

This Draft Navigational Impact Report is prepared to further define the bridge clearance heights for alternatives under consideration for the Wilmington Rail Realignment Project, as required by the US Coast Guard (USCG) for projects requiring a USCG bridge permit. The clearance requirements recommended in this report do not preclude any of the alternatives under consideration from being selected as the Preferred Alternative during the National Environmental Policy Act (NEPA) process.

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NAVIGATION IMPACT REPORT

for the Rail Realignment Project Cape Fear River Above Wilmington

Completed by the City of Wilmington
Aubrey Parsley, PE
Director of Rail Realignment
305 Chestnut Street, PO Box 1810
Wilmington, NC 28402

June 28th, 2021

A. Means of data collection:

The primary sources of user data were Automatic Identification System (AIS) datasets from 2019 which were analyzed and refined for the purposes of this report by the City of Wilmington in collaboration with MarineCadastre.gov (a collaboration between the Bureau of Ocean Management (BOEM) and the National Oceanic and Atmospheric Administration (NOAA)). Additional information was gathered via direct outreach from known stakeholders with navigational interests, users of the relevant waterway as well as from other publically available sources.

- AIS Data for 2019
(<https://coast.noaa.gov/htdata/CMSP/AISDataHandler/2019/index.html>)
- USGC's National Vessel Documentation Database Queries via NOAA website
- On-site visits
- Bridge lift logs for CSXT's Navassa Drawbridge
- Outreach to various government, private and public stakeholders (see Exhibit E)
- Comment period between June 28th and July 26th, 2021 which was publicized via press release, newspaper advertisement, social media applications, flyers, mailers, local government meetings and on television
- Other resources as made available online (specific citations made in each section)

B. Present governing bridge(s) or aerial structure(s) on the waterway:

1. *Identify all bridges upstream and downstream of the proposed bridge site and their existing horizontal and vertical clearances to determine the existing minimum horizontal and vertical clearances (including overhead transmission line clearances). Provide in table format.*

(If all bridges downstream have the same minimum clearance, state instead of the above requested information).

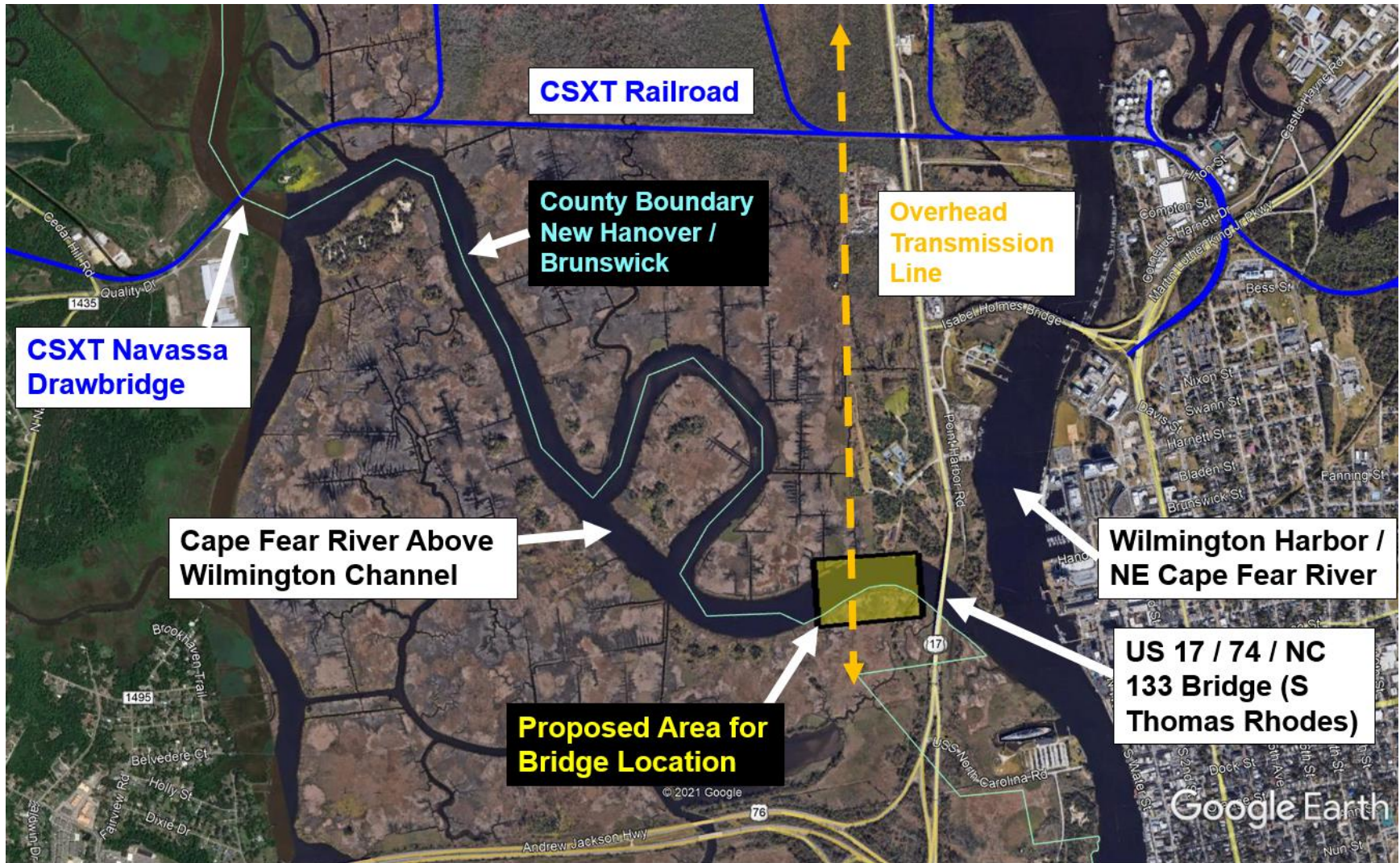
TABLE 1:

Facility Carried	Feature Intersected	Approx. Waterway Milepoint	Channel Depth (MHW)	Vertical Clearance (MHW)	Horizontal Clearance
CSXT SE Line Navassa Drawbridge	Cape Fear Above Wilmington	34	12'	9' closed Unlimited open	102'
Overhead Transmission Line	Cape Fear Above Wilmington	30.3	25'	125'	Full channel
US 17 / 74 / NC 133	Cape Fear Above Wilmington	30	25'	55'	120'

See also Figure 1 on the following page.

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FIGURE 1:



2. *Does the proposed bridge(s) match (or is greater than) the navigational clearance of the existing structures on the waterway?*

There are currently three (3) location alternatives being considered for the proposed bridge crossing of the Cape Fear River between waterway mile points 30.1 and 30.3. The three (3) locations being considered are (approximately) located at waterway mile point 30.1, 30.2 and 30.3. Each of these alternative locations would place the proposed bridge between the US 17 / 74 / NC 133 fixed highway bridge and the CSXT SE line moveable bascule railroad bridge commonly referred to as the CSXT Navassa Drawbridge. The horizontal and vertical clearance proposed below would be incorporated at any of the three aforementioned locations (see also Figure 3 below).

For the purposes of this report, the City of Wilmington proposes the following navigational clearances be considered as reasonably meeting the navigational needs of the waterway:

Horizontal Clearance: 102 feet which would match the most horizontally restrictive structure over the waterway presently, the CSXT Navassa Drawbridge upstream

Vertical Clearance: Unlimited in the open position, 9 feet closed, matching the clearances of the CSXT Navassa Drawbridge upstream

3. *What is the most restrictive horizontal clearance on the waterway? (This may be a fixed bridge downstream/upstream of the proposed structure, a low hanging power line downstream/upstream of the bridge(s), or it may be some other structure that limits horizontal clearance. Sometimes the existing to-be-replaced bridge(s) is the most restrictive structure.*

Upstream of the proposed bridge location the structure which creates the most restrictive horizontal clearance is the CSXT Navassa Rail Bridge.

- a. Milepoint: 34
- b. Horizontal clearance: 102 feet

Downstream of the proposed bridge location the structure which creates the most restrictive horizontal clearance is the fixed US 17 / 74 / NC 133 highway bridge.

- a. Milepoint: 30
- b. Horizontal clearance: 120 feet

4. *What is the most restrictive vertical clearance on the waterway? (This may be a fixed bridge downstream/upstream of the proposed structure, a low hanging power line downstream/upstream of the bridge(s), or it may be some other structure that limits*

vertical clearance. Sometimes the existing to-be-replaced bridge(s) is the most restrictive structure.

Upstream of the proposed bridge location the structure which creates the most restrictive vertical clearance is the CSXT SE Line.

- a. Milepoint: 34
- b. Vertical clearance (bridge in closed position): 9 feet
- c. Vertical clearance (bridge in open position): Unlimited

Downstream of the proposed bridge location the structure which creates the most restrictive vertical clearance is the fixed US 17 / 74 / NC 133 highway bridge.

- a. Milepoint: 30
- b. Vertical clearance (non-moveable bridge): 55 feet

5. Will the proposed bridge(s) become the most restrictive/obstructive structure across the waterway?

No, the bridge will not become the most restrictive or obstructive structure across the waterway.

C. Waterway characteristics:

(All domestic bridge navigational clearances should be stated in linear feet in decimal form vs. feet and inches. All international bridge navigational clearances should be state in linear unit of measure as well as the metric equivalent).

1. Various water stages: *(Datum that is used).*

The various waterway stages are listed in Table 2 below. All data values are relative to North American Datum of 1988 (NAVD88). Elevations are from National Oceanic and Atmospheric Administration (NOAA) station 8658120 in Wilmington, NC near the Cape Fear Memorial Bridge which is approximately 1.4 river miles from the proposed bridge site(s).

TABLE 2

	<i>Waterway Stage</i>	<i>Elevation (NAVD88)</i>
MHHW	Mean Higher – High Water	2.08 feet
MHW	Mean High Water	1.83 feet
MTL	Mean Tide Level	-0.31 feet
MSL	Mean Sea Level	-0.16 feet
DTL	Mean Diurnal Tide Level	-0.26 feet
MLW	Mean Low Water	-2.44 feet
MLLW	Mean Lower-Low Water	-2.60 feet
NAVD88	North American Vertical Datum of 1988	0.00

Source: <https://tidesandcurrents.noaa.gov/stations.html?type=Datums>

2. *Natural flow of the waterway including currents, waterway velocity, water direction, and velocity fluctuations (seasonal, daily, hourly, etc.), that might affect navigation.*

Tides are normally semi-diurnal on the waterway (2 lows, 2 highs daily cycles on average) and micro-tidal (tidal range < 2 meters). The waterway experiences both ebb and flood tidal flows, with direction and velocity of flow varying with tidal cycles. Generally, water flows east-west until reaching the confluence of the Northeast Cape Fear River and the Cape Fear River.

NOAA performed a Cape Fear River, NC survey in 2016 with results published in June 2019. The report made use of numerous observation stations for data collection, one of which was CFR1604 located at Peter Point within less than 1,000 feet from the proposed bridge location. Speed and timing relative to the tidal day of mean maximum ebb current (MEC) and mean maximum flood current (MFC) at the near surface were:

MFC = 74.8 cm/s (1.45 knots)
MEC = 81.8 cm/s (1.59 knots)

Source:

https://tidesandcurrents.noaa.gov/publications/Techrpt_089_Cape_Fear_Tech_Report_Final.pdf

3. *Width of the waterway at bridge site.*

The width of the waterway at all of the considered bridge sites is approximately 425 feet bank to bank. The width of the navigational channel as maintained by the United States Army Corp of Engineers (USACE) varies from 140 feet wide (upstream of the Navassa Turning Basin) to 200 feet (downstream of the Navassa Turning Basin). The Navassa Turning Basin immediately south of the CSXT Navassa Drawbridge is 400 feet wide by 550 feet long.

4. *Depth of the waterway and elevation fluctuations at bridge site: [List the depth at each waterway bridge stage (ex. Range of tides, average high water elevation, etc.)].*

The depths of the waterway at various stages at the proposed bridge site(s) are depicted in the attached Exhibit A. Generally the depths range from 20 feet to 36 feet within the proposed bridge site(s), with elevations referring to MLW. As seen from data provided in C.1, waterway elevations vary 4.27 feet from MLW to MHW.

The channel has not been dredged within the last 20 years and there are no eminent plans for dredging of the waterway at this time. The channel is occasionally surveyed by USACE. The latest hydrographic survey is attached herein as Exhibit A.

Sources

<https://www.saw.usace.army.mil/Missions/Navigation/Hydrographic-Surveys/River-Projects/>

<https://www.arcgis.com/apps/opdashboard/index.html#/4b8f2ba307684cf597617bf1b6d2f85d>

5. *Waterway layout and geometry: (For example, is there a dam or lock, does the elevation of the approach impact the required bridge(s) clearance?)*

There are no dams, locks, elevation changes or other considerations which would materially impact the required bridge clearances.

The proposed bridge locations fall between what is known as Peter Point and Muddy point on the Cape Fear River Above Wilmington, which is a federal channel maintained by the USACE. The confluence of the Cape Fear River and the Northeast Cape Fear River is immediately downstream from the proposed bridge sites (at Peter Point) as is the Wilmington Harbor, which is also a federal channel maintained by the USACE. Upstream of the proposed bridge site, immediately south of the Navassa Rail Bridge, the Cape Fear River partially diverges to form the Brunswick River, which wraps around the west end of Eagle Island, to meet back up with the Cape Fear River further south. The Cape Fear River Above Wilmington navigational channel extends approximately 111 miles from its connection with the Wilmington Harbor Project up to Fayetteville. The section of the waterway considered for bridge site(s) is primarily oriented east-west and has a small bend which is further described under C-6 below.

There are no dams, locks or other considerations which materially impact elevation.

6. *Channel and waterway alignment: Location of the channel(s).*

The proposed bridge would cross a federal channel maintained by the USACE known as the Cape Fear River Above Wilmington. The Cape Fear Above Wilmington channel extends approximately 111 miles from its connection with the Wilmington Harbor Project to Fayetteville, NC. The two bridges described in Table 1 both cross the channel. The channel connects with another federally maintained channel, the Wilmington Harbor, which proceeds for approximately 26 miles south until reaching the Atlantic Ocean.

The Cape Fear River Above Wilmington channel is maintained to a channel depth of 25 feet and a width of 200 feet up to the Navassa Turning Basin. The Navassa Turning Basin is 400 feet wide by 550 feet long and is maintained to a depth of 25 feet. North beyond the Navassa Turning Basin (beginning immediately south of the CSXT Navassa Rail Bridge) the channel is maintained to a width of 140 feet and a depth of 12 feet to just south of the CSXT Navassa Drawbridge. Upstream of the Navassa Turning Basin the channel is maintained to a width of 140 feet to project mileboard 30 (as defined by USACE) near Ringlewood, NC with five (5) channel cut-offs that are 150 feet. Beyond Ringlewood, the channel is maintained to a depth of 8 feet with varied channel widths.

There is a short bend in the waterway of approximately 70 degree delta which is depicted in Figures 2 & 3 below. Each alternative would present a different orientation of the proposed bridge to the navigational channel and all alternatives would cross the waterway at a skew.

FIGURE 2:

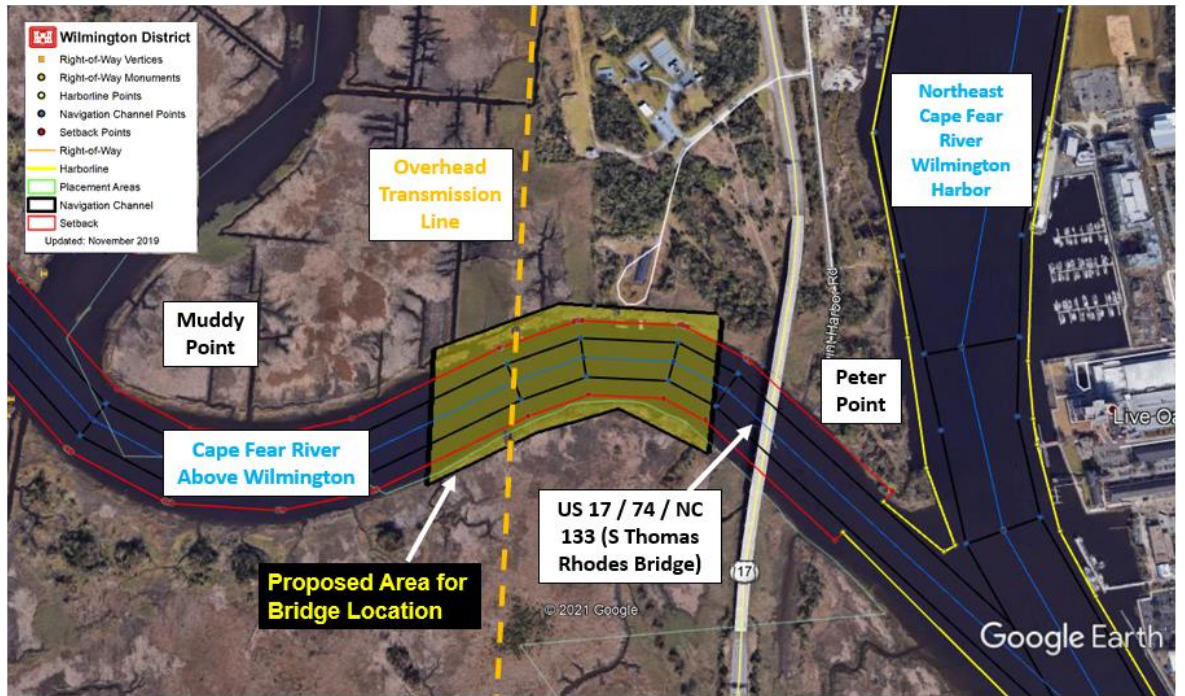
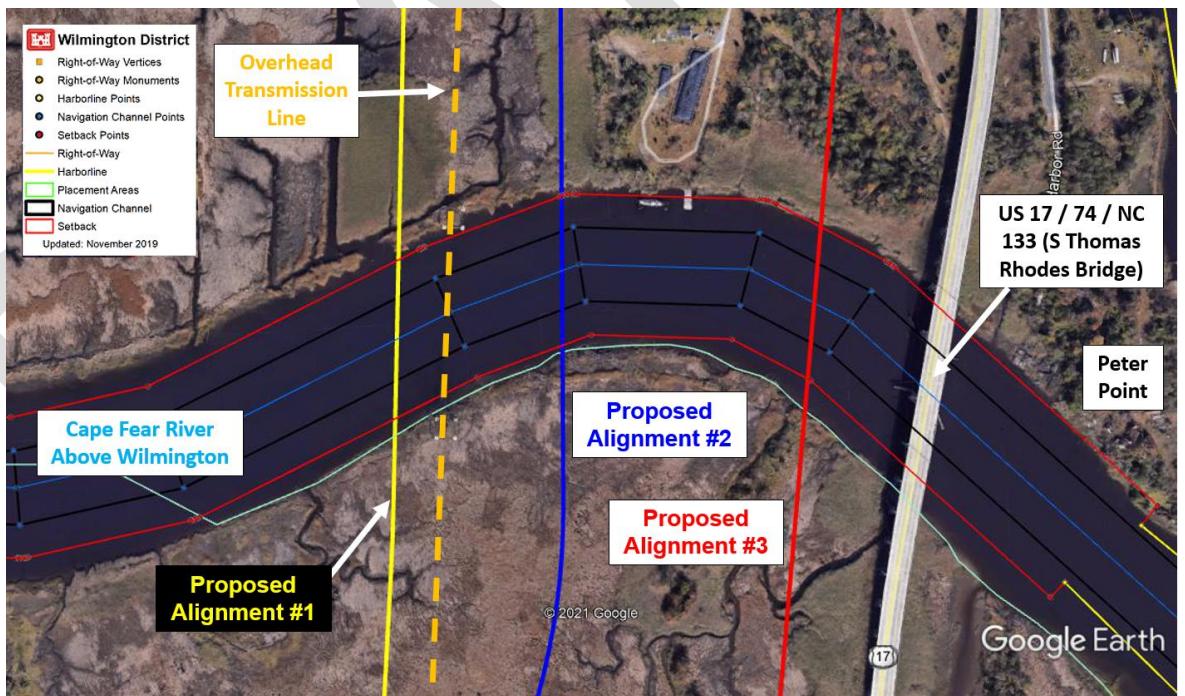


FIGURE 3:



7. Other limiting factors: (For example, bends in the waterway within one-half mile of the project site, hindrances to free navigation, fog, hydraulics, etc.).

In addition to the bend in the waterway described and depicted above in C.6, there is another bend to the waterway of approximately 160 degree delta west of the

proposed bridge locations. This bend is also depicted in Figure 2 but does not present any meaningful limitations to navigation at the proposed bridge locations.

There are no other known hindrances to free navigation within one-half mile of the proposed bridge sites. See NOAA Chart 11537 and appendices for additional information.

D. Do vessels that engage in emergency operations (i.e., law enforcement, fire, rescue, emergency dam repair, etc.), national defense activities (i.e. cruisers, fuel barges, munitions ships, etc.) or channel maintenance (i.e., dredges, dam and levee repair, etc.) operate on the waterway? If yes, describe the vessels and provide the following information:

1. *Does levee maintenance, bridge work (other bridges), channel maintenance and emergency operations upstream of bridge require certain vessels to transit the waterway?*

No, per coordination with the NCDOT, USACE, USCG and other agencies.

2. *Does the proposed bridge(s) impact USCG and/or other government vessels' ability to transit the bridge(s) to conduct mission essential functions (icebreakers, patrols, etc.)?*

No, per coordination with USCG.

Coast Guard Station Oak Island is the only Coast Guard unit that has the potential to operate in the area identified within the Rail Realignment Navigation Impact Report. USCG does not have any Aids to Navigation (ATON) in the area that require servicing from ANT Oak Island, CGC Bayberry, or CGC Maple.

Coast Guard Search and Rescue Station Oak Island generally does not conduct operations between Peter Point (from the S Thomas Rhode bridge, US 17 / 74 / NC 133) to just north of the CSXT Navassa bridge. USCG relies on other government agencies (OGA's) to assist in the area. In the event that they are required to transit north above the Navassa bridge, they would utilize the 29' RBS-II and have do so at low tide or request a bridge opening.

3. *Vessels using the waterway during the proposed bridge(s) lifespan:*

USCG Oak Island Vessel:

Vessel did not transit the waterway under study in 2019.

- i. Vessel name: 29' RBS-II
- ii. Registration/documentation numbers: CG 29216, CG29217
- iii. Vessel type: Enclosed Cabin, outboards
- iv. Vessel owner contact information: USCG Station Oak Island

- v. Primary vessel mooring location (include waterway milepoint, if known): 300A Caswell Beach Rd., Oak Island, NC 28465
- vi. Vessel overall length: 31' 7"
- vii. Vessel beam: 8' 5"
- viii. Vessel draft (depth of hull below waterline at full load): 2' 9" trimmed down, 1' 10" trimmed up
- ix. Vessel air draft (height of the highest fixed point of the vessel above the waterline, when empty): 7' 10"



US Army's Sunny Point, NC firefighting and rescue vessel:

Vessel currently transits the waterway twice per year for scheduled maintenance (and as needed for emergency repairs) at the Cape Fear Boat Works located upstream from the proposed bridge locations. This is reflected in the 2019 AIS dataset.

- i. Vessel name: Sunny Point
- ii. Registration/documentation numbers: Vessel # CG 1167165, Galdding-Hearn Shipbuilding Hull Number 387
- iii. Vessel type: Unclassified vessel, Aluminum, Jet Propulsion
- iv. Vessel owner contact information: US Army, Military Ocean Terminal Sunny Point (MOTSU), Fire & Emergency Services Division /Chief Michael Scott / 6280 Sunny Point Rd. Southport, NC 28461 / 910-457-8218
- v. Primary vessel mooring location (include waterway milepoint, if known): MOTSU Boat Basin / Buoy # 33 Cape Fear River
- vi. Vessel overall length: 82' 6"
- vii. Vessel beam: 20' 6"
- viii. Vessel draft: 4' 2"
- ix. Vessel air draft: 37' 3"
- x. Does the vessel have limited maneuverability due to inherit design or mode of operation?: To operate one fire pump the vessel requires 6' of draft, 10' of draft to operate two pumps



4. *Will the proposed bridge(s) provide the horizontal and vertical clearances for the safe, efficient passage of the largest of these vessels? Why?*

Yes. Horizontal and vertical clearances are no more restrictive than structures over the waterway which are presently transited by these vessels.

5. *If no, estimate the number of vessels in each of the above categories unable to pass through the proposed bridge(s). Give the name, length overall (LOA), beam, draft and height of highest fixed point above the waterline for vessels affected by the bridge(s).*

Not applicable.

6. *Can these vessels be modified (i.e., folding mast, relocation or equipment, etc.) without decreasing their respective response times? If so, name the vessels.*

Not applicable.

7. *If modifications are feasible, state the name of the vessel(s), their trip frequency, the necessary modifications, the cost of the modification(s) and who will pay for them (i.e., vessel owner, applicant, other).*

Not applicable.

8. *Provide any additional information concerning the potentially impacted or burdened users of the waterway as well as the future use of the waterway.*

Not applicable.

E. Has the United States Corps of Engineers (USACE) completed or does it plan to complete a federal navigation project on the waterway? If yes, provide the following information:

Yes, USACE has completed a federal navigation project on the waterway.

1. *Project name, downstream/upstream milepoints, depth, type of project, scope, status of project and other limiting factors.*

Project Name: Cape Fear River Above Wilmington

Milepoints: 0.0 at the connection with the Wilmington Harbor Project
111 near Fayetteville, NC

Depth: See Exhibit A

Type: Federal Navigation Channel

Status: Complete

2. *Whether there is/was a “design vessel” used in planning the channel? What is/was the design vessel? Was the design vessel reviewed by the Coast Guard?*

No “design vessel” was identified for the navigation project.

3. *The following specification of the vessel for which the navigation project is or will be designed: LOA, beam, draft and height of the highest fixed point above waterline.*

Not applicable.

4. *Will the proposed bridge(s) provide the horizontal and vertical clearances necessary for the safe, efficient passage of the vessel for which the navigation project was designed?*

Not applicable.

5. *If so, can the vessel be modified to clear the proposed bridge(s) without substantially increasing operating costs?*

Not applicable.

6. *If modifications are feasible, state the necessary modifications, costs of any modifications(s), who will pay for the modifications.*

Not applicable

7. *Are the projected changes in the waterway usage based upon anticipated waterway improvement projects?*

There are no projected changes for waterway usage based upon any waterway improvement projects.

8. *Does the proposed bridge impact USACE ability to transit the bridge in a Federal project channel?*

No, the proposed bridge will not impact USACE ability to transit waterway.

F. Describe the present and prospective recreational navigation:

Will the proposed bridge(s) affect the safe, efficient movement of any segment of the present or prospective recreational fleet operation on the waterway? If yes, provide the following information:

Based on the analysis of 2019 AIS data (see Exhibits B & C) and direct outreach to stakeholders along the waterway (see Exhibits D & E), the proposed bridge will not affect the safe, efficient movement of any segment of present or prospective recreational fleet operations on the waterway.

Analysis of AIS data revealed that there are no regular recreational users of the waterway which are equipped with AIS technology.

G. Describe the present and prospective commercial navigation and the cargoes moved on the waterway:

Will the proposed bridge(s) affect the safe, efficient movement of any segment of the present or prospective commercial fleet operating on the waterway? If yes, provide the following information:

Based on the analysis of 2019 AIS data (see Exhibits B & C) and direct outreach to stakeholders (see Exhibit D) along the waterway, the proposed bridge will not affect the safe, efficient movement of any segment of present or prospective commercial fleet operations on the waterway.

Analysis of the AIS data revealed that there are no commercial vessels equipped with AIS equipment which regularly transited the subject waterway in 2019.

There are a number of smaller, tourism oriented vessels operating out of the Wilmington Harbor that offer sight-seeing tours. Vessels which are currently in operation include:

- Wilmington
 - Offers cruises which transit the waterway
 - 46' length, 16.8' beam, 5.5' depth
- Bizzy Bee
 - Does not currently offer cruises which transit waterway
 - 34.5' length, 12.2' beam, 5' depth
- Captain J.N. Maffit

- Does not currently offer cruises which transit the waterway but did so in years past
- 49' length, 13' beam, 4.8' depth
- Henrietta III
 - Does not currently offer cruises which transit the waterway
 - 149.5' length, 34' beam, 7' depth

Furthermore, the AIS data for 2019 shows two research vessels having transited the waterway, collectively, six (6) times. Both vessels are owned and operated by the University of North Carolina Wilmington (UNCW). Vessel characteristics are as follows:

- R/V Seahawk
 - 65' length, 21' beam, 6.5' depth
- R/V Cape Fear
 - 34' length, 12' beam, 3' depth

Based on numerous stakeholder interviews conducted (see Section A), the only commercial vessels which transit this section of the waterway would do so for maintenance or repair calls to Cape Fear Boat Works.

H. Identify the name and contact information for marine facilities located within a 3-mile radius of the proposed project (public boat ramps, marinas or major docking facilities, boat repair facilities, etc.):

Mr. Sam Long
 Owner
 Cape Fear Boat Works 1690 Royster Rd NE
 Navassa, NC 28451
 (910) 371-3460
info@capefearboatworks.com
<https://capefearboatworks.com/>

I. Will the proposed bridge(s) block access of any vessel presently using local service facilities (i.e., repair shops, parts distributors, fuel stations)? If yes, provide the following information:

The proposed bridge will be no more restrictive to vessels presently using the waterway to access local marine service facilities.

J. Are alternate routes bypassing the proposed bridge(s) available for use by vessels unable to pass the proposed bridge(s)? If yes, provide the following information:

No, there are no alternate navigable routes available for use by vessels unable to pass the proposed bridge.

K. Will the bridge(s) prohibit the entry of any vessels to the local harbor of refuge? If yes, describe the harbor and provide the following information:

There are no local harbors to which the proposed bridge is expected to prohibit entry. AIS data from 2019 and direct outreach to stakeholders reveals that the infrequent, low volume transits over the subject portion of waterway originate from the Wilmington Harbor, transit the waterway, and then return to the Wilmington Harbor.

L. Will the proposed bridge(s) be located within one-half mile of a bend in the waterway? If yes, describe the bend and provide the following information:

Yes, the proposed bridge site(s) are located in or near a bend of the waterway.

1. Is there sufficient distance between the bridge(s) and the bend to allow proper vessel alignment for the safe, efficient passage of vessels through the proposed bridge(s)?

Yes, there is sufficient distance between the bridge and the bend to allow proper vessel alignment for safe and efficient passage of vessels through the proposed bridge. However, each of the three (3) proposed alternatives present varying skews and orientations to the waterway.

2. If no, what factors make construction of the bridge(s) at an alternate location impractical?

Not applicable. Alternative locations of the proposed bridge are provided and under consideration.

M. Are there other factors (i.e., dockages, lightering areas, existing bridges, etc.) located within one-half mile of the proposed bridge(s), which would create hazardous passage through the proposed structure? If yes, provide the following information:

1. Describe the factors. (For example, construction impacts to navigation and waterway users, etc.)

The S Thomas Rhodes Bridge (US 17 / 74 / NC133 highway bridge) is located within one-half mile of the proposed bridge but is not expected to create a hazardous condition for passage through the proposed bridge.

No other factors have been identified which are located within the navigable waterway within one-half mile of the proposed bridge.

2. *What mitigative measures are being recommended? (For example, navigation safety during construction, etc.) Why?*

Not applicable.

N. Do local hydraulic conditions (i.e., wave chop, cross currents, tides, shoals, etc.) increase the hazard of passage through the proposed bridge(s)? If yes, provide the following information:

Local hydraulic conditions are not expected to increase the hazard of passage through the proposed bridge. The proposed site is protected from wave chop. Currents are generally expected to run concurrently with passage through the proposed bridge. Stakeholder interviews revealed the proposed locations for the bridge to be relatively ideal with respect to hydraulic conditions. The last USACE hydrographic survey did not depict any shoaling which would impact the proposed location(s).

O. Do local atmospheric conditions (i.e., strong, prevailing winds, fog, rapidly developing storms, etc.) increase the hazard of passage through the proposed bridge(s)? If yes, provide the following information:

No, it is unlikely the proposed bridge will increase the hazard of passage due to local atmospheric conditions.

1. *Describe the conditions:*

No conditions were identified.

2. *What mitigative measures are being recommended? Why?*

Not applicable.

P. Have guide clearances been established for the waterway? If yes, provide the following information:

Yes, guide clearances have been established for the waterway. The proposed bridge site is located at or near waterway milepoint 30.

TABLE 3:
Cape Fear River, NC:

No.	Waterway	Bridge Type	Horizontal Clearance	Vertical Clearance	Reference Plane
25	Wilmington mile 30 to mile 39	Fixed or vertical Lift	120'	135'	Maximum HW
		Swing or bascule	120'	10' (closed)	
25	Mile 39 to Fayetteville	Fixed or vertical Lift	100'	70'	Maximum HW
		Swing or bascule	100'	5' (closed)	

Source: <https://www.dco.uscg.mil/Our-Organization/Assistant-Commandant-for-Prevention-Policy-CG-5P/Marine-Transportation-Systems-CG-5PW/Office-of-Bridge-Programs/Bridge-Guide-Clearances/>

3. *Horizontal guide clearance;*

See Table 3 above.

4. *Vertical guide clearance;*

See Table 3 above.

5. *Do the proposed bridge(s) clearances differ from these guide clearances?*

Yes, the proposed bridge clearance differ from guide clearances.

6. *If yes, what factors justify deviating from these guide clearances?*

The proposed horizontal and vertical navigational clearances for the bridge will be no more restrictive than existing structures, thus reasonably accommodating navigational needs.

Q. Are there other natural or man-made conditions that affect navigation (atmospherics, exclusion zones, etc.)?

There are no natural or man-made conditions that are known which affect navigation

1. *Describe the conditions:*

The channel is maintained by USACE.

2. *What mitigative measure are being recommended? Why?*

None at this time.

R. State any other factors considered necessary for the safe, efficient passage of vessels through the proposed bridge(s)? Are clearance gauges needed? Why?

Fixed navigational lighting on the bridge to indicate channel perimeters. Clearance gauges should be used as a safety precaution. Information on the final bridge would be provided for inclusion in the US Coast Pilot and during construction through Notices to Mariners and other standard maritime information methods.

S. Include a description of the impacts to navigation caused or which could be reasonably caused by the proposed bridge(s) including but not limited to: proposed or prospective changes to the existing bridge(s) operating schedule (for movable bridges), and any proposed mitigation to all unavoidable impacts to navigation.

The proposed bridge is not expected to cause any detrimental impacts to navigation.

The bridge type as contemplated for the purposes of this draft Navigation Impact Report is a moveable single leaf, single track bascule bridge.

Horizontal navigational clearance will be equal the horizontal navigation clearance of the CSXT Navassa Drawbridge which is presently the most restrictive structure to horizontal navigational clearance on the waterway. The vertical navigation clearance of the bridge will be unlimited in the open position, and 9 feet in the closed position. Given the infrequent usage of the waterway as depicted in Exhibit C, Exhibit D and the CSXT Navassa Drawbridge Lift Logs, the applicant would propose that the bridge rest in the closed position and open for navigational needs as needed as is presently the operating scenario for the CSXT Navassa Drawbridge upstream.

No mitigative efforts are being proposed since no unavoidable impacts to navigation have been identified.

T. Is there any proposed or completed mitigation for impacted waterway users? Are there any impacts that cannot be mitigated?

No impacts to waterway users were identified as a result of the proposed bridge. Therefore, mitigation efforts are not proposed.

EXHIBIT A

Hydrographic Survey

For highest quality river survey imaging, please visit:

<https://www.saw.usace.army.mil/Missions/Navigation/Hydrographic-Surveys/River-Projects/>

See “Cape Fear River Above Wilmington Surveys” header and select the PDF file link under the title “CAPE FEAR RIVER ABOVE WILMINGTON – Cape Fear River to Lock and Dam 1” with survey date “MAY 3 & 6, 2016”.

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EXHIBIT B

Automatic Identification System (AIS) Information

The automatic identification system (AIS) is an automatic tracking system that uses transceivers on vessels to track their positions to enable safer navigation and enhance reporting. AIS data is available to the public and is advertised for use for planning purposes. With tools and assistance from MarineCadastre.gov the AIS data can be used to display vessel traffic characteristics and frequencies.

For the purposes of this report, the last full year of available AIS data was used which was 2019.

Use of AIS data in assessing recreational and commercial waterway usage is fitting given the requirements set forth in Code of Federal Regulations, Title 33 § 164.01(b) which, in summary, require AIS carriage on the following vessels:

- A self-propelled vessel of 65 feet or more in length, engaged in commercial service.
- A towing vessel of 26 feet or more in length and more than 600 horsepower, engaged in commercial service.
- A self-propelled vessel that is certificated to carry more than 150 passengers.
- A self-propelled vessel that carries less than 150 passengers, does not operate in a Vessel Traffic Service or Vessel Movement Reporting System area defined in Table 161.12(c) of § 161.12, and does not operate at speeds in excess of 14 knots.
- A self-propelled vessel engaged in dredging operations in or near a commercial channel or shipping fairway in a manner likely to restrict or affect navigation of other vessels.
- A self-propelled vessel engaged in the movement of (1) certain dangerous cargo as defined in subpart C of part 160 of this chapter, or (2) flammable or combustible liquid cargo in bulk that is listed in 46 CFR 30.25–1, Table 30.25–1.
- Fishing industry vessels

Source: <https://www.navcen.uscg.gov/?pageName=AISRequirementsRev>
Title 33, Code of Federal Regulations Section 164

EXHIBIT C

Vessel Transit Summary Compile from 2019 AIS Data

Vessel Name	VesselGroup	Transit	MMSI	TrackStartTime	TrackEndTime	Length	Width	Draft
TWOCAN	Pleasure Craft/Sailing	S Thomas Rhodes Bridge & CSXT Navassa Rail Bridge	367066460	2019-05-14 23:46:18	2019-05-16 10:26:09	12'	4'	NA
FOREVER YOUNG	Pleasure Craft/Sailing	S Thomas Rhodes Bridge	338183911	2019-07-06 10:02:46	2019-07-06 19:09:12	15'	NA	NA
BILL SLAYER	Pleasure Craft/Sailing	S Thomas Rhodes Bridge	338115176	2019-08-13 9:07:37	2019-08-17 7:55:53	14'	5'	NA
BELLE	Pleasure Craft/Sailing	S Thomas Rhodes Bridge	368094510	2019-08-19 17:43:42	2019-08-19 18:40:41	NA	NA	NA
NEVER MY LOVE	Pleasure Craft/Sailing	S Thomas Rhodes Bridge & CSXT Navassa Rail Bridge	367795830	2019-08-28 11:45:45	2019-08-28 12:46:45	74'	21'	8.5'
JOURNEY	Pleasure Craft/Sailing	S Thomas Rhodes Bridge & CSXT Navassa Rail Bridge	338304133	2019-09-03 8:37:18	2019-09-05 14:01:48	17'	7'	NA
NEVER MY LOVE	Pleasure Craft/Sailing	S Thomas Rhodes Bridge & CSXT Navassa Rail Bridge	367795830	2019-09-19 17:32:10	2019-09-19 18:11:08	74'	21'	8.5'
ESCAPE	Pleasure Craft/Sailing	S Thomas Rhodes Bridge & CSXT Navassa Rail Bridge	338180905	2019-09-20 13:52:55	2019-09-26 12:40:55	15'	5'	NA

JOURNEY	Pleasure Craft/Sailing	S Thomas Rhodes Bridge	338304133	2019-09-24 23:16:03	2019-09-26 12:45:32	17'	7'	NA
NORTH STAR II	Pleasure Craft/Sailing	S Thomas Rhodes Bridge & CSXT Navassa Rail Bridge	338076478	2019-11-26 16:20:34	2019-11-26 20:30:30	20'	6'	2'
STELLA	Pleasure Craft/Sailing	S Thomas Rhodes Bridge	338205201	2019-12-02 13:40:01	2019-12-02 15:57:31	12'	4'	NA
STELLA	Pleasure Craft/Sailing	S Thomas Rhodes Bridge & CSXT Navassa Rail Bridge	338205201	2019-12-27 15:46:55	2019-12-27 17:39:57	12'	4'	NA

EXHIBIT D

Cape Fear Boat Works

2019 Vessel Log with Appended Information

Date	Vessel Name	Manufacturer	Type	Length (ft)	Beam (ft)	Draft (ft)	Deck to Forestay / Bridge Clearance (ft)	Source
01/01/2019	Strike	Pacemaker	Yacht	36	11	NA	NA	57
01/07/2019	Capt JN Maffitt	NA	Passenger	50	NA	NA	NA	38
01/09/2019	Therapy	Silverton	Yacht	45	15	4	17	24
01/15/2019	Sanderson	SeaArk	Motorboat	35	NA	NA	NA	53
02/01/2019	NA	Grady White	Motorboat	37	13	2	11	13
02/01/2019	Independence	Jarrett Bay	Yacht	44	14	4	NA	33
02/19/2019	One More Time	Pursuit	Motorboat	33	NA	NA	NA	50
03/04/2019	NA	NA	Barge	NA	NA	NA	NA	-
03/04/2019	NA	NA	Barge	NA	NA	NA	NA	-
03/06/2019	Atlantis	Hatteras	Yacht	42	14	5	16	21
03/13/2019	Atlantic Star	Camcroft	Commercial Fishing	105	NA	NA	NA	36
03/13/2019	Sea Vee	Sea Vee	Motorboat	43	13	2	NA	55
03/20/2019	Starship	NA	NA	65	NA	NA	NA	-
04/01/2019	Plan B	NA	NA	33	NA	NA	NA	-
04/12/2019	Naute Dawg	Egg Harbor	Yacht	41	15	3	NA	48
04/23/2019	Miss Marie	Trojan	Motorboat	30	12	NA	NA	47
04/26/2019	Lady Gallant	Hatteras	Yacht	68	18	5	23	32
04/30/2019	Lizzi Faye	Choey Lee	Yacht	65	19	4	19	28
05/01/2019	Cosmo	Homemade	NA	52	NA	NA	NA	-
05/01/2019	Serenity	Bavaria	Sailboat	50	15	6	64	12
05/17/2019	Great Escape	Nova	Yacht	44	14	4	17	25

Date	Vessel Name	Manufacturer	Type	Length (ft)	Beam (ft)	Draft (ft)	Deck to Forestay / Bridge	
							Clearance (ft)	Source
05/17/2019	Henrietta	Freeport	Passenger	64	NA	NA	NA	42
05/20/2019	NA	NA	Sailboat	30	NA	NA	NA	-
05/21/2019	Liberty	Watkins	Sailboat	33	10	4	39	6
05/22/2019	Carolina Wisdom	Tollycraft	Yacht	40	13	3	13	17
05/22/2019	NA	NA	Barge	NA	NA	NA	NA	-
05/24/2019	NA	Hatteras	Yacht	60	17	6	15	19
05/28/2019	NA	Hatteras	Yacht	60	17	6	15	20
05/30/2019	R/V Cape Fear	NA	Research Vessel	65	21	7	40	-
06/01/2019	Lady Jane	HI	NA	40	NA	NA	NA	-
06/01/2019	John Knox	NA	Passenger	40	NA	NA	NA	45
06/10/2019	Louisa	Custom	NA	38	NA	NA	NA	-
06/21/2019	Hat Trick	Hatteras	Yacht	34	13	NA	NA	41
06/27/2019	Fair Dinkum	Columbia	Sailboat	28	9	5	34	3
07/01/2019	Estrellita	Monk	Yacht	42	14	3	NA	40
07/01/2019	Outer Marker	Pro Sports	Motorboat	28	10	NA	NA	51
07/02/2019	Alvina Anne	President	Yacht	41	14	3	12	14
07/11/2019	Split	Grampian	Sailboat	30	10	5	37	5
07/17/2019	Karen	Willis	NA	39	NA	NA	NA	-
07/19/2019	Sunny Point	NA	Emergency Response	83	21	4	37	-
07/23/2019	IV Seasons	Four Winns	Motorboat	28	NA	NA	NA	43
07/26/2019	Scattercat	Trojan	Motorboat	32	13	3	13	15
07/31/2019	Sea Urchin	O Day	Sailboat	37	11	5	43	7
08/01/2019	Afraid Knot	Bayfield	Sailboat	29	10	4	36	4
08/02/2019	Prop Fee	Sea Ray	Yacht	54	15	NA	21	31
08/08/2019	Technique	Tektron	NA	32	NA	NA	NA	-
08/09/2019	Sharky	Bayliner	Yacht	41	13	4	13	16
08/12/2019	BACO	Willard	Yacht	36	12	5	16	22
08/27/2019	Baby J	Cabo	Yacht	45	16	5	NA	34

Date	Vessel Name	Manufacturer	Type	Length (ft)	Beam (ft)	Draft (ft)	Deck to Forestay / Bridge Clearance (ft)	Source
08/28/2019	Never My Love	Marlow	Yacht	84	22	5	19	30
09/03/2019	Baby J	Cabo	Yacht	45	16	5	NA	35
09/17/2019	Ava Grace	Hunter	Sailboat	36	11	5	47	8
09/23/2019	Southern Charm	Morlend Cit	NA	53	NA	NA	NA	-
10/02/2019	Mr Popular	Tollycraft	Yacht	44	15	8	13	18
10/04/2019	Ms Kimberly	Mainship	Yacht	34	14	3	16	23
10/09/2019	Partnership	Sea Ray	Yacht	40	13	3	NA	52
10/29/2019	Cypress	Grand Banks	Yacht	32	12	5	19	29
10/31/2019	Oi Fat Girl	Viking	Motorboat	35	13	4	NA	49
11/01/2019	Relentless	Viking	Yacht	64	19	5	NA	1
11/01/2019	Lindum Thalia	Tayana	Sailboat	37	12	6	51	9
11/01/2019	North Star II	Offshore	Yacht	62	17	5	18	27
11/01/2019	John Boat	Sonny Briggs	Yacht	52	16	6	NA	44
11/01/2019	Lobster Tales	Trojan	Motorboat	36	14	3	NA	46
11/20/2019	Southern Charm	Morlend Cit	NA	53	NA	NA	NA	-
11/25/2019	Sea Creecher	Hatteras	Yacht	48	15	4	17	26
11/25/2019	Sanderson	SeaArk	Motorboat	35	NA	NA	NA	54
11/27/2019	Diversion	Blackfin	Motorboat	33	11	2	NA	39
12/01/2019	Safari	Garlington	Commercial Fishing	61	18	5	NA	2
12/01/2019	JilliQ	Lagoon	Sailboat	37	20	4	55	10
12/01/2019	Frenchie	Wauquiez	Sailboat	43	14	6	64	11
12/01/2019	Blue Eyed Babe	Sea Ray	Motorboat	29	9	2	NA	37
12/19/2019	The Dean	Chris Craft	Motorboat	25	NA	NA	NA	-
12/27/2019	Stella	Sabre	Sailboat	42	13	NA	NA	56

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EXHIBIT E

OUTREACH LOG

Broad outreach requesting information, feedback and comments from the public will be conducted between June 28th and July 26th, 2021. Waterway users are asked to complete a survey. This public outreach opportunity will be publicized via press releases, press reports, television, newspaper advertisement, social media applications, flyers, mailers and during government meetings open to the public.

Agency & Government Consultations

United States Coast Guard – Fifth District Bridge Office

United States Coast Guard – Waterways Management Division for North Carolina Sector

United State Army Corp of Engineers – Operations Division

MarineCadastre.gov (Bureau of Ocean Management / National Oceanic and Atmospheric Administration)

North Carolina Department of Transportation – Division 3

Military Ocean Terminal – Sunny Point, Fire and Emergency Services

University of North Carolina Wilmington

New Hanover County

- Sheriff's Office
- Fire Captain
- Emergency Management

City of Wilmington

- Parks & Recreation
- Police Department
- Fire Department

Other Direct Stakeholder Outreach

Cape Fear River Pilots Association

Cape Fear Boat Works

Specialty Boatworks