

Appendix K
Flood Hazard Area Engineering Report
Revised BL England Substation

**ENGINEERING REPORT for
FLOOD HAZARD AREA & RIPARIAN ZONE LINE
VERIFICATION**

For:

**BL ENGLAND ONSHORE SUBSTATION AND ONSHORE
CABLE ROUTE**

**BLOCK 479, LOT 76
UPPER TOWNSHIP AND OCEAN CITY
CAPE MAY COUNTY
NEW JERSEY**

Ocean Wind 1
An Ørsted & PSEG project

Applicant/Owner:

Ocean Wind, LLC

Prepared By:



E2 Project Management

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Katherine L. Hering, PE, PP, CME
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October 2022, *Revised December 30, 2022*

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining and preparing the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information, including the possibility of fine and imprisonment.

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1.0 Executive Summary

This Flood Hazard Area Verification Engineering Report is being submitted as the material required to fulfill the regulatory requirements for the Flood Hazard Control Act (FHACA) Rules (N.J.A.C. 7:13-1.1 et seq.) for determining the flood hazard area design flood elevation (FHADFE) and limits of the flood hazard area (FHA) for the proposed BL England onshore electrical substation in Upper Township, and the onshore electrical cable route that will run from the BL England Substation, through Upper Township and Ocean City in Cape May County, to the Atlantic Ocean. This report serves as the Engineering Report for the application and has been prepared in accordance with the following:

- NJDEP Flood Hazard Area Control Act (FHACA) Rules (N.J.A.C. 7:13), last amended October 5, 2021; and
- NJDEP Flood Hazard Technical Manual (2018).

FHA verification is required because flood hazard areas are shown on FEMA's Flood Insurance Rate Maps (FIRMs) in the vicinity of the project area. All elevations within this report refer to the NAVD 88 vertical datum unless otherwise noted.

The proposed improvements are part of the Ocean Wind 1 project, which is a 1.1 GW offshore wind farm being proposed approximately 15 miles off the coast of Atlantic City, New Jersey. An offshore substation will be constructed to collect wind turbine partial outputs from the offshore wind farm. As part of this project, one (1) circuit of offshore 275 kV sub-sea cables, also known as export cables, will make landfall in Ocean City, New Jersey and terminate at the proposed BL England Substation (see Figures 1 and 2). The BL England Substation and the export cable route through Ocean City and Upper Township are the primary points of discussion within this report.

1.1 Site and Project Description

The BL England Substation is planned to be a 275/138kV high voltage AC substation and is proposed to be located near the decommissioned BL England Generating Station (also known as the Beesleys Point Generating Station) on Block 479, Lot 76 in Upper Township in the northern part of Cape May County. In general, the purpose of the substation is to transform the voltage from the 275kV connection from the wind farm to the 138kV voltage commonly used in New Jersey and used at nearby utility substations, as well as to provide sufficient harmonic filtration and reactive compensation for power stability. The export cables will enter the proposed B. L. England Substation property off Clay Avenue to the east. The cable route runs south/southwest down New Jersey State Highway Route 9 then runs southeast down Roosevelt Boulevard where it eventually enters the Atlantic Ocean off 35th Street in Ocean City, New Jersey (see Figures 1 and 2).

B. L. England Substation

The former Beesleys Point Generating Station property is located adjacent to the Great Egg Harbor Bay and the Tuckahoe River. The BL England Substation will be located on a parcel that will be subdivided off the central portion of the overall 298.6-acre Beesleys Point Generating Station property. The BL England Substation is generally be bound by the former generating station to the north and east and existing wetlands to the south and west. A golf course and residential properties are located further away to the southeast (see Figure 1 and 2) of the proposed substation parcel. The parcel of land proposed for development for the

substation is a former coal farm. The former coal farm has already been removed and the current site consists of vacant land with existing grades being generally flat varying from elevation 6 (NAVD 88) to elevation 8.

Onshore Export Cable Route

The underground onshore export cable will be installed between the BL England Substation and the Atlantic Ocean within municipal street rights-of-way running through residential neighborhoods in Upper Township and Ocean City, New Jersey. Part of the cable route will be installed via horizontal directional drilling (HDD) under the Peck Bay/Crook Horn Creek, as shown on Figures 1 and 2.

2.0 Regulatory Requirements

2.1 Flood Hazard Area Verification

This application requests FHA Verification under Method 2 (N.J.A.C. 7:13-3.4(d)), FEMA delineation of tidally-influenced water bodies. Table 2-1 lists the effective FEMA FIRMs that cover the BL England Substation and export cable route and were referenced to determine the location of floodways and flood hazard areas that will be impacted by this project. It should be noted that the project area has not been studied or delineated by the NJDEP. For regulated waters for which a NJDEP delineation does not exist, the flood hazard area and floodway can be determined using Method 2 for tidally influenced surface waters mapped on FEMA FIRMs. If both a NJDEP delineated study (Method 1) and a FEMA flood insurance study (Method 2) are available for a regulated water, the flood hazard area and/or floodway are determined based on whichever method results in a higher flood hazard area design flood elevation (FHADFE) and wider floodway limit.

Table 2-1 – FEMA FIRM Maps

Location	Map			NJDEP Delineated Map
	Type	Number	Map Date	
Upper Township, Cape May County, NJ Starting at Block 479, Lot 76 to NJ Route 9 intersection with Staples Court	Effective Map	34009C0067F	10/5/2017	None
Upper Township, Cape May County, NJ Starting at NJ Route 9 intersection with Staples Court to intersection with Roosevelt Blvd ending at bridge over Great Egg Harbor Bay	Effective Map	34009C0069F	10/5/2017	None
Ocean City, Cape May County, NJ Starting at bridge over Great Egg Harbor Bay ending at 35 th Street and Asbury Ave	Effective Map	34009C0088F	10/5/2017	None
Ocean City, Cape May County, NJ Starting at 35 th Street and Asbury Ave and ending at 35 th Street and	Effective Map	34009C0176F	10/5/2017	None

the Atlantic Ocean				
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Based on the FEMA FIRMs listed in Table 2-1, the project area lies within the Zone AE – “Base Flood Elevations” determined for the Tuckahoe River/Great Egg Harbor Bay and Atlantic Ocean, which are all tidally influenced water bodies (see Figure 4 and Appendix A). Since the regulated waterbodies are all tidally influenced, the flood hazard area design flood elevation is the same as the 100-year base flood elevation in accordance with N.J.A.C. 7:13-3.4(d)1. Table 2-2 below provides the 100-year base flood elevation and flood hazard area design flood elevations located throughout the project area.

Table 2-2 – 100-Base Flood and FHA Design Flood Elevation

Location/FIRM Map Number	Regulated Water Body	FEMA 100-Year Base Flood (NAVD 88)	FHADFE
Upper Township, Cape May County, NJ Starting at Block 479, Lot 76 to Clay Avenue /34009C0067F	Tuckahoe River/Great Egg Harbor Bay	8	8
Upper Township, Cape May County, NJ Starting at Clay Avenue ending at intersection with US/34009C0067F	Tuckahoe River/Great Egg Harbor Bay	9	9
Upper Township, Cape May County, NJ Starting at Roosevelt Blvd and Garden State Parkway underpass ending at parkway exit ramp/34009C0069F	Great Egg Harbor Bay	9	9
Upper Township, Cape May County, NJ Starting at Roosevelt Blvd/parkway exit ramp ending at bridge over Great Egg Harbor Bay/34009C0069F	Great Egg Harbor Bay	10	10
Upper Township, Cape May County, NJ Starting at bridge over Great Egg Harbor Bay ending at 35 th Street and Asbury Ave/34009C0088F	Great Egg Harbor Bay	9	9
Ocean City, Cape May County, NJ Starting at 35 th Street and Central Ave and ending at 35 th Street and Wesley Ave/34009C0088F	Atlantic Ocean	8	8

Ocean City, Cape May County, NJ Starting at 35 th Street and Wesley Ave and ending at 35 th Street and Atlantic Ocean/34009C0088F	Atlantic Ocean	9	9
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The 100-year base flood elevations and FHADFEs listed above were used to delineate the flood hazard areas for the project based on local topography. The existing flood hazard verification is delineated and shown on the PSEG BL England Onshore Substation Grid Connection Plan (Sheets 1 and 2), Block 479, Lot 76 in Upper Township, Cape May County, NJ dated 11/15/22, along with appropriate metes and bounds shown on Sheet 2. This has been uploaded to the Department's On-Line Service in support of the application. It should be noted that per the FEMA mapping shown in Appendix A, the former coal farm is shown to be located outside the 100-year floodplain. However, now that the form coal farm has already been removed and the current site consists of vacant land, the area lies within the 100-year floodplain with elevations varying from elevation 6 (NAVD 88) to elevation 9. The proposed flood hazard delineation is shown on Figures 5 through 12. Figure 5 shows the metes and bounds associated with the proposed flood hazard area along with property line tie in points in accordance with N.J.A.C. 7:13. No flood hazard area verification is required for the proposed improvements outside Block 479. Lot 76 in accordance with N.J.A.C. 7:13-5.5(b)1 as the remainder of the proposed improvements consist of subsurface utilities that will not result in any changes to the existing topography.

3.0 Determining the Riparian Zone

According to the NJDEP GIS digital data layer entitled, "Surface Water Quality Classifications", the Crook Horn Creek, the Tuckahoe River, the uncoded tributaries, the Flat Creek and its tributaries throughout the adjacent wetlands are classified as a FW2-NT/SE1. These ditches and water bodies are not utilized for trout production or trout maintenance. Therefore, the width of the riparian zones for these features would 50 feet, as measured landward from the top of bank, or the edge of open water. However, the proposed location of the BL England Substation and the export cable route, including the horizontal direction drilling sending and receiving pits adjacent to the Crook Horn Creek, are not close enough to any of these water bodies that riparian zones could be impacted. Therefore, this application does not request a riparian zone verification.

4.0 Conclusion

The purpose of this FHA verification application is to establish the limits of the FHA, based on Method 2 - FEMA tidal mapping along the project area for the Tuckahoe River, Great Egg Harbor Bay, and the Atlantic Ocean.

~END~

FIGURES


\\192-168-1-99\SHARED_DRIVE\PROJECTS\A&E SERVICES\PS&E\OCEAN_WIND_GSOE\TASK_1A - UPPER_TOWNSHIP_SITE_PLAN\FLOOD_HAZARD_ENGINEERING_REPORT\FIGURES\FIGURE_1 - USGS_MAP.DWG



SCHEDULE OF REVISIONS				
REV.	DATE	DESCRIPTION OF CHANGES	DRAWN BY	CHK BY

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N.J. ENGINEERING CERTIFICATE OF AUTHORIZATION No. 24GA28118200

I CERTIFY THAT THESE PLANS HAVE BEEN PREPARED UNDER MY SUPERVISION

PROJECT NAME
**OCEAN WIND OFFSHORE WIND
 BL ENGLAND ON SHORE
 SUBSTATION AND
 ONSHORE CABLE ROUTE
 UPPER TOWNSHIP, NEW JERSEY
 BLOCK 479, LOT 76**

DRAWING TITLE
USGS SITE LOCATION MAP

CHECKED BY: ENS	DRAWN BY: ENS
SCALE: NTS	
PROJECT #: P-21-58-01	FIRST ISSUE: 1/13/2022
DRAWING NO.	

FIG 1



M:\PROJECTS\A&E SERVICES\0565\OCEAN WIND_GSOE\TASK 1A - UPPER TOWNSHIP SITE PLAN\FLOOD HAZARD ENGINEERING REPORT\FIGURES\FIGURE 2 - AERIAL.DWG



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PROJECT NAME

OCEAN WIND OFFSHORE WIND
BL ENGLAND ON SHORE
SUBSTATION AND
ONSHORE CABLE ROUTE
UPPER TOWNSHIP, NEW JERSEY
BLOCK 479, LOT 76

DRAWING TITLE

AERIAL SITE LOCATION MAP

CHECKED BY: ENS

DRAWN BY: ENS

SCALE: 1" = 2000'

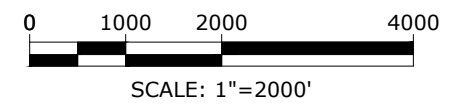
PROJECT #: P-21-58-01

FIRST ISSUE: 10/10/2022

DRAWING NO.

FIG 2

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M:\PROJECTS\A&E SERVICES\056\OCEAN WIND_GSOE\TASK 1A - UPPER TOWNSHIP SITE PLAN\FLOOD HAZARD ENGINEERING REPORT\FIGURES\FIGURE 3 - WMA MAP.DWG



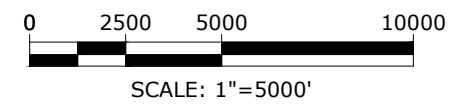
WATERSHED
MANAGEMENT AREA 15

SITE LOCATION

WATERSHED
MANAGEMENT AREA
BOUNDARY, TYP.

WATERSHED
MANAGEMENT AREA 16

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BL ENGLAND ON SHORE
SUBSTATION AND
ONSHORE CABLE ROUTE
UPPER TOWNSHIP, NEW JERSEY
BLOCK 479, LOT 76

DRAWING TITLE
WATERSHED
MANAGEMENT AREA MAP

CHECKED BY: ENS DRAWN BY: ENS

SCALE: 1" = 5000'

PROJECT #: P-21-58-01 FIRST ISSUE: 10/10/2022

DRAWING NO.

FIG 3



SITE LOCATION

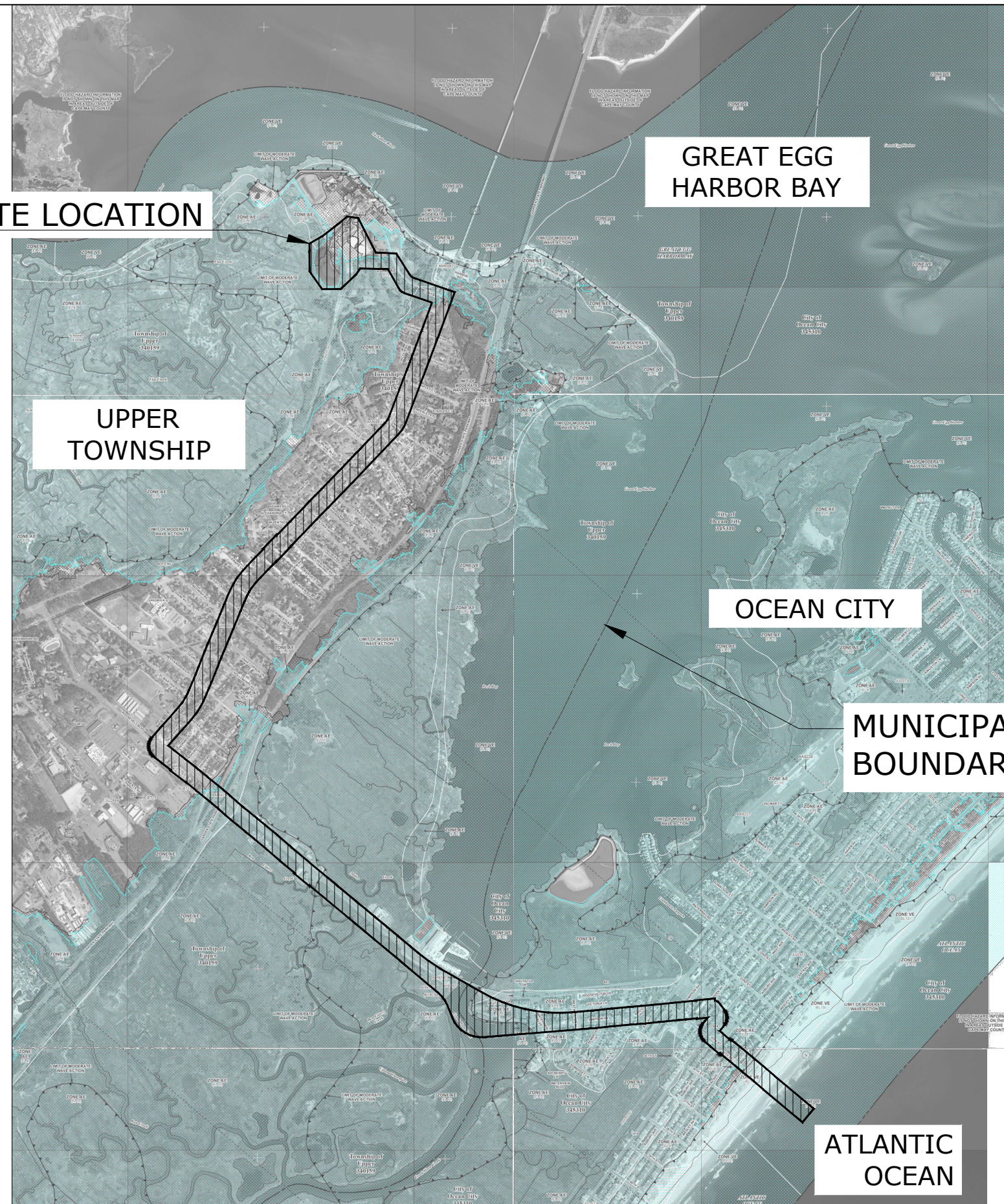
GREAT EGG HARBOR BAY

UPPER TOWNSHIP

OCEAN CITY

MUNICIPAL BOUNDARY, TYP.

ATLANTIC OCEAN



SCHEDULE OF REVISIONS

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BL ENGLAND ON SHORE
SUBSTATION AND
ONSHORE CABLE ROUTE
UPPER TOWNSHIP, NEW JERSEY
BLOCK 479, LOT 76

DRAWING TITLE

FEMA FLOOD MAP

CHECKED BY: ENS DRAWN BY: ENS

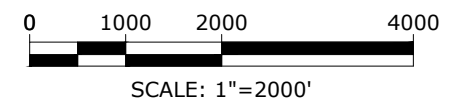
SCALE: 1" = 2000'

PROJECT #: P-21-58-01 FIRST ISSUE: 10/10/2022

DRAWING NO.

FIG 4

REFERENCES:
THE BASE MAP SHOWN HEREIN IS FROM EFFECTIVE FLOOD INSURANCE RATE MAPS NUMBER 34009C0067F, 34009C0069F, 34009C0086F, 34009C0088F, 34009C0157F, AND 34009C0176F DATED OCTOBER 5, 2017.



M:\PROJECTS\VAE SERVICES\056\OCEAN WIND_GSOE\TASK 1A - UPPER TOWNSHIP SITE PLAN\FLOOD HAZARD ENGINEERING REPORT\FIGURES\SHEET FILES\FIGURE 4 - FEMA.DWG

SCHEDULE OF REVISIONS

REV.	DATE	DESCRIPTION OF CHANGES	DRAWN BY	CHKD BY
2.	12/30/2022	REVISED FLOOD HAZARD AREA DELINEATION BASED ON PROPOSED GRADING REVISIONS	ENS	KLH
1.	11/04/2022	ADDED METES AND BOUNDS AND RIPARIAN LINEWORK	ENS	KLH

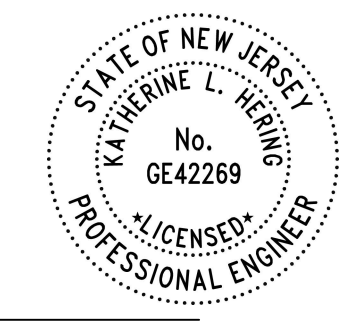
FHA LINE TABLE		
L1	N69°00'27"E	26.56'
L2	S21°43'31"E	68.39'
L3	S4°34'57"E	165.64'
L4	S40°25'03"W	28.83'
L5	S15°17'52"W	121.08'
L6	S60°16'31"W	81'
L7	N28°38'53"W	57.67'
L8	S84°52'33"W	58.82'
L9	S18°11'26"W	10.82'
L10	S85°45'50"W	34.38'
L11	N01°27'21"W	14.04'
L12	N63°59'25"W	69.24'
L13	N09°52'54"W	6.09'
L14	N19°36'33"E	4.16'
L15	S65°00'44"E	78.91'
L16	N85°49'25"E	82.32'
L17	N28°38'53"W	180.46'
L18	S79°40'06"E	102.46'
L19	N88°44'11"E	122.59'
L20	N03°31'47"W	164.50'
L21	N49°07'57"W	48.36'
L22	S27°38'09"E	13.96'
L23	S80°31'40"W	78.49'
L24	S63°24'08"W	22.16'
L25	N72°04'59"W	40.87'
L26	N08°09'03"W	38.21'
L27	N56°06'30"W	87.49'
L28	N39°53'06"W	114.33'
L29	N05°43'18"W	20.77'
L30	N40°28'07"W	57.11'
L31	N10°08'37"W	227.22'
L32	N08°59'53"E	170'
L33	N24°24'13"W	8.88'
L34	N07°14'35"E	18.29'
L35	N23°01'56"E	24.14'
L36	N40°01'38"E	63.09'
L37	N50°45'15"W	45.62'
L38	N38°46'01"E	220.12'
L39	S51°13'59"E	93.10'
L40	S76°15'31"W	13.72'
L41	S52°54'41"W	37.21'
L42	S41°07'08"W	98.17'
L43	S87°43'56"W	13.83'
L44	S57°23'32"W	101.13'
L45	S07°07'50"W	15.84'
L46	S43°38'19"W	87.83'
L47	S11°37'38"W	55.32'
L48	N28°38'53"W	4.25'
L49	S08°32'59"W	162.14'
L50	S61°58'40"E	5.72'
L51	S05°26'31"E	53.12'
L52	S16°29'50"E	7.79'
L53	S24°12'39"E	257'
L54	S03°57'39"E	2.22'
L55	S09°20'38"W	18.18'
L56	S40°53'39"E	8.16'
L57	N09°46'39"E	22.38'
L58	N01°53'08"W	4.75'
L59	N22°51'40"W	218.82'
L60	N66°28'01"E	2'
L61	S24°12'06"E	249.16'
L62	S57°39'34"W	18.66'
L63	S40°28'06"E	69.03'
L64	S65°19'06"E	67.44'
L65	S16°45'12"E	24.14'
L66	N36°36'40"E	8.23'
L67	N82°47'46"E	23.49'
L68	S57°50'38"E	32.67'
L69	S80°36'05"E	44.21'
L70	N45°36'30"W	12.83'
L71	N83°31'57"E	8.52'
L72	N46°47'27"E	184.88'
L73	S46°15'23"E	5.03'
L74	S13°54'52"W	8.88'
L75	S44°38'24"W	23.30'
L76	S30°37'53"E	6.01'
L77	S03°41'21"W	9.11'
L78	S55°40'56"W	11.37'
L79	N61°23'27"W	11.41'
L80	S47°05'37"W	130.95'
L81	S61°09'05"W	7.22'
L82	S32°38'43"W	17.53'
L83	N51°13'59"W	7.69'
L84	N21°43'31"W	255.45'
L85	S50°11'05"E	84.78'
L86	S04°58'10"E	85.75'
L87	S23°14'01"E	37.25'
L88	S32°18'52"E	46.77'
L89	S09°07'35"W	14.08'
L90	S21°43'31"E	125.62'
L91	S75°38'27"W	29.27'
L92	N69°40'03"W	9.97'
L93	N04°09'48"W	120.8'

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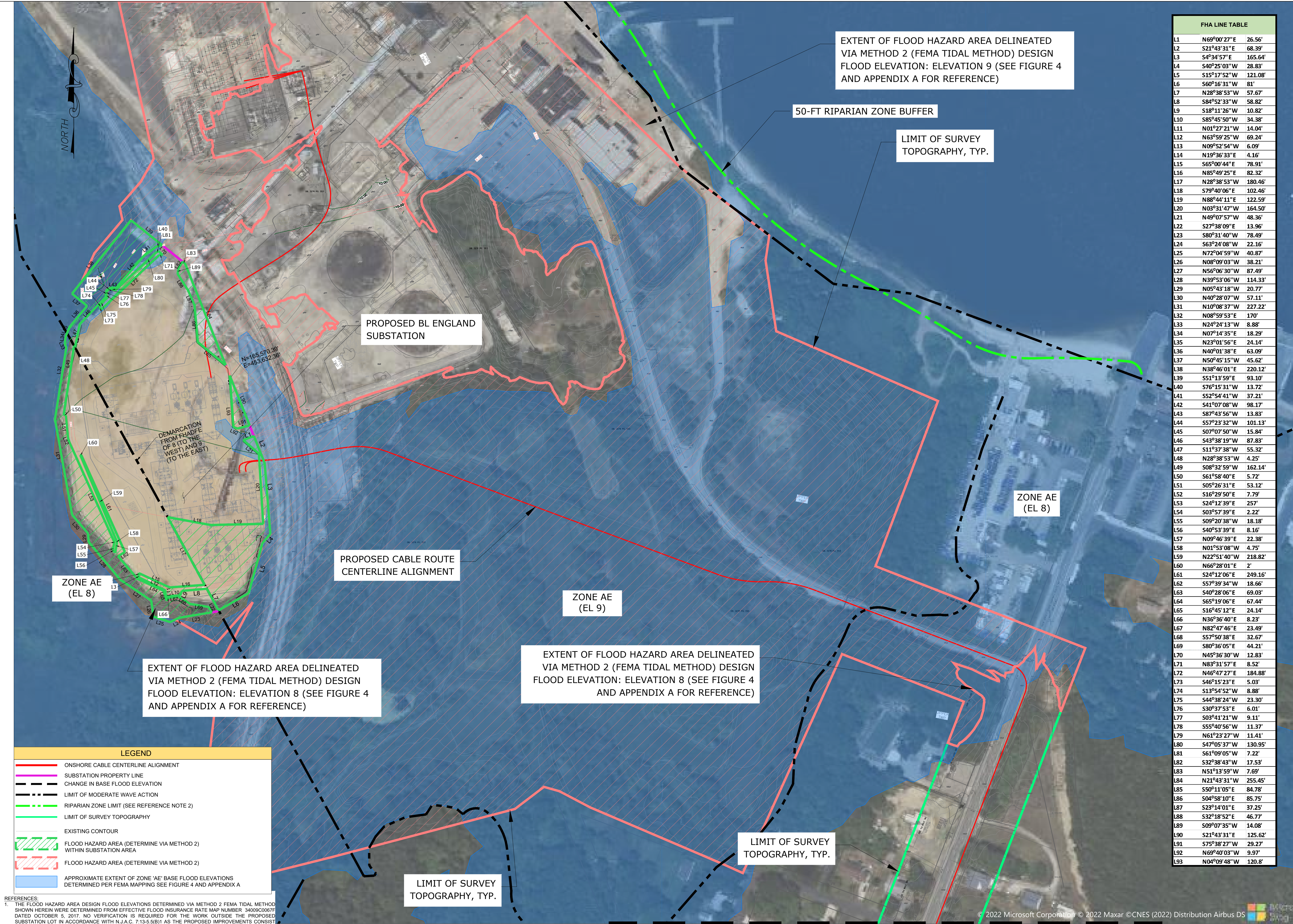


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OCEAN WIND OFFSHORE WIND
 BL ENGLAND ONSHORE
 SUBSTATION AND
 ONSHORE CABLE ROUTE
 UPPER TOWNSHIP, NEW JERSEY
 BLOCK 479, LOT 76

DRAWING TITLE
FLOOD HAZARD VERIFICATION PLAN

CHECKED BY: ENS DRAWN BY: ENS
 SCALE: AS SHOWN SHEET NO:
 PROJECT #: P-21-58-01 FIRST ISSUE: 11/15/2020
 DRAWING NO.



LEGEND

- ONSHORE CABLE CENTERLINE ALIGNMENT
- SUBSTATION PROPERTY LINE
- CHANGE IN BASE FLOOD ELEVATION
- LIMIT OF MODERATE WAVE ACTION
- RIPARIAN ZONE LIMIT (SEE REFERENCE NOTE 2)
- LIMIT OF SURVEY TOPOGRAPHY
- EXISTING CONTOUR
- FLOOD HAZARD AREA (DETERMINE VIA METHOD 2) WITHIN SUBSTATION AREA
- FLOOD HAZARD AREA (DETERMINE VIA METHOD 2)
- APPROXIMATE EXTENT OF ZONE 'AE' BASE FLOOD ELEVATIONS DETERMINED PER FEMA MAPPING SEE FIGURE 4 AND APPENDIX A

REFERENCES:

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- ACCORDING TO THE NJDEP'S SURFACE QUALITY STANDARDS (N.J.A.C. 7:9B, ADOPTED AMENDMENTS N.J.A.C. 7:9B-1.5), GREAT EGG HARBOR, FLAT CREEK, AND FLAT CREEK TRIBUTARIES ARE ALL CLASSIFIED AS FRESHWATER - NON TROUT / SALINE ESTUARY (FW-N/TSE1) WATERS. THEY ARE NOT UTILIZED FOR TROUT PRODUCTION MAINTENANCE. AS SUCH, THEY HAVE A 50 FT WIDE RIPARIAN ZONE. AS THE PROPOSED BL ENGLAND SUBSTATION IS LOCATED BEYOND 50 FEET FROM THE TOP OF BANK FROM ALL OF THE AFOREMENTIONED SURFACE WATER, THERE IS NO RIPARIAN ZONE AT THE SUBSTATION.
- BL ENGLAND SUBSTATION ONSHORE SUBSTATION GENERAL ARRANGEMENT PLAN PREPARED BY BURNS AND MCDONNELL.

SURVEY REFERENCES:

- TOPOGRAPHIC DATA FOR THE BL ENGLAND SUBSTATION AREA AND CABLE ROUTE ALIGNMENT WAS OBTAINED FROM A MAP ENTITLED 'OFFSHORE WIND, BEESLEY'S POINT ROUTE, EXISTING CONDITIONS,' PREPARED BY PSEG SERVICES CORPORATION, SURVEYS & MAPPING, 80 PARK PLAZA, T6B, NEWARK, N.J. 07102, DATED OCTOBER 8, 2021.
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MATCH LINE SEE FIGURE 6

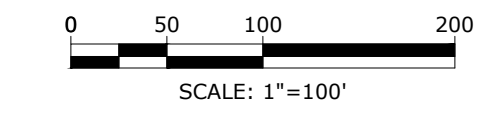


FIGURE 5

MATCH LINE SEE FIGURE 5

SCHEDULE OF REVISIONS

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ZONE AE (EL 9)

ZONE AE (EL 8)

PORTION OF SITE OUTSIDE OF THE FLOODPLAIN PER FEMA FIRM MAP 34009C0069F (SEE FIGURE 4 AND APPENDIX A)

PROPOSED CABLE ROUTE CENTERLINE ALIGNMENT

LIMIT OF SURVEY TOPOGRAPHY, TYP.

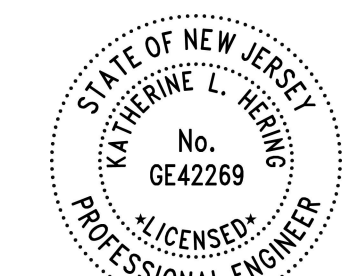
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LICENSED PROFESSIONAL ENGINEER

OCEAN WIND OFFSHORE WIND
BL ENGLAND ONSHORE
SUBSTATION AND
ONSHORE CABLE ROUTE
UPPER TOWNSHIP, NEW JERSEY
BLOCK 479, LOT 76

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FLOOD HAZARD VERIFICATION PLAN

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PROJECT #: P-21-58-01	FIRST ISSUE: 11/15/2020

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FIGURE 6

- SURVEY REFERENCES:**
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 2. BL ENGLAND SUBSTATION ONSHORE SUBSTATION GENERAL ARRANGEMENT PLAN PREPARED BY

LEGEND

- ONSHORE CABLE CENTERLINE ALIGNMENT
- CHANGE IN BASE FLOOD ELEVATION
- LIMIT OF MODERATE WAVE ACTION
- LIMIT OF SURVEY TOPOGRAPHY
- EXISTING CONTOUR
- FLOOD HAZARD AREA (DETERMINE VIA METHOD 2)
- APPROXIMATE EXTENT OF ZONE 'AE' BASE FLOOD ELEVATIONS DETERMINED PER FEMA MAPPING SEE FIGURE 4 AND APPENDIX A

0 50 100 200
SCALE: 1"=100'

MATCH LINE SEE FIGURE 7



MATCH LINE SEE FIGURE 6

MATCH LINE SEE FIGURE 8

SCHEDULE OF REVISIONS

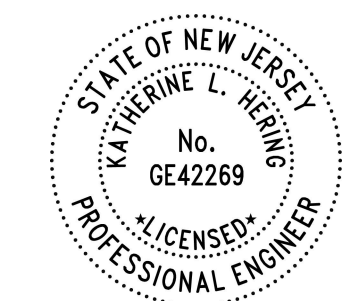
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 SUBSTATION AND
 ONSHORE CABLE ROUTE
 UPPER TOWNSHIP, NEW JERSEY
 BLOCK 479, LOT 76

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FLOOD HAZARD VERIFICATION PLAN

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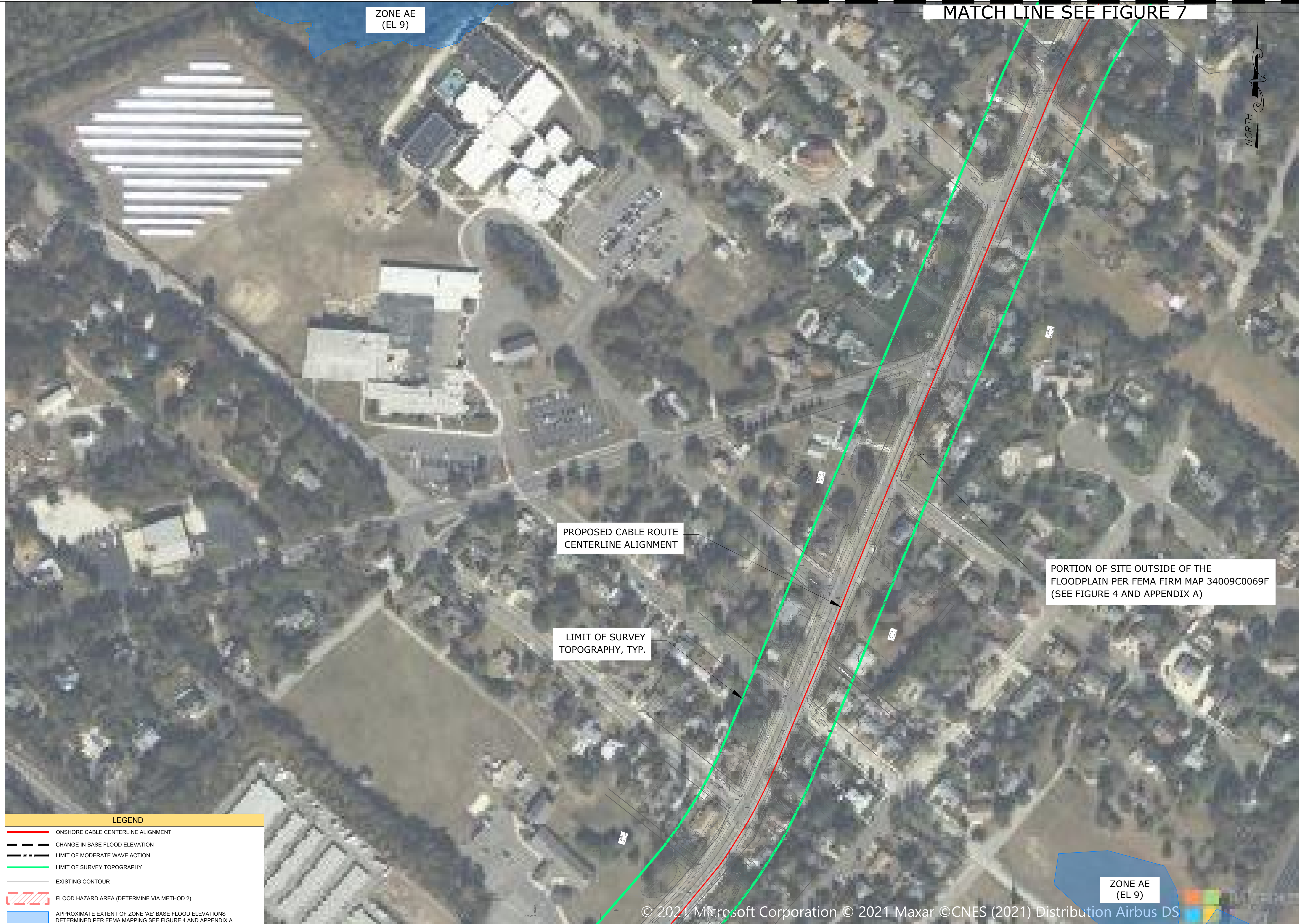
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LEGEND

- ONSHORE CABLE CENTERLINE ALIGNMENT
- CHANGE IN BASE FLOOD ELEVATION
- LIMIT OF MODERATE WAVE ACTION
- LIMIT OF SURVEY TOPOGRAPHY
- EXISTING CONTOUR
- FLOOD HAZARD AREA (DETERMINE VIA METHOD 2)
- APPROXIMATE EXTENT OF ZONE 'AE' BASE FLOOD ELEVATIONS DETERMINED PER FEMA MAPPING SEE FIGURE 4 AND APPENDIX A

0 50 100 200
 SCALE: 1" = 100'

FIGURE 7

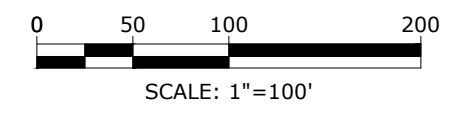


LEGEND	
	ONSHORE CABLE CENTERLINE ALIGNMENT
	CHANGE IN BASE FLOOD ELEVATION
	LIMIT OF MODERATE WAVE ACTION
	LIMIT OF SURVEY TOPOGRAPHY
	EXISTING CONTOUR
	FLOOD HAZARD AREA (DETERMINE VIA METHOD 2)
	APPROXIMATE EXTENT OF ZONE 'AE' BASE FLOOD ELEVATIONS DETERMINED PER FEMA MAPPING SEE FIGURE 4 AND APPENDIX A

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 LICENSED PROFESSIONAL ENGINEER

OCEAN WIND OFFSHORE WIND
 BL ENGLAND ONSHORE
 SUBSTATION AND
 ONSHORE CABLE ROUTE
 UPPER TOWNSHIP, NEW JERSEY
 BLOCK 479, LOT 76

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 FLOOD HAZARD VERIFICATION PLAN

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FIGURE 8

MATCH LINE SEE FIGURE 8

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EXTENT OF FLOOD HAZARD AREA DELINEATED VIA METHOD 2 (FEMA TIDAL METHOD) DESIGN FLOOD ELEVATION: ELEVATION 9 (SEE FIGURE 4 AND APPENDIX A FOR REFERENCE)

PROPOSED CABLE ROUTE CENTERLINE ALIGNMENT

LIMIT OF SURVEY TOPOGRAPHY, TYP.

ZONE AE (EL 10)

LIMIT OF MODERATE WAVE ACTION, TYP.

EXTENT OF FLOOD HAZARD AREA DELINEATED VIA METHOD 2 (FEMA TIDAL METHOD) DESIGN FLOOD ELEVATION: ELEVATION 10 (SEE FIGURE 4 AND APPENDIX A FOR REFERENCE)

ZONE AE (EL 9)

LEGEND

- ONSHORE CABLE CENTERLINE ALIGNMENT
- CHANGE IN BASE FLOOD ELEVATION
- LIMIT OF MODERATE WAVE ACTION
- LIMIT OF SURVEY TOPOGRAPHY
- EXISTING CONTOUR
- FLOOD HAZARD AREA (DETERMINE VIA METHOD 2)
- APPROXIMATE EXTENT OF ZONE 'AE' BASE FLOOD ELEVATIONS DETERMINED PER FEMA MAPPING SEE FIGURE 4 AND APPENDIX A

REFERENCES:

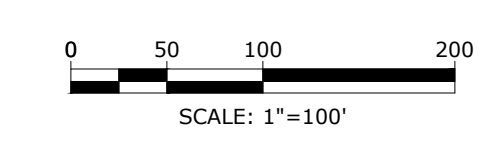
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MATCH LINE SEE FIGURE 10

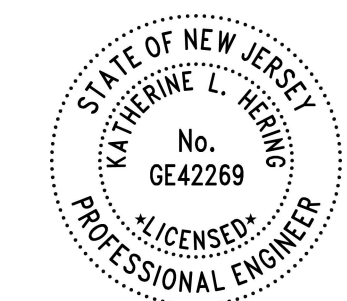


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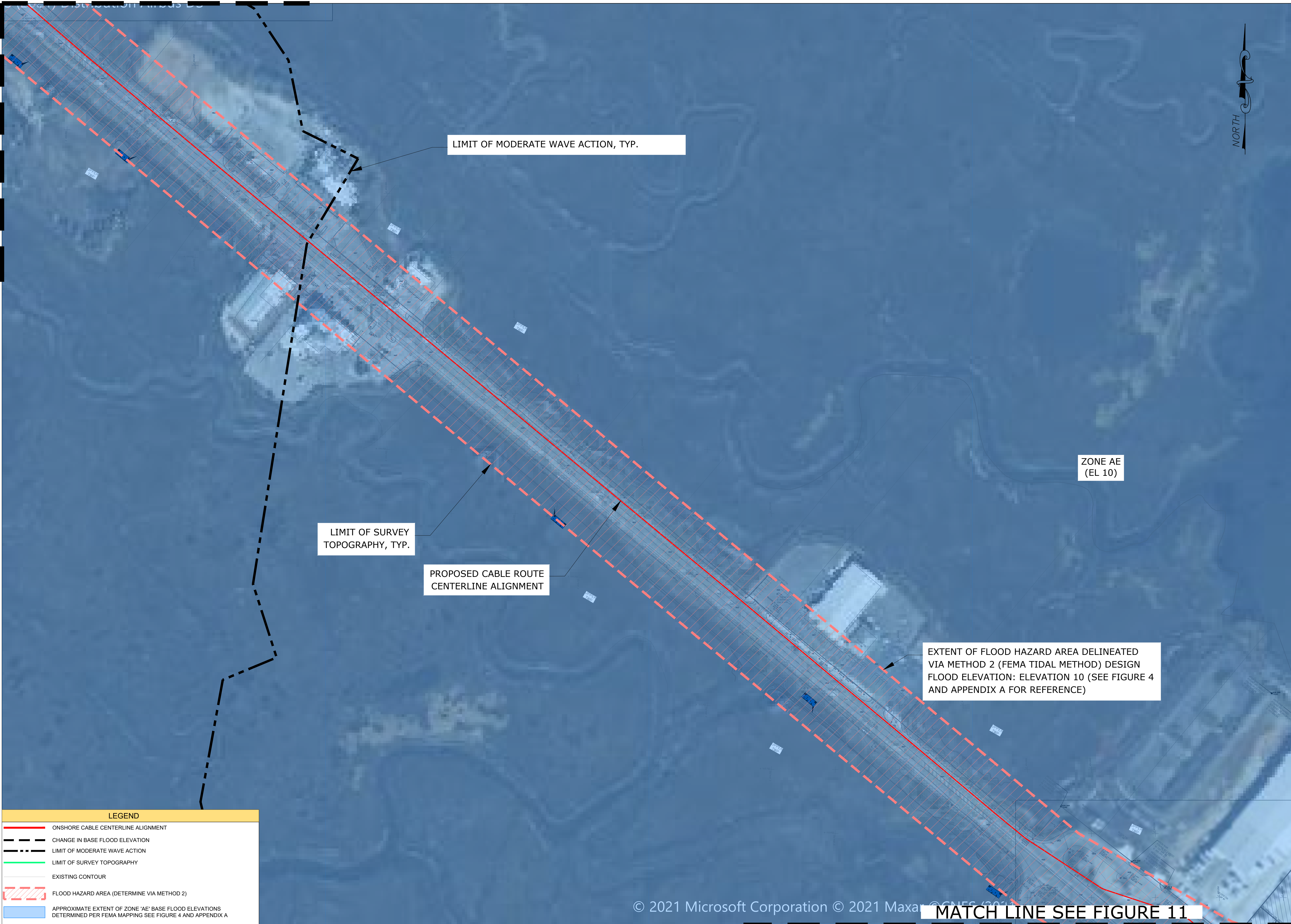
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FIGURE 9


MATCH LINE SEE FIGURE 9



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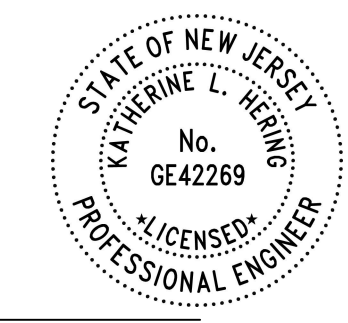
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LEGEND

	ONSHORE CABLE CENTERLINE ALIGNMENT
	CHANGE IN BASE FLOOD ELEVATION
	LIMIT OF MODERATE WAVE ACTION
	LIMIT OF SURVEY TOPOGRAPHY
	EXISTING CONTOUR
	FLOOD HAZARD AREA (DETERMINE VIA METHOD 2)
	APPROXIMATE EXTENT OF ZONE 'AE' BASE FLOOD ELEVATIONS DETERMINED PER FEMA MAPPING SEE FIGURE 4 AND APPENDIX A

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 MATCH LINE SEE FIGURE 11

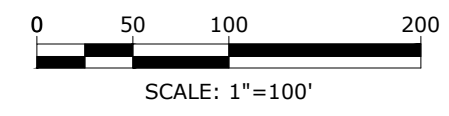
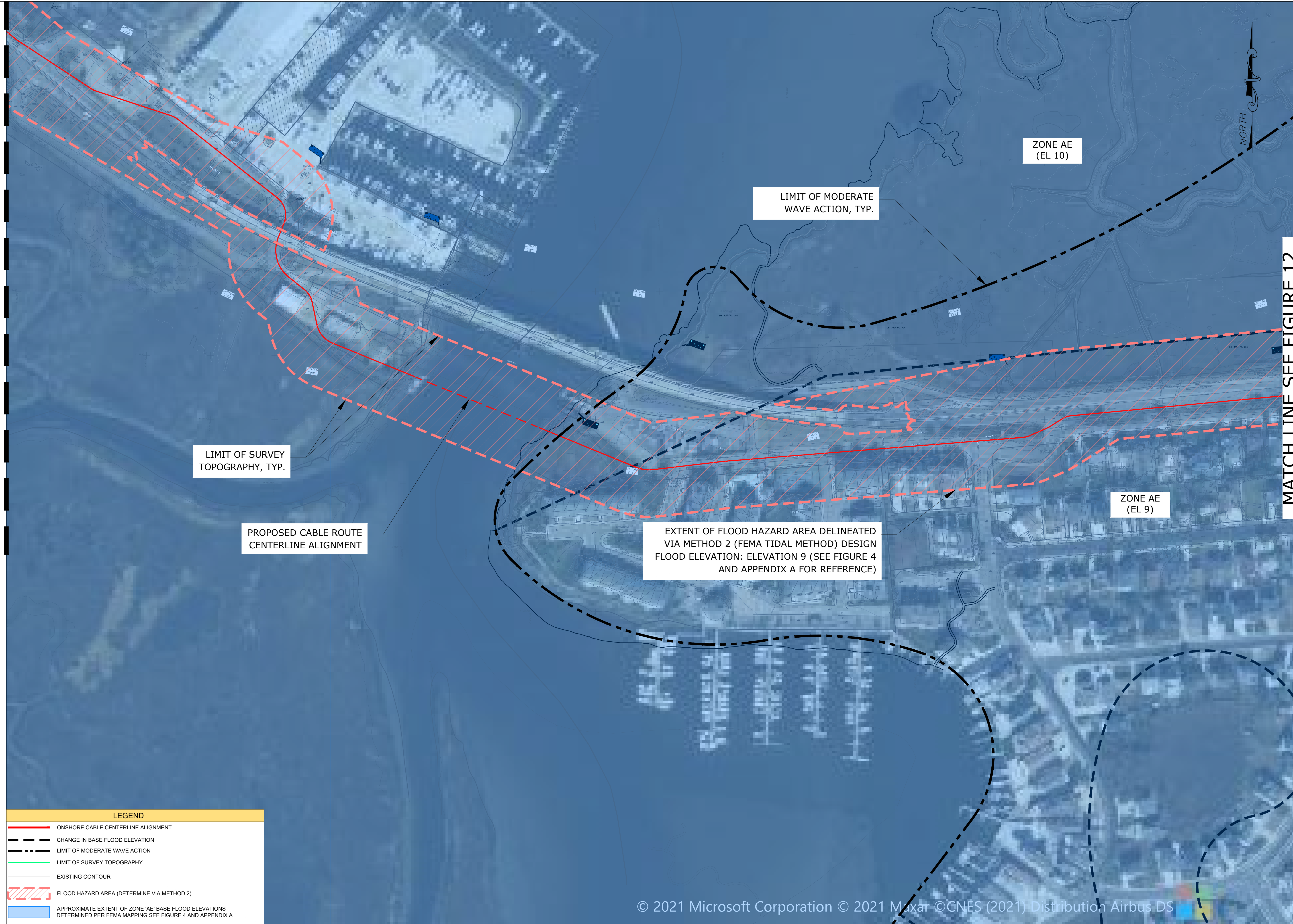


FIGURE 10

MATCH LINE SEE FIGURE 10

MATCH LINE SEE FIGURE 12



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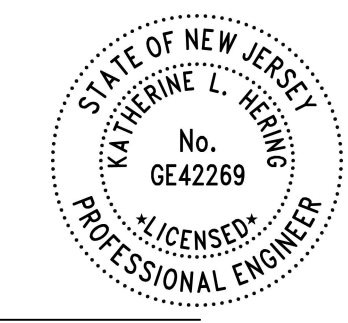
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THIS DRAWING DOES NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. ALL CONSTRUCTION MUST BE DONE IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 AND ALL RULES AND REGULATIONS THEREBY APPLICABLE. THIS DRAWING AND THE DESIGN THEREOF OR CONSTRUCTION CONDITIONS ARE HEREBY SET TO THE PROJECT MANAGER, L.L.C. AND SHALL NOT BE REPRODUCED, ALTERED OR COPIED WITHOUT WRITTEN PERMISSION. SHALL NOT BE USED IN ANY MANNER DETRIMENTAL TO ITS INTEREST AND SHALL BE RETURNED UPON REQUEST.

I CERTIFY THAT THESE PLANS HAVE BEEN PREPARED UNDER MY SUPERVISION



KATHERINE L. HERING, P.E., N.J. NO. 24GE04226900
 LICENSED PROFESSIONAL ENGINEER

OCEAN WIND OFFSHORE WIND
 BL ENGLAND ONSHORE
 SUBSTATION AND
 ONSHORE CABLE ROUTE
 UPPER TOWNSHIP, NEW JERSEY
 BLOCK 479, LOT 76

DRAWING TITLE
FLOOD HAZARD VERIFICATION PLAN

CHECKED BY: ENS	DRAWN BY: ENS
SCALE: AS SHOWN	SHEET NO:
PROJECT #: P-21-58-01	FIRST ISSUE: 11/15/2020
DRAWING NO.	

LEGEND

- ONSHORE CABLE CENTERLINE ALIGNMENT
- CHANGE IN BASE FLOOD ELEVATION
- LIMIT OF MODERATE WAVE ACTION
- LIMIT OF SURVEY TOPOGRAPHY
- EXISTING CONTOUR
- FLOOD HAZARD AREA (DETERMINE VIA METHOD 2)
- APPROXIMATE EXTENT OF ZONE 'AE' BASE FLOOD ELEVATIONS DETERMINED PER FEMA MAPPING SEE FIGURE 4 AND APPENDIX A

REFERENCES:
 1. THE FLOOD HAZARD AREA DESIGN FLOOD ELEVATIONS DETERMINED VIA METHOD 2 FEMA TIDAL METHOD SHOWN HEREIN WERE DETERMINED FROM EFFECTIVE FLOOD INSURANCE RATE MAP NUMBER 34009C0069F AND 34009C0088F DATED OCTOBER 5, 2017 NO VERIFICATION IS REQUIRED FOR THE WORK OUTSIDE THE PROPOSED SUBSTATION LOT IN ACCORDANCE WITH N.J.A.C. 7:13-5.5(B) AS THE PROPOSED IMPROVEMENTS CONSIST OF SUBSURFACE UTILITIES THAT WILL NOT RESULT IN ANY CHANGES TO THE EXISTING TOPOGRAPHY.
 2. BL ENGLAND SUBSTATION ONSHORE SUBSTATION GENERAL ARRANGEMENT PLAN PREPARED BY BURNS AND MCDONNELL.

SURVEY REFERENCES:
 1. TOPOGRAPHIC DATA FOR THE BL ENGLAND SUBSTATION AREA AND CABLE ROUTE ALIGNMENT WAS OBTAINED FROM A MAP ENTITLED "OFFSHORE WIND, BEESELY'S POINT ROUTE, EXISTING CONDITIONS," PREPARED BY PSEG SERVICES CORPORATION, SURVEYS & MAPPING, 80 PARK PLAZA, T68, NEWARK, N.J. 07102, AND DATED OCTOBER 8, 2021.
 2. TOPOGRAPHIC DATA FOR THE BL ENGLAND SUBSTATION AREA AND CABLE ROUTE ALIGNMENT WAS OBTAINED FROM AERIAL TOPOGRAPHY PREPARED BY ROBINSON AERIAL SURVEYS INC., 1 EDGEVIEW DRIVE, HACKETTSTOWN, N.J. 07840 FROM 5.0 CM GROUND SAMPLING DISTANCE IMAGERY CAPTURED ON JUNE 17, 2021.
 3. ADDITIONAL TOPOGRAPHIC DATA FOR THE BL ENGLAND SUBSTATION AREA WAS OBTAINED FROM AERIAL TOPOGRAPHY PREPARED BY ROBINSON AERIAL SURVEYS INC., 1 EDGEVIEW DRIVE, HACKETTSTOWN, N.J. 07840 FROM 5.0 CM GROUND SAMPLING DISTANCE IMAGERY CAPTURED ON JUNE 10TH, 2022.

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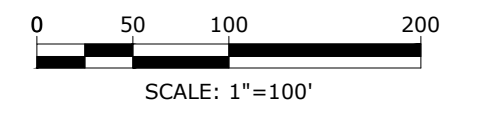


FIGURE 11

MATCH LINE SEE FIGURE 11



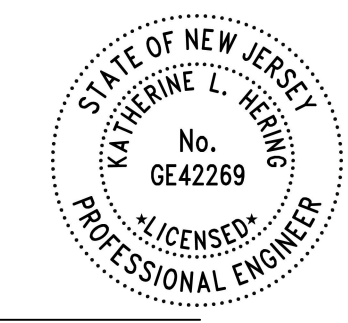
SCHEDULE OF REVISIONS			
REV.	DATE	DESCRIPTION OF CHANGES	DRAWN BY / CHK. BY

E 2 PROJECT MANAGEMENT LLC
 87 HIBERNIA AVENUE
 ROCKAWAY, N.J. 07866
 PHONE: (973) 299-5200
 FAX: (973) 299-9059
 www.E2PM.com



THIS DRAWING DOES NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. ALL CONSTRUCTION MUST BE DONE IN COMPLIANCE WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 AND ALL RULES AND REGULATIONS THEREBY APPLICABLE. THIS DRAWING AND THE DESIGN THEREOF OR CONSTRUCTION CONDITIONS ARE HEREBY SET TO THE PROJECT MANAGER, LLC AND SHALL NOT BE REPRODUCED, ALTERED OR COPIED WITHOUT WRITTEN PERMISSION. SHALL NOT BE USED IN ANY MANNER DEVIANT FROM ITS INTENT AND SHALL BE RETURNED UPON REQUEST.

I CERTIFY THAT THESE PLANS HAVE BEEN PREPARED UNDER MY SUPERVISION



KATHERINE L. HERING, P.E., N.J. NO. 24GE04226900
 LICENSED PROFESSIONAL ENGINEER

OCEAN WIND OFFSHORE WIND
 BL ENGLAND ONSHORE
 SUBSTATION AND
 ONSHORE CABLE ROUTE
 UPPER TOWNSHIP, NEW JERSEY
 BLOCK 479, LOT 76

DRAWING TITLE
FLOOD HAZARD VERIFICATION PLAN

CHECKED BY: ENS	DRAWN BY: ENS
SCALE: AS SHOWN	SHEET NO:
PROJECT #: P-21-58-01	FIRST ISSUE: 11/15/2020

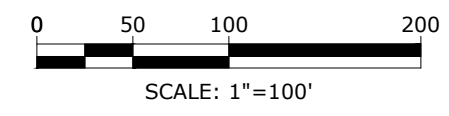
DRAWING NO.
FIGURE 12

LEGEND	
	ONSHORE CABLE CENTERLINE ALIGNMENT
	CHANGE IN BASE FLOOD ELEVATION
	LIMIT OF MODERATE WAVE ACTION
	LIMIT OF SURVEY TOPOGRAPHY
	EXISTING CONTOUR
	FLOOD HAZARD AREA (DETERMINE VIA METHOD 2)
	APPROXIMATE EXTENT OF ZONE 'AE' BASE FLOOD ELEVATIONS DETERMINED PER FEMA MAPPING SEE FIGURE 4 AND APPENDIX A

REFERENCES:
 1. THE FLOOD HAZARD AREA DESIGN FLOOD ELEVATIONS DETERMINED VIA METHOD 2 FEMA TIDAL METHOD SHOWN HEREIN WERE DETERMINED FROM EFFECTIVE FLOOD INSURANCE RATE MAP NUMBER 34009C008BF AND 34009C0176F DATED OCTOBER 5, 2017.
 2. BL ENGLAND SUBSTATION ONSHORE SUBSTATION GENERAL ARRANGEMENT PLAN PREPARED BY BURNS AND MCDONNELL. NO VERIFICATION IS REQUIRED FOR THE WORK OUTSIDE THE PROPOSED SUBSTATION LOT IN ACCORDANCE WITH N.J.A.C. 7:13-5.5(B)1 AS THE PROPOSED IMPROVEMENTS CONSIST OF SUBSURFACE UTILITIES THAT WILL NOT RESULT IN ANY CHANGES TO THE EXISTING TOPOGRAPHY.

SURVEY REFERENCES:
 1. TOPOGRAPHIC DATA FOR THE BL ENGLAND SUBSTATION AREA AND CABLE ROUTE ALIGNMENT WAS OBTAINED FROM A MAP ENTITLED "OFFSHORE WIND, BEESLEY'S POINT ROUTE, EXISTING CONDITIONS" PREPARED BY PSEG SERVICES CORPORATION, SURVEYS & MAPPING, 80 PARK PLAZA, 16B, NEWARK, N.J. 07102, AND DATED OCTOBER 8, 2021.
 2. TOPOGRAPHIC DATA FOR THE BL ENGLAND SUBSTATION AREA AND CABLE ROUTE ALIGNMENT WAS OBTAINED FROM AERIAL TOPOGRAPHY PREPARED BY ROBINSON AERIAL SURVEYS INC., 1 EDGEVIEW DRIVE, HACKETTSTOWN, N.J. 07840 FROM 5.0 CM GROUND SAMPLING DISTANCE IMAGERY CAPTURED ON JUNE 17, 2021.
 3. ADDITIONAL TOPOGRAPHIC DATA FOR THE BL ENGLAND SUBSTATION AREA WAS OBTAINED FROM AERIAL TOPOGRAPHY PREPARED BY ROBINSON AERIAL SURVEYS INC., 1 EDGEVIEW DRIVE, HACKETTSTOWN, N.J. 07840 FROM 5.0 CM GROUND SAMPLING DISTANCE IMAGERY CAPTURED ON JUNE 10TH, 2022.

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APPENDIX A – FEMA FLOOD INSURANCE RATE MAPS

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 12 North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The projection used in the preparation of this map was New Jersey State Plane (FIPS 2600) zone. The horizontal datum was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov> or contact the National Geodetic Survey at the following address:

NGS Information Services
 NOAA, NWS/512
 National Geodetic Survey
 SSMC-3, #9202
 1215 East-West Highway
 Silver Spring, Maryland 20910-3282
 (301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242 or visit the website at <http://www.ngs.noaa.gov>.

Base map information shown on this FIRM was developed from high-resolution orthophotography provided by the State of New Jersey. This information was derived from digital orthophotos produced at a scale of 1:2400 with a 1-foot pixel resolution from photography dated 2012.

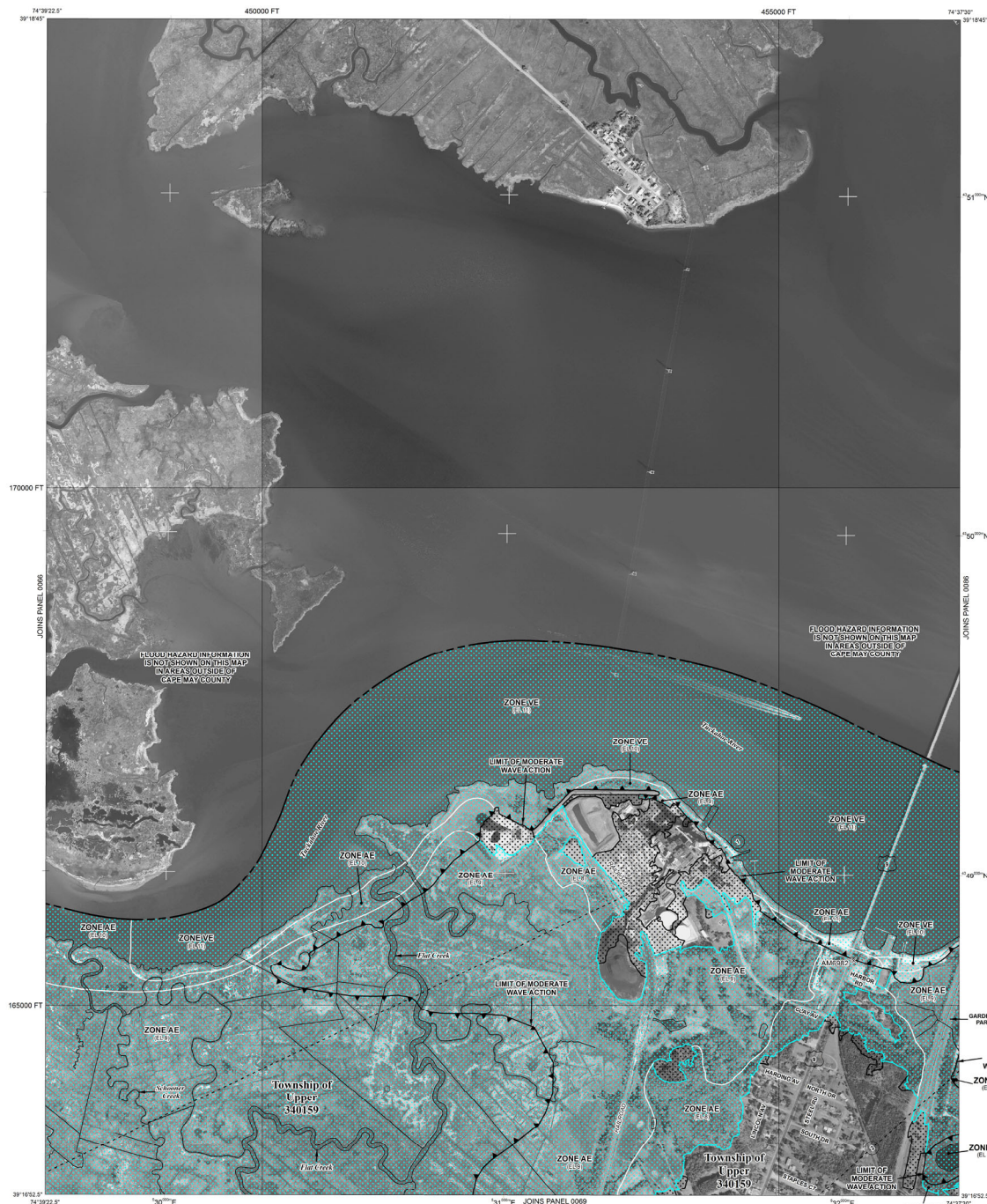
Based on updated topographic information, this map reflects more detailed and up-to-date stream channel configurations and floodplain delineations than those shown on the previous FIRM for this jurisdiction. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map. Also, the road to floodplain relationships for unreviewed streams may differ from what is shown on previous maps.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels, community map repository addresses, and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM visit the **Map Service Center (MSC)** website at <http://map.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have questions about this map, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information Exchange (FMIX) at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/national-flood-insurance-program>.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equal or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AD, AF, AP, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A
 No Base Flood Elevations determined.
 Base Flood Elevations determined.

ZONE AE
 Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AD
 Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently abandoned. Zone AE indicates that the former flood control system is being retained to provide protection from the 1% annual chance or greater flood.

ZONE AR
 Area to be protected from the 1% annual chance flood by a flood flow protection system under construction; no Base Flood Elevations determined.

ZONE AV
 Large flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE V
 Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

ZONE VE
 Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel or a stream plus any adjacent floodplain areas that must be kept free of encroachments so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X
 Areas of 0.2% annual chance flood areas of 1% annual chance flood with average depths of less than 1 foot and drainage areas less than 1 square mile and areas protected by levees from 1% annual chance flood.

OTHER AREAS
 Areas determined to be outside the 0.2% annual chance floodplain. Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

OPAs areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPAs boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities
- Link of moderate wave action
- Base Flood Elevation line and value; elevation in feet (EL 887)
- Base Flood Elevation value when uniform within zone; elevation in feet
- One section line
- Transect line
- Culvert, Flume, Penstock or Aqueduct
- Road or Railroad Bridge
- Footing
- Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 3000-meter Universal Transverse Mercator grid values; zone 18
- 5000-foot grid values; New Jersey State Plane coordinate system (NAD 83); Transverse Mercator projection
- Bench mark (see explanation in Notes to Users section of this FIRM panel)
- 1:5

MAP REPOSITORY
 Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
 October 5, 2017

EFFECTIVE DATES OF REVISIONS TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in the community, contact your insurance agent or call the National Flood Insurance Program at 1-800-938-6220.

MAP SCALE 1" = 900'

0 500 1000
 FEET

0 150 300
 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0067F

FIRM
FLOOD INSURANCE RATE MAP
CAPE MAY COUNTY,
NEW JERSEY
(ALL JURISDICTIONS)

PANEL 67 OF 311
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

COMMUNITY
 NUMBER PANEL EFFECTIVE DATE
 UPPER TOWNSHIP OF 340150 0067 F

Notice to User: The Map Number shown below should be used when placing map orders. The Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
34009C0067F

EFFECTIVE DATE
OCTOBER 5, 2017

Federal Emergency Management Agency

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updates or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only to landward of 0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The projection used in the preparation of this map was New Jersey State Plane (FIPS 2900) zone. The horizontal datum was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FBHAs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov> or contact the National Geodetic Survey at the following address:

NGS Information Services
 NOAA NESDIS
 National Geodetic Survey
 SSMC-3, #9202
 1315 East-West Highway
 Silver Spring, Maryland 20910-3282
 (301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov>.

Base map information shown on this FIRM was developed from high-resolution orthophotography provided by the State of New Jersey. This information was derived from digital orthophotos produced at a scale of 1:2400 with a 1-foot pixel resolution from photography dated 2012.

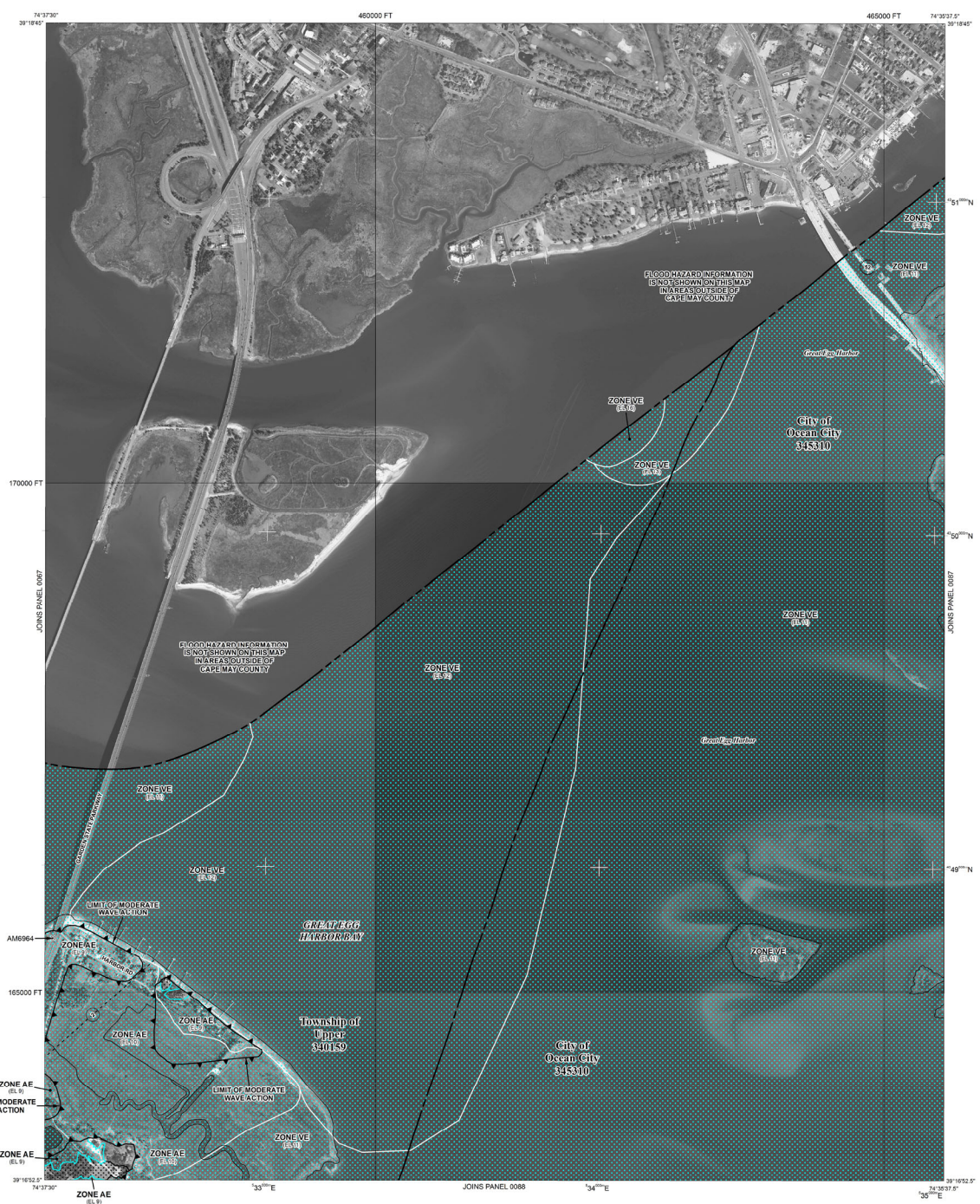
Based on updated topographic information, this map reflects more detailed and up-to-date stream channel configurations and floodplain delineations than those shown on the previous FIRM for this jurisdiction. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map. Also, the road to floodplain relationships for unreviewed streams may differ from what is shown on previous maps.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

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LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equal or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AD, AR, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.

ZONE AE Base Flood Elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined.

ZONE AD Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently abandoned. Zone AR indicates that the former flood control system is being retained to provide protection from the 1% annual chance or greater flood.

ZONE ARF Area to be protected from the 1% annual chance flood by a flood control protection system under construction; no Base Flood Elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no base flood elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood areas of 1% annual chance flood with average depths of less than 1 foot and with drainage areas less than 1 square mile and areas protected by levees from 1% annual chance flood.

OTHER AREAS

Areas determined to be outside the 0.2% annual chance floodplain. Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

OPAs areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Roadway boundary
- Zone D boundary
- CBRS and OPAs boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, Flood depths or flood velocities
- Levee or moderate wave action
- Base Flood Elevation line and value; elevation in feet (EL 987)
- Base Flood Elevation value where uniform within zone; elevation in feet
- One section line
- Transect line
- Culvert, Flume, Penstock or Aqueduct
- Road or Railroad Bridge
- Footing
- Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 3000-meter Universal Transverse Mercator grid values; zone 18
- 5000-foot grid values; New Jersey State Plane coordinate system (SPCS2011), Transverse Mercator projection
- Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M 1.5

MAP REPOSITORY
 Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTY-WIDE FLOOD INSURANCE RATE MAP
 October 5, 2017

EFFECTIVE DATES OF REVISIONS TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in the community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6262.

MAP SCALE 1" = 900'

0 500 1000 FEET
 0 150 300 METERS

NFIP PANEL 0086F

FIRM
FLOOD INSURANCE RATE MAP
CAPE MAY COUNTY,
NEW JERSEY
(ALL JURISDICTIONS)

PANEL 86 OF 311
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

COMMUNITY	COMMUNITY NUMBER	PANEL NUMBER	EFFECTIVE DATE
OCEAN CITY CITY OF UPPER TOWNSHIP OF	345310	0086 F	
OCEAN CITY CITY OF UPPER TOWNSHIP OF	345310	0086 F	

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
34009C0086F

EFFECTIVE DATE
OCTOBER 5, 2017

Federal Emergency Management Agency

NOTES TO USERS

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Coastal Base Flood Elevations shown on this map apply only to landward of the North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The projection used in the preparation of this map was New Jersey State Plane (NAD 83) Spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of BFEs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov> or contact the National Geodetic Survey at the following address:

NGS Information Services
NCAA WND512
National Geodetic Survey
SSM-C-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov>.

Base map information shown on this FIRM was developed from high-resolution orthophotography provided by the State of New Jersey. This information was derived from digital orthophotos produced at a scale of 1:2400 with a 1-foot pixel resolution from photography dated 2012.

Based on updated topographic information, this map reflects more detailed and up-to-date stream channel configurations and floodplain delineations than those shown on the previous FIRM for this jurisdiction. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map. Also, the relationship between floodplains for unimproved streams may differ from what is shown on previous maps.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed Map Index for an overview map of the county showing the layout of map panels, community map repository addresses, and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM visit the **Map Service Center (MSC)** website at <http://info.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have **questions about this map**, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange (FMIX) at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/national-flood-insurance-program>.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equalled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AD, AR, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A
No Base Flood Elevations determined. Base Flood Elevations determined.

ZONE AE
Base Flood Elevations determined.

ZONE AH
Average depth of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial flooding, velocities also determined.

ZONE AD
Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently abandoned. Zone AD indicates that the former flood control system is being retained to provide protection from the 1% annual chance or greater flood.

ZONE AR
Area to be protected from the 1% annual chance flood by a flood protection system under construction; no Base Flood Elevations determined.

ZONE AP
Liable flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE V
Liable flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE
Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachments so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X
Areas of 0.2% annual chance flood areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile and areas protected by levees from the 1% annual chance flood.

OTHER AREAS
Areas determined to be outside the 0.2% annual chance floodplain. Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

OPAs areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary

0.2% annual chance floodplain boundary

Floodway boundary

Zone D boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities

Link of moderate wave action

EL (987)
Base Flood Elevation value; elevation in feet

Base Flood Elevation value; elevation in feet

Referenced to the North American Vertical Datum of 1988

One section line

Tract line

Culvert, Flume, Parapet or Aqueduct

Road or Railroad Bridge

Footing

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere

3000-meter Universal Transverse Mercator grid values; zone 18

5000-foot grid values; New Jersey State Plane coordinate system (NAD 83); Transverse Mercator projection

Bench mark (See explanation in Notes to Users section of this FIRM panel)

M 1.5
River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTY-WIDE FLOOD INSURANCE RATE MAP
October 5, 2017

EFFECTIVE DATES (OR REVISIONS) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in the community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6262.

NFIP PANEL 0069F

FIRM FLOOD INSURANCE RATE MAP

CAPE MAY COUNTY, NEW JERSEY (ALL JURISDICTIONS)

PANEL 69 OF 311 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

JURISDICTION	COMMUNITY	NUMBER	PANEL	STATUS
CAPE MAY COUNTY, NEW JERSEY	OCEAN CITY CITY OF UPPER TOWNSHIP OF	345310	0069F	F
	OCEAN CITY CITY OF UPPER TOWNSHIP OF	345310	0069F	F

Notes to User: The Map Number shown below should be used when placing map orders. The Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
3400C0069F

EFFECTIVE DATE
OCTOBER 5, 2017

Federal Emergency Management Agency

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updates or additional flood hazard information.

To obtain more detailed information in areas where Base Flood Elevations (BFEs) and/or floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood depth information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.7 North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The projection used in the preparation of this map was New Jersey State Plane (NAD 83, GR80) zone. The horizontal datum was NAD 83, GR80 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov> or contact the National Geodetic Survey at the following address:

NGS Information Services
 NOAA, NNGS-12
 National Geodetic Survey
 SSMC-3, #9202
 1315 East-West Highway
 Silver Spring, Maryland 20910-3282
 (301) 713-3242

To obtain current elevation, description, and/or location information for bench marks shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242 or visit the website at <http://www.ngs.noaa.gov>.

Base map information shown on this FIRM was developed from high-resolution orthophotography provided by the State of New Jersey. This information was derived from digital orthophotos produced at a scale of 1:2400 with a 1-foot pixel resolution from photography dated 2012.

Based on updated topographic information, this map reflects more detailed and up-to-date stream channel configurations and floodplain delineations than those shown on the previous FIRM for this jurisdiction. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map. Also, the road to floodplain relationships for unreviewed streams may differ from what is shown on previous maps.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed Map Index for an overview map of the county showing the layout of map panels, community map repository addresses, and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM visit the Map Service Center (MSC) website at <http://map.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have questions about this map, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information Exchange (FMIX) at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/national-flood-insurance-program>.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equal or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AD, AP, AV, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A
 No Base Flood Elevations determined.
 Base Flood Elevation determined.

ZONE AE
 Flood depths of 1 to 3 feet (quality areas of ponding); Base Flood Elevations determined.

ZONE AD
 Flood depths of 1 to 3 feet (usually sheet flow on slaking terrain); average depths determined. For areas of actual fan flooding, velocities also determined.

ZONE AP
 Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently abandoned. Zone AE indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood. Area to be protected from the 1% annual chance flood by a flood control protection system under construction; no Base Flood Elevation determined.

ZONE V
 Liable flood zone with velocity hazard (wave action); no Base Flood Elevation determined.

ZONE VE
 Coastal flood zone with velocity hazard (wave action); Base Flood Elevation determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X
 Areas of 0.2% annual chance flood areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile and areas protected by levees from the 1% annual chance flood.

OTHER AREAS
 Areas determined to be outside the 0.2% annual chance floodplain. Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

OPAs areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary

0.2% annual chance floodplain boundary

Roadway boundary

Zone D boundary

CBRS and OPAs boundary

Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations; flood depth or flood velocities

Link of moderate wave action

Base Flood Elevation line and value; elevation in feet

Base Flood Elevation value where uniform within zone; elevation (EL 987)

One section line

Transect line

Canal, Flume, Penstock or Aqueduct

Road or Railroad Bridge

Feetings

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere

3000-meter Universal Transverse Mercator grid values; zone 18

5000-foot grid values; New Jersey State Plane coordinate system (SPCS18N); Transverse Mercator projection

Bench mark (see explanation in Notes to Users section of this FIRM panel)

MAP REPOSITORY
 Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTY-WIDE FLOOD INSURANCE RATE MAP
 October 5, 2017

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in the community, contact your insurance agent or call the National Flood Insurance Program at 1-800-938-6220.

NFIP

PANEL 0088F

FIRM

FLOOD INSURANCE RATE MAP

CAPE MAY COUNTY, NEW JERSEY (ALL JURISDICTIONS)

PANEL 88 OF 311
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

COMMUNITY	COMMUNITY NUMBER	PANEL	STATUS
OCEAN CITY-CITY OF UPPER TOWNSHIP OF	34030	0088	F
	34030	0088	F

Notes to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on invoice applications for the subject community.

NATIONAL FLOOD INSURANCE PROGRAM

MAP NUMBER
 3400C0088F

EFFECTIVE DATE
 OCTOBER 5, 2017

Federal Emergency Management Agency

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updates or additional flood hazard information.

To obtain more detailed information in areas where Base Flood Elevations (BFEs) and/or Floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.7 North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The projection used in the preparation of this map was New Jersey State Plane (FIPS 2600) zone. The horizontal datum was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov> or contact the National Geodetic Survey at the following address:

NGS Information Services
NADA, NNGS12
National Geodetic Survey
SSM3-3, #6202
3315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for bench marks shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242 or visit its website at <http://www.ngs.noaa.gov>.

Base map information shown on this FIRM was developed from high-resolution orthophotography provided by the State of New Jersey. This information was derived from digital orthophotos produced at a scale of 1:2400 with a 1-foot pixel resolution from photography taken 2012.

Based on updated topographic information, this map reflects more detailed and up-to-date stream channel configurations and floodplain delineations than those shown on the previous FIRM for this jurisdiction. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map. Also, the road to floodplain relationships for unimproved streams may differ from what is shown on previous maps.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed Map Index for an overview map of the county showing the layout of map panels, community map repository addresses, and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

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If you have questions about this map, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information exchange (FMIx) at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/national-flood-insurance-program>.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) LEGEND

- 11-16-1990 CBRS Area**
FLOOD INSURANCE NOT AVAILABLE FOR STRUCTURES NEWLY BUILT OR SUBSTANTIALLY IMPROVED ON OR AFTER OCTOBER 1, 1993, IN DESIGNATED CBRS AREAS.
- 2-24-1997 CBRS Area**
FLOOD INSURANCE NOT AVAILABLE FOR STRUCTURES NEWLY BUILT OR SUBSTANTIALLY IMPROVED ON OR AFTER NOVEMBER 16, 1990, IN DESIGNATED CBRS AREAS.
- 11-16-1991 Otherwise Protected Area (OPA)**
FLOOD INSURANCE NOT AVAILABLE FOR STRUCTURES NEWLY BUILT OR SUBSTANTIALLY IMPROVED ON OR AFTER NOVEMBER 16, 1991, IN DESIGNATED OPAs WITHIN THE CBRS.

Boundaries of the John H. Chafee Coastal Barrier Resources System (CBRS) shown on this FIRM were transferred from the official CBRS source map(s) for this area and are depicted on this FIRM for informational purposes only. The official CBRS maps are created by Congress via the Coastal Barrier Resources Act, as amended, and maintained by the U.S. Fish and Wildlife Service (FWS). The official CBRS maps used to determine whether or not an area is located within the CBRS are available for download at <http://www.fws.gov>. For an official determination of whether or not an area is located within the CBRS, or for any questions regarding the CBRS, please contact the FWS field office for this area at 609-644-9310.

LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equal or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zone A, AE, AH, AO, AF, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- ZONE A**
No Base Flood Elevations determined.
- ZONE AE**
Base Flood Elevations determined.
- ZONE AH**
Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined.
- ZONE AD**
Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial flooding, vehicles also determined.
- ZONE AR**
Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently abandoned. Zone AR indicates that the former flood control system is being retained to provide protection from the 1% annual chance or greater flood.
- ZONE APF**
Area to be protected from the 1% annual chance flood by a flood control protection system under construction; no Base Flood Elevations determined.
- ZONE V**
Landslide flood zone with velocity hazard (wave action); no base flood elevations determined.
- ZONE VE**
Coastal flood zone with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X
Areas of 0.2% annual chance flood areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile and areas protected by levees from the 1% annual chance flood.

OTHER AREAS

Areas determined to be outside the 0.2% annual chance floodplain. Areas in which flood hazards are unassessed, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

OPAs areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Roadway boundary
- CBRS and OPA boundary
- Zone D boundary
- Boundary dividing Special Flood Hazard Area Zones AE and boundary dividing Special Flood Hazard Area of different Base Flood Elevations, flood depths or flood profiles
- Limit of moderate wave action

Base Flood Elevation line and value; elevation in feet (EL 987)
Base Flood Elevation value where uniform within zone; elevation referenced to the North American Vertical Datum of 1988

One section line
Transect line
Culvert, Flume, Penstock or Aqueduct
Road or Railroad Bridge
Footing

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
3000-meter Universal Transverse Mercator grid values; zone 18

5000-foot grid values; New Jersey State Plane coordinate system (SPSRS 1983), Transverse Mercator projection
Bench mark (see explanation in Notes to Users section of this FIRM page)

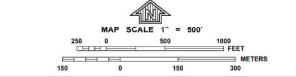
MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
October 5, 2017

EFFECTIVE DATES OF REVISIONS TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or visit the National Flood Insurance Program at www.fema.gov



PANEL 0157F

FIRM
FLOOD INSURANCE RATE MAP
CAPE MAY COUNTY,
NEW JERSEY
(ALL JURISDICTIONS)

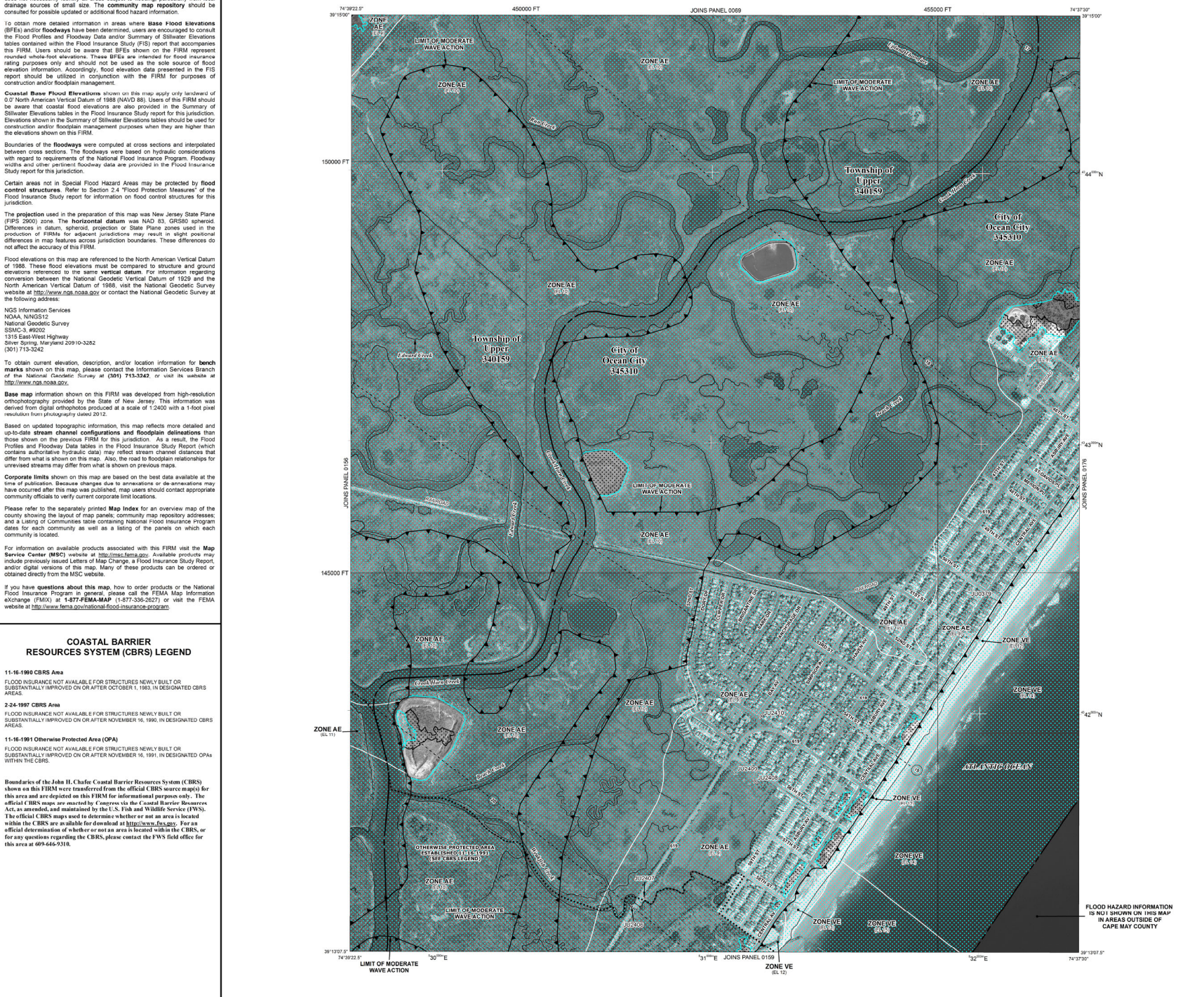
PANEL 157 OF 311
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

JURISDICTION	COMMUNITY	NUMBER	PANEL	STATUS
CAPE MAY COUNTY	CAPE MAY	34030	0157	F
	UPPER TOWNSHIP OF	34038	0157	F

NOTE:
THIS MAP INCLUDES BOUNDARIES OF THE COASTAL BARRIER RESOURCES SYSTEM (CBRS) AND OTHERWISE PROTECTED AREAS (OPAs) ESTABLISHED BY FEDERAL ACTS.

Notes to Users: The Map Number shown below should be used when placing map orders. The Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
34009C0157F
EFFECTIVE DATE
OCTOBER 5, 2017
Federal Emergency Management Agency



NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updates or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood insurance information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only to lowland of 0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The projection used in the preparation of this map was New Jersey State Plane (NAD 83, GRS80) zone. The horizontal datum was NAD 83, GRS80 spheroid. Differences in datum, spherical projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov> or contact the National Geodetic Survey at the following address:

NGS Information Services
 NDAA, NNGS12
 National Geodetic Survey
 SSMC-3, #9202
 1315 East-West Highway
 Silver Spring, Maryland 20910-3282
 (301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242 or visit the website at <http://www.ngs.noaa.gov>.

Base map information shown on this FIRM was developed from high-resolution orthophotography provided by the State of New Jersey. This information was derived from digital orthophotos produced at a scale of 1:2400 with a 1-foot pixel resolution from photography dated 2012.

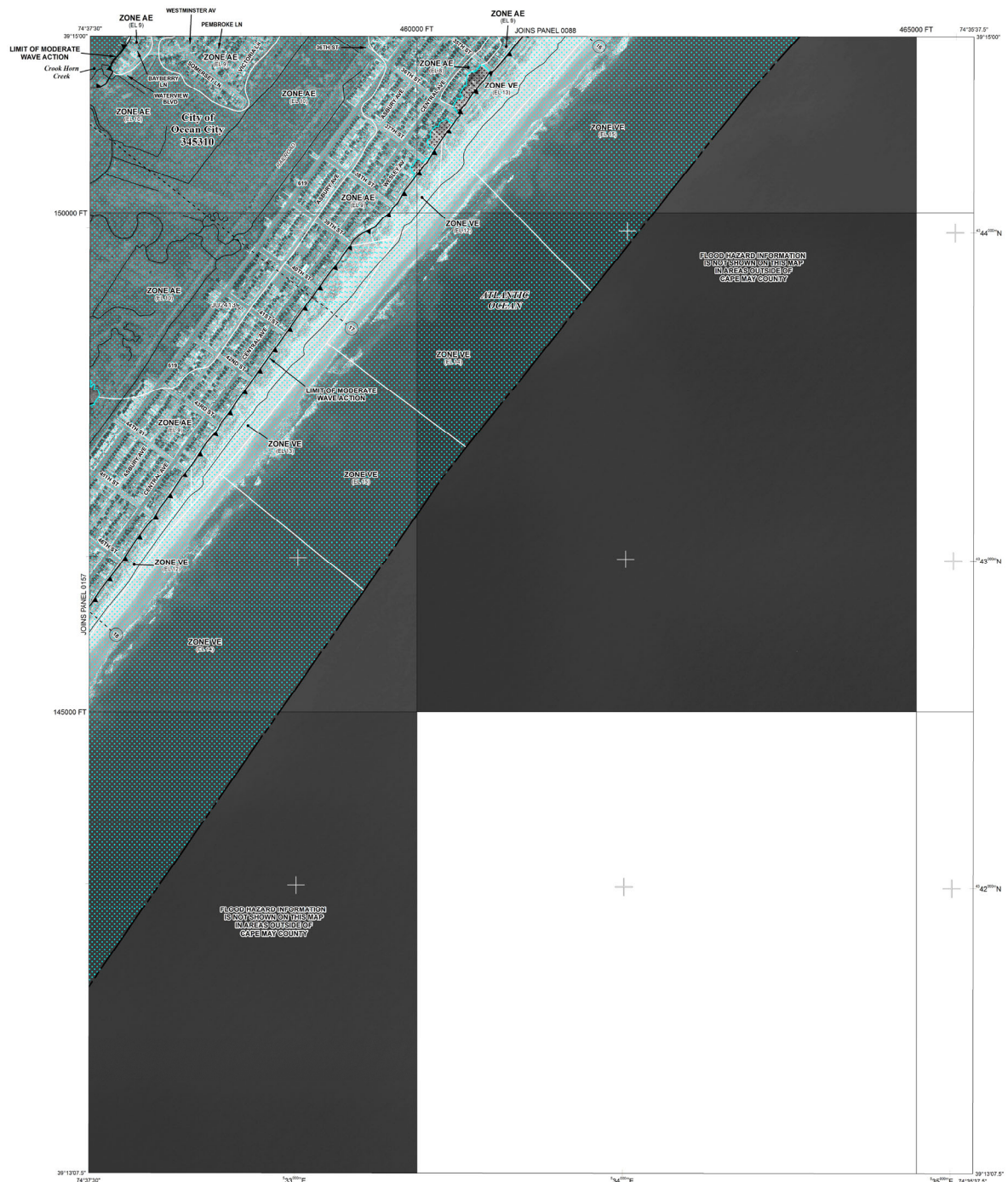
Based on updated topographic information, this map reflects more detailed and up-to-date stream channel configurations and floodplain delineations than those shown on the previous FIRM for this jurisdiction. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map. Also, the road to floodplain relationships for unreviewed streams may differ from what is shown on previous maps.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels, community map repository addresses, and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM visit the **Map Service Center (MSC)** website at <http://info.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have questions about this map, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information exchange (FMIX) at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/national-flood-insurance-program>.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equal or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AD, AF, AP, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- ZONE A**: No Base Flood Elevations determined.
- ZONE AE**: Base Flood Elevations determined.
- ZONE AH**: Flood depths of 1 to 3 feet (quality areas of ponding); Base Flood Elevations determined.
- ZONE AD**: Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of atypical flooding, velocities also determined.
- ZONE AR**: Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently abandoned. Zone AE indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood. Area to be protected from the 1% annual chance flood by a flood control system under construction; no Base Flood Elevations determined.
- ZONE AP**: Usable flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE V**: Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.
- ZONE VE**: Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- ZONE X**: Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from the 1% annual chance flood.
- OTHER AREAS**: Areas determined to be outside the 0.2% annual chance floodplain. Areas in which flood hazards are unclassified, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

OPAs and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- OPAs: 0.2% annual chance floodplain boundary
- Floodway boundary
- CBRS and OPAs boundary
- Zone D boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations; flood depths of flood velocities
- Link of moderate wave action
- Base Flood Elevation line and value; elevation in feet (EL 867)
- Base Flood Elevation line and value; uniform within zone; elevation referred to the North American Vertical Datum of 1988
- One-section line
- Transect line
- Culvert, Flume, Penstock or Aqueduct
- Road or Railroad Bridge
- Footing
- Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 1778°N: 3000-meter Universal Transverse Mercator grid values; zone 18
- 600000 FT: 5000-foot grid values; New Jersey State Plane coordinate system (NAD 83); Transverse Mercator projection
- Bench mark (see explanation in Notes to Users section of this FIRM panel)
- MTS: River Mile

MAP REPOSITORY
 Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
 October 5, 2017

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in your community, contact your insurance agent or call the National Flood Insurance Program at 1-800-338-6120.

MAP SCALE 1" = 900'

250 0 500 1000 FEET
 100 0 100 200 METERS

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0176F

FIRM
 FLOOD INSURANCE RATE MAP
 CAPE MAY COUNTY,
 NEW JERSEY
 (ALL JURISDICTIONS)

PANEL 176 OF 311
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

DATE: 08/2016
 COMMUNITY: 34030
 PANEL: 0176
 SHEET: F

Notice to User: The Map Number shown below should be used when placing map orders. The Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
 34009C0176F

EFFECTIVE DATE
 OCTOBER 5, 2017

Federal Emergency Management Agency

APPENDIX B – SOIL MAP

Hydrologic Soil Group—Cape May County, New Jersey
(Soil Map Bndy)



Map Scale: 1:17,900 if printed on B portrait (11" x 17") sheet.

0 250 500 1000 1500 Meters


0 500 1000 2000 3000 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

Hydrologic Soil Group—Cape May County, New Jersey
(Soil Map Bndy)

MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils

Soil Rating Polygons





-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available

Soil Rating Lines

-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available

Soil Rating Points






-  A
-  A/D
-  B
-  B/D

-  C
-  C/D
-  D
-  Not rated or not available


Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cape May County, New Jersey
Survey Area Data: Version 17, Aug 30, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AptAv	Appoquinimink-Transquaking-Mispillion complex, 0 to 1 percent slopes, very frequently flooded	B/D	8.7	4.7%
BEADV	Beaches, 0 to 15 percent slopes, very frequently flooded	A/D	0.4	0.2%
BEXAS	Berryland and Mullica soils, 0 to 2 percent slopes, occasionally flooded	A/D	5.5	3.0%
DoeBO	Downer sandy loam, 2 to 5 percent slopes, Northern Tidewater Area	A	45.9	24.9%
EveB	Evesboro sand, 0 to 5 percent slopes	A	11.5	6.2%
GamB	Galloway loamy sand, 0 to 5 percent slopes	A/D	5.5	3.0%
HorDr	Hooksan sand, 2 to 15 percent slopes, rarely flooded	A	1.8	1.0%
PdwAv	Pawcatuck-Transquaking complex, 0 to 1 percent slopes, very frequently flooded	D	9.7	5.3%
UdrB	Udorthents, refuse substratum, 0 to 8 percent slopes	B	8.0	4.3%
UR	Urban land		51.0	27.6%
USPSAS	Urban land-Psamments, sulfidic substratum complex, 0 to 2 percent slopes, occasionally flooded		22.4	12.2%
USPSBR	Urban land-Psamments, wet substratum complex, 0 to 2 percent slopes, rarely flooded		7.6	4.1%
WATERs	Water, saline		6.6	3.6%
Totals for Area of Interest			184.5	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher