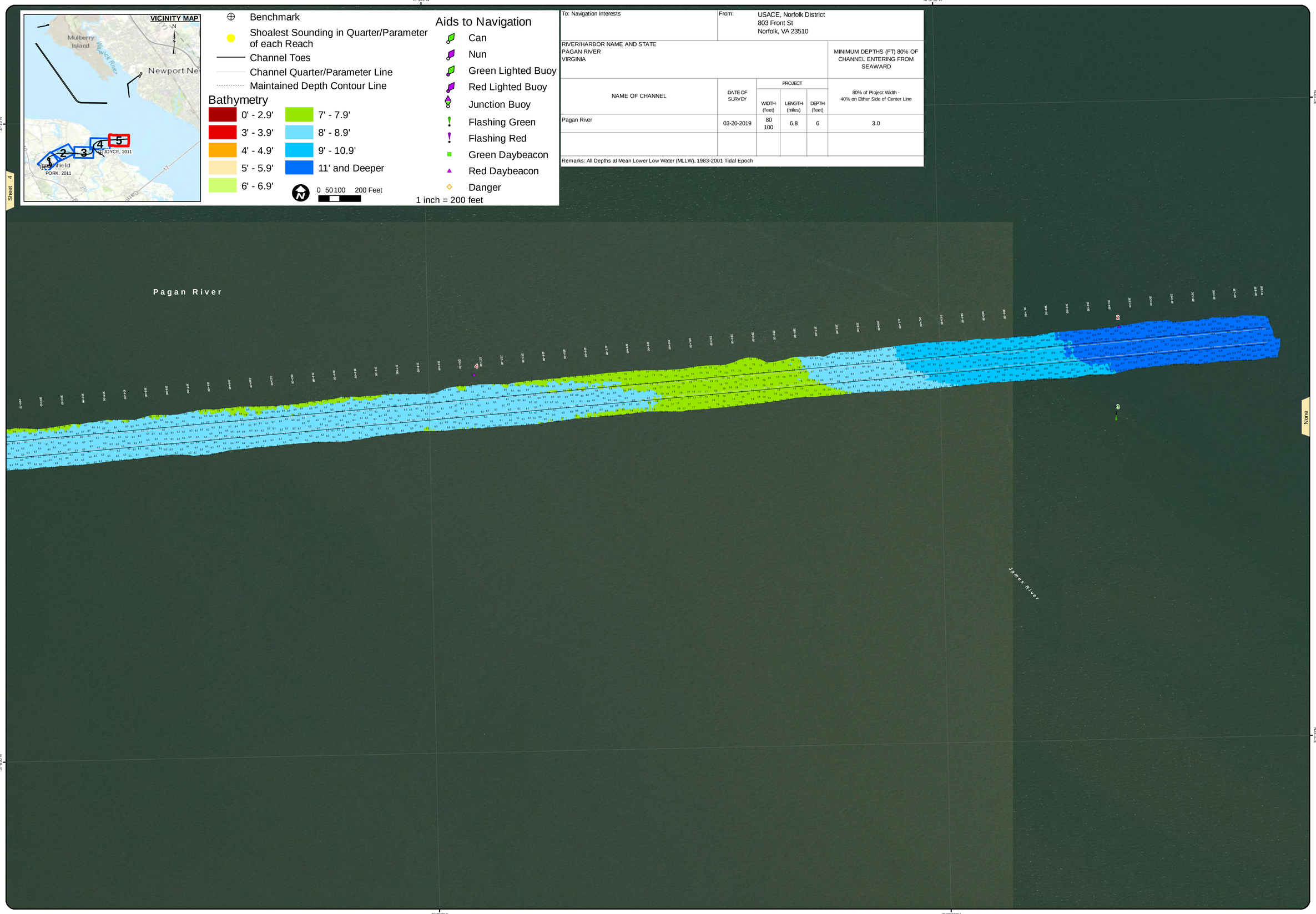
SURVEY DATES:
March 20 & 22, 2019

SURVEY BY: USACE Team Lead: Joseph Moore, Jr.
eHYDRO FILE: PG_01_PAG_20190320_CS

SHEET 4 of 5
Map Produced: 4/3/2019

APPROVED:
Chief, Navigation Analysis Section

APPROVED:
Chief, Navigation Support and Survey Section



To: Navigation Interests		From: USACE, Norfolk District 803 Front St Norfolk, VA 23510			
RIVER/HARBOR NAME AND STATE PAGAN RIVER VIRGINIA					MINIMUM DEPTHS (FT) 80% OF CHANNEL ENTERING FROM SEAWARD
NAME OF CHANNEL	DATE OF SURVEY	PROJECT			80% of Project Width - 40% on Either Side of Center Line
		WIDTH (feet)	LENGTH (miles)	DEPTH (feet)	
Pagan River	03-20-2019	80 100	6.8	6	3.0
Remarks: All Depths at Mean Lower Low Water (MLLW), 1983-2001 Tidal Epoch					

US Army Corps of Engineers
Norfolk District

NOTES:

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3. SOUNDINGS: SHOWN IN FEET CENTERED ON POINT OF SHOALEST DEPTH IN 25 FT RADIUS GENERATED FROM HYDROSURVEY DATA.
4. BACKGROUND: VIRGINIA BASE MAPPING PROGRAM MOST RECENT IMAGERY GIS WEB SERVICE.
5. AIDS TO NAVIGATION LOCATED WITH SURVEY VESSEL +/- 10 FEET.
6. SURVEY XYZ (*.XYZ) AND METADATA (*.MET) FILE NAME REFERENCED BY eHYDRO FILE NAME.

PROJECTED COORDINATE SYSTEM: STATE PLANE
DATUM NAME: NAD83
HORIZONTAL ZONE: VIRGINIA SOUTH ZONE
PROJECTED COORDINATE UNITS: US SURVEY FEET
IMPLIED VERTICAL ACCURACY: +/- 1 FOOT
HORIZONTAL CONTROL: RTK/LEICA SMART NET

VERTICAL REFERENCE DATUM: NGS MLLW
TIDAL EPOCH: 1983-2001
IMPLIED VERTICAL ACCURACY: +/- 0.5 FEET
VERTICAL CONTROL: RTK/LEICA SMART NET
TIDE ZONE: NORFOLK, VA (CUSTOM MDL)
SYSTEM/METHOD: MULTI-BEAM
BIN SIZE: 5x5
BIN SELECTION METHOD: AVERAGE CELL CENTER

GEODETIC CONTROL MONUMENTS

MONUMENT	MLLW	NAVD88	MEAN RANGE OF TIDE	AREA
CE "PORK, 2011"	5.63'	4.09'(GEOID12B)	2.51'	0+00' to 100+00
CE "JOYCE, 2011"	4.20'	2.66'(GEOID12B)	2.51'	101+00' to 358+31

PAGAN RIVER
PROJECT CONDITION SURVEY

SURVEY DATES:
March 20 & 22, 2019

SURVEY BY: USACE Team Lead: Joseph Moore, Jr.
eHYDRO FILE: PG_01_PAG_20190320_CS

SHEET 5 of 5
Map Produced: 4/3/2019

APPROVED:
Chief, Navigation Analysis Section

APPROVED:
Chief, Navigation Support and Survey Section