

The latest revision date of Appendix E to the Empire Offshore Wind COP is July 2023. This appendix was not revised as part of the November 2023 submittal; therefore, the date on the Appendix E cover sheet remains as July 2023.



APPENDIX

Conceptual Project
Design Drawings



Prepared for

equinor



JULY 2023

ATTACHMENTS

Attachment E-1 Offshore Conceptual Drawings

Attachment E-2 Sea-to-Shore Conceptual Drawings

Attachment E-3 Onshore Cable Routes Conceptual Drawings

Attachment E-4 Onshore Conceptual Drawings

ATTACHMENT E-1 OFFSHORE CONCEPTUAL DRAWINGS

- Typical Offshore Substation
- Profile View of Piled Jacket Lift-Off
- Profile View of Piled Jacket Set-Down
- Profile View of OSS Topside Lift-Off
- Profile View of OSS Topside Set-Down
- Plan and Profile View of Heavy Transfer Vessel Deck Layout
- Plan View of SSCV *Thialf* Deck Layout
- Plan View of Monopile Lift-Off
- Stern View of Monopile Lift-Off
- Monopile Upending Sequence (1-4)
- Monopile Installation Sequence (1-3)
- Pile Driving Sequence (1-4)
- Profile View of Transition Piece Lift-Off
- Profile View of Transition Piece Installation
- Profile View of Anode Cage Lift-Off
- Profile View of Anode Cage Installation
- Anode Cage Installation Sequence
- Profile View of Access to Top of Transition Piece
- Cross Section of Interarray Cable
- Cross Section of Submarine Export Cable
- Cross Section of Buried Submarine Export Cable



Typical Offshore Substation

66 kV INTER ARRAY CABLE DESIGN

Fibre optic element

- Optical fibres
- Copper tube
- Armouring
- Outer sheath semi-conducting

Assembly

- Filler
- Bedding layer
- Armouring galvanized steel wires

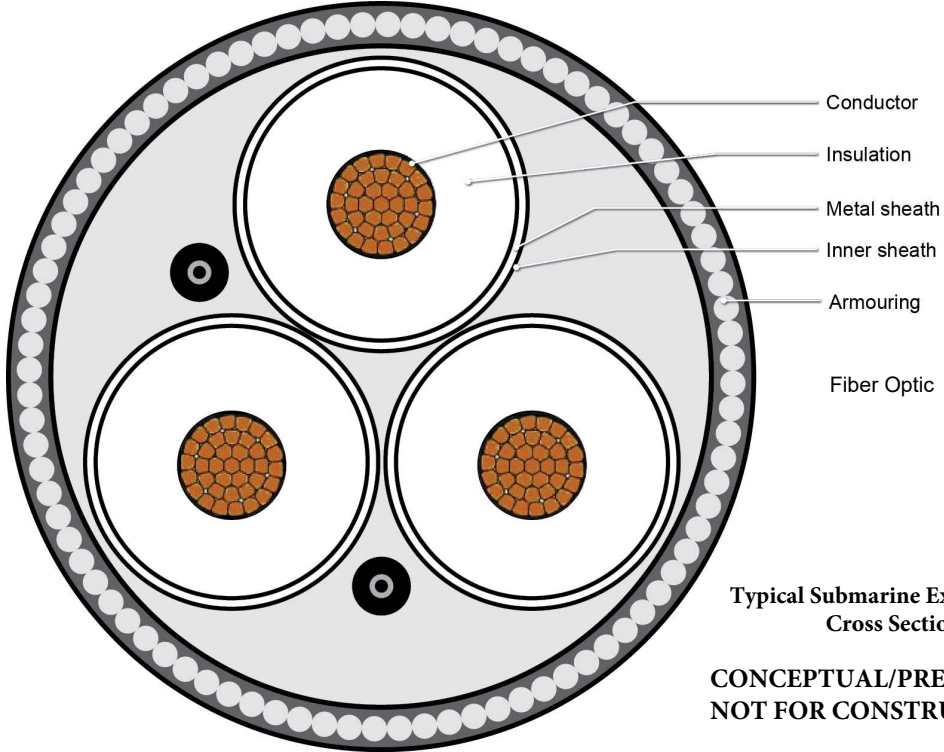


Power cores

- Stranded copper wires waterblocked.
- Inner semiconductive layer
- XLPE insulation
- Outer semi-conductive layer

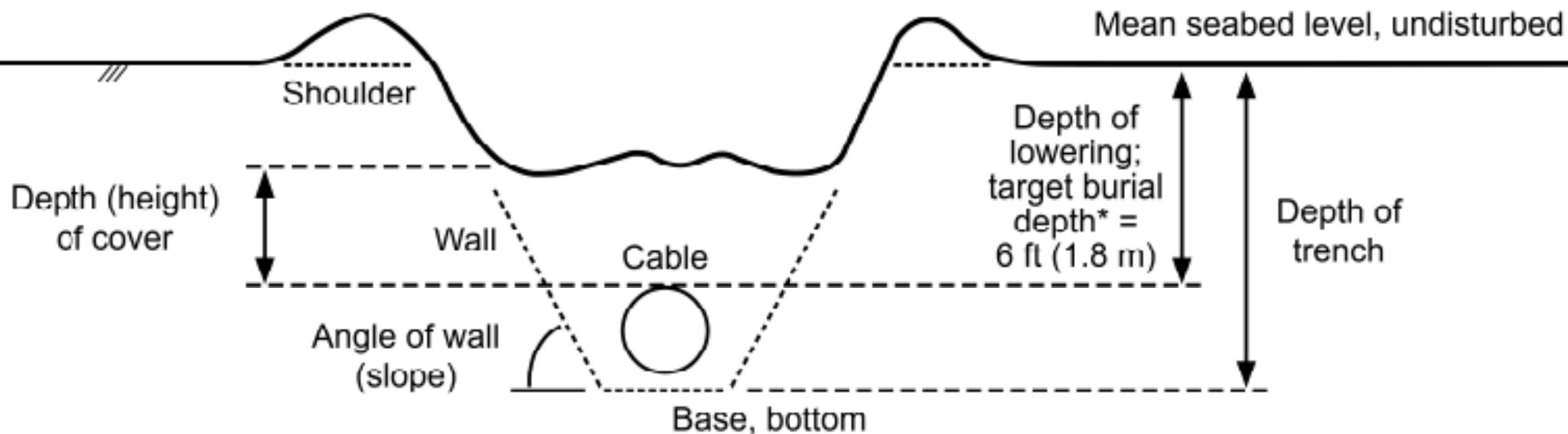
- Outer Sheath, Polypropylene PP yarns

**CONCEPTUAL/PRELIMINARY
NOT FOR CONSTRUCTION**



Typical Submarine Export Cable
Cross Section

**CONCEPTUAL/PRELIMINARY
NOT FOR CONSTRUCTION**



* Note: Target burial depth will be 15 ft (4.7 m) below the current (and future) authorized depth or depth of existing seabed (whichever is deeper) in federally maintained navigation features (e.g., anchorages and shipping channels).

**CONCEPTUAL/PRELIMINARY
NOT FOR CONSTRUCTION**

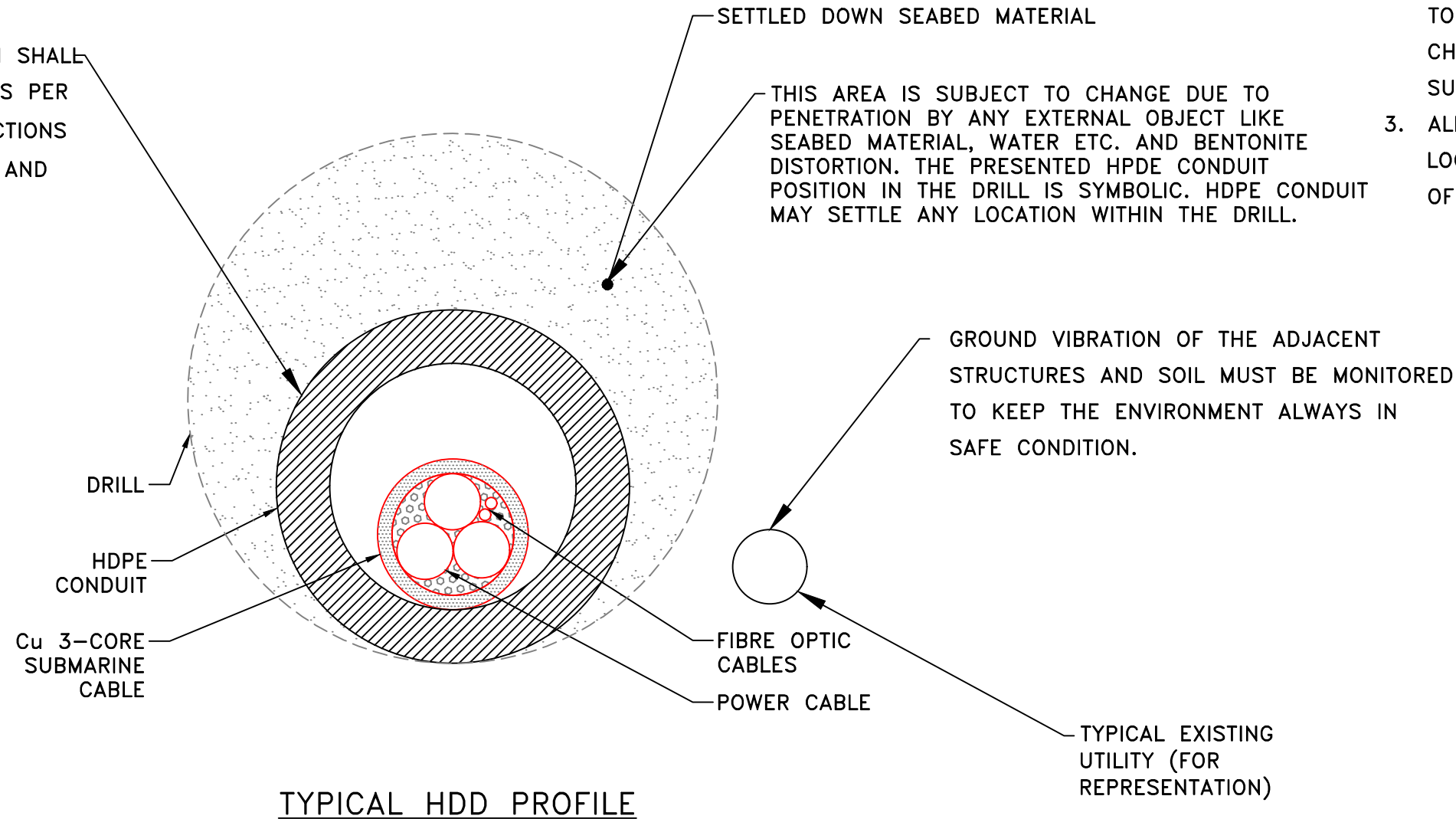
ATTACHMENT E-2 SEA-TO-SHORE CONCEPTUAL DRAWINGS

- Typical HDD Profile
- Typical HDD Landfall Manhole
- EW 1 Landfall (Plan)
- EW 1 Landfall (Profile)
- Example of HDD Landfall (EW 2; Landfall A)
- Example of Direct Pipe Landfall (EW 2; Landfall C)

NOTES:

- 1. DETAILS OF DESIGN WILL BE PROVIDED IN DETAIL DESIGN STAGE.
- 2. THE TRENCHLESS EXCAVATION TYPE SHALL HAVE TO BE DETERMINED BASED ON THE SOIL CHARACTERISTICS AND THE LOAD APPLIED TO THE SURFACE.
- 3. ALL EXISTING UNDERGROUND UTILITIES MUST BE LOCATED TO DETERMINE THE CORRECT ALIGNMENT OF THE TRENCHLESS EXCAVATION.

TRENCHLESS EXCAVATION SHALL HAVE TO BE PERFORM AS PER THE GUIDELINES/INSTRUCTIONS FROM APPLICABLE CODE AND STANDARDS.



TYPICAL HDD PROFILE

**PRELIMINARY
DRAWING**

NOT TO BE
USED FOR
CONSTRUCTION

A3 (432 x 279)

NO.	DATE	DESCRIPTION
D	2022-05-18	ISSUE FOR REVIEW
C	2021-03-08	ISSUED FOR REVIEW
B	2019-11-01	ISSUED FOR REVIEW
A	2018-11-27	ISSUED FOR REVIEW

NO.	DATE	DESCRIPTION	PREPARED	REVIEW	DESIGN	AUTHORIZE
		REVISIONS/ISSUE	DRAFTING	ENGINEERING		

TETRA TECH
Complex World
Clear Solutions

AUTHORIZED BY: JR
DATE: 2022-05-18

CLIENT DRAWING NO.

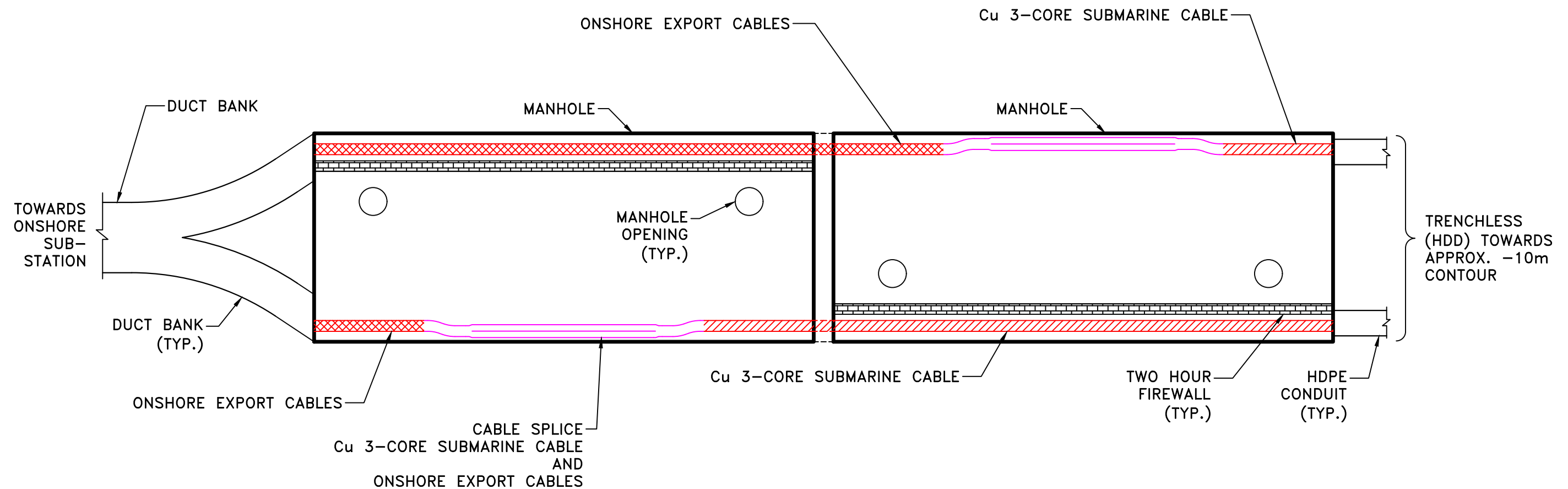
CLIENT EQUINOR	
DRAWING DESCRIPTION EMPIRE WIND DRILLING / CONDUIT CROSS SECTION	
DESIGNED BY: HG	DRAWN BY: HG
REVIEWED BY: AN	SCALE: NTS
DRAWING NO. 1803530100-DWG-E1009	

equinor

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NOTES:

1. CONCEPTUAL SPLICE ARRANGEMENT. DETAILS WILL HAVE TO BE PROVIDED IN DETAILED DESIGN STAGE.



TYPICAL PLAN OF LANDFALL MANHOLE

**PRELIMINARY
DRAWING**

**NOT TO BE
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CONSTRUCTION**

NO.	DATE	DESCRIPTION	PREPARED	REVIEW	DESIGN	AUTHORIZE	AUTHORIZED BY:	DATE:
E	2022-05-18	ISSUED FOR REVIEW	HG	AN	HG	JR	JR	2022-05-18
D	2019-12-19	ISSUED FOR REVIEW	JJ	SA	SA	RE		
C	2019-11-19	ISSUED FOR REVIEW	JJ	SA	SA	RE		
B	2019-11-01	ISSUED FOR REVIEW	GX	AN	SA	RE		
REVISIONS/ISSUE			DRAFTING	ENGINEERING				



CLIENT: **EQUINOR**

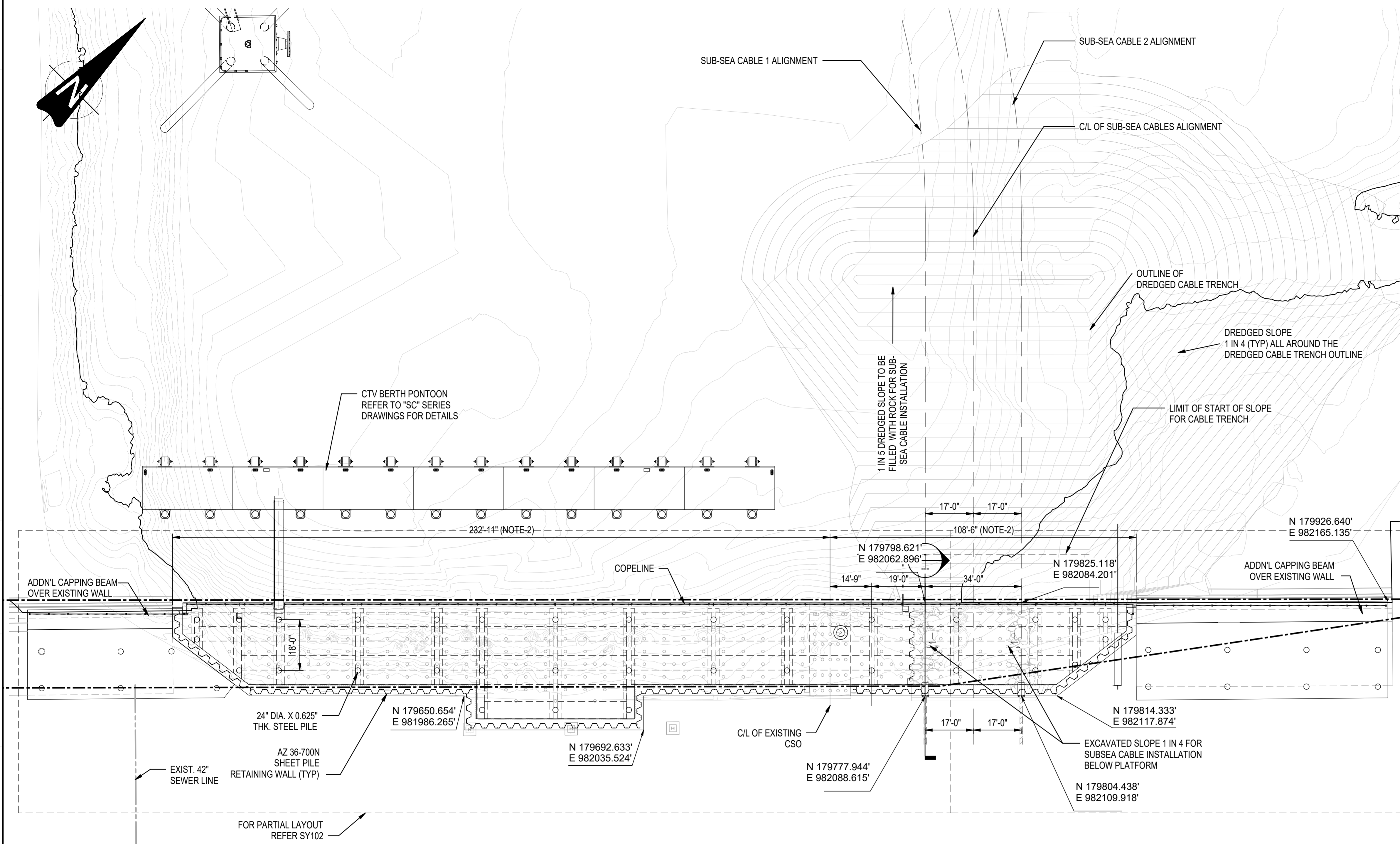
DRAWING DESCRIPTION: **TYPICAL LANDFALL MANHOLE**

DESIGNED BY: HG
DRAWN BY: HG
REVIEWED BY: AN
SCALE: NTS
DRAWING NO.: 1803530100-DWG-E1008



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A3 (432 x 279)



- NOTES:**
- REFER TO "G" SERIES FOR GENERAL NOTES. FOR PAVEMENT AND GRADING DETAILS OF ADJACENT PAVING AREAS, REFER TO "CC" AND "CD" SERIES DRAWINGS.
 - ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
 - ALL LEVELS INDICATED ARE RELATIVE TO NAVD88 DATUM. 0.00 MLLW = -2.86' NAVD88.
 - REFER TO PAGE SY102 AND SY103 FOR PARTIAL LAYOUTS OF THE PLATFORMS.
 - THE PAD PLATFORMS ARE DESIGNED TO A SURCHARGE LOADING OF 500 PSF.
 - CONTRACTOR SHALL PERFORM PRE-CONSTRUCTION SURVEY TO CONFIRM THE LOCATIONS OF EXISTING PILES AND ANY OTHER INTERFERENCES WITH PROPOSED PIPE PILE LOCATIONS. SPECIFICALLY THE FOLLOWING SEQUENCE OF WORK SHALL BE PERFORMED:
 - LAYOUT NEW PIPE PILES.
 - PROBE TO IDENTIFY LOCATION OF LOW LEVEL EXISTING PLATFORM PILES / EXISTING GRAVITY WALL LANDSIDE EDGE.
 - VERIFY THAT THERE IS NO CONFLICT BETWEEN EXISTING TIE-RODS, ABANDONED PILES OR OTHER STRUCTURES AND NEW PILES.
 - NOTIFY THE ENGINEER IN THE EVENT OF A CONFLICT.
 - RELOCATE THE PIPE PILE GRID AS DIRECTED BY THE ENGINEER TO HAVE AT LEAST 1'-0" FROM NEAREST OBSTRUCTION.

- LEGEND:**
- NEW PLATFORM PILES
 - EXISTING PLATFORM PILES
 - DREDGE EXTENT FOR CABLE TRENCH AND PIT AT 32ND-33RD PIER AREA
 - SUB-SEA CABLE ALIGNMENT AND C/L
 - SURVEYED TIDAL WETLANDS (REF: AECOM)
 - UPPER EXTENT OF TIDAL WETLAND ADJACENT

PROFESSIONAL OF RECORD: DOB

RA/PE: _____
 LICENSE NO. _____
 STATE: _____
 DATE: _____

DISCLAIMER: IT IS A VIOLATION OF THE PROFESSIONAL LICENSE LAW FOR ANY PERSON TO ALTER THIS DRAWING IN ANY WAY, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER/ARCHITECT AS APPLICABLE. THE ALTERNATION ENGINEER/ARCHITECT SHALL AFFIX HIS/HER SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS/HER SIGNATURE AND DATE OF ALTERATION.

PRELIMINARY NOT FOR CONSTRUCTION

ARCHITECT/ENGINEERS:

Jacobs

CONSULTANT TYPE: _____

JACOBS CIVIL CONSULTANTS INC.
 JE ARCHITECTS/ENGINEERS P.C.
 1 PENN PLAZA, SUITE 5420
 NEW YORK, NY 10119
 P: +1 646 908 6550, W: www.jacobs.com

CONSULTANT TYPE: _____

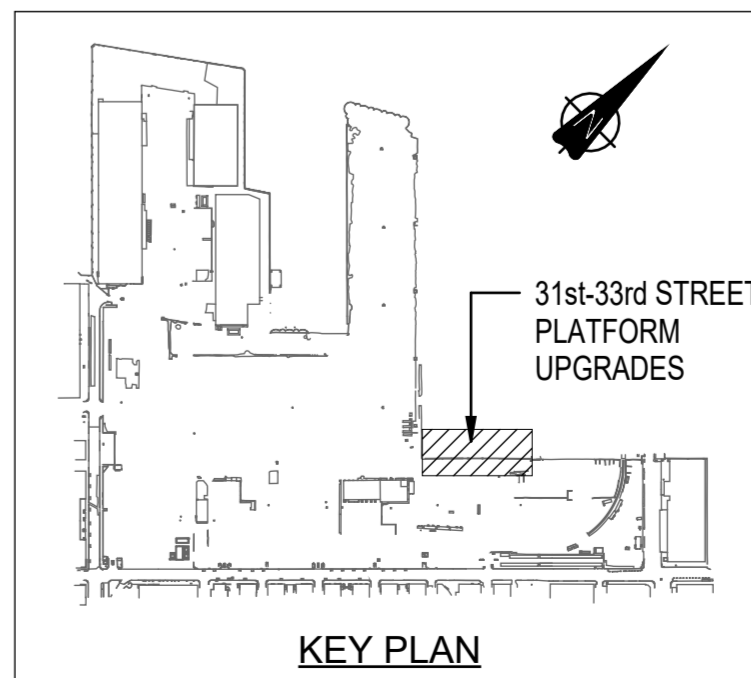
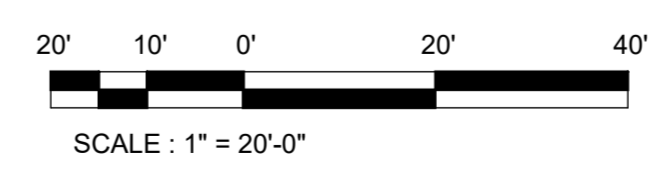
CERTIFICATE OF AUTHORIZATION #00115863

31ST-33RD PLATFORMS OVERALL LAYOUT PLAN
 SCALE 1" = 20'-0"

For permitting only.
 Not for construction

- HOLD LIST:**
- THE INTERFACE AT SOUTH GRAVITY WALL IS PENDING SITE TRIAL PIT AND CORING INSPECTIONS. THE EXACT AS-BUILT EXTENTS SHALL ALSO BE VERIFIED ON SITE BY THE CONTRACTOR.
 - THE INTERFACE AT NORTH GRAVITY WALL IS PENDING SITE TRIAL PIT AND CORING INSPECTIONS. THE EXACT AS-BUILT EXTENTS SHALL ALSO BE VERIFIED ON SITE BY THE CONTRACTOR.

- CONSTRUCTION SEQUENCE FOR CABLE LANDFALL AREA:**
- INSTALL A SHEET PILE WALL BEHIND THE EXISTING TIMBER SHEET PILE (REFER SR195, SR196, SR392, SR393).
 - DEMOLISH EXISTING LOW-LEVEL PLATFORM.(REFER DEMOLITION DRAWNGS SR 193, SR194 FOR DETAILS).
 - INSTALL TOE WALL SHEET PILES ON SEA-SIDE OF PROPOSED NEW HIGH LEVEL PLATFORM (REFER SR195/SR196 FOR DETAILS).
 - INSTALL NEW PILE SUPPORTED HIGH LEVEL PLATFORM AS SHOWN IN THIS LAYOUT.
 - EXCAVATE LOCAL DREDGE PITS FOR CONDUIT INSTALLATION (REFER SY303 FOR DETAILS).
 - INSTALL CONDUITS THROUGH BULKHEAD WALL AND PROVIDE SCOUR PROTECTION OVER CABLE PROTECTION PIPE.
 - INSTALL SUB-SEA EXPORT CABLE FROM ANCHOR TO SHORE.



REV.	DATE	REASON FOR ISSUE	PREPARED	CHECKED	APPROVED
05	05/02/23	90% DESIGN COMPLETE	JL/KC	VP	TK
04	12/19/22	60% DESIGN COMPLETE	JL/KC	TK	AW
03	11/14/22	ISSUED FOR 60% DESIGN REVIEW	JL/KC	TK	AW
02	09/14/22	RESUBMISSION OF 30% DESIGN	JL/KC	TK	AW
01	06/13/22	ISSUED FOR 30% DESIGN REVIEW	JL/KC	TK	AW

OWNER/CIENT:

PROJECT (PLANT): **Regional O&M Facility**
 SOUTH BROOKLYN MARINE TERMINAL
 2ND AVENUE, BROOKLYN, NY 11232

SBMT ASSET, LLC
 600 WASHINGTON BLVD
 STAMFORD, CT 06901
 P: +1 203 978 6900, W: www.equinor.com

CONTR. NO. C250-EQ-Z-SP-00003

31st-33rd ST BAY PLATFORMS OVERALL LAYOUT Copy 1

AS SHOWN	D	DOB BSCAN	
SCALE	SIZE	AREA	SYSTEM

E297-JE-N-XE-00030-01 DWG NO. **SY101.**

EQUINOR REF. NO. _____ PAGE NO. _____

NOTES:

1. FOR GENERAL NOTES, REFER TO "G" SERIES DRAWINGS.
2. ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE NOTED.
3. ALL LEVELS INDICATED ARE RELATIVE TO NAVD88 DATUM. 0.00 MLLW = -2.86' NAVD88.
4. REFER TO SY101 FOR OVERALL SETTING LAYOUT OF CONCRETE PAD PLATFORMS. REFER TO PAGE SY102 AND SY103 FOR PARTIAL LAYOUT.
5. CONCRETE PAD PLATFORMS DESIGNED FOR 500 PSF SURCHARGE.

LEGEND:

- LP LOW POINT
- HP HIGH POINT
- SCOUR PROTECTION ROCK
- CABLE TRENCH ROCK / BEDDING ROCK
- PRECAST PRESTRESSED PLANKS

PROFESSIONAL OF RECORD: RA/PE: LICENSE NO. STATE: DATE:

DISCLAIMER: IT IS A VIOLATION OF THE PROFESSIONAL LICENSE LAW FOR ANY PERSON TO ALTER THIS DRAWING IN ANY WAY, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER/ARCHITECT AS APPLICABLE. THE ALTERNATION ENGINEER/ARCHITECT SHALL AFFIX HIS/HER SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS/HER SIGNATURE AND DATE OF ALTERATION.

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ARCHITECT/ENGINEERS:

Jacobs CONSULTANT TYPE:

JACOBS CIVIL CONSULTANTS INC.
JE ARCHITECTS/ENGINEERS P.C.
1 PENN PLAZA, SUITE 5420
NEW YORK, NY 10119
P: + 1 646 908 6550, W: www.jacobs.com
CERTIFICATE OF AUTHORIZATION #00115863

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OWNER/CLIENT: SBMT ASSET, LLC
600 WASHINGTON BLVD
STAMFORD, CT 06901
P: +1 203 978 6900, W: www.equinor.com

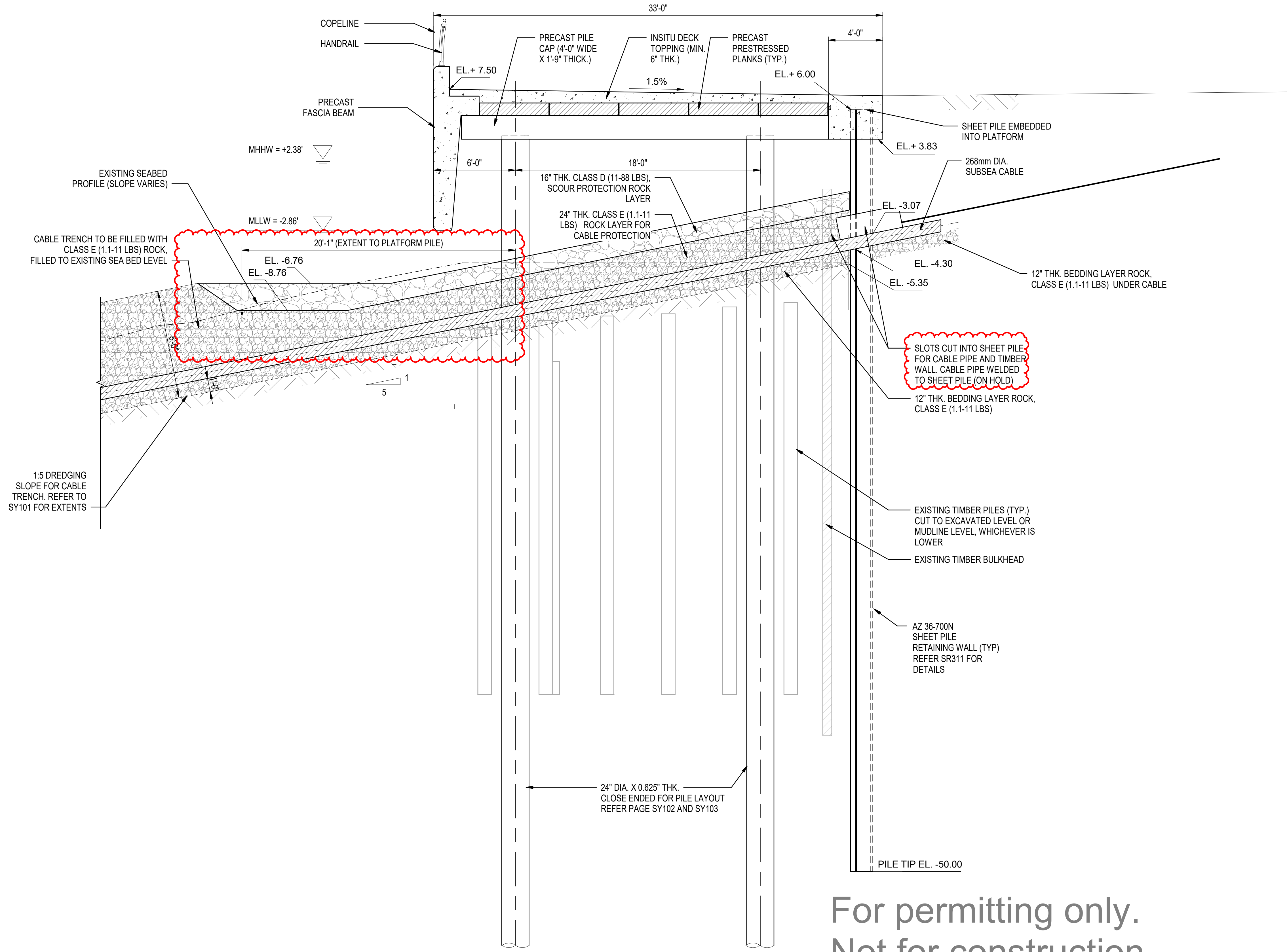
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SOUTH BROOKLYN MARINE TERMINAL
2ND AVENUE, BROOKLYN, NY 11232

DRAWING TITLE: **31ST-33RD ST BAY PLATFORMS SECTIONS SHEET 3 OF 5**

CONTR. NO.	C250-EQ-Z-SP-00003	AS SHOWN	D	SCALE	SIZE	AREA	SYSTEM	DOB BSCAN	
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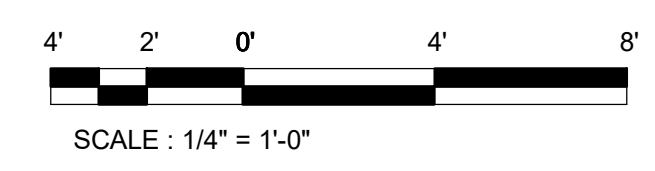
DWG NO. **SY303**
PAGE NO.



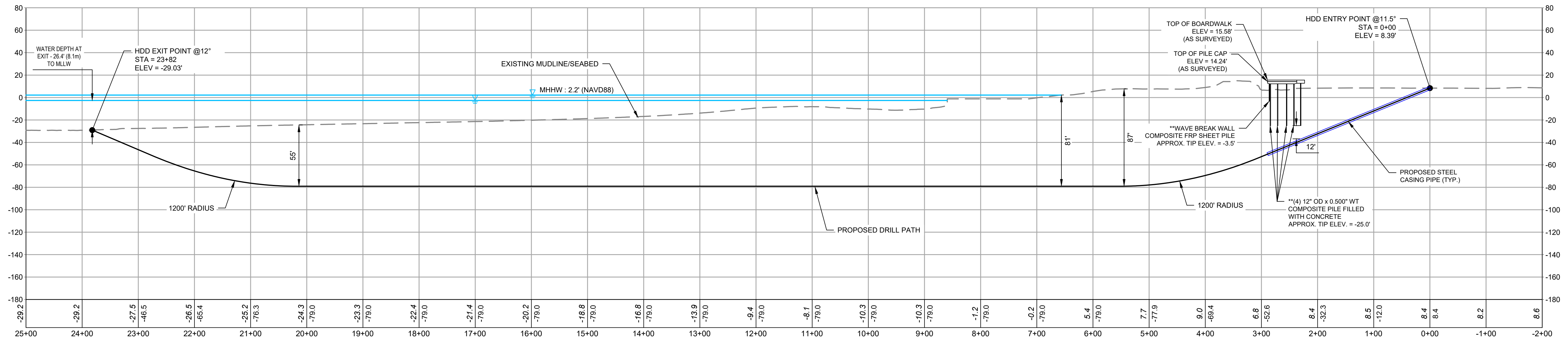
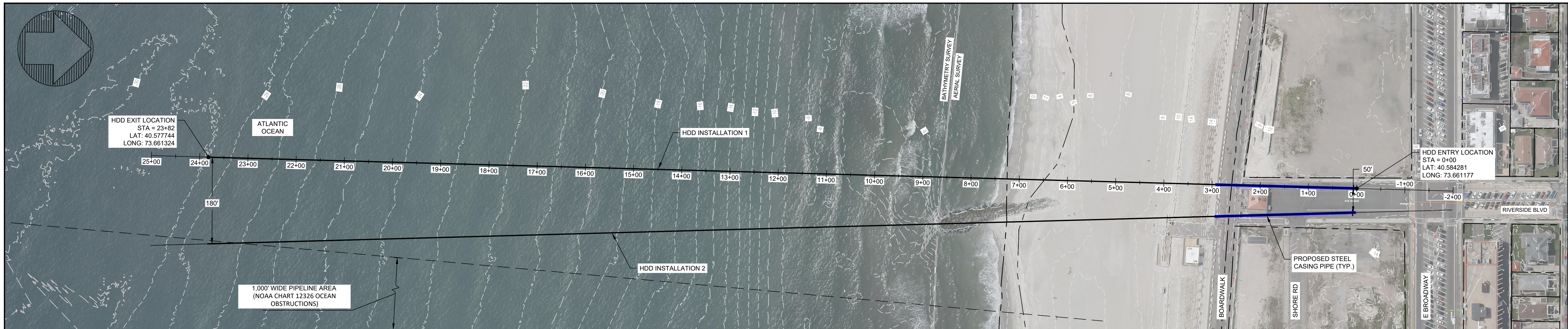
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SECTION AT CABLE LANDFALL -2 LOCATION

SECTION D
SCALE 1/4" = 1'-0"
SY103



PLOT DATE/TIME: 6/13/2023 11:44:53 AM Autodesk Docs://EBXG2900-SBMT-EW1/EBXG2900-SBMT_V22_M_31st33rdPier_CTY_Berth.rvt

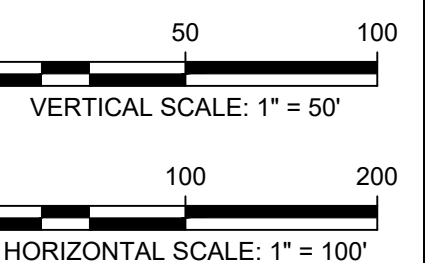


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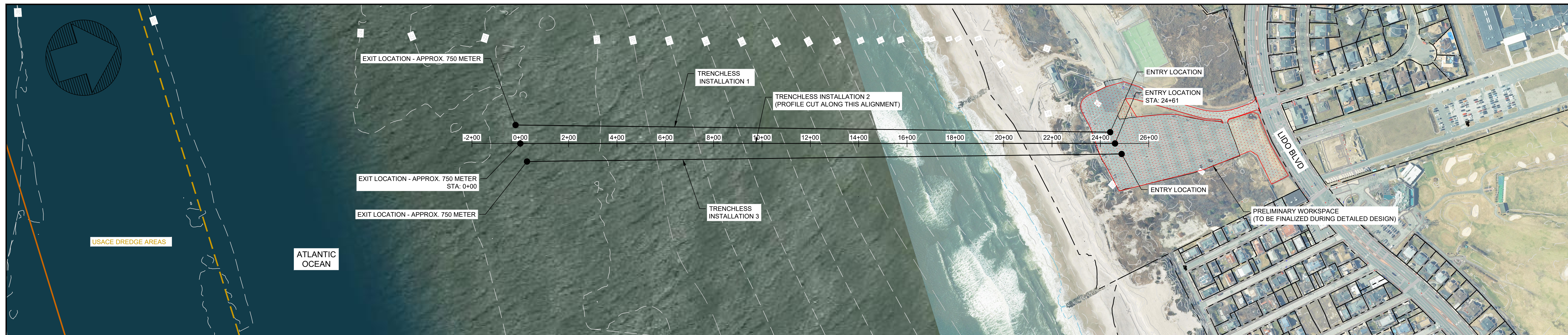
NOTES:

1. LOCATION AND ALIGNMENT OF ALL UTILITIES ARE TO BE FIELD VERIFIED.
2. PROPOSED CABLE ALIGNMENTS SHOWN MAY BE ADJUSTED DUE TO UNFORESEEN CONDITIONS.
3. THE SURVEYED CONTOURS (ONSHORE) AND IMAGERY SHOWN ARE FROM AN AERIAL FLIGHT FLOWN ON 04/23/2021 PROVIDED BY ROBINSON AERIAL.
4. BATHYMETRIC DATA PROVIDED BY EQUINOR. RECEIVED 08/11/2021.
5. PROPERTY LINES SHOWN ON THIS MAP ARE TAX MAP GRADE AND NOT A RESULT OF A BOUNDARY SURVEY.
6. HORIZONTAL DATUM IS NAD83, NEW YORK STATE PLANE, LONG ISLAND US FOOT. VERTICAL DATUM IS NAVD1988.
7. CONVERSION FOR VERTICAL DATUM IS NAVD88 + 2.6' = MLLW.
8. ALL ELEVATION SHOWN IN PROFILE REPRESENT NAVD88.
9. ** BOARDWALK PILE CAP, PILES AND WAVE BREAK WALL DIMENSIONS AND DEPTHS TAKEN FROM PROJECT TITLED "RECONSTRUCTION OF LONG BEACH BOARDWALK", DATED MAY 8, 2013, DRAWING NUMBER 13066-1. PRODUCED BY VACHRIS ENGINEERING.

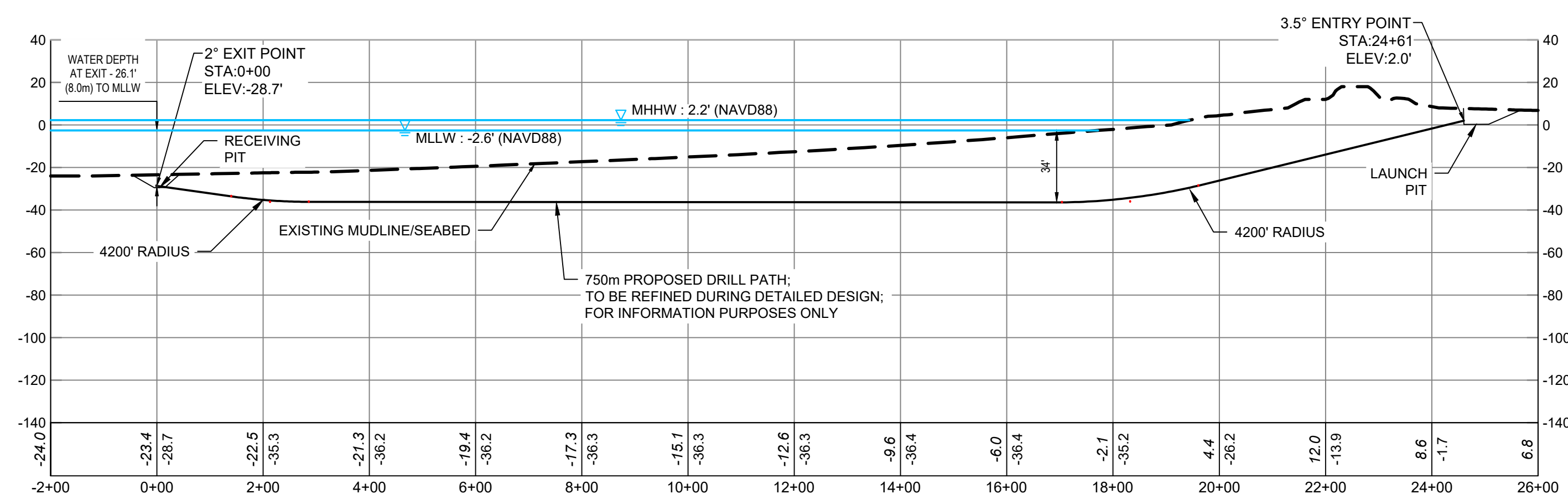


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<p>Mott MacDonald NY Inc. 111 Wood Avenue South Iselin, NJ 08830-4112 Certificate of Authorization #: 0017019 www.mottmacamericas.com</p>	<p>Client: EMPIRE OFFSHORE WIND LLC.</p>	<table border="1"> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </table>																				<table border="1"> <tr><td>Designed</td><td>KN</td><td>Eng check</td><td>KN</td></tr> <tr><td>Drawn</td><td>JSR</td><td>Coordination</td><td>AP</td></tr> <tr><td>Dwg check</td><td>KEK</td><td>Approved</td><td>MDN</td></tr> <tr><td>Scale at ANSI D</td><td>Status</td><td>Rev</td><td>Security</td></tr> <tr><td>As Shown</td><td>PRE</td><td>D</td><td>STD</td></tr> <tr><td>Drawing Number</td><td colspan="3">LANDFALL A - HDD 1</td></tr> </table>				Designed	KN	Eng check	KN	Drawn	JSR	Coordination	AP	Dwg check	KEK	Approved	MDN	Scale at ANSI D	Status	Rev	Security	As Shown	PRE	D	STD	Drawing Number	LANDFALL A - HDD 1			<p>Title: EMPIRE OFFSHORE WIND LLC. EMPIRE WIND 2 PROJECT LANDFALL A - HDD INSTALLATION 1 NASSAU COUNTY, NEW YORK ISSUED FOR COP</p>			
Designed	KN	Eng check	KN																																																		
Drawn	JSR	Coordination	AP																																																		
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<p>Project Number: 505100001</p>		<table border="1"> <tr><td>Rev</td><td>Date</td><td>Drawn</td><td>Description</td><td>Ch'k'd</td><td>App'd</td></tr> <tr><td>D</td><td>06/16/2023</td><td>JSR</td><td>RE-ISSUED FOR COP</td><td>KEK</td><td>MDN</td></tr> <tr><td>C</td><td>03/23/2022</td><td>DOW</td><td>RE-ISSUED FOR COP</td><td>KEK</td><td>MDN</td></tr> <tr><td>B</td><td>06/03/2021</td><td>DOW</td><td>RE-ISSUED FOR COP</td><td>KEK</td><td>MDN</td></tr> <tr><td>A</td><td>11/22/2019</td><td>DOW</td><td>ISSUED FOR COP</td><td>KEK</td><td>MDN</td></tr> </table>		Rev	Date	Drawn	Description	Ch'k'd	App'd	D	06/16/2023	JSR	RE-ISSUED FOR COP	KEK	MDN	C	03/23/2022	DOW	RE-ISSUED FOR COP	KEK	MDN	B	06/03/2021	DOW	RE-ISSUED FOR COP	KEK	MDN	A	11/22/2019	DOW	ISSUED FOR COP	KEK	MDN	<p>Date: _____</p>		<p>Project Number: 505100001</p>		<p>BIO: _____ Total: _____</p>															
Rev	Date	Drawn	Description	Ch'k'd	App'd																																																
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A	11/22/2019	DOW	ISSUED FOR COP	KEK	MDN																																																



TRENCHLESS INSTALLATION - PLAN VIEW
HORIZONTAL SCALE: 1" = 200'



750m LENGTH DIRECT PIPE - PROFILE VIEW (TRENCHLESS INSTALLATION 2)
HORIZONTAL SCALE: 1" = 200'
VERTICAL SCALE: 1" = 50'

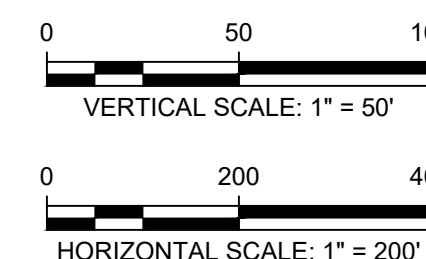
NOTES:
EMPIRE IS PROPOSING A TOTAL OF UP TO THREE TRENCHLESS LANDFALL INSTALLATIONS AT UP TO TWO LANDFALL LOCATIONS WITHIN THE PDE. THE INTENT OF THIS DRAWING IS TO SHOW THE GENERAL ALIGNMENT OF THE DIRECT PIPE CONCEPT IN PLAN VIEW AND REPRESENTATIVE PROFILE FOR 750m LENGTH INSTALLATIONS.

- NOTES:**
1. LOCATION AND ALIGNMENT OF ALL UTILITIES ARE TO BE VERIFIED FOLLOWING SITE INVESTIGATION.
 2. PRELIMINARY CABLE ALIGNMENTS SHOWN MAY BE ADJUSTED AS THE DESIGN PROGRESSES.
 3. MOTT MACDONALD HAS NOT CONDUCTED CIVIL SURVEY WITHIN THE AREA SHOWN.
 4. AERIAL DATA PROVIDED BY PUBLICLY AVAILABLE SOURCES.
 5. EXISTING CONTOURS ARE FROM PUBLIC SOURCES (NY GIS CLEARINGHOUSE) AND ARE NOT THE RESULT OF A CIVIL SURVEY.
 6. BATHYMETRIC DATA IS FROM PUBLIC SOURCES (NOAA). ADDITIONAL SURVEY WILL BE REQUIRED TO VERIFY EXACT LOCATION OF MUDLINE.
 7. HORIZONTAL DATUM IS NAD83, NEW YORK STATE PLANE, LONG ISLAND US FOOT. VERTICAL DATUM IS NAVD1988.
 8. CONVERSION FOR VERTICAL DATUM IS NAVD88 + 2.6' = MLLW.
 9. ALL ELEVATION SHOWN IN PROFILE REPRESENT NAVD88.
 10. DRAWING IS FOR PERMITTING PURPOSES ONLY, NOT FOR CONSTRUCTION.

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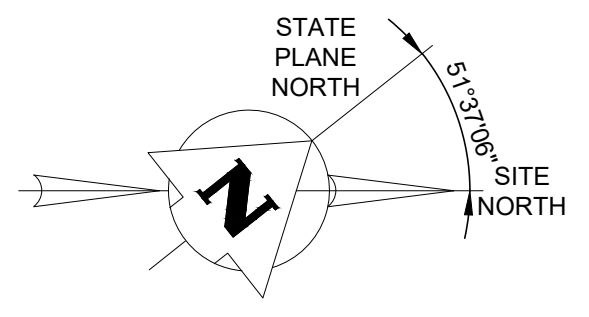
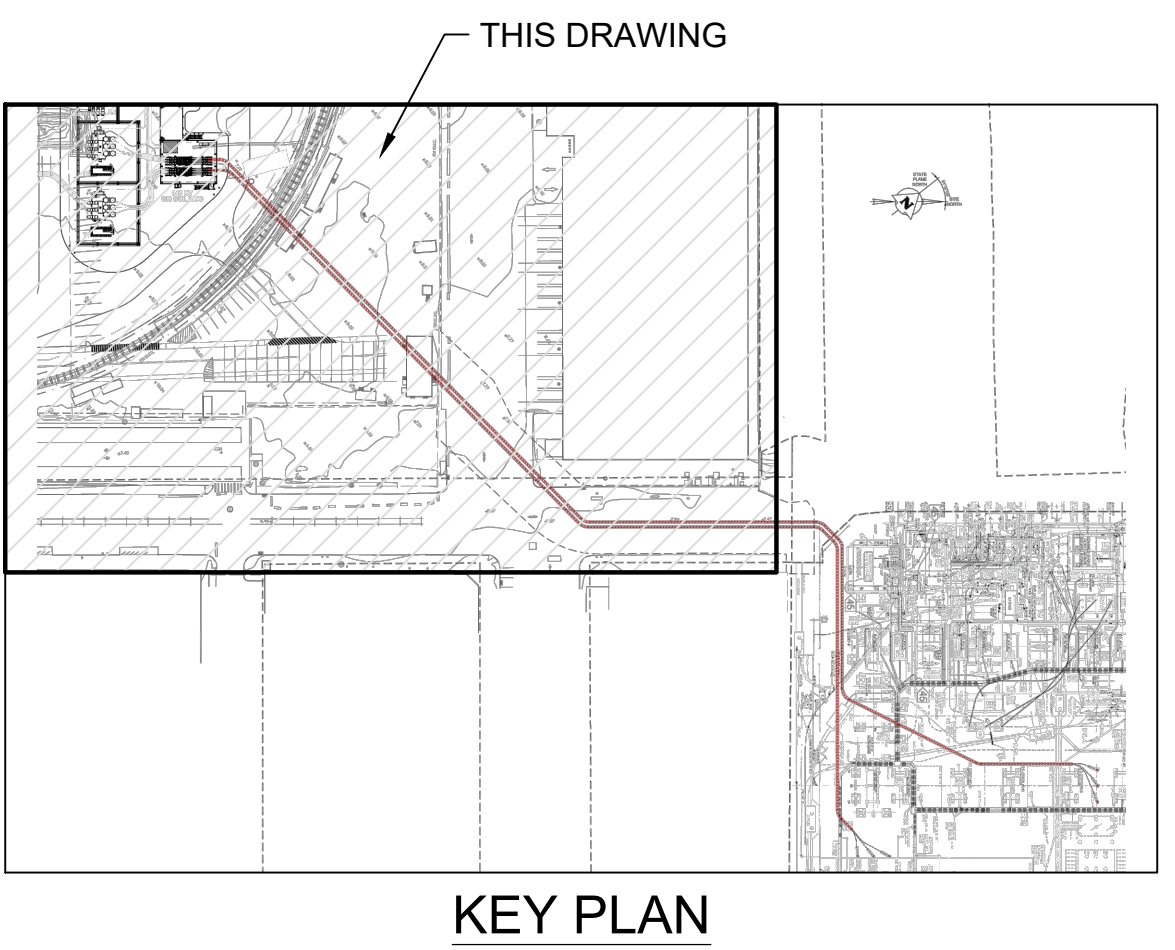
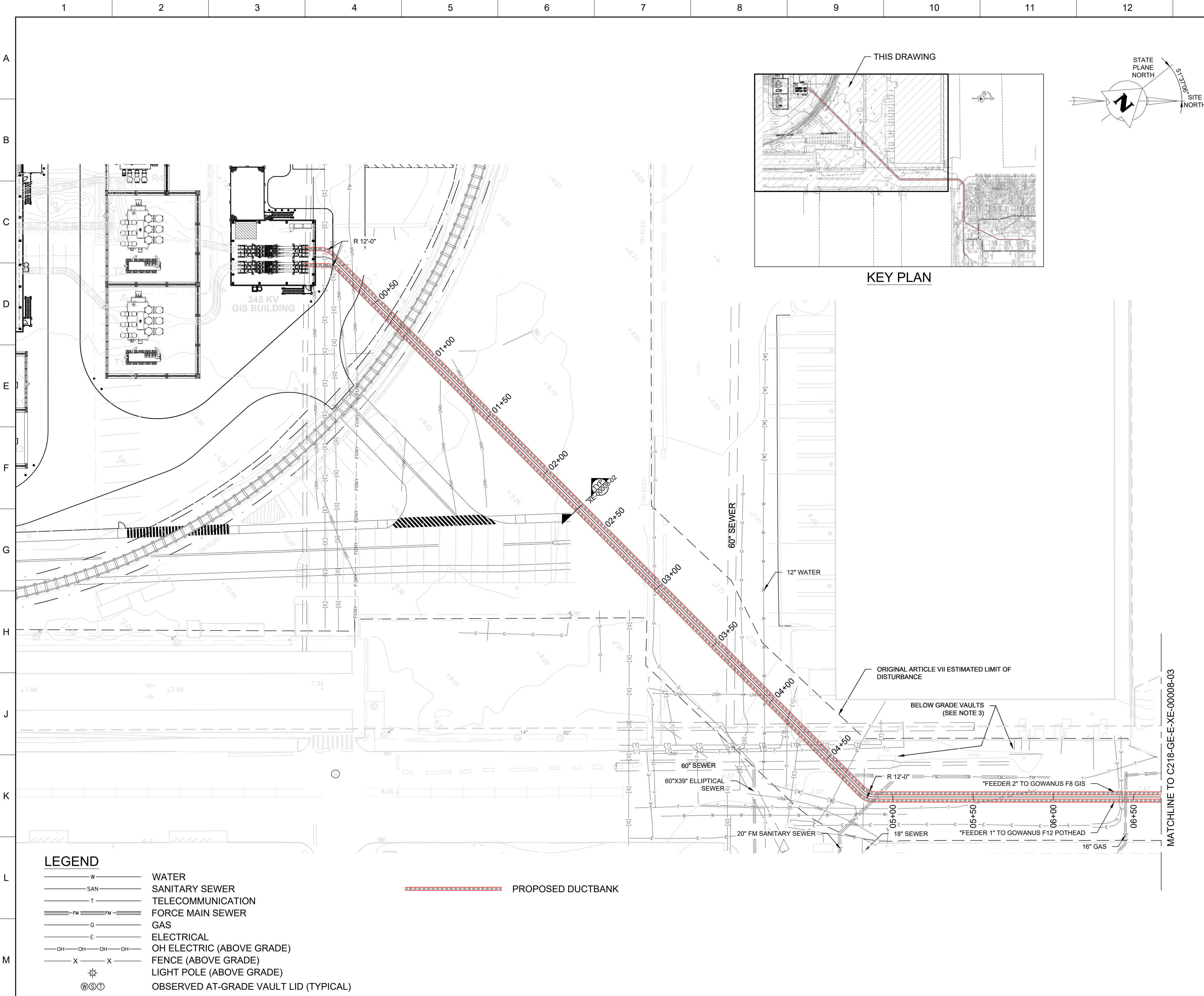


	Mott MacDonald NY Inc. 111 Wood Avenue South Iselin, NJ 08830-4112 Certificate of Authorization #: 0017019 www.mottmacamericas.com		Client				Title EMPIRE OFFSHORE WIND LLC. EMPIRE WIND 2 EXAMPLE OF DIRECT PIPE LANDFALL (EW2; LANDFALL C) NASSAU COUNTY, NEW YORK RE-ISSUED FOR COP					
			Project Number 505100001	B/O	Total	Designed MDN	Eng check MDN	Drawn DOW	Coordination KEK	Dwg check KEK	Approved MDN	
Rev	Date	Drawn	Description	Ch'k'd	App'd	Scale at ANSI D As Shown			Status PRE	Rev B	Security STD	Drawing Number LANDFALL C

ATTACHMENT E-3

ONSHORE CABLE ROUTES CONCEPTUAL DRAWINGS

- EW 1 Onshore Interconnection Cable: Proposed Routing Alternative
- EW 2 Onshore Export Cable: Proposed Routing Alternatives



- NOTES:**
- UTILITY AND SURVEY INFORMATION IS DERIVATIVE AND SHOWN FOR PURPOSES OF ROUTE DESIGN. LOCATION, ALIGNMENT, AND DEPTH OF ALL UTILITIES SHALL BE VERIFIED BY CONTRACTORS RESPONSIBLE FOR LOCATION OF THE EXISTING UTILITIES AND CONSTRUCTION OF THE NEW UTILITIES.
 - UTILITIES SHOWN ALONG ROUTE ARE GENERALLY BELOW GRADE UNLESS OTHERWISE NOTED. AT OR ABOVE GRADE FEATURES ARE ITEMS SUCH AS FENCE, SIDEWALKS, OVERHEAD ELECTRIC AND BUILDINGS.
 - VAULT DEPTHS ARE APPROXIMATELY 10 FEET BELOW GRADE. ROUTING TO THE EAST SIDE AS SHOWN IS DEEMED NECESSARY.
 - 60% DESIGN FORMS A BASIS FOR SUBURFACE UTILITY LOCATIONS AND TEST PIT EFFORTS TO VALIDATE FINAL FEASIBILITY OF ROUTE. UTILITIES ARE A COMPOSITE OF:
 - FINAL ALTA SURVEY "4310-000A-ALTA-EQUINOR", DATED 2022-04-27.
 - SBMT SURVEY FOR PROJECT NAME# "SSBMT MSA/60634524" BY AECOM DATED 2020-12-18.
 - ARTICLE VII UTILITY COMPOSITE EWI_NYCDOT_REVCONSNT_AREA1_DRAFT_2022_03_21.PDF".
 - 2201077 EMPIRE WIND 1 TEST PIT REPORT, REV. 1 DATED NOVEMBER 11, 2022 BY BL COMPANIES.
 - REFERENCE EQUINOR SPECIFICATION C218-EQ-E-SP-00002, TECHNICAL SPECIFICATION, ONSHORE INTERCONNECTION CABLES

N°	TITLE	DRAWING NUMBER
7	PLAN & PROFILES 345KV INTERCONNECT TO GOWANUS DUCTBANK	C218-GE-E-XE-00008-04
6	PLAN & PROFILES 345KV INTERCONNECT TO GOWANUS DUCTBANK	C218-GE-E-XE-00008-03
5	PLAN & PROFILES 345KV INTERCONNECT TO GOWANUS DUCTBANK	C218-GE-E-XE-00008-02
4	OPEN CUT UNDER RAILROAD SUBSTATION ONS	C218-GE-Q-YV-00002-01
3	345KV GIS BUILDING FOUNDATION ONS PLANS AND SECTIONS	C218-GE-N-XE-00007-02
2	SECTIONS & DETAILS 345KV INTERCONNECT TO GOWANUS DUCTBANK	C218-GE-E-XS-00008-01
1	GENERAL ARRANGEMENT ELECTRICAL LAYOUT ONS	C218-GE-E-XE-00001-01

**PRELIMINARY
NOT FOR CONSTRUCTION**

ORIGINALLY PREPARED UNDER THE RESPONSIBLE SUPERVISION OF PE: _____ STATE: _____ DATE: _____ LIC. NO.: _____ DATE: _____			
WORLEY ORIGINATING PERSONNEL			
LEAD DESIGNER J ACKERMAN ENGINEER/TECH SPECIALIST		WORLEY OF NEW YORK, INC ONE MERIDIAN BLVD, SUITE 2C02 WYOMISSING, PENNSYLVANIA 19610 TEL: 610-855-2000 COA No. 099134	
PROJECT ENGINEERING MANAGER R MCALISTER			
PROJECT ENGINEERING MANAGER T EVANS			
GE DRAWING NUMBER: 22996-ONS-WPS-1120-CW-001-01	GE REV C	SHEET 1	TOTAL SHTS 2
GE REV DESCRIPTION: ISSUED FOR 60%	DATE 2022-11-23	DRAWN JA	CHECKED RM
PROJECT NAME: EMPIRE WIND 1 - ELECTRIC SYSTEM DESIGN AND ONSHORE SUBSTATION EPC			

Grid Solutions

**BOND
Civil & Utility**

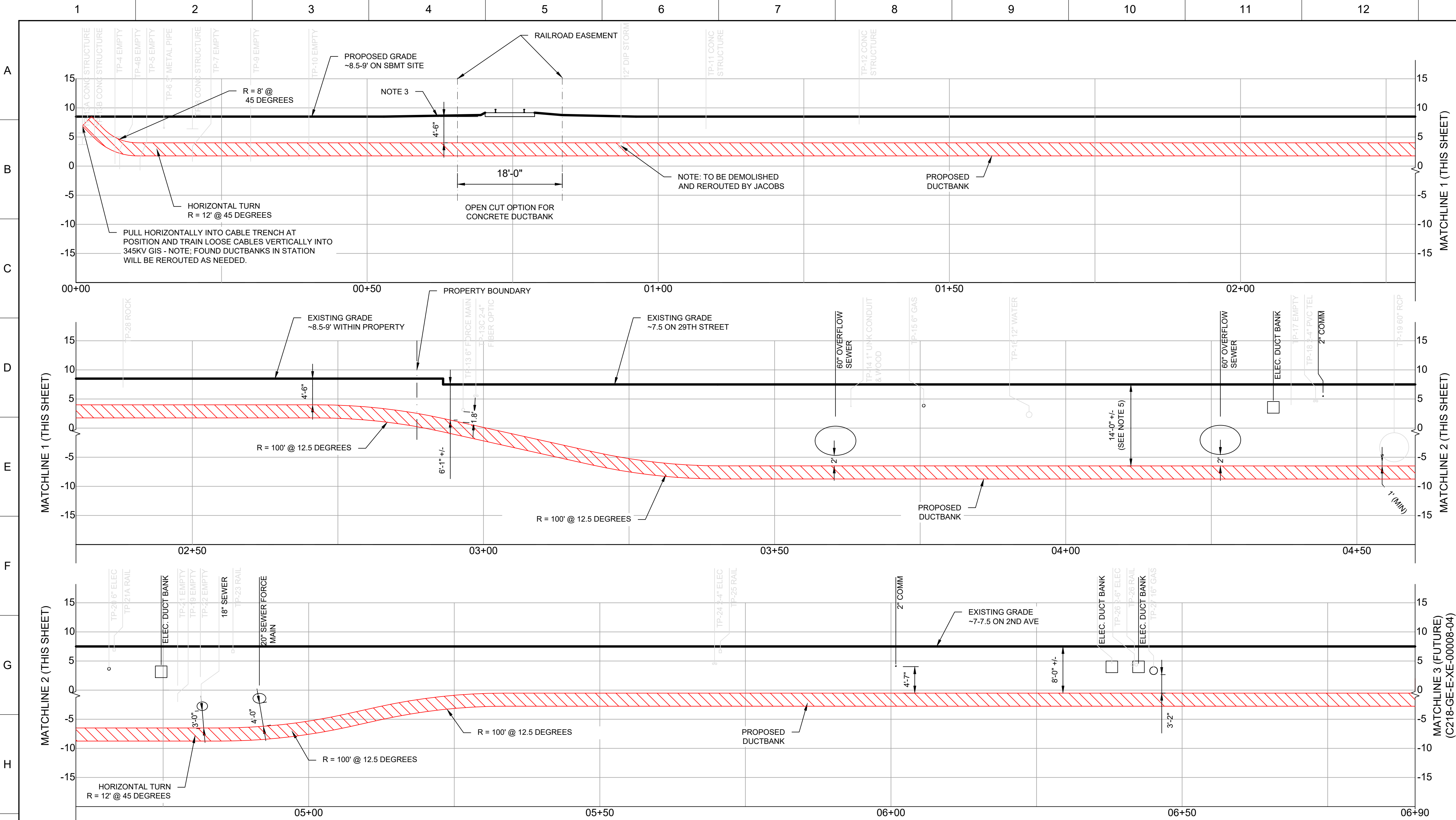
Worley
energy | chemicals | resources

REV.	DATE	REASON FOR ISSUE	PREPARED	CHECKED	APPROVED
03	2022-11-23	ADDED BL LOCATED TEST PIT INFO AND QLB UTILITIES	JA	RM	
02	2022-07-29	ISSUED FOR CONCEPT; INCORP. 30% COMMENTS	JA	RM	
01	2022-06-24	ISSUED FOR CONCEPT	JA	RM	

	EMPIRE WIND 1 DRAWING TITLE: PLAN & PROFILE 345KV INTERCONNECT TO GOWANUS - ONS	
	CONTR. NO 4504065370	92
1" = 30'-0" AT D	-	03
SCALE	SIZE	AREA
DRAWING NUMBER		REV.

LEGEND

— W —	WATER	=====	PROPOSED DUCTBANK
— SAN —	SANITARY SEWER		
— T —	TELECOMMUNICATION		
— FM — FM —	FORCE MAIN SEWER		
— G —	GAS		
— E —	ELECTRICAL		
— OH — OH — OH — OH —	OH ELECTRIC (ABOVE GRADE)		
— X — X —	FENCE (ABOVE GRADE)		
⊙	LIGHT POLE (ABOVE GRADE)		
⊙	OBSERVED AT-GRADE VAULT LID (TYPICAL)		



- NOTES:**
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 - MAINTAIN DEPTHS APPROXIMATELY AS SHOWN; 5'-6" OUTSIDE OF THE SBMT PROPERTY (EXCEPT FOR THE PORTION BEFORE THE VERTICAL TRANSITION IN 27TH ST) AND 4'-6" BELOW GRADE WITHIN THE SBMT PROPERTY.
 - THE 4'-6" DIMENSION WITHIN THE SBMT PROPERTY SHALL BE STRICTLY HELD TO THE BOTTOM OF THE RAIL AT THE RAIL CROSSING. MINIMUM DEPTH TO GRADE SHALL BE AT LEAST 3'-0" TO THE TOP OF THE DUCTBANK ENCASMENT, EXCEPT WHERE CABLES RISE TO THEIR TERMINAL POSITIONS.
 - REFERENCE EQUINOR SPECIFICATION C218-EQ-E-SP-00002, TECHNICAL SPECIFICATION, ONSHORE INTERCONNECTION CABLES
 - DIMENSIONS TO GRADE ARE APPROXIMATE AND SHALL BE FORMED BY MAINTAINING A MINIMUM OF 1'-0" WHEN CROSSING ALL UTILITIES. TOLERANCES SHOULD BE TAKEN AS 1/8TH OF AN INCH.

7	PLAN & PROFILES 345KV INTERCONNECT TO GOWANUS DUCTBANK	C218-GE-E-XE-00008-04
6	PLAN & PROFILES 345KV INTERCONNECT TO GOWANUS DUCTBANK	C218-GE-E-XE-00008-03
5	PLAN & PROFILES 345KV INTERCONNECT TO GOWANUS DUCTBANK	C218-GE-E-XE-00008-01
4	OPEN CUT UNDER RAILROAD SUBSTATION ONS	C218-GE-Q-YV-00002-01
3	345KV GIS BUILDING FOUNDATION ONS PLANS AND SECTIONS	C218-GE-N-XE-00007-02
2	SECTIONS & DETAILS 345KV INTERCONNECT TO GOWANUS DUCTBANK	C218-GE-E-XS-00008-01
1	GENERAL ARRANGEMENT ELECTRICAL LAYOUT ONS	C218-GE-E-XE-000001-01

N# TITLE DRAWING NUMBER

REFERENCE DRAWINGS

PE SEAL

**PRELIMINARY
NOT FOR CONSTRUCTION**

ORIGINALLY PREPARED UNDER THE RESPONSIBLE SUPERVISION OF
 RE: _____ STATE: _____
 LIC. NO.: _____ DATE: _____

WORLEY ORIGINATING PERSONNEL

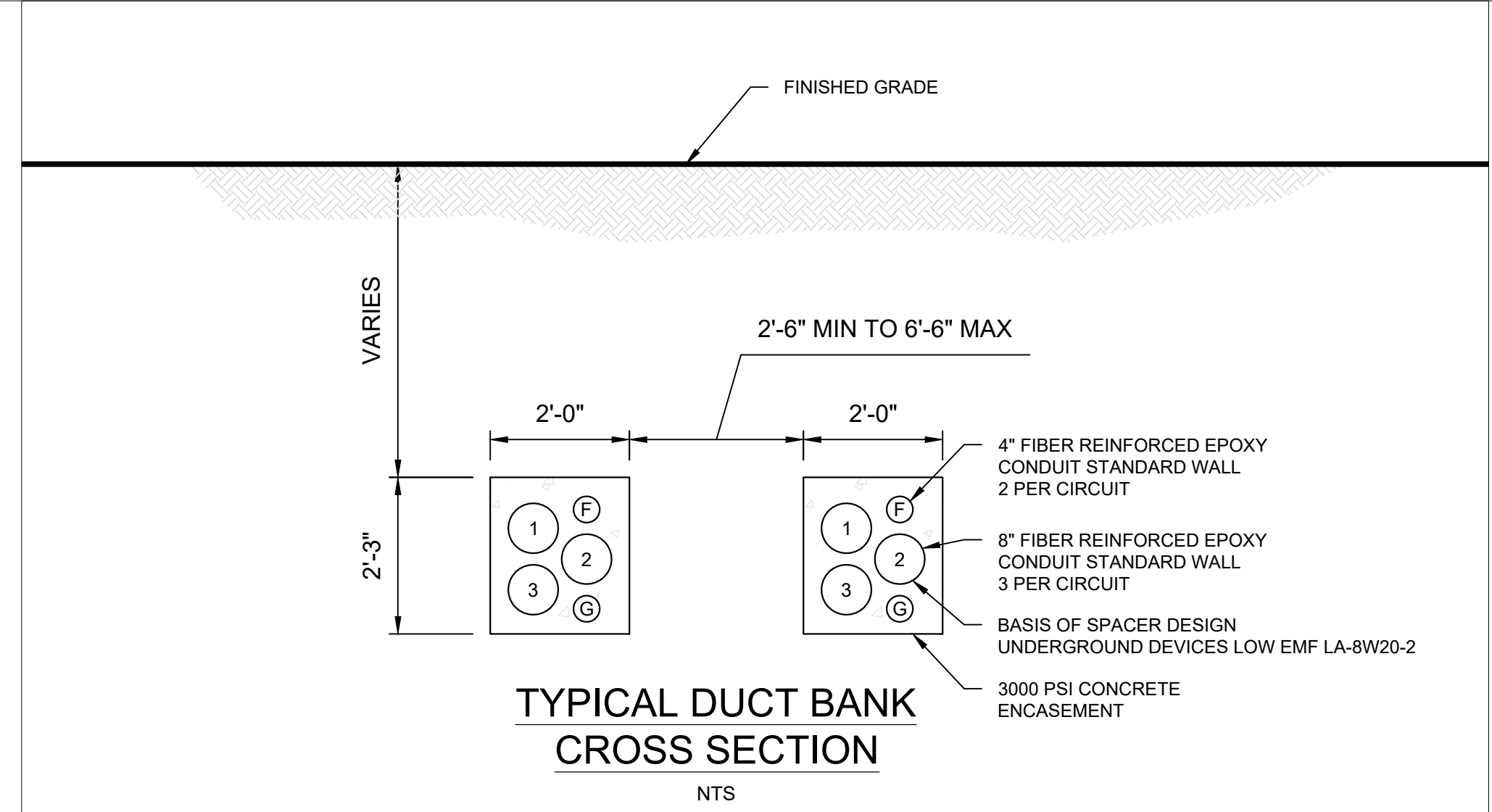
LEAD DESIGNER
J ACKERMAN
 ENGINEER/TECH SPECIALIST

R MCALISTER
 PROJECT ENGINEERING MANAGER

T EVANS

WORLEY OF NEW YORK, INC
 ONE MERIDIAN BLVD, SUITE 2C02
 WYOMISSING, PENNSYLVANIA 19610
 TEL: 610-855-2000
 COA No. 099134

GE DRAWING NUMBER: 22996-ONS-WPS-1120-CW-001-02	GE REV C	SHEET 2	TOTAL SHTS 2
GE REV DESCRIPTION: ISSUED FOR 60%	DATE 2022-11-23	DRAWN JA	CHECKED RM
PROJECT NAME: EMPIRE WIND 1 - ELECTRIC SYSTEM DESIGN AND ONSHORE SUBSTATION EPC			



- TYPICAL CROSS SECTION NOTES:**
- SPACING BETWEEN DUCTBANKS GOVERNED BY CONSTRUCTION MINIMUMS, AND MAXIMUM SPACING PER EQUINOR SPECIFICATION.
 - ELECTROMAGNETIC FIELD CALCULATION TO BE PERFORMED BY CABLE VENDOR TO ENSURE CONFORMANCE TO STATE OF NEW YORK TRANSMISSION LINE EMF STANDARDS AND GUIDELINES.

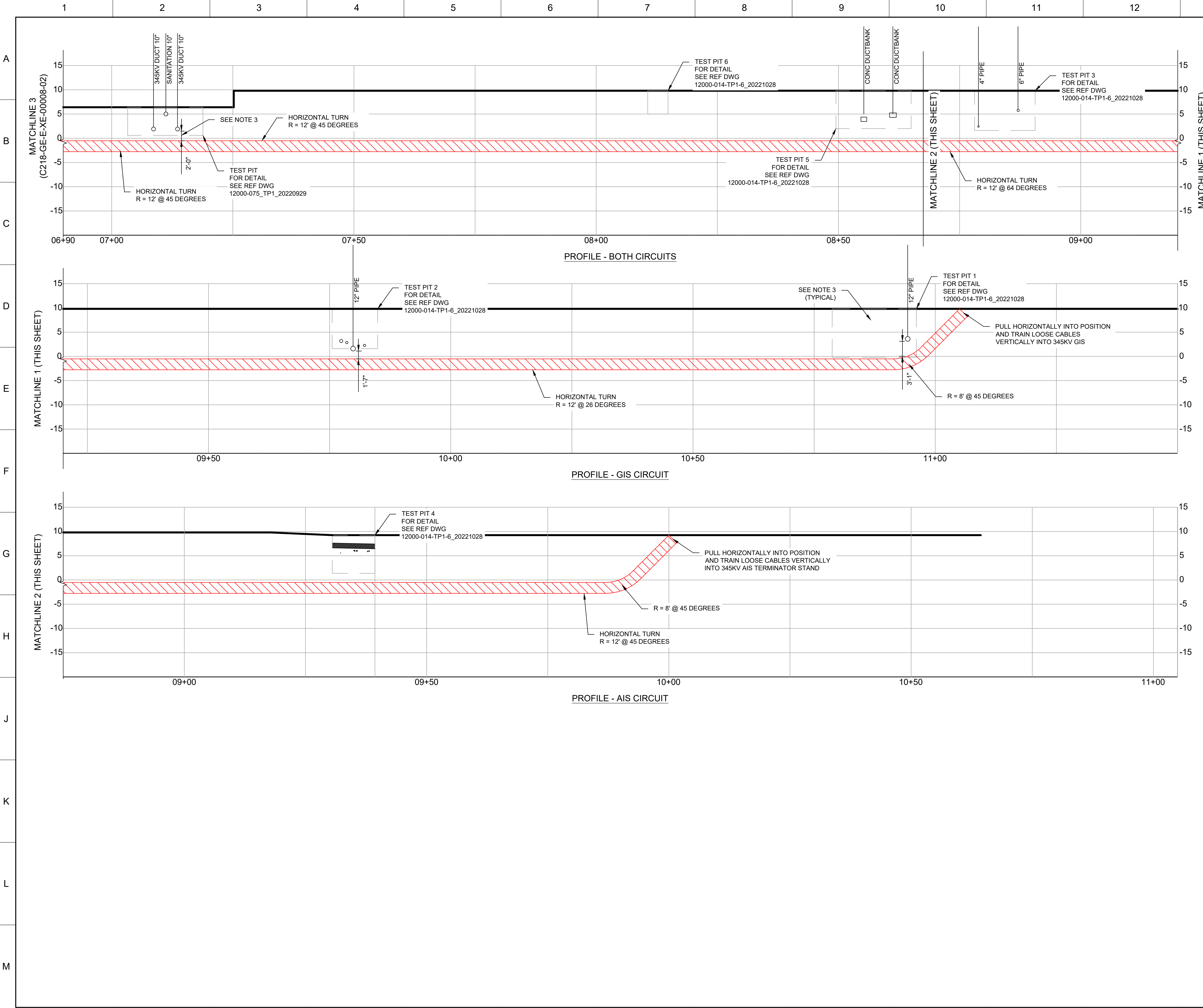
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02	2022-07-29	ISSUED FOR CONCEPT; INCORP. 30% COMMENTS	JA	RM
01	2022-06-24	ISSUED FOR CONCEPT	JA	RM
REV.	DATE	REASON FOR ISSUE	PREPARED	CHECKED

equinor

PLANT
EMPIRE WIND 1

DRAWING TITLE:
**PLAN & PROFILE
345KV INTERCONNECT
TO GOWANUS - ONS**

CONTR. NO. 4504065370	1" = 10'-0"	-	92	C218-GE-E-XE-00008-02	03
SCALE	SIZE	AREA	SYSTEM	DRAWING NUMBER	REV.



- NOTES:**
- UTILITY AND SURVEY INFORMATION IS DERIVATIVE AND SHOWN FOR PURPOSES OF ROUTE DESIGN. LOCATION, ALIGNMENT, AND DEPTH FOR ALL UTILITIES SHALL BE VERIFIED BY CONTRACTORS RESPONSIBLE FOR LOCATION OF THE EXISTING UTILITIES AND CONSTRUCTION OF THE NEW UTILITIES.
 - PERPENDICULAR CROSSING OF EXISTING OIL PIPE CIRCUITS TO MAINTAIN A MINIMUM 1'-0" CLEARANCE. THIS ESTABLISHES THE DEPTH FOR THE ROUTE AFTER RISING BACK UP IN 2ND AVENUE UNTIL FINAL RISE TO POSITIONS WITHIN THE GOWANUS SUBSTATION.
 - MULTIPLE UTILITIES WERE FOUND IN SOME TEST PITS, REFER TO THE TEST PIT INFORMATION FOR DETAILS. IN GENERAL TERMS, THE DEEPEST IS SHOWN TO COORDINATE ULTIMATE REQUIRED DEPTHS.
 - 60% DESIGN FORMS A BASIS FOR SUBURFACE UTILITY LOCATES AND TEST PIT EFFORTS TO VALIDATE FINAL FEASIBILITY OF ROUTE. UTILITIES ARE A COMPOSITE OF:
 - FINAL ALTA SURVEY "4310-000A-ALTA-EQUINOR", DATED 2022-04-27.
 - SBMT SURVEY FOR PROJECT NAME# "SSBMT MSA/60634524" BY AECOM DATED 2020-12-18.
 - ARTICLE VII UTILITY COMPOSITE
 - "EW1_NYCDOT_REVCONSENT_AREA1_DRAFT_2022_03_21.PDF"
 - GOWANUS TEST PIT RESULTS INSIDE STATION "12000-014-TP1-6-2221028"
 - GOWANUS TEST PIT RESULTS CONER 28 & 2ND "12000-075-TP1-20220929"
 - REFERENCE EQUINOR SPECIFICATION C218-EQ-E-SP-00002, TECHNICAL SPECIFICATION, ONSHORE INTERCONNECTION CABLES.
 - DIMENSIONS TO GRADE ARE APPROXIMATE AND SHALL BE FORMED BY MAINTAINING A MINIMUM OF 1'-0" WHEN CROSSING ALL UTILITIES. TOLERANCES SHOULD BE TAKEN AS 1/8TH OF AN INCH.

4	SECTIONS & DETAILS 345KV INTERCONNECT TO GOWANUS DUCTBANK	C218-GE-E-XS-00008-01
3	PLAN & PROFILES 345KV INTERCONNECT TO GOWANUS DUCTBANK	C218-GE-E-XE-00008-03
2	PLAN & PROFILES 345KV INTERCONNECT TO GOWANUS DUCTBANK	C218-GE-E-XE-00008-02
1	PLAN & PROFILES 345KV INTERCONNECT TO GOWANUS DUCTBANK	C218-GE-E-XE-00008-01
N°	TITLE	DRAWING NUMBER

REFERENCE DRAWINGS

PE SEAL

**PRELIMINARY
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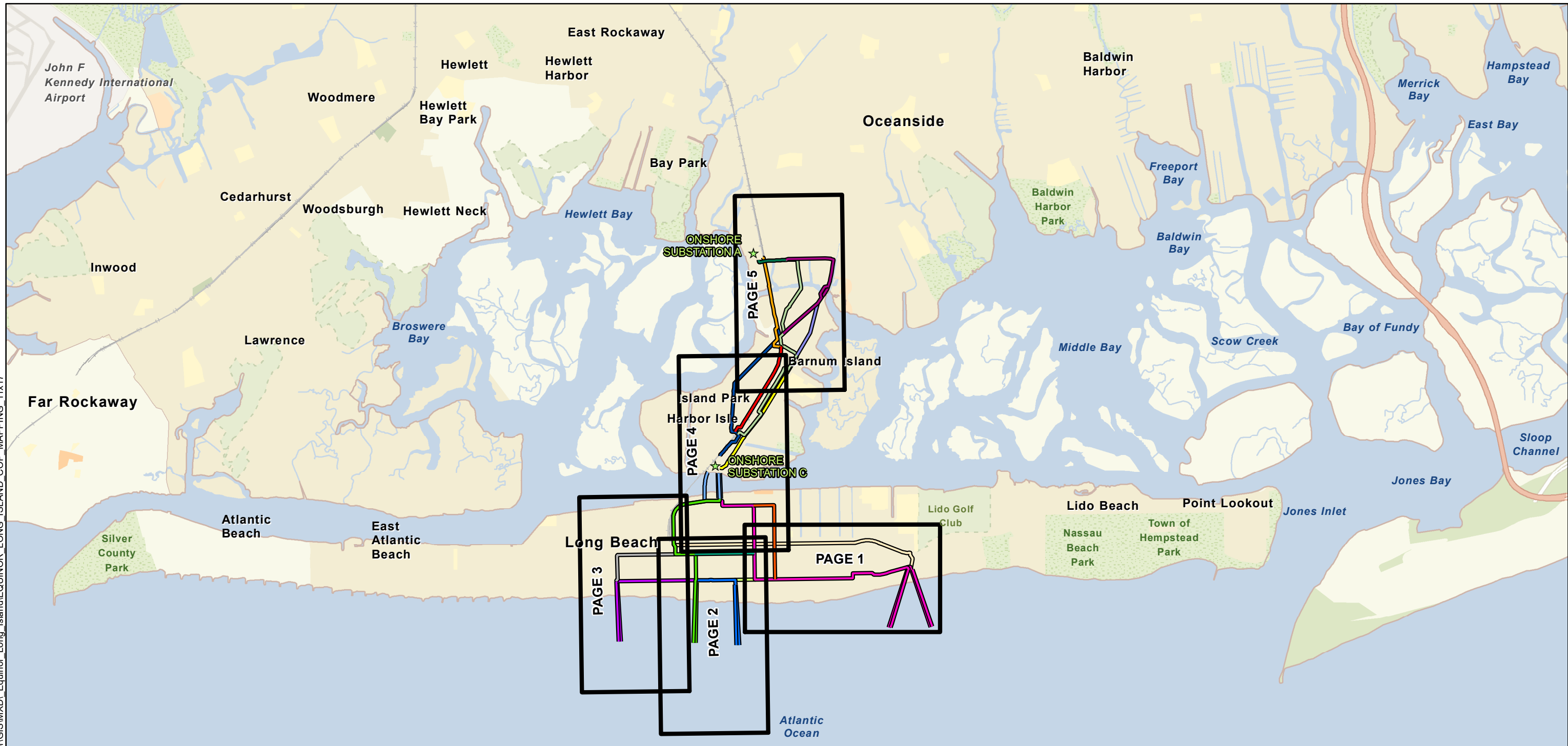
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PE NO.:	STATE:	DATE:	
WORLEY ORIGINATING PERSONNEL			
LEAD DESIGNER J ACKERMAN ENGINEER/TECH SPECIALIST			
PROJECT ENGINEERING MANAGER R MCALISTER PROJECT ENGINEERING MANAGER			
T EVANS			
GE DRAWING NUMBER: 22996-ONS-WPS-1120-CW-001-04	GE REV A	SHEET 1	TOTAL SHTS 1
GE REV DESCRIPTION: ISSUED FOR 60%	DATE 2022-11-23	DRAWN JA	CHECKED RM
PROJECT NAME: EMPIRE WIND 1 - ELECTRIC SYSTEM DESIGN AND ONSHORE SUBSTATION EPC			

 Grid Solutions BOND Civil & Utility	 Worley energy chemicals resources
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01	2022-11-23	ISSUED FOR CONCEPT	JA	RM	
REV.	DATE	REASON FOR ISSUE	PREPARED	CHECKED	APPROVED

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CONTR. NO. 4504065370		C218-GE-E-XE-00008-04	
1" = 10'-0"	-	92	01
SCALE	SIZE	AREA	SYSTEM
DRAWING NUMBER			REV.

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**FOR INFORMATION
PURPOSES ONLY**

**PRELIMINARY
NOT FOR CONSTRUCTION**

★ PROPOSED SUBSTATION	LB-VARIANT	MAJOR HIGHWAY
LB-A	REYNOLDS CHANNEL CROSSING	HIGHWAY
LB-B	IP-A	MAJOR ROAD
LB-C	IP-B	RAILROAD
LB-D	IP-C	WATERBODY
LB-E	IP-D	CITY AREA
LB-F	IP-E	PARKS
LB-G	IP-F	SHEET INDEX
LB-H	IP-G	
	IP-H	

EMPIRE OFFSHORE WIND LLC.
EMPIRE WIND 2
ONSHORE ROUTING MAPBOOK
INDEX SHEET
NASSAU COUNTY, NEW YORK



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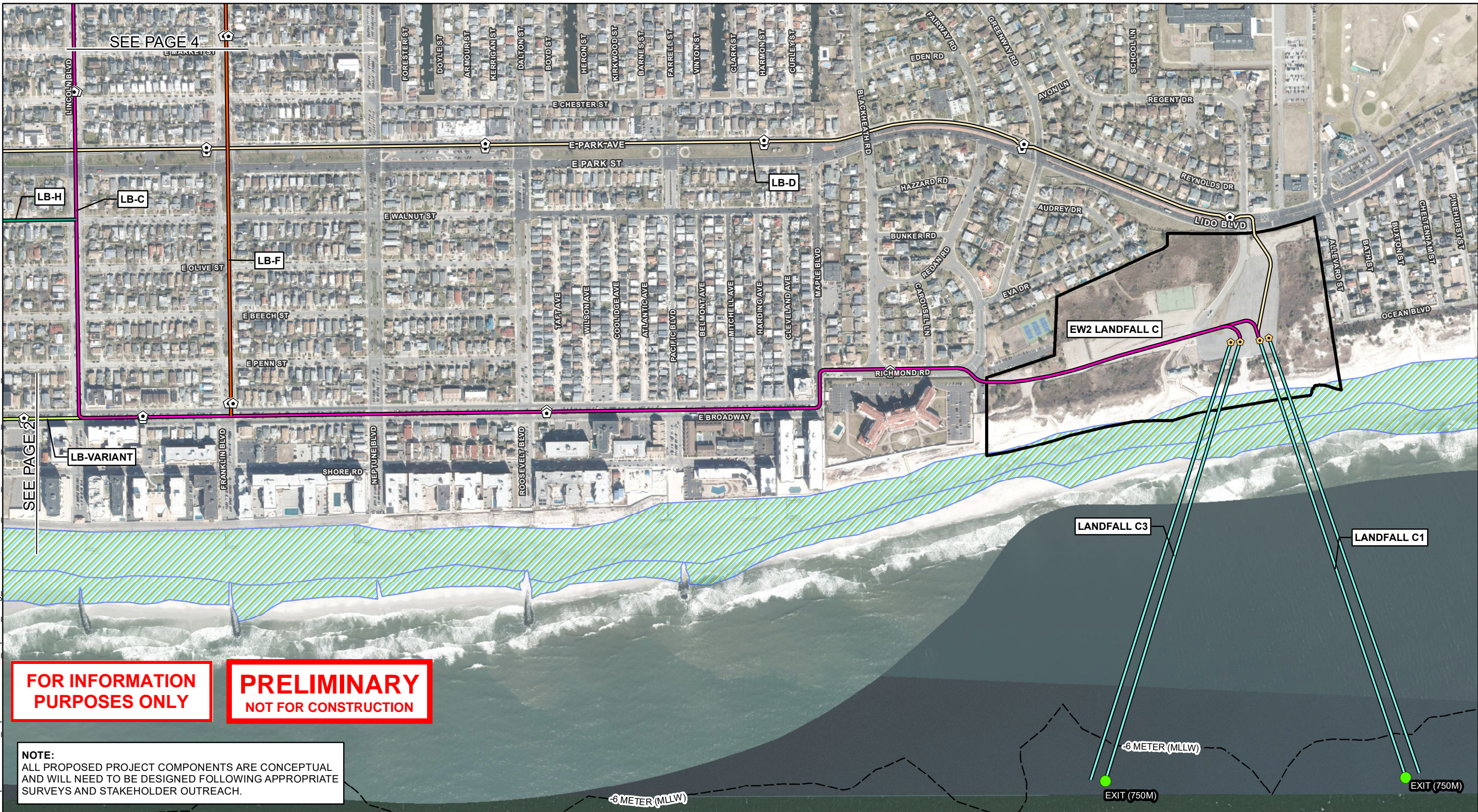


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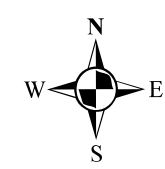
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NOTE:
ALL PROPOSED PROJECT COMPONENTS ARE CONCEPTUAL AND WILL NEED TO BE DESIGNED FOLLOWING APPROPRIATE SURVEYS AND STAKEHOLDER OUTREACH.

JOINTING BAY	LB-A	REYNOLDS CHANNEL CROSSING	LANDFALL SITE
TRANSITION VAULT	LB-B	IP-A	PROPOSED ONSHORE SUBSTATION A
FOREIGN UTILITY CENTERLINE (ELECTRIC)	LB-C	IP-B	PROPOSED ONSHORE SUBSTATION C
FOREIGN UTILITY CENTERLINE (NATURAL GAS)	LB-D	IP-C	NWI WETLAND
SUBMARINE CABLE - NOAA	LB-E	IP-D	NWI WATERBODY
PROPOSED HDD CENTERLINE	LB-F	IP-E	USACE DREDGE AREA
	LB-G	IP-F	BOEM SAND RESOURCE AREA
	LB-H	IP-G	PIPELINE AREA - NOAA
	LB-VARIANT	IP-H	FISH TRAP AREA

MAPS COMPILED UTILIZING ESRI BASEMAP AERIAL IMAGERY (2021)

EMPIRE OFFSHORE WIND LLC.
EMPIRE WIND 2
ONSHORE ROUTING MAPBOOK
NASSAU COUNTY, NEW YORK

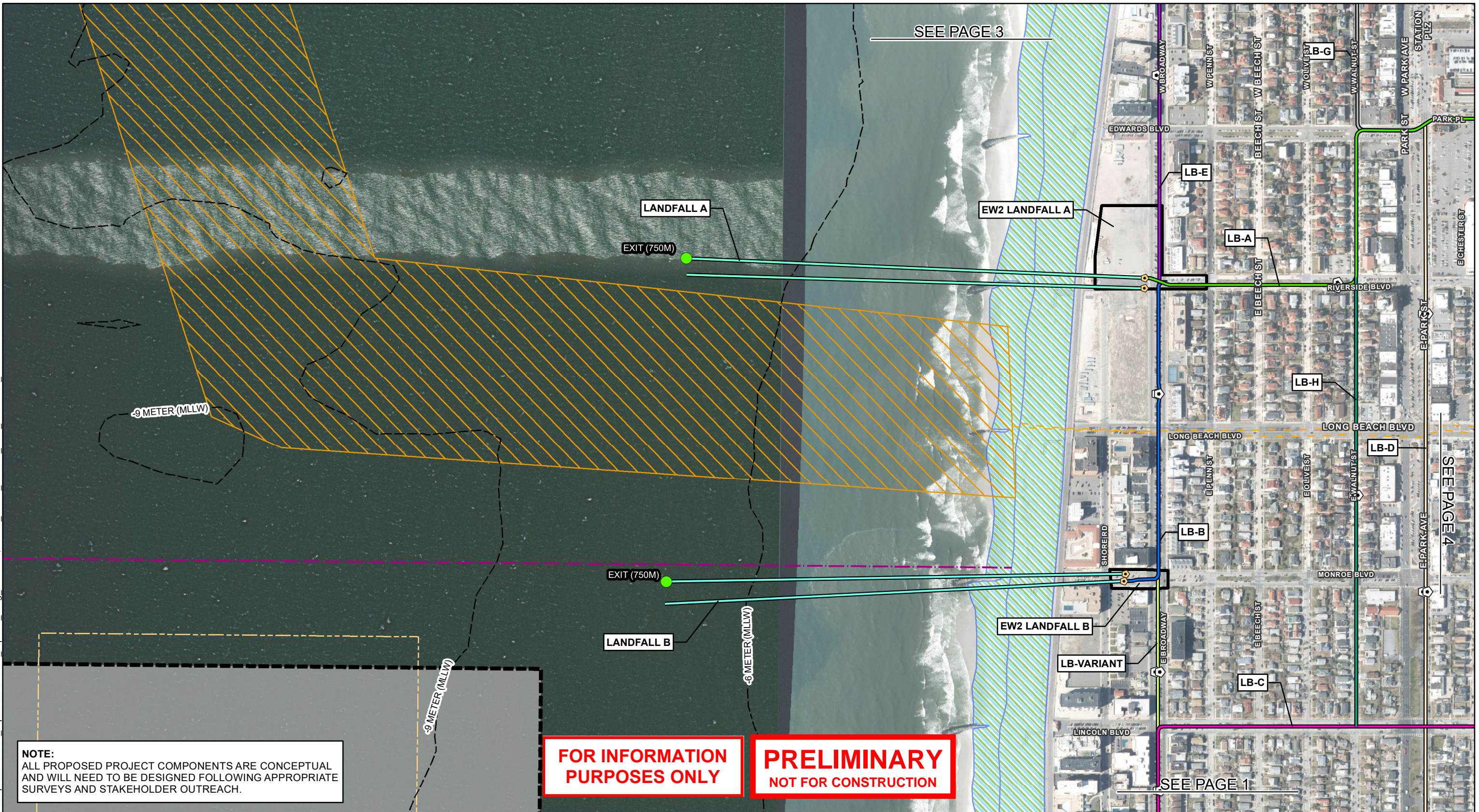


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NOTE:
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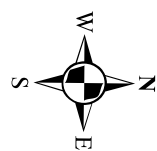
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JOINTING BAY	LB-A	REYNOLDS CHANNEL CROSSING	LANDFALL SITE
TRANSITION VAULT	LB-B	IP-A	PROPOSED ONSHORE SUBSTATION A
FOREIGN UTILITY CENTERLINE (ELECTRIC)	LB-C	IP-B	PROPOSED ONSHORE SUBSTATION C
FOREIGN UTILITY CENTERLINE (NATURAL GAS)	LB-D	IP-C	NWI WETLAND
SUBMARINE CABLE - NOAA	LB-E	IP-D	NWI WATERBODY
PROPOSED HDD CENTERLINE	LB-F	IP-E	USACE DREDGE AREA
	LB-G	IP-F	BOEM SAND RESOURCE AREA
	LB-H	IP-G	PIPELINE AREA - NOAA
	LB-VARIANT	IP-H	FISH TRAP AREA

MAPS COMPILED UTILIZING ESRI BASEMAP AERIAL IMAGERY (2021)

EMPIRE OFFSHORE WIND LLC.
 EMPIRE WIND 2
 ONSHORE ROUTING MAPBOOK
 NASSAU COUNTY, NEW YORK



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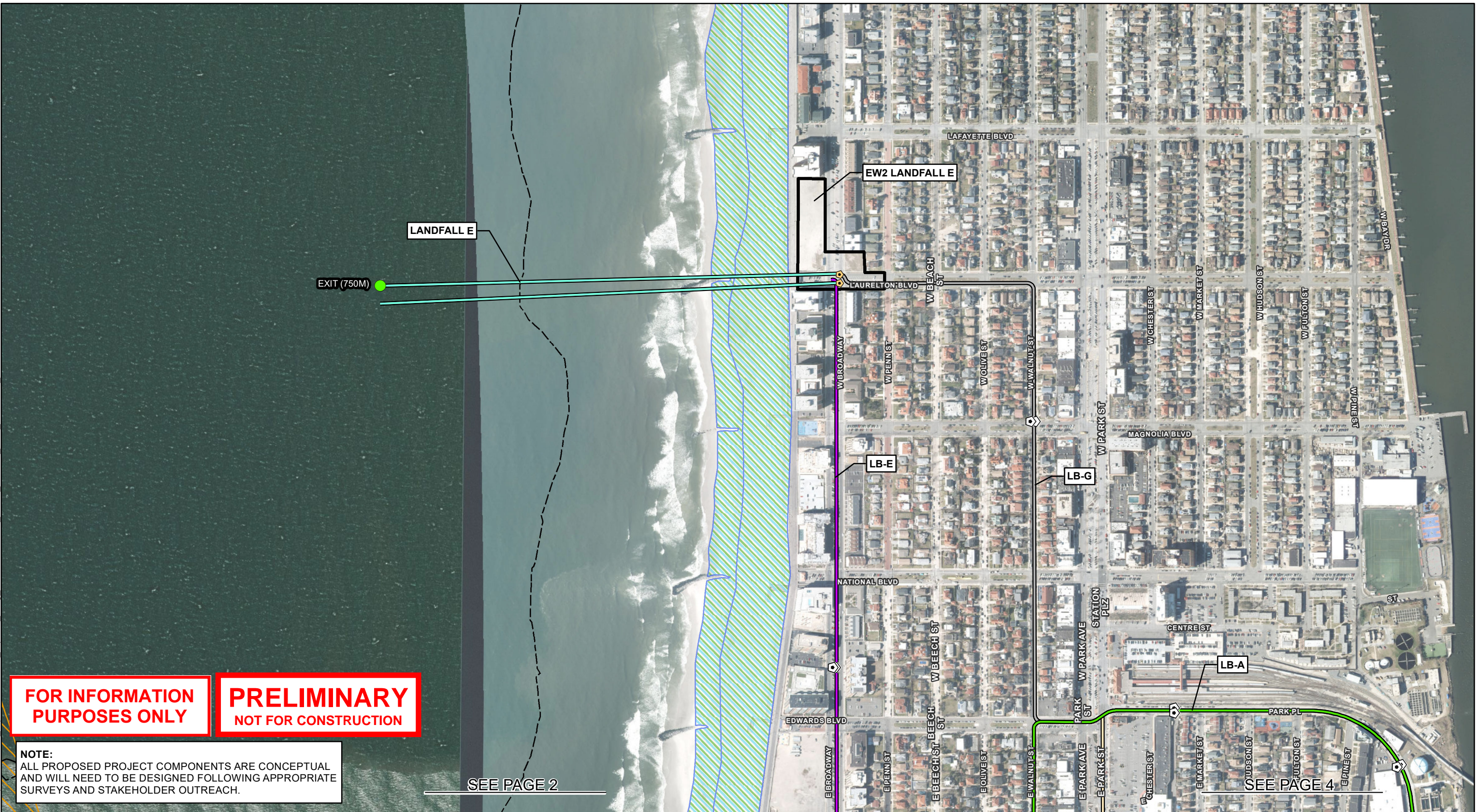
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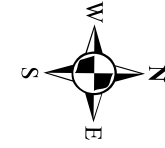
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JOINTING BAY	LB-A	REYNOLDS CHANNEL CROSSING	LANDFALL SITE
TRANSITION VAULT	LB-B	PROPOSED ONSHORE SUBSTATION A	PROPOSED ONSHORE SUBSTATION C
FOREIGN UTILITY CENTERLINE (ELECTRIC)	LB-C	NW1 WETLAND	NW1 WATERBODY
FOREIGN UTILITY CENTERLINE (NATURAL GAS)	LB-D	USACE DREDGE AREA	BOEM SAND RESOURCE AREA
SUBMARINE CABLE - NOAA	LB-E	IP-A	PIPELINE AREA - NOAA
PROPOSED HDD CENTERLINE	LB-F	IP-B	FISH TRAP AREA
	LB-G	IP-C	
	LB-H	IP-D	
	LB-VARIANT	IP-E	
		IP-F	
		IP-G	
		IP-H	

MAPS COMPILED UTILIZING ESRI BASEMAP AERIAL IMAGERY (2021)

EMPIRE OFFSHORE WIND LLC.
EMPIRE WIND 2
ONSHORE ROUTING MAPBOOK
NASSAU COUNTY, NEW YORK



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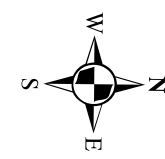
NOTE:
 ALL PROPOSED PROJECT COMPONENTS ARE CONCEPTUAL
 AND WILL NEED TO BE DESIGNED FOLLOWING APPROPRIATE
 SURVEYS AND STAKEHOLDER OUTREACH.

**FOR INFORMATION
 PURPOSES ONLY**

**PRELIMINARY
 NOT FOR CONSTRUCTION**

<ul style="list-style-type: none"> JOINTING BAY TRANSITION VAULT FOREIGN UTILITY CENTERLINE (ELECTRIC) FOREIGN UTILITY CENTERLINE (NATURAL GAS) SUBMARINE CABLE - NOAA PROPOSED HDD CENTERLINE 	<ul style="list-style-type: none"> LB-A LB-B LB-C LB-D LB-E LB-F LB-G LB-H LB-VARIANT 	<ul style="list-style-type: none"> REYNOLDS CHANNEL CROSSING IP-A IP-B IP-C IP-D IP-E IP-F IP-G IP-H 	<ul style="list-style-type: none"> LANDFALL SITE PROPOSED ONSHORE SUBSTATION A PROPOSED ONSHORE SUBSTATION C NWI WETLAND NWI WATERBODY USACE DREDGE AREA BOEM SAND RESOURCE AREA PIPELINE AREA - NOAA FISH TRAP AREA
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EMPIRE OFFSHORE WIND LLC.
 EMPIRE WIND 2
 ONSHORE ROUTING MAPBOOK
 NASSAU COUNTY, NEW YORK



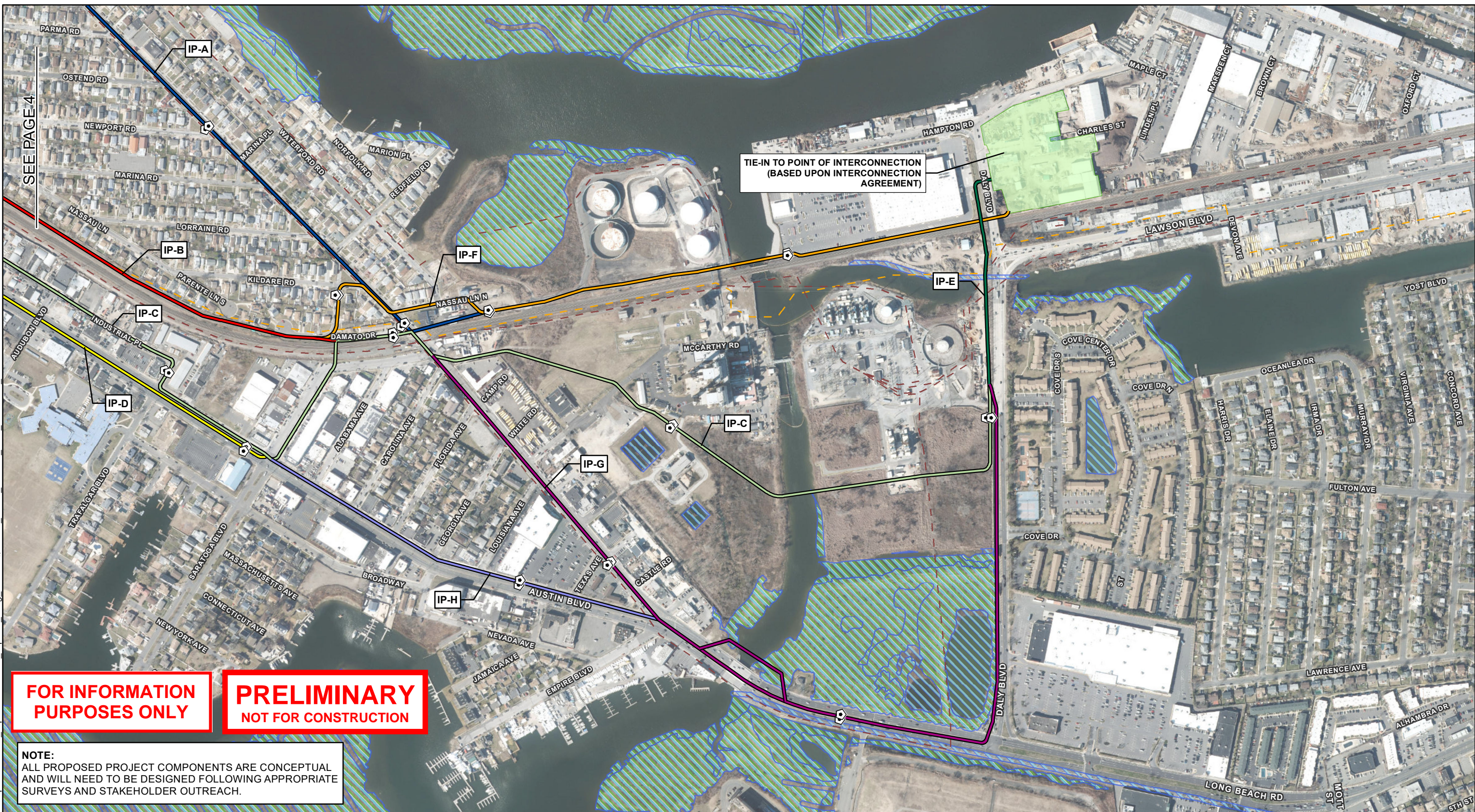
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PRELIMINARY NOT FOR CONSTRUCTION

NOTE:
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JOINTING BAY	LB-A	REYNOLDS CHANNEL CROSSING	LANDFALL SITE
TRANSITION VAULT	LB-B	IP-A	PROPOSED ONSHORE SUBSTATION A
FOREIGN UTILITY CENTERLINE (ELECTRIC)	LB-C	IP-B	PROPOSED ONSHORE SUBSTATION C
FOREIGN UTILITY CENTERLINE (NATURAL GAS)	LB-D	IP-C	NWI WETLAND
SUBMARINE CABLE - NOAA	LB-E	IP-D	NWI WATERBODY
PROPOSED HDD CENTERLINE	LB-F	IP-E	USACE DREDGE AREA
	LB-G	IP-F	BOEM SAND RESOURCE AREA
	LB-H	IP-G	PIPELINE AREA - NOAA
	LB-VARIANT	IP-H	FISH TRAP AREA

MAPS COMPILED UTILIZING ESRI BASEMAP AERIAL IMAGERY (2021)

EMPIRE OFFSHORE WIND LLC.

EMPIRE WIND 2

ONSHORE ROUTING MAPBOOK

NASSAU COUNTY, NEW YORK



ABSOLUTE SCALE:
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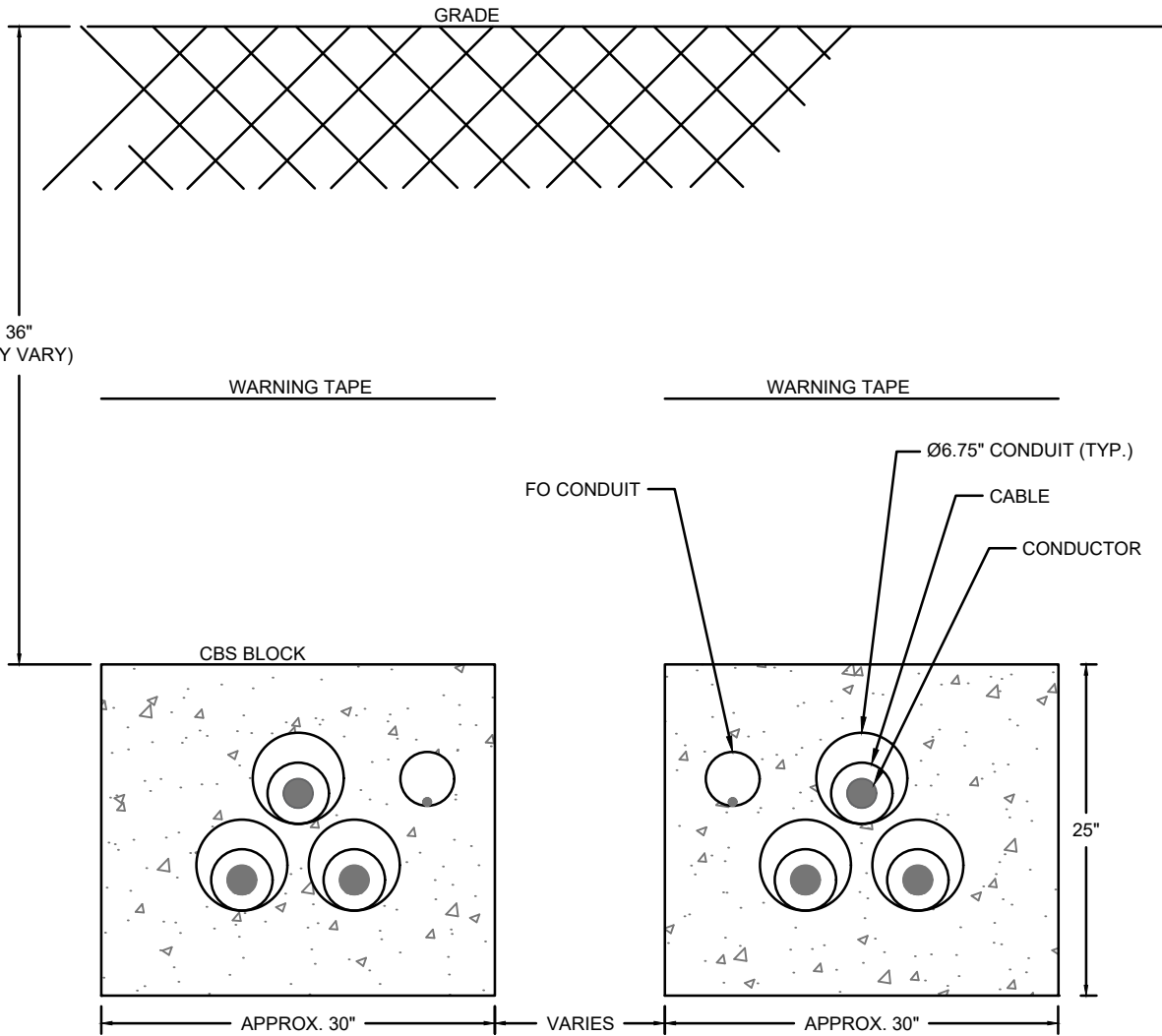
REFERENCE SCALE:
1 IN = 500 FT



DRAWN BY:	SNP 06/15/2023
CHECKED BY:	KEK 06/15/2023
APPROVED BY:	MDN 06/15/2023
REV. DATE:	06/15/2023
REVISION:	E
DESC:	RE-ISSUED FOR COP
PAGE:	5 OF 5

ATTACHMENT E-4
ONSHORE CONCEPTUAL DRAWINGS

- Typical Conduit Section (2 Circuits)
- Typical Flat Configuration Conduit Section (2 Circuits)
- Typical Excavation Details
- Typical Duct Bank and Manhole Connection
- Typical Cable Vault (3 Circuits, 1 Circuit)
- Typical Link Box 48x30x18 Handhole, Auxiliary Pit (3 Circuits)
- Typical Construction Configuration for Road Shoulder
- Typical Crossing Road Bore
- Typical HDD Layout Large Rig Setup 200' X 200' Workspace
- Typical Cofferdam
- Typical HDD Entry/Exit
- Example of HDD Cable Route Crossing (EW 2; Reynolds Channel)
- Example of Cable Bridge Crossing (EW 2; Barnums Channel)



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TYPICAL CONDUIT
ELEVATION VIEW
N.T.S.

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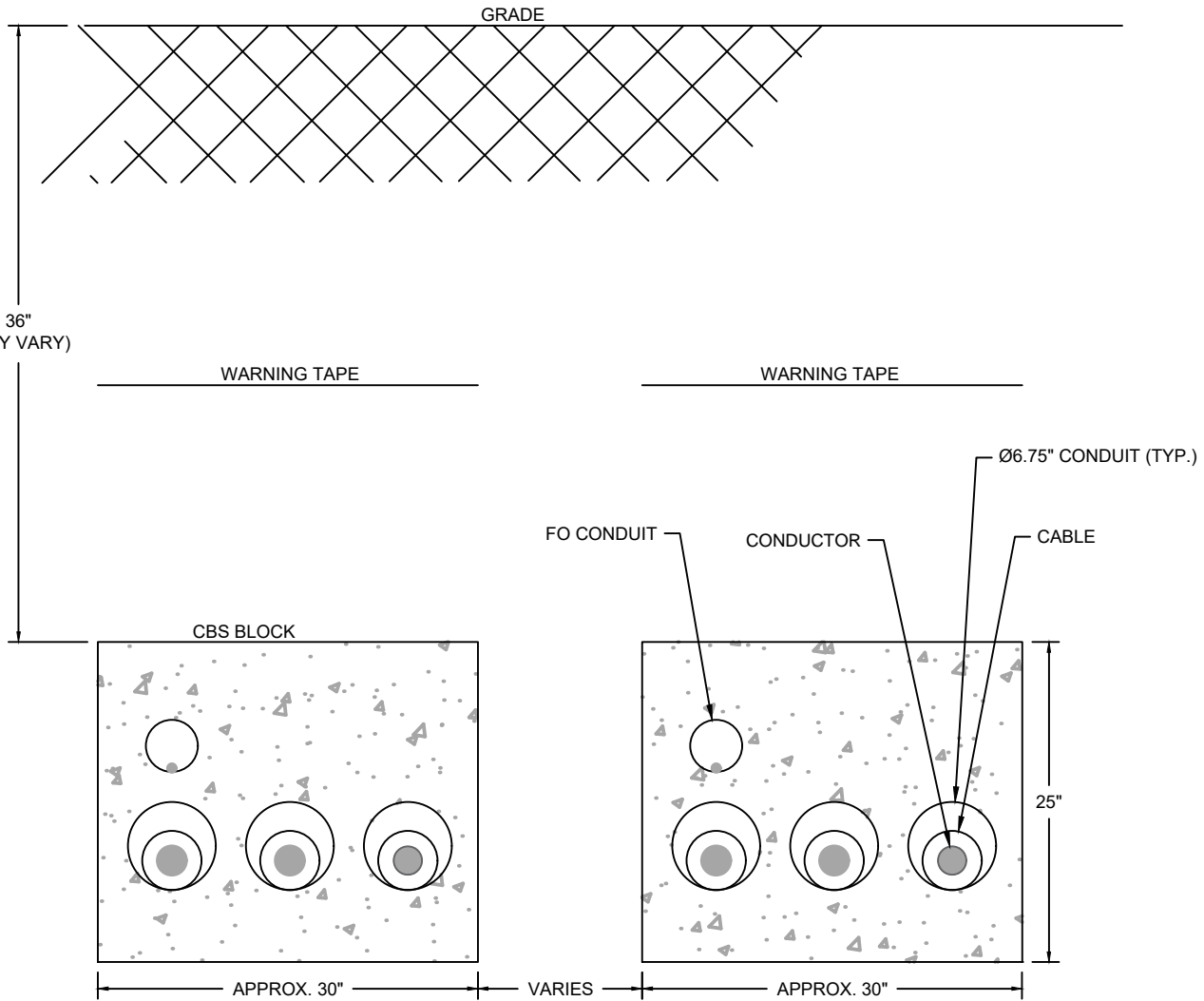
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ONSHORE CABLE ROUTE
CONDUIT SECTION - 2 CIRCUIT
(TREFOIL CONFIG)
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SKETCH-EE-607A-2_230 KV TREFOIL.DWG



TYPICAL CONDUIT
ELEVATION VIEW
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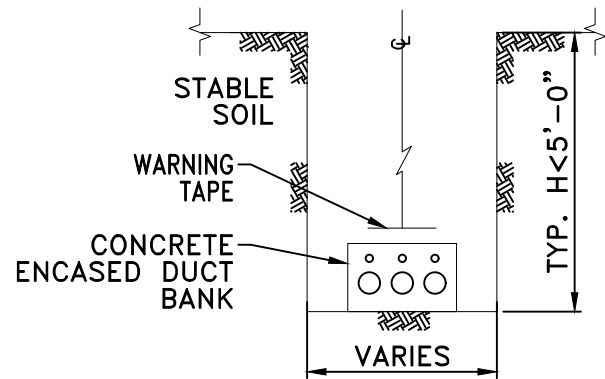
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ONSHORE CABLE ROUTE
CONDUIT SECTION - 2 CIRCUIT
(FLAT CONFIG)
RE-ISSUED FOR COP



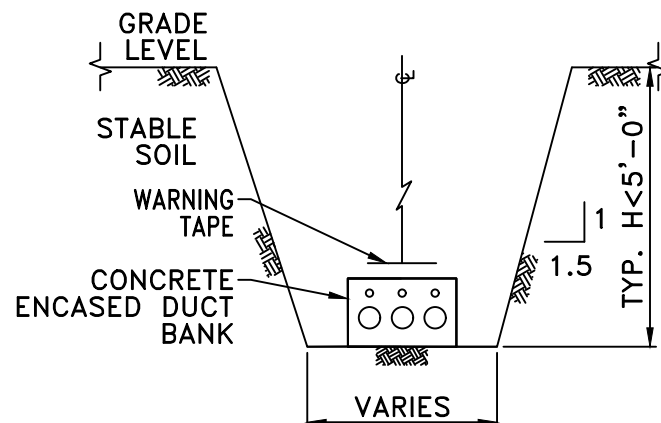
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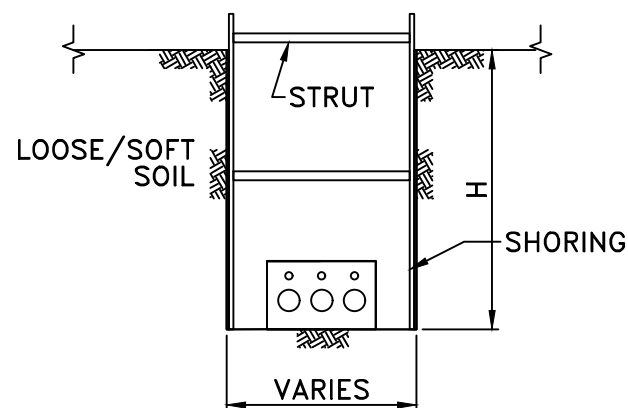
SKETCH-EE-607B-2_230 KV.DWG



OPEN EXCAVATION UP TO 1525MM (TYP.)
(TYP. 5'-0") DEPTH



OPEN EXCAVATION UP TO 6098MM (TYP.)
(TYP. 20'-0") DEPTH



SHORING ALONG THE EXCAVATION

NOTES:

- EXCAVATION WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS.
- NEVER ENTER A TRENCH WITH STRAIGHT UNSHORED SIDES THAT IS GREATER THAN 5'-0" DEEP.
- NO ENTRANCE GREATER THAN 4'-0" UNLESS A COMPETENT PERSON HAS DESIGNED OR APPROVED THE TRENCH.
- NO SURCHARGE LOADS ARE ALLOWED TO PLACE WITHIN VICINITY OF THE EDGE OF THE TRENCH (TYP. 2'-0").
- NO SEEPAGE AND PONDING ALLOWED IN THE TRENCH.
- THE UNDERGROUND UTILITIES MUST BE LOCATED BEFORE STARTING THE EXCAVATION WORK.
- THE TYPE OF EXCAVATION WORK SHALL BE DETERMINED BASED ON THE GEOTECHNICAL INVESTIGATION REPORT.

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NO.	DATE	DESCRIPTION	PREPARED	REVIEW	DESIGN	AUTHORIZE
C	2022-05-18	ISSUED FOR REVIEW	HG	AN	HG	JR
B	2021-03-08	ISSUED FOR REVIEW	AN	RE	AN	RE
A	2018-12-07	ISSUED FOR REVIEW	KS	MH	MH	RE
REVISIONS/ISSUE			DRAFTING ENGINEERING			

TETRA TECH
Complex World
Clear Solutions

AUTHORIZED BY: **RE**
DATE: 2022-05-18

CLIENT: **EQUINOR**

DRAWING DESCRIPTION: **EXCAVATION DETAILS**



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DESIGNED BY: HG	DRAWN BY: HG	DRAWING NO.:	REV.:
REVIEWED BY: AN	SCALE: NTS	1803530100-DWG-E1023	C

A3 (432 x 279)

1

2

3

4

5

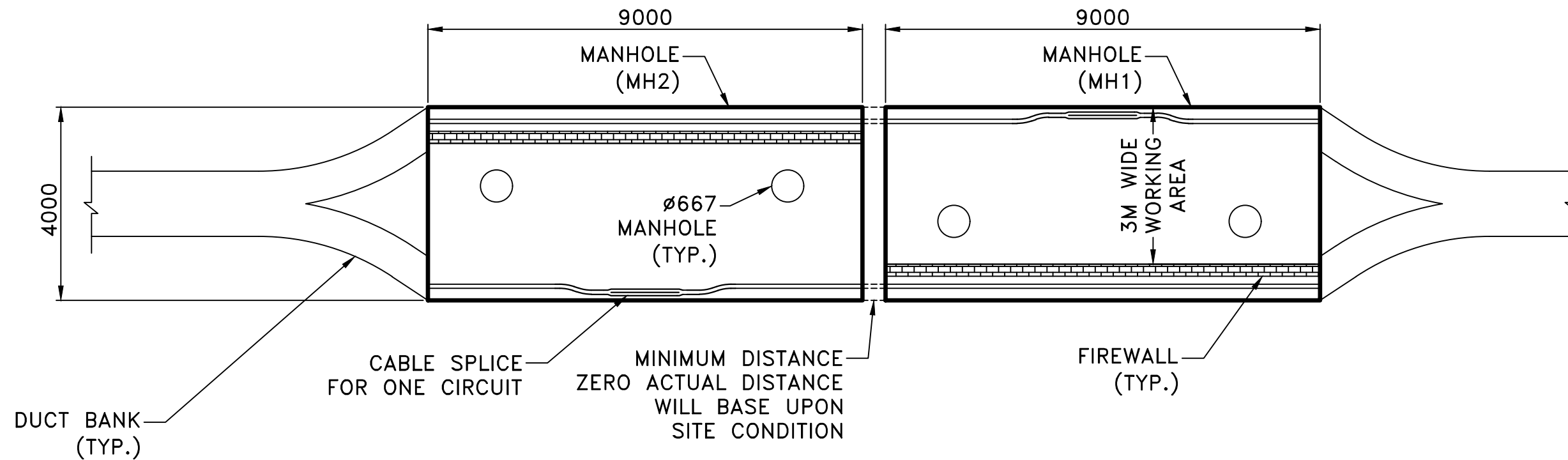
A

B

C

NOTES:

- 1. SEE GENERAL NOTES IN DRAWING NO. 1831803530100-DWG-E1005
- 2. CONCEPTUAL SPLICE ARRANGEMENT. DETAILS WILL HAVE TO BE PROVIDED IN DETAIL DESIGN STAGE.
- 3. FOR CABLE SYSTEM SECURITY PURPOSE ONE MANHOLE PER CIRCUIT.
- 4. INSTALLATION OF LINK BOX, GROUND CONTINUITY CABLE AND FIBER OPTIC CABLE SHALL BE PROVIDED IN DETAIL DESIGN STAGE.



PLAN OF DUCT BANK & MANHOLE CONNECTION

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B	2018-12-06	ISSUED FOR REVIEW	RP	SA	SA	RE		
A	2018-11-14	ISSUED FOR REVIEW	CR	SA	SA	RE		
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CLIENT		EQUINOR	
DRAWING DESCRIPTION			
ONSHORE MANHOLE			
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REVIEWED BY:	SA	SCALE:	1:100
DRAWING NO.		1831803530100-DWG-E1006	
REV.			C



A3 (432 x 279)

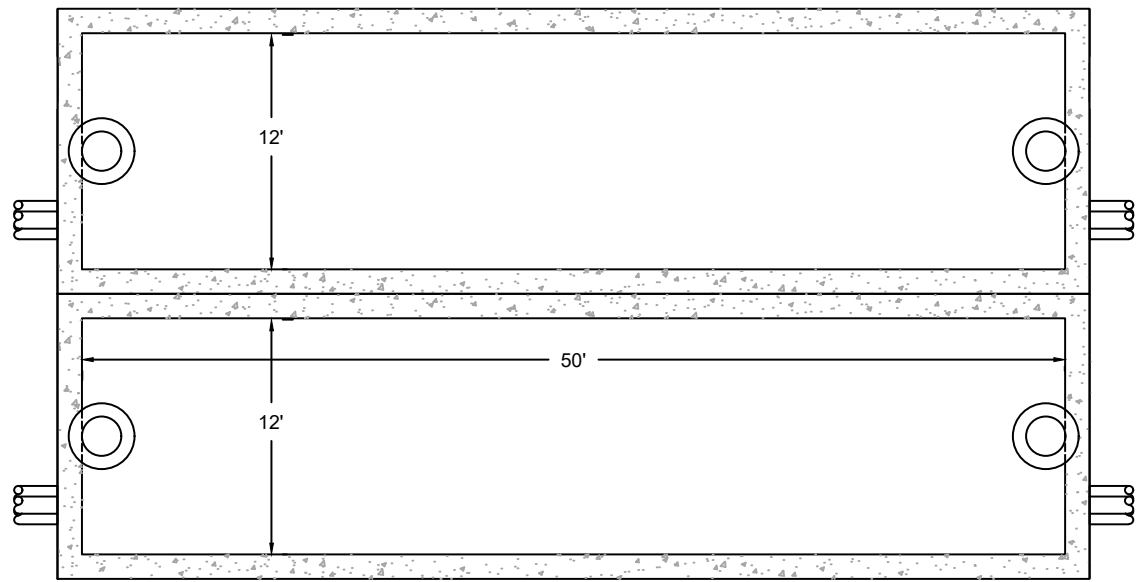
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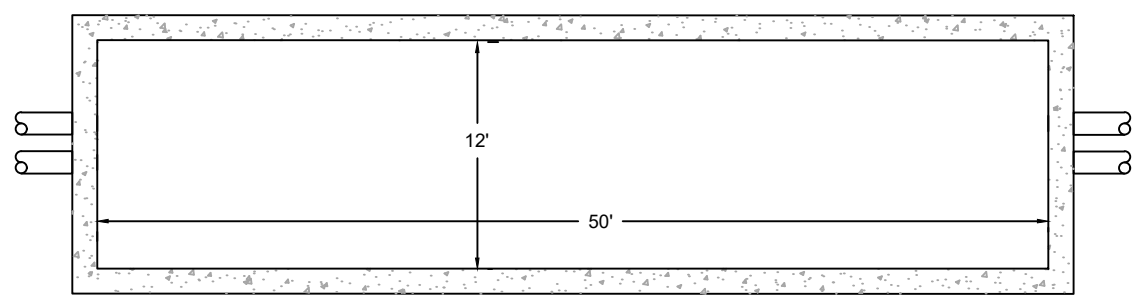
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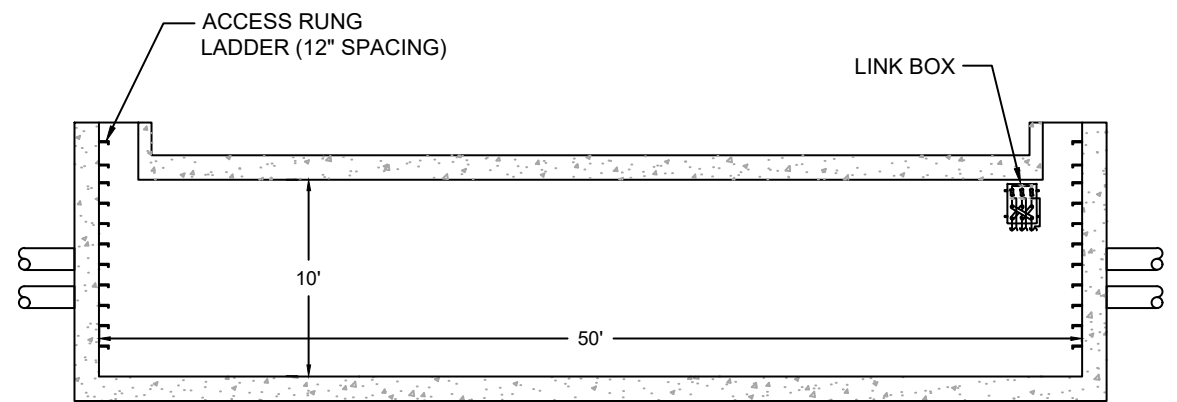
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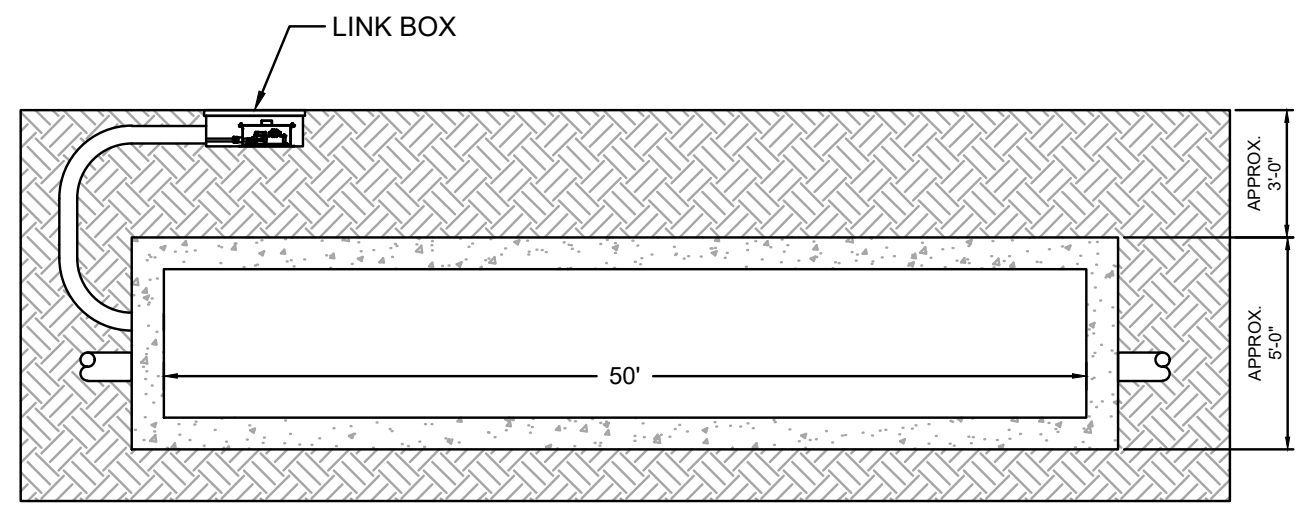
TYPICAL CABLE SPLICING VAULT
PLAN VIEW
N.T.S.



TYPICAL CABLE SPLICING VAULT
PLAN VIEW
N.T.S.



TYPICAL CABLE SPLICING VAULT
ELEVATION VIEW
N.T.S.



TYPICAL CABLE SPLICE VAULT
(TYPICAL PER SPLICE)
ELEVATION VIEW
N.T.S.

JOINT BAY / SPLICE VAULT - 2 CIRCUITS **(K)**

SPLICE VAULT - 1 CIRCUIT
BURIED ALTERNATIVE **(L)**

- NOTES (DETAILS K AND L)
- ARRANGEMENT OF JOINT BAYS DETAILED ABOVE SHOWS A PARALLEL INSTALLATION. ACTUAL ARRANGEMENT MAY VARY DURING FINAL DESIGN AND JOINT BAYS MAY ALTERNATIVELY BE SITED IN SERIES.
 - JOINT BAY DIMENSIONS ARE PRELIMINARY AND MAY BE REDUCED DURING FINAL DESIGN.
 - CABLE ARRANGEMENT INSIDE OF JOINT BAYS IS NOT SHOWN AND WILL BE DETAILED DURING FINAL DESIGN.
 - JOINT BAYS WILL BE DESIGNED WITH A REMOVABLE TOP SLAB IN ORDER TO SUPPORT CABLE PULL-IN AND JOINTING OPERATIONS.

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A	05/13/2022	SNP	ISSUED FOR COP	KEK	MDN

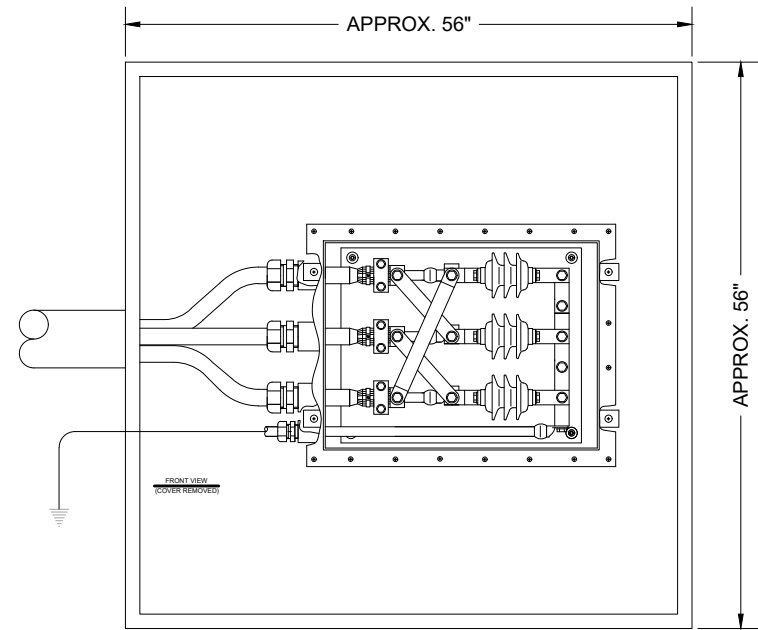
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Project Number	505100001
B/O	
Total	

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		Rev	B
		Security	STD
Drawing Number	C132		

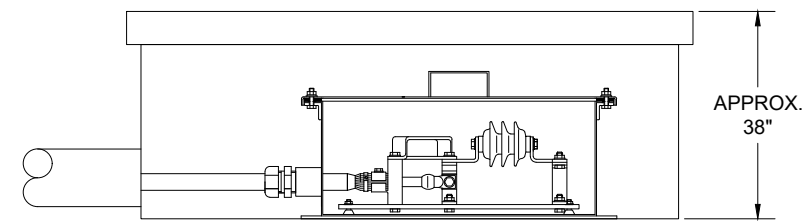
Title

EMPIRE OFFSHORE WIND LLC.
EMPIRE WIND 2 PROJECT
CONSTRUCTION DETAILS
NASSAU COUNTY, NEW YORK
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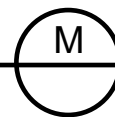


LINK BOX HANDHOLE
PLAN VIEW
N.T.S.



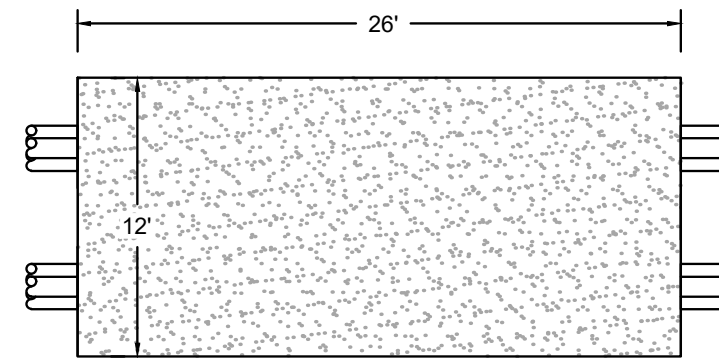
LINK BOX HANDHOLE
(TYPICAL PER SPLICE)
ELEVATION VIEW
N.T.S.

LINK BOX 56"x56"x38" HANDHOLE

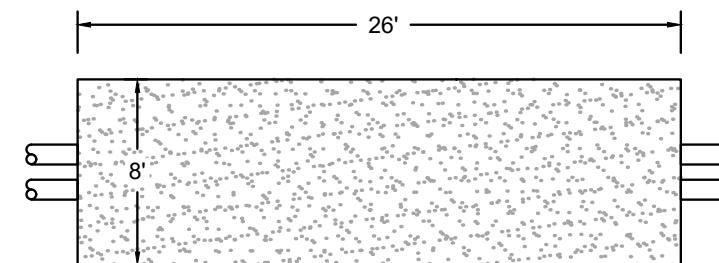


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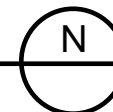


TEMPORARY AUXILIARY PIT
PLAN VIEW
N.T.S.



TEMPORARY AUXILIARY PIT
ELEVATION VIEW
N.T.S.

TEMPORARY AUXILIARY PIT
2 CIRCUITS



NOTES (DETAIL N)

- TEMPORARY AUXILIARY PIT WILL BE USED FOR CABLE PULL-IN AND WILL REQUIRE AN EXCAVATION APPROXIMATELY 12' BY 26' TO A DEPTH APPROXIMATELY 2' BELOW THE CABLE. THE FOLLOWING AREA WILL BE BACKFILLED WITH SUITABLE FILL AND RESTORED TO EXISTING CONDITIONS.
- CABLE ARRANGEMENT INSIDE OF AUXILIARY PITS IS NOT SHOWN AND WILL BE DETAILED DURING FINAL DESIGN.
- ACTUAL LOCATION OF AUXILIARY PITS MAY VARY DURING FINAL DESIGN AND IS A PROVISION THAT MAY OR MAY NOT BE REQUIRED DEPENDING ON FINAL JOINT BAY SITING AND SPACING.

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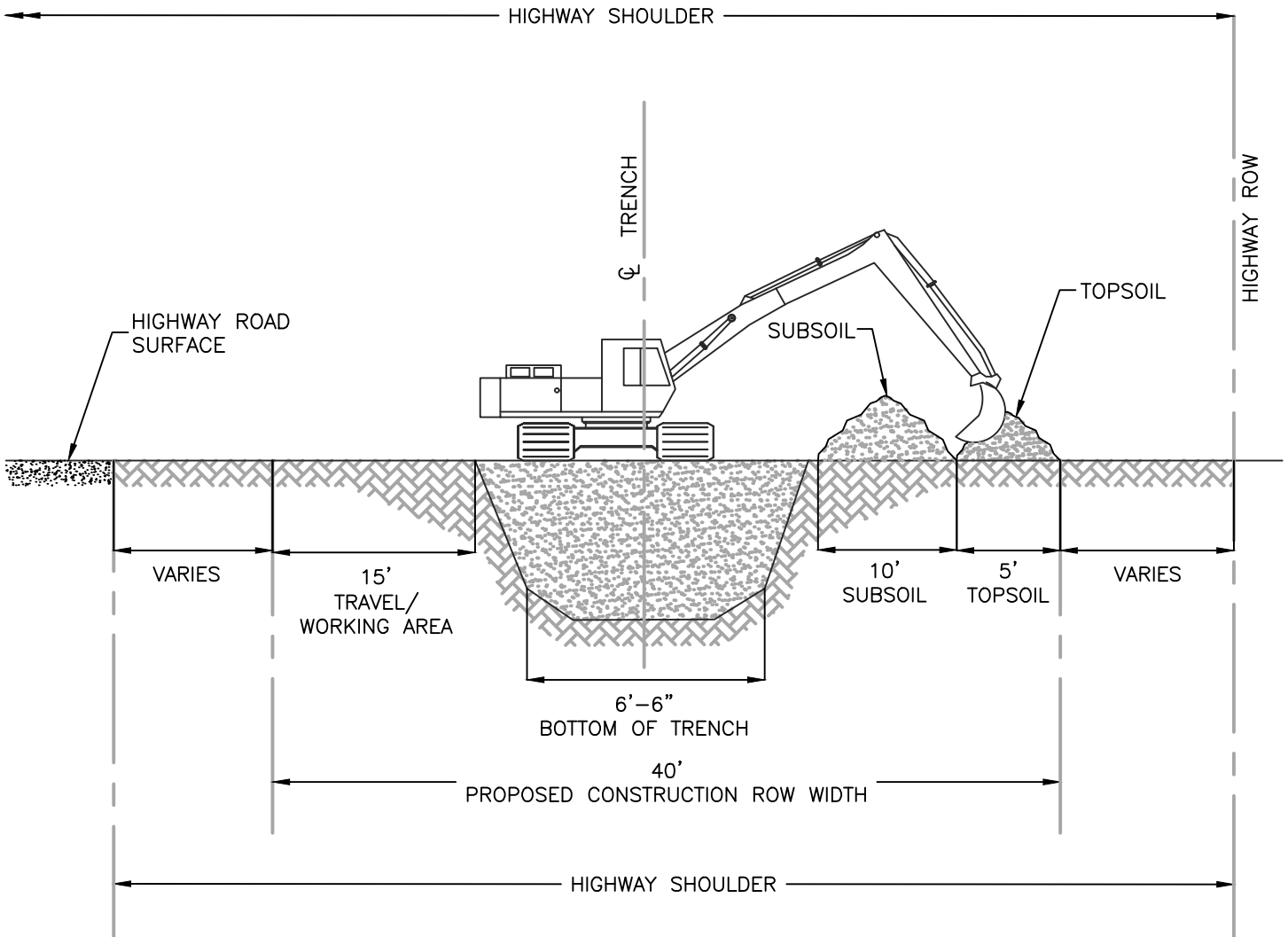
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A	05/13/2022	SNP	ISSUED FOR COP	KEK	MDN

Date	
Project Number	505100001
B/O	
Total	

D'gn'd		Eng Chk	
Drawn		Coord.	
Dwg Chk		App'd	
Plan Scale	Status	Rev	Security
1" = 50'	PRE	B	STD
Drawing Number	C133		

Title

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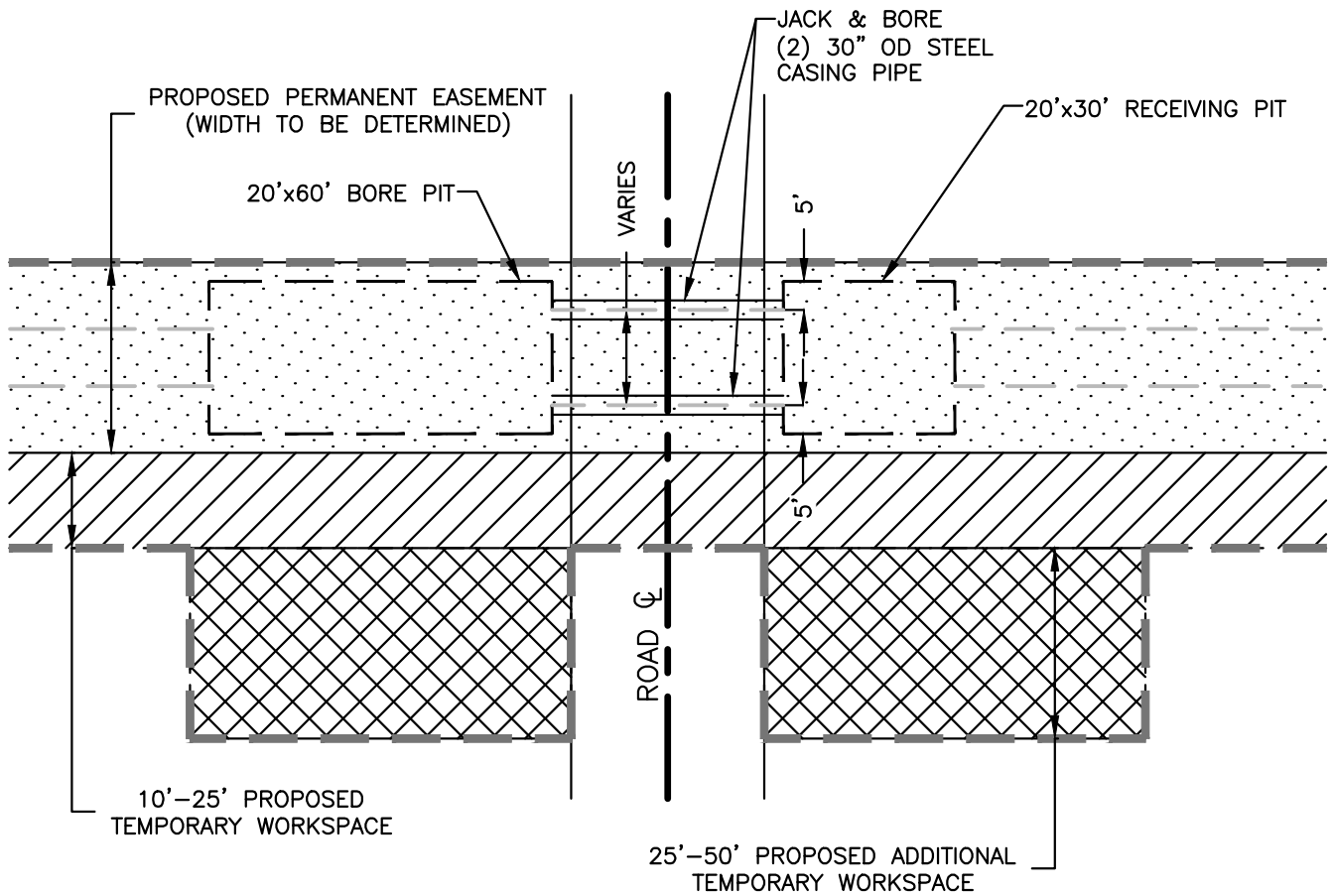
Title
**EMPIRE OFFSHORE WIND LLC.
 ONSHORE CABLE ROUTE
 TYPICAL CONSTRUCTION CONFIGURATION
 FOR ROAD SHOULDER
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SKETCH-EE-612.DWG



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Title
EMPIRE OFFSHORE WIND LLC.
TYPICAL CROSSING ROAD BORE

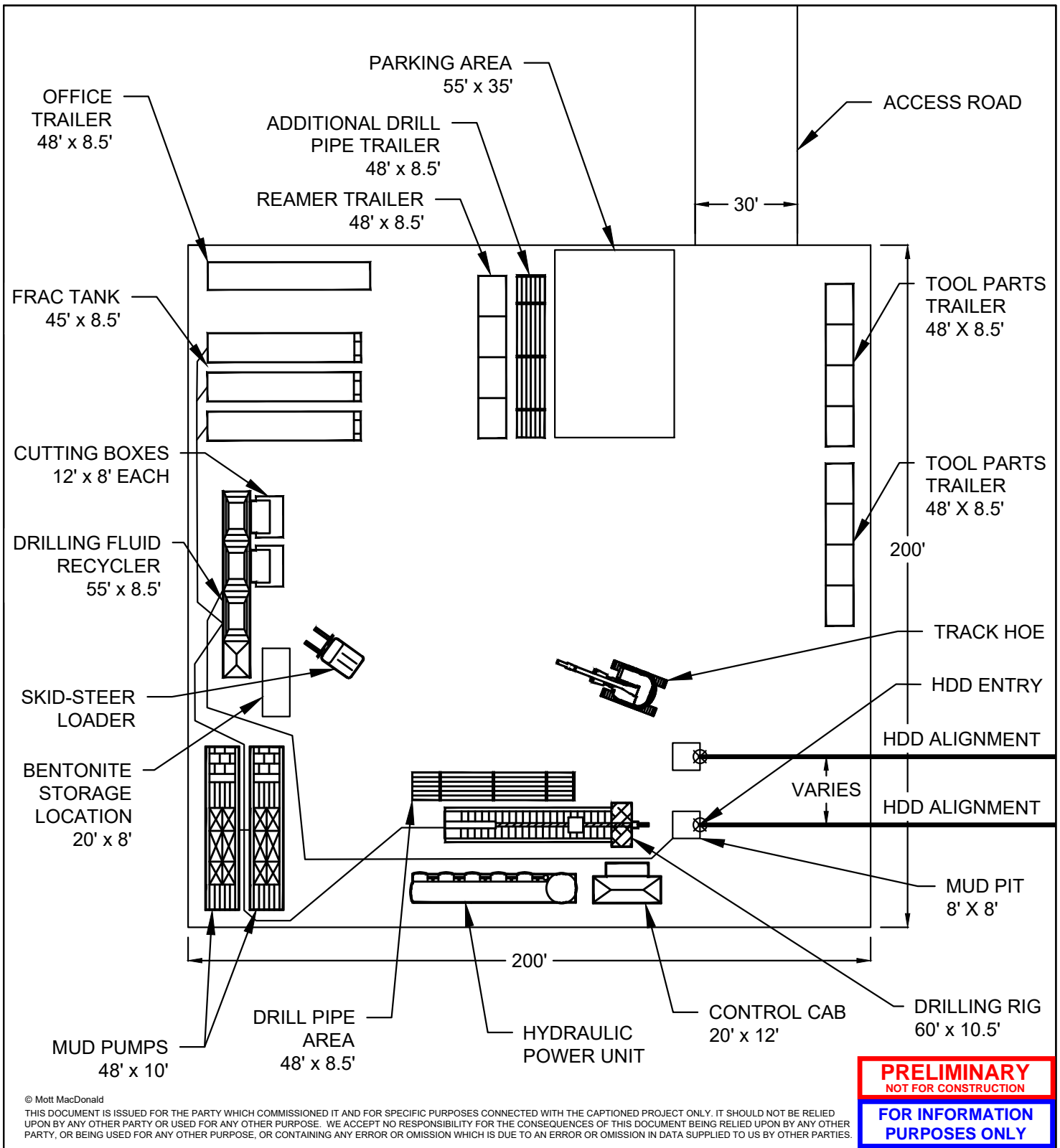


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SKETCH-EE-611.DWG



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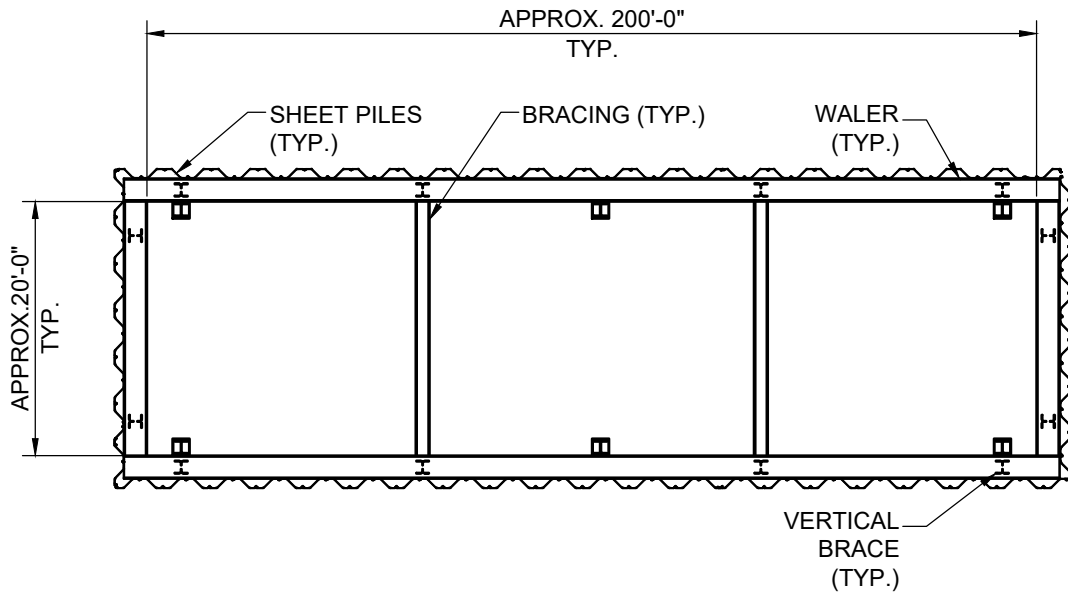
Title
EMPIRE OFFSHORE WIND LLC.
TYPICAL HDD LAYOUT
LARGE RIG SETUP
200'x200' WORKSPACE
RE-ISSUED FOR COP



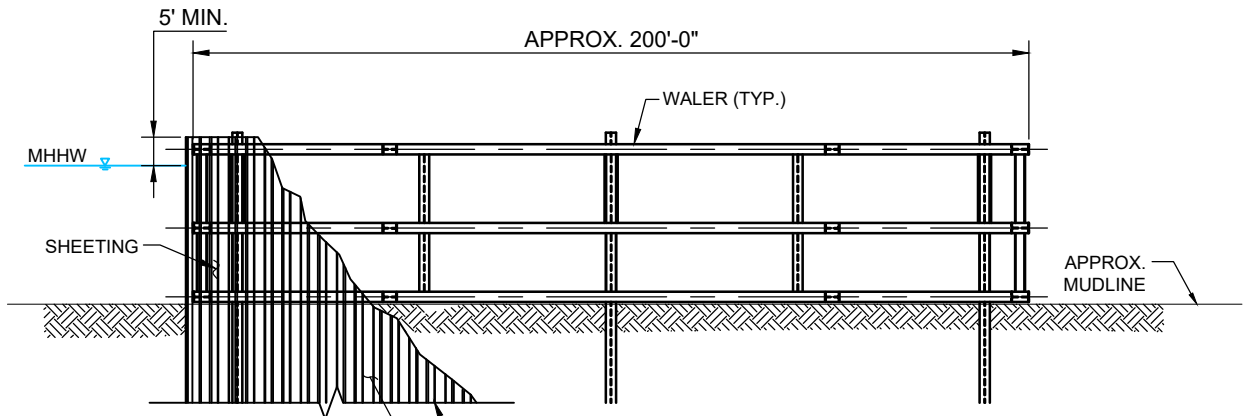
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HDD LAYOUT TYPICAL.DWG

Date	Drawn	Checked	Approved	Scale at ANSI A	Drawing Number	Status	Rev
06/03/2021	DOW	MDN	MDN	1" = 40'	SKETCH-EE-608	PRE	C



PLAN VIEW
N.T.S.



SHEET PILE DEPTH TO BE CONFIRMED DURING DETAIL DESIGN

SHEET PILE CUTAWAY FOR ILLUSTRATION PURPOSES ONLY

SECTION
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Title: TYPICAL COFFERDAM DETAIL
PLAN & ELEVATION

Applicant Name: EMPIRE OFFSHORE WIND LLC.

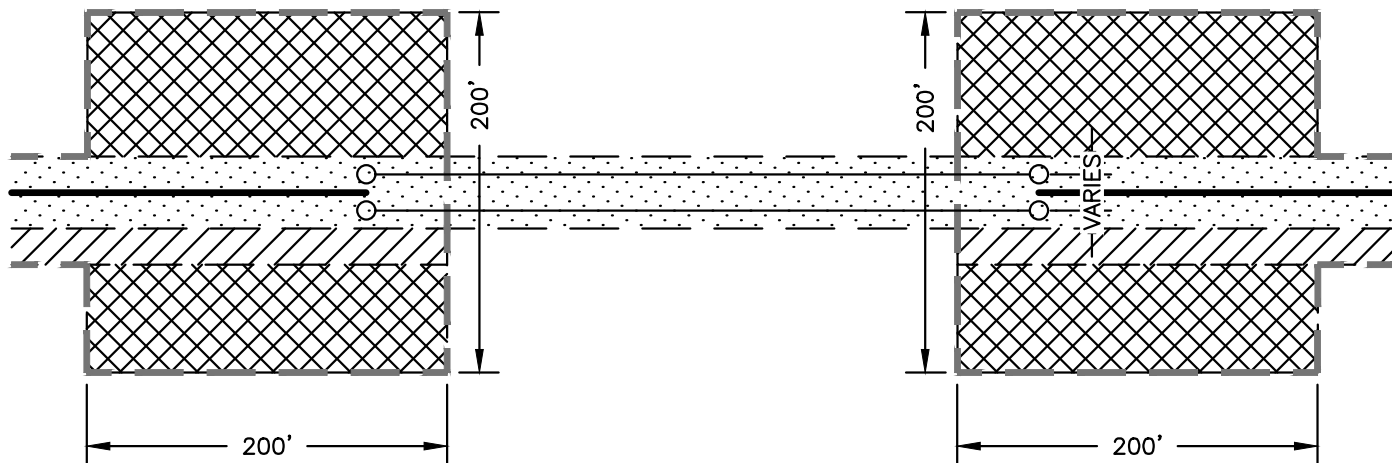
Proposed Project: EMPIRE WIND 2 PROJECT



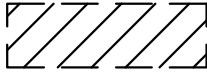


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06/16/2023	JSR	KEK	MDN	N.T.S.	004	NAN-2022-00902-EMI EMPIRE WIND 2	PRE	D



-  PROPOSED ELECTRICAL LINE
-  LIMIT OF DISTURBANCE
-  TEMPORARY WORKSPACE
-  ADDITIONAL TEMPORARY WORKSPACE
-  PROPOSED PERMANENT EASEMENT

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Title
EMPIRE OFFSHORE WIND LLC.
TYPICAL HDD ENTRY/EXIT

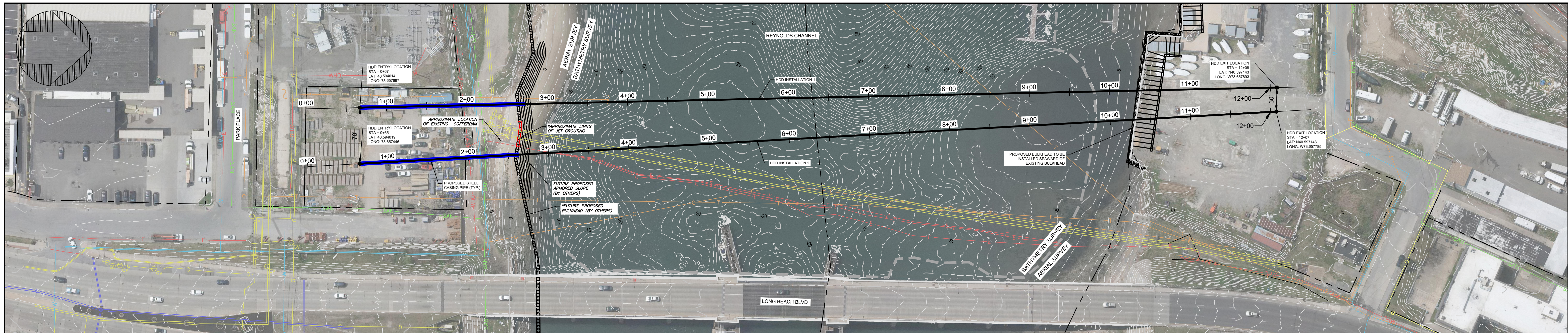


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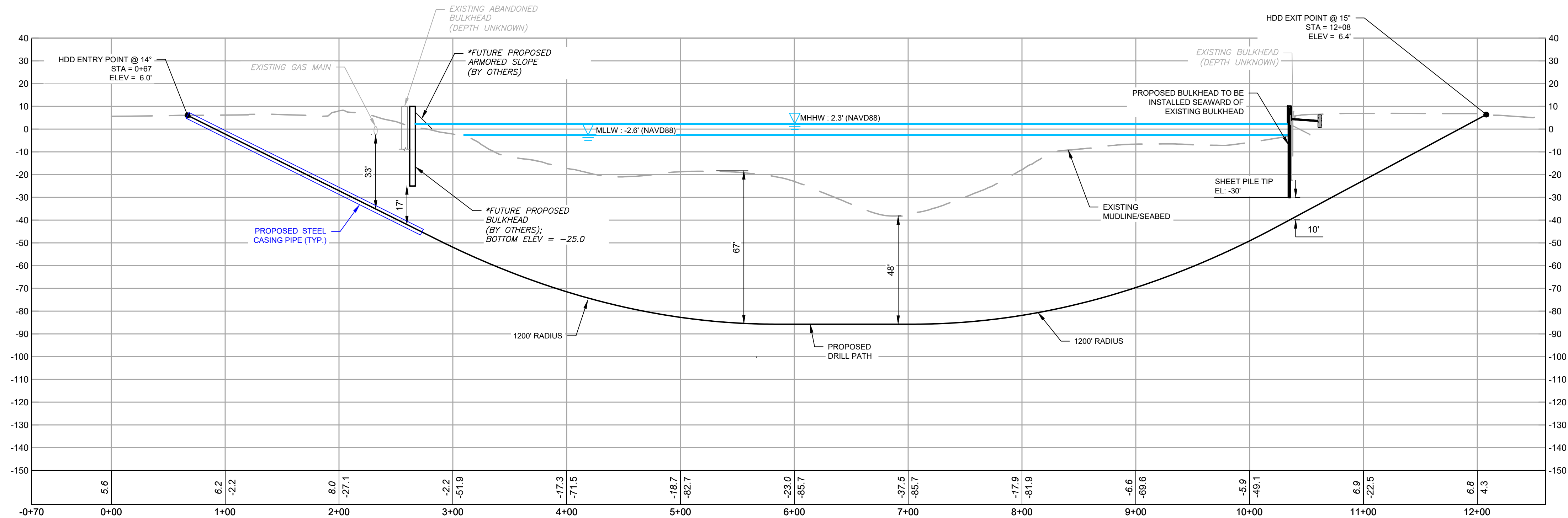
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06/03/2021	DOW	MDN	MDN	N.T.S.	SKETCH-EE-610	PRE	C

SKETCH-EE-610.DWG



HDD CROSSING - REYNOLDS CHANNEL
PLAN VIEW
 SCALE: 1" = 60'

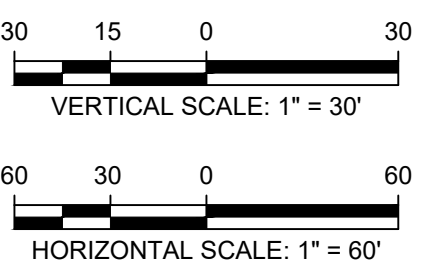


REYNOLDS CHANNEL - HDD INSTALLATION 1
PROFILE VIEW
 HORZ. SCALE: 1" = 60'
 VERT. SCALE: 1" = 30'

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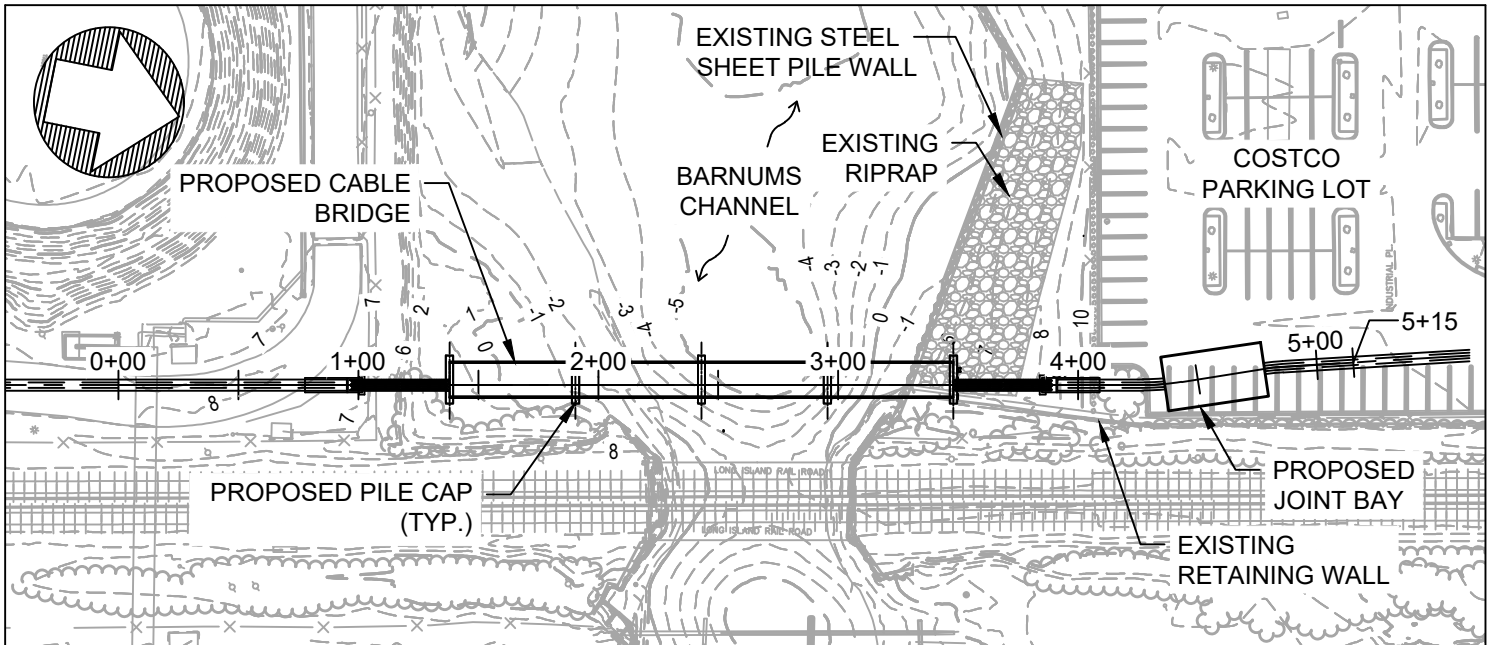
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- NOTES:**
1. LOCATION AND DEPTH OF ALL UTILITIES ARE TO BE FIELD VERIFIED.
 2. PROPOSED CABLE ALIGNMENTS SHOWN MAY BE ADJUSTED DUE TO UNFORESEEN CONDITIONS.
 3. THE SURVEYED CONTOURS (ONSHORE) AND IMAGERY SHOWN ARE FROM AN AERIAL FLIGHT FLOWN ON 04/23/2021 PROVIDED BY ROBINSON AERIAL.
 4. BATHYMETRIC SURVEY PROVIDED BY S. T. HUDSON ENGINEERS, INC. PERFORMED BETWEEN DECEMBER 2021 AND FEBRUARY 2022.
 5. HORIZONTAL DATUM IS NAD83, NEW YORK STATE PLANE, LONG ISLAND US FOOT. VERTICAL DATUM IS NAVD1988.
 6. CONVERSION FOR VERTICAL DATUM IS NAVD88 + 2.6' = MLLW.
 7. ALL ELEVATION SHOWN IN PROFILE REPRESENT NAVD88.
 8. * PROPOSED FUTURE BULKHEAD SHOWN WAS DESIGNED BY OTHERS. MOTT MACDONALD OVERLAID ONTO PLANS; EXACT LOCATION MAY VARY. REFERENCE CRITICAL INFRASTRUCTURE FLOOD PROTECTION PROJECT - DATED SEPTEMBER 2019



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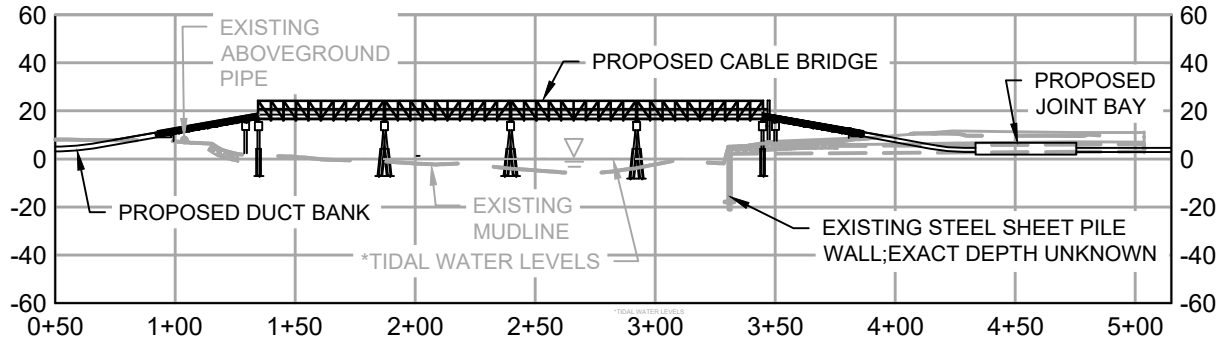
	Mott MacDonald NY Inc. 111 Wood Avenue South Iselin, NJ 08830-4112 Certificate of Authorization #: 0017019 www.mottmacamericas.com		Client: EMPIRE OFFSHORE WIND LLC.				Designed: MDN Drawn: DOW Dwg check: KEK Scale at ANSI D: As Shown Status: PRE Rev: D Security: STD			Title: EMPIRE OFFSHORE WIND LLC. EMPIRE WIND 2 PROJECT REYNOLDS CHANNEL - HDD INSTALLATION 1 NASSAU COUNTY, NEW YORK ISSUED FOR COP																						
			<table border="1"> <tr> <th>Rev</th> <th>Date</th> <th>Drawn</th> <th>Description</th> <th>Ch'k'd</th> <th>App'd</th> </tr> <tr> <td>D</td> <td>06/16/2023</td> <td>JSR</td> <td>RE-ISSUED FOR COP</td> <td>KEK</td> <td>MDN</td> </tr> <tr> <td>C</td> <td>03/23/2022</td> <td>DOW</td> <td>RE-ISSUED FOR COP</td> <td>KEK</td> <td>MDN</td> </tr> <tr> <td>B</td> <td>06/03/2021</td> <td>DOW</td> <td>RE-ISSUED FOR COP</td> <td>KEK</td> <td>MDN</td> </tr> <tr> <td>A</td> <td>11/22/2019</td> <td>DOW</td> <td>ISSUED FOR COP</td> <td>KEK</td> <td>MDN</td> </tr> </table>	Rev	Date	Drawn	Description	Ch'k'd	App'd		D	06/16/2023	JSR	RE-ISSUED FOR COP	KEK	MDN	C	03/23/2022	DOW	RE-ISSUED FOR COP	KEK	MDN	B	06/03/2021	DOW	RE-ISSUED FOR COP	KEK	MDN	A	11/22/2019	DOW	ISSUED FOR COP
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A	11/22/2019	DOW	ISSUED FOR COP	KEK	MDN																											



PLAN VIEW
SCALE: 1" = 80'

PRELIMINARY
NOT FOR CONSTRUCTION

FOR INFORMATION
PURPOSES ONLY



PROFILE VIEW
HORIZ. SCALE: 1" = 80'
VERT. SCALE: 1" = 80'

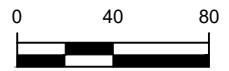
NOTES:

1. LOCATION AND ALIGNMENT OF ALL UTILITIES ARE TO BE VERIFIED FOLLOWING SITE INVESTIGATION.
2. PRELIMINARY CABLE ALIGNMENTS SHOWN MAY BE ADJUSTED AS THE DESIGN PROGRESSES.
3. EXISTING FEATURES SHOWN ON PLANS PROVIDED BY ROBINSON AERIAL ON 09/22/2021.
4. EXISTING CONTOURS (ONSHORE) PROVIDED BY ROBINSON AERIAL ON 09/22/2021.
5. ENVIRONMENTAL SURVEY HAS NOT BEEN CONDUCTED ON AREA SHOWN ON THESE PLANS.
6. BATHYMETRIC DATA WITHIN BARNUMS CHANNEL IS FROM PUBLIC SOURCES (NOAA). ADDITIONAL SURVEY WILL BE REQUIRED TO VERIFY EXACT LOCATION OF MUDLINE.
7. HORIZONTAL DATUM IS NAD83, NEW YORK STATE PLANE, LONG ISLAND US FOOT. VERTICAL DATUM IS NAVD1988.
8. CONVERSION FOR VERTICAL DATUM IS NAVD88 + 2.8' = MLLW.
9. DRAWING IS FOR PERMITTING PURPOSES ONLY, NOT FOR CONSTRUCTION.
10. SPRING HIGH WATER (SHW) VALUE WAS ESTIMATED BASED ON THE 2022 TIDE PREDICTIONS FROM NOAA STATION 8516663, LONG BEACH, NY.
11. FLOOD/EBB FLOW DIRECTIONS ARE APPROXIMATED FROM PUBLIC DATA.

*TIDAL WATER LEVELS	
ALL TIDAL WATER LEVELS ARE IN NAVD88.	
SPRING HIGH WATER	= 2.7 FT
MEAN HIGH WATER	= 1.9 FT
MEAN LOW WATER	= -2.6 FT
MEAN LOWER LOW WATER	= -2.8 FT



HORIZONTAL SCALE: 1" = 80'



VERTICAL SCALE: 1" = 80'

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Title: BARNUMS CHANNEL
CABLE BRIDGE CROSSING

Applicant Name: EMPIRE OFFSHORE WIND LLC.

Proposed Project: EMPIRE WIND 2 PROJECT

RE-ISSUED FOR COP

Location: 3705 HAMPTON ROAD
OCEANSIDE, NY

Lat/Long: 40.617, -73.650

Waterbody: BARNUMS CHANNEL



Mott MacDonald NY Inc.
1400 Broadway, 21st Floor
New York, NY 10018-0000
Certificate of Authorization #: 0017019

Date	Drawn	Checked	Approved	Scale at ANSI A	Drawing Number	File Number	Status	Rev
06/23/2023	JSR	KEK	MDN	AS SHOWN	014	NAN-2022-00902-EMI EMPIRE WIND 2	PRE	B

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