NEW YORK - NEW JERSEY HARBOR AND TRIBUTARIES
COASTAL STORM RISK MANAGEMENT
FEASIBILITY STUDY

TENTATIVELY SELECTED PLAN
1. The data displayed on the site plans in these drawings may not be representative of the exact location of the proposed flood risk reduction alignment. The alignments shown are meant to provide an indication of the proposed placement of the measure, but should not be construed as exact or final, nor is the line width representative of the scale of the measure. Refinements to the location of the features will be made in later phases of the study.

ABBREVIATIONS

- A = AT
- CL = CENTERLINE
- CWT = COUNTERWEIGHT
- DIA = DIAMETER
- EL = ELEVATION
- EW = EACH WAY
- FCM = Fracture Critical Members
- GR = Grade
- IFF = Induced Flood Crossing Feature
- MHWS = Mean High Water Spring
- MLS = Mean Lower Low
- NUL = Nominal Upper Limit
- NUS = Not To Scale
- NYNJHA T = New York / New Jersey Harbor and Port Authorities
- RRF = Residual Risk Feature
- SBM = Shore Based Measure
- SSB = Storm Surge Barrier
- TBE = To Be Determined
- TBP = Tentatively Selected Plan
- VERT = Vertical

ABBREVIATIONS

- CBM = Coast Barrier Management
- CSRM = Critical Shoreline Risk Management
- DIA = Diameter
- CTWT = Counterweight
- EL = Elevation
- EW = Each Way
- FCM = Fracture Critical Members
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NEW JERSEY ALONG HUDSON RIVER SBM

Sheet ID: 220032-C5-105

PRELIMINARY
NOT FOR CONSTRUCTION

SBM - SITE PLAN (5 OF 27)

 Measures Type:
- Large Levee
- Medium Levee
- Extra Large Floodwall
- Floodwall with Park
- Large Floodwall
- Medium Floodwall
- Elevated Promenade
- Reinforced Dune - Natural Dune Cover
- Reinforced Dune - Partial Dune Cover
- Seawall
- Tide Gate
- Storm Surge Barrier
- Deployable Flood Barrier - Fill-Up Barrier
- Deployable Flood Barrier - Pedestrian Gate
- Deployable Flood Barrier - Railroad Gate
- Deployable Flood Barrier - Vehicle Gate
- Large Levee with Road Ramp
- Medium Levee with Road Ramp
- IFF Large Levee*
- CSRMI Reduced Risk with Project
- CSRMI Reduced Risk with Project (with Project)

*iff alignments are delineated with a yellow highlight around SBM line systemology.
NEW YORK CITY WEST SIDE SBM

MANHATTAN

HUDSON RIVER

SBM - SITE PLAN (7 OF 27)
UPPER BAY

BROOKLYN

GOWANUS CANAL

GOWANUS CANAL\n\nGOWANUS CANAL\n\nGOWANUS CANAL

GOWANUS CANAL STORM SURGE
[BARRIER SET SHEET CS-706]

SHEET CS-110 (10 OF 27)

PRELIMINARY
NOT FOR CONSTRUCTION

SBM - SITE PLAN (10 OF 27)
SBM - SITE PLAN (12 OF 27)
SBM - SITE PLAN (14 OF 27)

- **Rainier Type**:
  - Large Revise
  - Medium Revise
  - Extra Large Floodwall
  - Floodwall with Park
  - Large Floodwall
  - Medium Floodwall
  - Elevated Hammocks
  - Support Dunes - Natural Dune Cover
  - Reinforced Dune - Natural Dune Cover
  - Seawall
  - Tide Gate
  - Storm Surge Barrier
  - Deployable Flood Barrier - Fill-Up Barrier
  - Deployable Flood Barrier - Pedestrian Gate
  - Deployable Flood Barrier - Railroad Gate
  - Deployable Flood Barrier - Vehicle Gate
  - Large Revise with Road Ramp
  - Medium Revise with Road Ramp

*If the alignment is identified with a yellow highlight around SBM line symbology.*
TOTTENVILLE

ARTHUR KILL

STATEN ISLAND

PERTH AMBOY

RRF - SITE PLAN (11 OF 15)

Measure Type:
- Hybrid Berm
- High Berm
- Medium Berm
- Low Berm
- High Floodwall
- Constant Floodwall
- Low Floodwall
- Revetment with Floodwall
- DeepBulkhead
- Shallow Bulkhead
- Road Raising
- Navigable Gate
- Tide Gate
- Deployable Flood Barrier - Pedestrian Gate
- Deployable Flood Barrier - Vehicle Gate
- Deployable Flood Barrier - Flip Up Barrier
TELEGRAPHIC ELABORATION

1. **Measure Type**
   - Hybrid Berm
   - High Berm
   - Medium Berm
   - Low Berm
   - High Floodwall
   - Entrapment Floodwall
   - Low Floodwall
   - Removal with Floodwall
   - Deep Bulkhead
   - Shallow Bulkhead
   - Road Casing
   - Navigable Gate
   - Tide Gate
   - Deployable Flood Barrier - Pedestrian Gate
   - Deployable Flood Barrier - Vehicle Gate
   - Deployable Flood Barrier - Flip-Up Barrier

2. **Location**
   - **BROOKLYN**
   - **FRESH CREEK**
   - **HENDRIX CREEK**
   - **JAMAICA BAY**
   - **CANARSIE**

3. **Dates**
   - 08.26.22
   - 09.09.22
   - 09.23.22
   - 11:08:41 AM

4. **Reference**
   - RRF - SITE PLAN (12 OF 15)
   - PRELIMINARY
   - NOT FOR CONSTRUCTION
   - CANARSIE
   - RRF - SITE PLAN (12 OF 15)

5. **Contact Information**
   - NEW YORK CITY:
     - 212-768-7454
     - 529 FIFTH AVENUE, 14TH FLOOR
   - NEW YORK, NY 10017
   - WWW.NAN.USACE.ARMY.MIL

6. **Scale**
   - 1:4,000

7. **Drawing Information**
   - Sheet ID: 220032-C5-161.dgn
   - File Path: \m
   - Last Plotted By: [Name]
   - Last Plotted Date: 09.09.22 11:08:41 AM

8. **Project Information**
   - Contract No.: [Contract Information]
   - Preliminary
   - New York - New Jersey Harbor and Canal System
   - Draft for Public Review - NYNJHA T Study TSP Plan Set
   - Tributaries Coastal Storm Risk NEW YORK - NEW JERSEY HARBOR AND COASTAL CANALS

9. **Notice**
   - NOT FOR CONSTRUCTION
THE MARINE PARKWAY BRIDGE (GIL HODGES MEMORIAL BRIDGE) IS SHOWN IN ITS CURRENT SPAN CONFIGURATION. FOR PURPOSE OF THIS CONCEPT EVALUATION, IT IS ASSUMED THAT THE BRIDGE STRUCTURE WILL BE REPLACED WITH A NEW STRUCTURE WITH AN ALTERNATE SPAN GEOMETRY THAT PROVIDES FOR NAVIGATION THROUGH THE JAMAICA BAY STORM SURGE BARRIER.

36" DIA x 3/4" STEEL PIPE PILES. TIP EL -170, TOP EL -45. 9'x9' GRID AT SECTOR GATE ABUTMENTS. 10’x15’ GRID AT REMAINING TREMIE SEAL.
THE MARINE PARKWAY BRIDGE (GIL HODGES MEMORIAL BRIDGE) IS SHOWN IN ITS CURRENT SPAN CONFIGURATION. FOR PURPOSE OF THIS CONCEPT EVALUATION, IT IS ASSUMED THAT THE BRIDGE STRUCTURE WILL BE REPLACED WITH A NEW STRUCTURE WITH AN ALTERNATE SPAN GEOMETRY THAT PROVIDES FOR NAVIGATION THROUGH THE JAMAICA BAY STORM SURGE BARRIER.

NOTES:

1. 36" DIA x 36' STEEL PIPES TIP EL -178, TOP EL -45. 8'x8' GRID AT SECTOR GATE ABUTMENTS. 10'x10' GRID AT REMAINING TRENCH SEAL.

2. SEE NOTE 1
The Marine Parkway Bridge (GIL Hodges Memorial Bridge) is shown in its current span configuration. For purpose of this concept evaluation, it is assumed that the bridge structure will be replaced with a new structure with an alternate span geometry that provides for navigation through the Jamaica Bay storm surge barrier.
The Marine Parkway Bridge (Gil Hodges Memorial Bridge) is shown in its current span configuration. For purpose of this concept evaluation, it is assumed that the bridge structure will be replaced with a new structure with an alternate span geometry that provides for navigation through the Jamaica Bay Storm Surge Barrier.
NOTE:
1. SEE ELEVATIONS TABLE, SHEET CS-614 FOR INFORMATION
NOT TO SCALE.

1. TEMPORARY TENSION H PILES SHALL BE PROVIDED FOR THE TREMIE. PILES SHALL BE HP16X141 ASTM A572 GR 50, Fy MIN = 50 KSI. PILES SHALL BE SPACED AT 10'-0" ALONG THE GATE AND 8'-0" PERPENDICULAR TO THE GATE. DISTANCE FROM H PILES TO SHEET PILE CUTOFF AND TO THE INTERIOR FACE OF COFFERDAM SHALL BE MIN 5'-0". ALL TENSION H PILES SHALL BE SOCKETED TO ROCK.

2. FOR THE CASE OF JAMAICA BAY, H PILES SHALL BE SPACED AT 10'-0" ALONG THE GATE AND 8'-0" PERPENDICULAR TO THE GATE. DISTANCE FROM H PILES TO SHEET PILE CUTOFF AND TO THE INTERIOR FACE OF COFFERDAM SHALL BE MIN 5'-0". ALL TENSION H PILES SHALL BE DRIVEN TO LEVEL EL -167.0 NAVD88.
NOTE:
1. DREDGED AREA TO BE BACKFILLED WITH QUARRY RUN
   GEOTEXTILE TO BE PLACED ON DREDGED SLOPE PRIOR TO BACKFILLING.

DOUBLE LAYER STONES
(REFER TO TABLE)

SLOPE AS DREDGED

GEOTEXTILE

QUARRY RUN - (0.1-300)kg

SILL

GEOTEXTILE

SCOUR APRON LENGTH

LAYER THICKNESS 'A'

NO = NUM. OF ROCKS

VEHRAAGA NARROWS
140 ft
1'-0" (100-300)kg

JAMAICA BAY
182 ft
0'-0"
(100-3000)kg

INDIAKANDEE ROCK H4
190 ft
0'-0"
(200-1000)kg

SCOUR PROTECTION @ DAM

VERRAAGA NARROWS
165 Ft
5'-7"
(1000-3000)kg

JAMAICA BAY
165 Ft
7'-3"
(300-1000)kg

HACKENSACK RIVER
100 Ft
4'-0"
(300-1000)kg

VERRAZZANO NARROWS
100 Ft
0'-0"
(NLL-NUL OF ROCKS)

SCOUR PROTECTION @ DAM
NOTES:
1. Skin Plate: 3/4"x27"x30'-0" with intercostals 1.5"x30"x30'-0" at 1'-0" operating on the short side; weight per area: 10# per sqft. Skin plate located at straight chord of the truss. Straight chord is located on landside.
2. Steel sections: ASTM A572 Gr 50 or Engineer-approved equivalent or better.
3. Fracture Critical Members: The only elements subject to fracture critical members (FCM) are the lifting eyes of the gate used for installation. Not included at this level of design, no other element is considered as FCM. Since critical elements (curved chords of the trusses) are in compression for the critical cases and additionally considered as FCM, since critical elements (curved chords of the trusses) are in compression for the critical cases and additionally considered as FCM, since these are in compression for the critical cases and additionally considered as FCM, since these are in compression for the critical cases and additionally considered as FCM.
4. Failure of these elements does not imply collapse of the gate.
5. Total weight: 1063 kip.
6. Counterweights (CTWT) are assumed to be stacks of 1 or 2' steel plate.

STEEL SECTIONS: ASTM A572 GR 50 OR ENGINEER-APPROVED EQUIVALENT OR BETTER.

LANDSIDE. LOCATED AT STRAIGHT CHORD OF THE TRUSS. STRAIGHT CHORD IS LOCATED ON (ORIENTED ON THE SHORT SIDE). WEIGHT PER AREA: 19 LBF/SQFT. SKIN PLATE: 3/8"X67"X15'-0" PLATE WITH INTERCOSTALS L4"X4"X5/16" AT 2'-4". THICKNESS 1" OF VERT. GATE TRAVEL. WILL REQUIRE A PULLEY SYSTEM TO ALLOW 1" OF VERT. CTWT. TRAVEL FOR MORE THAN 1' OF VERT. GATE TRAVEL.

BETTER.

TOTAL WEIGHT: 1063 KIP.

FAILURE OF THESE ELEMENTS DOES NOT IMPLY COLLAPSE OF THE GATE.

COUNTERWEIGHTS (CTWT) ARE ASSUMED TO BE STACKS OF 1 OR 2' STEEL PLATE.

IT IS ANTICIPATED THAT CTWT WILL REQUIRE EITHER A CTWT PIT BELOW EL 6 OR WILL REQUIRE A FULLY SYSTEM TO ALLOW 1" OF VERT. CTWT TRAVEL FOR MORE THAN 1' OF VERT. GATE TRAVEL.

THAN 1" OF VERT. GATE TRAVEL.

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THAN 1" OF VERT. GATE TRAVEL.

WEIGHT PER AREA: 19 LBF/SQFT. SKIN PLATE: 3/8"X67"X15'-0" PLATE WITH INTERCOSTALS L4"X4"X5/16" AT 2'-4".
NOTE:
1. FACE-MOUNTED VEHICLE GUARDRAIL AT EACH FACE (NOT SHOWN).
2. 10 FT SPACING BETWEEN BUTTRESSES.
### Jamaica Bay Auxiliary Gate Elevations and Heights

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**NOTES:**
1. SEE SHEETS CS-605 & CS-606 FOR LETTER DEFINITIONS.
2. IT IS ANTICIPATED THAT THERE WILL BE A STEEL-FRAMED MACHINE HOUSE ON TOP OF EACH PIER, WHERE ROOF WILL BE 20 TO 25 FEET ABOVE "A", THE TOP OF CONCRETE TOWER ELEVATION. IT IS ASSUMED THAT EACH MACHINE HOUSE WILL CONTAIN APPROXIMATELY 15-FOOT DIAMETER SHEAVES.

### Machine House Details
- Will contain approximately 15-foot diameter sheaves.
- Will be 20 to 25 feet above "A", the top of concrete tower elevation.
- Steel-framed machine house on top of each pier, where roof is anticipated to be 20 to 25 feet above "A".
- Assumed that each machine house will contain approximately 15-foot diameter sheaves.
NOTES:

1. THIS ELEVATION VIEW SHOWS A CONCEPTUAL GEOMETRIC DESIGN. THIS PRELIMINARY
   DEPICTION OF THE GEOMETRY OF THE NAVIGABLE PASSAGES, AUXILIARY FLOW GATES AND
   STORM SURGE BARRIER CONFIGURATION SHALL NOT BE CONSTRUED AS
   RECOMMENDATIONS OR REQUIREMENTS FOR ACTUAL DESIGN FOR IMPLEMENTATION.
   SIGNIFICANT ADDITIONAL STUDY IS REQUIRED TO SUBSTANTIATE THE CONCEPTUAL DESIGN
   OF THIS STORM SURGE BARRIER.

2. GATE SERIES ARE LABELED AS N@X FT, WHERE N IS NUMBER OF GATES AND X IS CLEAR
   DISTANCES BETWEEN PIERs (UNLESS OTHERWISE NOTED).

3. EXISTING FLOW AREA WITHOUT STORM SURGE BARRIER EQUALS 53,900 SF. WITH THE
   STRUCTURE IN PLACE THE FLOW AREA EQUALS 25,200 SF. (47% OF EXISTING).

LEGEND:

- GATE STRUCTURE SERIES (PER STORM SURGE BARRIER SUB APPENDIX, TABLES SECTION 6) - SEE NOTE 2.
- GATE IN CLOSED POSITION
- GATE SILL AND FOUNDATION (TBD)
1. FOR DETAILS ON FLOATING SECTOR GATES, SEE THE PLAN SET OF THE VERRAZZANO NARROWS SSB INCLUDED IN SUB-APPENDIX B2-G.
NOTE:

1. THIS ELEVATION VIEW SHOWS A CONCEPTUAL GEOMETRIC DESIGN. THIS PRELIMINARY
   DEPICTION OF THE GEOMETRY OF THE NAVIGABLE PASSAGES, AUXILIARY FLOW GATES AND
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   OF THIS STORM SURGE BARRIER.

2. GATE SERIES ARE LABELED AS N@X FT, WHERE N IS NUMBER OF GATES AND X IS CLEAR
   DISTANCES BETWEEN PIERS (UNLESS OTHERWISE NOTED).

3. EXISTING FLOW AREA WITHOUT STORM SURGE BARRIER EQUALS 120,500 SF. WITH THE
   STRUCTURE IN PLACE THE FLOW AREA EQUALS 65,600 SF. (54% OF EXISTING).
Concept for the Kill Van Kull Storm Surge Barrier - Artist Photo Visualization

Context:
This is an artist's impression of the conceptual design for the Kill Van Kull Storm Surge Barrier. The storm surge barrier configuration shall not be construed as a final recommendation or as a requirement for actual design for implementation.

1. For details on floating sector gates, see the plan set of the Verrazzano Narrows SSB included in Sub-Appendix B2-G.

Legend:
- Navigable Passage
- Auxiliary Flow Gates
- Dam Section and Tie-In
- Flood Risk Reduction System (Land Based Measures)

NOTE:
- For details on floating sector gates, see the plan set of the Verrazzano Narrows SSB included in Sub-Appendix B2-G.
1. This elevation view shows a conceptual geometric design. This preliminary depiction of the geometry of the navigable passages, auxiliary flow gates and storm surge barrier configuration shall not be construed as recommendations or requirements for actual design for implementation. Significant additional study is required to substantiate the conceptual design of this storm surge barrier.

2. Gate series are labeled as N@X ft, where N is number of gates and X is clear distances between piers (unless otherwise noted).

3. Existing flow area without storm surge barrier equals 4,300 sf, with the structure in place the flow area equals 3,400 sf (79% of existing).
GOWANUS CANAL STORM SURGE BARRIER
(LOOKING NORTH, GATES IN THE CLOSED POSITION)

NOTES:
1. THIS ELEVATION VIEW SHOWS A CONCEPTUAL GEOMETRIC DESIGN. THIS PRELIMINARY DEPICTION OF THE GEOMETRY OF THE NAVIGABLE PASSAGES, AUXILIARY FLOW GATES AND BARRIER CONFIGURATION SHALL NOT BE CONSTRUED AS RECOMMENDATIONS OR REQUIREMENTS FOR ACTUAL DESIGN FOR IMPLEMENTATION. SIGNIFICANT ADDITIONAL STUDY IS REQUIRED TO SUBSTANTIATE THE CONCEPTUAL DESIGN OF THIS BARRIER.

2. GATE SERIES ARE LABELED AS N@X FT, WHERE N IS NUMBER OF GATES AND X IS CLEAR DISTANCES BETWEEN PIERS (UNLESS OTHERWISE NOTED).

3. EXISTING FLOW AREA WITHOUT BARRIER EQUALS 1,300 SF. WITH THE STRUCTURE IN PLACE THE FLOW AREA EQUALS 2,200 SF (169% OF EXISTING).

LEGEND:
A GATE STRUCTURE SERIES (PER STORM SURGE BARRIER SUB APPENDIX, TABLES SECTION 6)
B GATE IN CLOSED POSITION
C GATE SILL AND FOUNDATION

NOTES:
1. THIS ELEVATION VIEW SHOWS A CONCEPTUAL GEOMETRIC DESIGN. THIS PRELIMINARY DEPICTION OF THE GEOMETRY OF THE NAVIGABLE PASSAGES, AUXILIARY FLOW GATES AND BARRIER CONFIGURATION SHALL NOT BE CONSTRUED AS RECOMMENDATIONS OR REQUIREMENTS FOR ACTUAL DESIGN FOR IMPLEMENTATION. SIGNIFICANT ADDITIONAL STUDY IS REQUIRED TO SUBSTANTIATE THE CONCEPTUAL DESIGN OF THIS BARRIER.

2. GATE SERIES ARE LABELED AS N@X FT, WHERE N IS NUMBER OF GATES AND X IS CLEAR DISTANCES BETWEEN PIERS (UNLESS OTHERWISE NOTED).

3. EXISTING FLOW AREA WITHOUT BARRIER EQUALS 1,300 SF. WITH THE STRUCTURE IN PLACE THE FLOW AREA EQUALS 2,200 SF (169% OF EXISTING).
NOTES:

1. THIS ELEVATION VIEW SHOWS A CONCEPTUAL GEOMETRIC DESIGN. THIS PRELIMINARY DEPICTION OF THE GEOMETRY OF THE NAVIGABLE PASSAGES, AUXILIARY FLOW GATES AND BARRIER CONFIGURATION SHALL NOT BE CONSTRUED AS RECOMMENDATIONS OR REQUIREMENTS FOR ACTUAL DESIGN FOR IMPLEMENTATION. SIGNIFICANT ADDITIONAL STUDY IS REQUIRED TO SUBSTANTIATE THE CONCEPTUAL DESIGN OF THIS BARRIER.

2. GATE SERIES ARE LABELED AS N@X FT, WHERE N IS NUMBER OF GATES AND X IS CLEAR DISTANCES BETWEEN PIERS (UNLESS OTHERWISE NOTED).

3. EXISTING FLOW AREA WITHOUT BARRIER EQUALS 4,500 SF. WITH THE STRUCTURE IN PLACE THE FLOW AREA EQUALS 4,300 SF (96% OF EXISTING).
NOTES:

1. THIS ELEVATION VIEW SHOWS A CONCEPTUAL GEOMETRIC DESIGN. THIS PRELIMINARY DEPICTION OF THE GEOMETRY OF THE NAVIGABLE PASSAGES, AUXILIARY FLOW GATES AND BARRIER CONFIGURATION SHALL NOT BE CONSTRUED AS RECOMMENDATIONS OR REQUIREMENTS FOR ACTUAL DESIGN FOR IMPLEMENTATION. SIGNIFICANT ADDITIONAL STUDY IS REQUIRED TO SUBSTANTIATE THE CONCEPTUAL DESIGN OF THIS BARRIER.

2. GATE SERIES ARE LABELED AS N@X FT, WHERE N IS NUMBER OF GATES AND X IS CLEAR DISTANCES BETWEEN PIERS (UNLESS OTHERWISE NOTED).

3. EXISTING FLOW AREA WITHOUT BARRIER EQUALS 15,300 SF. WITH THE STRUCTURE IN PLACE THE FLOW AREA EQUALS 7,900 SF (52% OF EXISTING).
NOTES:

1. THIS ELEVATION VIEW SHOWS A CONCEPTUAL GEOMETRIC DESIGN. THIS PRELIMINARY DEPICTION OF THE GEOMETRY OF THE NAVIGABLE PASSAGES, AUXILIARY FLOW GATES AND BARRIER CONFIGURATION SHALL NOT BE CONSTRUED AS RECOMMENDATIONS OR REQUIREMENTS FOR ACTUAL DESIGN FOR IMPLEMENTATION. SIGNIFICANT ADDITIONAL STUDY IS REQUIRED TO SUBSTANTIATE THE CONCEPTUAL DESIGN OF THIS BARRIER.

2. GATE SERIES ARE LABELED AS N@X FT, WHERE N IS NUMBER OF GATES AND X IS CLEAR DISTANCES BETWEEN PIERS (UNLESS OTHERWISE NOTED).

3. EXISTING FLOW AREA WITHOUT BARRIER EQUALS 4,200 SF. WITH THE STRUCTURE IN PLACE THE FLOW AREA EQUALS 3,100 SF (74% OF EXISTING).
CHANNEL PROFILE
APPROX. EXIST. AT 10 FT-NAVD88
TOP OF STRUCTURE
EL -0.22 MSL

PIER, TYP NAVIGABLE GATE
TOWER, TYP LIFT GATE

SOUTH TIE-IN
DAM SECTION

NORTH TIE-IN
DAM SECTION

3 @ 150'
2 @ 150'
1 @ 150'


SOUTH TIE-IN
DAM SECTION

NOT FOR CONSTRUCTION
PRELIMINARY

HACKENSACK RIVER RRF - NAVIGABLE GATE
(LOOKING EAST, GATES IN CLOSED POSITION)

LEGEND:

A) GATE STRUCTURE SERIES (PER STORM SURGE BARRIER SUB APPENDIX, TABLES SECTION 7)
SEE NOTE 2

1. THIS ELEVATION VIEW SHOWS A CONCEPTUAL GEOMETRIC DESIGN. THIS PRELIMINARY DEPICTION OF THE
GEOMETRY OF THE NAVIGABLE PASSAGES, AUXILIARY FLOW GATES AND BARRIER CONFIGURATION SHALL NOT
BE CONSTRUED AS RECOMMENDATIONS OR REQUIREMENTS FOR ACTUAL DESIGN FOR IMPLEMENTATION.
SIGNIFICANT ADDITIONAL STUDY IS REQUIRED TO SUBSTANTIATE THE CONCEPTUAL DESIGN OF THIS BARRIER.

2. GATE SERIES ARE LABELED AS N@X FT. WHERE N IS NUMBER OF GATES AND X IS CLEAR DISTANCES BETWEEN PIERS
(UNLESS OTHERWISE NOTED).

3. EXISTING FLOW AREA WITHOUT BARRIER EQUALS 25,400 SF. WITH THE STRUCTURE IN PLACE THE FLOW AREA
EQUALS 19,000 SF. (72% OF EXISTING).

NOTES:
HEAD OF BAY GATE RRF - NAVIGABLE GATE
(LOOKING NORTH, GATES IN CLOSED POSITION)

LEGEND:
(A) GATE STRUCTURE SERIES (PER STORM SURGE
BARRIERS SUB APPENDIX, TABLES SECTION 7)
SEE NOTE 2
- GATE IN CLOSED POSITION
- GATE SILL AND FOUNDATION

NOTES:
1. THIS ELEVATION VIEW SHOWS A CONCEPTUAL GEOMETRIC DESIGN. THIS PRELIMINARY DEPICTION OF THE GEOMETRY
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2. GATE SERIES ARE LABELLED AS N@X FT. WHERE N IS NUMBER OF GATES AND X IS CLEAR DISTANCES BETWEEN PIERS
UNLESS OTHERWISE NOTED.
3. EXISTING FLOW AREA WITHOUT BARRIER EQUALS 2,000 SF. WITH THE STRUCTURE IN PLACE THE FLOW
AREA EQUALS 4,300 SF. (215% OF EXISTING).
OLD HOWARD BEACH EAST GATE RRF - NAVIGABLE GATE

(LOOKING SOUTH, GATES IN CLOSED POSITION)

LEGEND:

A  GATE STRUCTURE SERIES (PER STORM SURGE BARRIER SUB APPENDIX, TABLES SECTION 7)
SEENOTE 2.

NOTES:

1. THIS ELEVATION VIEW SHOWS A CONCEPTUAL GEOMETRIC DESIGN. THIS PRELIMINARY DEPICTION OF THE GEOMETRY OF THE NAVIGABLE PASSAGES, AUXILIARY FLOW GATES AND BARRIER CONFIGURATION SHALL NOT BE CONSTRUED AS RECOMMENDATIONS OR REQUIREMENTS FOR ACTUAL DESIGN FOR IMPLEMENTATION. SIGNIFICANT ADDITIONAL STUDY IS REQUIRED TO SUBSTANTIATE THE CONCEPTUAL DESIGN OF THIS BARRIER.

2. GATE SERIES ARE LABELED AS N@X FT. WHERE N IS NUMBER OF GATES AND X IS CLEAR DISTANCES BETWEEN PIERS (UNLESS OTHERWISE NOTED).

3. EXISTING FLOW AREA WITHOUT BARRIER EQUALS 4,900 SF. WITH THE STRUCTURE IN PLACE THE FLOW AREA EQUALS 900 SF. (19% OF EXISTING).

RESIDUAL RISK FEATURES

TOP OF STRUCTURE AT 10 FT NAVD88

109.6'

NAVIGABLE PASSAGE

EL +2.41

NAVIGABLE GATE EL -0.24

AREA EQUALS 900 SF. (19% OF EXISTING).

EXISTING FLOW AREA WITHOUT BARRIER EQUALS 4,900 SF. WITH THE STRUCTURE IN PLACE THE FLOW AREA EQUALS 900 SF. (19% OF EXISTING).
OLD HOWARD BEACH WEST GATE RRF - NAVIGABLE GATE
(LOOKING SOUTH, GATES IN CLOSED POSITION)

1. THIS ELEVATION VIEW SHOWS A CONCEPTUAL GEOMETRIC DESIGN. THIS PRELIMINARY DEPICTION OF THE GEOMETRY OF THE NAVIGABLE PASSAGES, AUXILIARY FLOW GATES AND BARRIER CONFIGURATION SHALL NOT BE CONSTRUED AS RECOMMENDATIONS OR REQUIREMENTS FOR ACTUAL DESIGN FOR IMPLEMENTATION. SIGNIFICANT ADDITIONAL STUDY IS REQUIRED TO SUBSTANTIATE THE CONCEPTUAL DESIGN OF THIS BARRIER.

2. GATE SERIES ARE LABELED AS N@X FT. WHERE N IS NUMBER OF GATES AND X IS CLEAR DISTANCES BETWEEN PIERS (UNLESS OTHERWISE NOTED).

3. EXISTING FLOW AREA WITHOUT BARRIER EQUALS 1,100 SF. WITH THE STRUCTURE IN PLACE THE FLOW AREA EQUALS 900 SF. (82% OF EXISTING).

NOTES:

LEGEND:

- GATE STRUCTURE SERIES (PER STORM SURGE BARRIER SUB APPENDIX, TABLES SECTION 7) SEE NOTE 2.
- GATE IN CLOSED POSITION
- GATE SILL AND FOUNDATION

PREFLA - M. S. "MARK APPL.

CS-804