INTEGRATED HURRICANE SANDY
GENERAL RE-EVALUATION REPORT AND
ENVIRONMENTAL IMPACT STATEMENT

ATLANTIC COAST OF NEW YORK

EAST ROCKAWAY INLET TO ROCKAWAY INLET

INDEX TO DRAWINGS

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NOTES

1. EXISTING CONTOURS ARE BASED ON POST-SANDY SURVEY EXCEPT FOR McKEE'S CREED FROM FEBRUARY 27TH, 2013 TO MARCH 5TH, 2013.
2. ALL ELEVATIONS REFERENCED TO NAVD88.
3. DESIGN BERM CREST EL +8.0' TO REMAIN MATCH EXISTING GRADE TO EXISTING GRADE (TO BE DETERMINED AT PRELIMINARY DESIGN).
4. EXISTING CONTOURS ARE BASED ON POST-SANDY SURVEY (SEE NOTE 3).
5. BEACH CONSTRUCTION TEMPLATE WILL EXTEND TO EXISTING GRADE AND IS NOT SHOWN FOR CLARITY.

LEGEND

- MATCH LINE - SEE SHEET CS-102
- SHEET PILE WALL
- BURIED SEAWALL
- BEACH FILL
- SPLASH APRON
- EXISTING BARRIER WALL
- EXISTING CONTOURS (BATHYMETRY)

MATCH LINE - BEHIND SHEET CS-102
**NOTES**

1. EXISTING CONTOURS ARE BASED ON POST-SANDY SURVEY
2. ALL ELEVATIONS REFERENCED TO NAVD88.
3. DESIGN DUNE CREST EL. +18.0' (SEE SHEET CS-105).
4. SECTIONS SHOWN ON SHEETS CS-301 TO CS-307.
5. BEACH CONSTRUCTION TEMPLATE WILL EXTEND TO EXISTING DUNE AND IS NOT SHOWN FOR CLARITY.

**LEGEND**

- **MATCH LINE**
- **SHEET PILE WALL**
- **BURIED SEAWALL**
- **BEACH FILL**
- **SPLASH APRON**
- **EXISTING BAFFLE WALL**
- **EXISTING CONTOURS**

**DESIGN SHORELINE** (SEE NOTE 3)
NOTES

1. EXISTING CONTOURS ARE BASED ON POST-SANDY SURVEY
2. ALL ELEVATIONS REFERENCED TO NAVD88.
3. DESIGN SHORELINE DEFINED ON SHEET CS-301.
4. SECTIONS SHOWN ON SHEETS CS-301 TO CS-307.
5. GREEN PLAN PROFILES AND SECTIONS SHOWN ON SHEETS CS-401 TO CS-410.
6. BEACH CONSTRUCTION TEMPLATE/PLAN EXTENDS TO EXISTING DUNE AND IS NOT SHOWN FOR CLARITY.

LEGEND

- MAINLINE
- SHEET PILE WALL
- BURIED SEAWALL
- BEACH FILM
- SPLASH APRON
- EXISTING BARRIER WALL
- EXISTING CONTOURS (SUPERIMPOSED)

PRELIMINARY
NOT FOR CONSTRUCTION

TOTAL LENGTH = 10,650'
NOTES

1. EXISTING CONTOURS ARE BASED ON POST-SANDY SURVEY
   PERFORMED BY MCKIM & CREED FROM FEBRUARY 25TH,
   2013 TO MARCH 5TH, 2013.

2. ALL ELEVATIONS REFERENCED TO NAVD88.

3. DESIGN BERM CREST EL +8.0' TO REMAIN.
   DESIGN SHORELINE DEFINED ON SHEET CS-301.
   ALL ELEVATIONS REFERENCED TO NAVD88.
   2013 TO MARCH 5TH, 2013.

4. SECTIONS SHOWN ON SHEETS CS-301 TO CS-302.
   TYPICAL SECTIONS SHOWN ON SHEETS CS-301 TO CS-302.
   SECTIONS SHOWN ON SHEETS CS-301 TO CS-302.

5. GROIN PLAN Profiles and Sections Shown On Sheets
   CS-301 TO CS-302.

6. BEACH CONSTRUCTION TEMPLATE WILL EXTEND TO
   EXISTING GRADE AND IS NOT SHOWN FOR CLARITY.

LEGEND

- MAIN LINE
- SHEET PILE WALL
- BURIED SEAWALL
- BEACH FILL
- SPLASH APRON
- EXISTING BARRICADE WALL
- EXISTING CONTOURS (BATHYMETRY)

PRELIMINARY
NOT FOR CONSTRUCTION
1. **EXISTING PROFILE** is based on pre-Sandy survey performed by MWH & CREED from February 2014, 2013 to March 8th, 2013.

2. The width of the design berm is generally 67 feet or more. The seaward crest of the design berm is controlled by the alignment of the baseline, which does not always follow the unnatural alignment.

3. The advance fill width varies based upon the erosion rate.

4. The width of the construction template is based upon the fill volume required for the design profile. Advance fill width varies from profile to profile.

5. The distance from the baseline to the design shoreline is always 243 feet. The design shoreline is aligned with the natural shoreline. The alignment of the upland follows the unnatural alignment of the shoreline.

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**BEACH FILL NOTES**

1. **EXISTING PROFILE** is based on pre-Sandy survey performed by MWH & CREED from February 2014, 2013 to March 8th, 2013.

2. The width of the design berm is generally 67 feet or more. The seaward crest of the design berm is controlled by the alignment of the baseline, which does not always follow the unnatural alignment.

3. The advance fill width varies based upon the erosion rate.

4. The width of the construction template is based upon the fill volume required for the design profile. Advance fill width varies from profile to profile.

5. The distance from the baseline to the design shoreline is always 243 feet. The design shoreline is aligned with the natural shoreline. The alignment of the upland follows the unnatural alignment of the shoreline.

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**TYPICAL BEACH FILL SECTION**

**BEACH 126TH ST. TO BEACH 149TH ST.**

**BEACH 19TH ST. TO BEACH 126TH ST.**
EXISTING GRADE DESIGN PROFILE (TYP.)

NOTES:
2. DESIGN PROFILE SHOWN IN SECTIONS.
3. REFER TO SHEETS CS-301 AND CS-302 FOR TYPICAL SECTIONS.

-30'00

-40'00

-50'00

-20'00

-10'00

VERT. SCALE: 1"=10'

HOR. SCALE: 1"=100'

PRELIMINARY
NOT FOR CONSTRUCTION
NOTES
2. DESIGN PROFILE SHOWN IN SECTIONS.
3. REFER TO SHEETS CS-301 AND CS-302 FOR TYPICAL SECTIONS.

PRELIMINARY
NOT FOR CONSTRUCTION
NOTES
1. DESIGN PROFILE SHOWN IN SECTIONS. 2. EXISTING PROFILE BASED ON POST-SANDY SURVEY PERFORMED BY McKIM & CREED FROM FEBRUARY 25TH, 2013 TO MARCH 5TH, 2013. 3. REFER TO SHEETS CS-301 AND CS-302 FOR TYPICAL SECTIONS.
NOTES
1. DESIGN PROFILE IS BASED ON POST-SANDY SURVEY
   PERFORMED BY MCKIM & CREED FROM FEBRUARY 25TH,
   2013 TO MARCH 5TH, 2013.
2. DESIGN PROFILE SHOWN IN SECTIONS.
3. REFER TO SHEETS CS-301 AND CS-302 FOR TYPICAL SECTIONS.
NOT FOR CONSTRUCTION

NOTES

2. DESIGN PROFILE SHOWN IN SECTIONS.
3. REFER TO SHEETS CS-301 AND CS-302 FOR TYPICAL SECTIONS.

EXISTING PROFILE IS BASED ON POST-SANDY SURVEY1.
NOTES
1. EXISTING PROFILE IS BASED ON POST SANDY SURVEY
   (PERFORMED BY SWN&W) FROM FEBRUARY 25TH, 2013 TO
   MARCH 5TH, 2013.
2. THE WIDTH OF THE DESIGN BEVEL IS GENERALLY 60 FEET OR
   MORE. THE BEVEL SHOWN ON THE DESIGN BEVEL IS
   THE MINIMUM TO BE PROVIDED TO MATCH THE WIDTH OF THE
   BLANKET STONE.
3. THE DISTANCE FROM THE BASELINE TO THE DESIGN BEVEL IS
   THE WIDTH OF THE DESIGN BEVEL.
4. REMOVE EXISTING ARMOR STONE AND RE-WORK AS NECESSARY
   TO CREATE CONTINUOUS INTERLOCKING GROIN STRUCTURE.
5. HSS - HORIZONTAL SHORE SECTION
6. HSS - HORIZONTAL SHORE SECTION
7. ELEVATION WITH EXISTING GROIN CREST.
8. EXISTING CONTOURS NOT SHOWN ON PLAN FOR CLARITY.
9. MATCH EXISTING BEACH FILL WITH EXISTING GROIN CREST.
10. SEE SHEET CS-302 FOR COMPOSITE WALL SECTIONS.

ABBREVIATION
HSS - HORIZONTAL SHORE SECTION
ISS - INTERMEDIATE SLOPING SECTION
OS - OUTER SECTION
TRANS - TRANSITION

PRELIMINARY
NOT FOR CONSTRUCTION
NOTES

1. EXISTING PROFILE IS BASED ON POST-SANDY SURVEY, FIRST DRAFT DATED MAY 30, 2013 TO MARCH 5TH, 2013.
2. THE PROFILE IS MATCHED TO EXISTING PROFILE.
3. DESIGN PROFILE IS MATCHED TO EXISTING PROFILE.
4. SCALE: 1"=50'"
5. EXISTING PROFILE IS BASED ON POST-SANDY SURVEY, FIRST DRAFT DATED MAY 30, 2013 TO MARCH 5TH, 2013.
6. MATCH ELEVATION WITH EXISTING GROIN CREST.
7. EXISTING PROFILE TO BE DETERMINED PRIOR TO CONSTRUCTION.
8. SEE SHEET CS-404 FOR TYPICAL GROIN HSS, OS AND HEAD SECTIONS.
9. SEE SHEET CS-302 FOR COMPOSITE WALL SECTIONS.

ABBREVIATION

EL: ELEVATION
HSS: HORIZONTAL SHORE SECTION
ISS: INTERMEDIATE SLOPING SECTION
OS: OUTER SECTION
TRANS: TRANSITION

DESIGN PROFILE

PROFILE - GROIN 23

PROFILE - GROIN 31 (121st STREET)

PLAN - GROIN 23

PLAN - GROIN 31 (121st STREET)
NOTES

1. EXISTING PROFILE IS BASED ON POST-SANDY SURVEY WHICH WAS PERFORMED FROM MARCH 5TH, 2013 TO MARCH 8TH, 2013 AND IS SUBJECT TO THE ERROR LIMITS OF THE SURVEY.
2. THE WIDTH OF THE DESIGN BERM IS GENERALLY AS SHOWN ON THE SHEET CS-106, EXCEPT WHERE MODIFIED TO FOLLOW THE NATURAL SHORELINE.
3. THE DISTANCE FROM THE BASELINE TO THE DESIGN SHORELINE IS MATCHED EXACTLY TO THE EXISTING GROIN PROFILE, FOLLOWING THE UNNATURAL ALIGNMENT OF THE SHORELINE.
4. THE DESIGN PROFILES ARE ANGRADUAL TRANSITIOM BETWEEN THE BERMS AND ARMOR STONE PROFILE AND WERE ADJUSTED AS NECESSARY TO CREATE A CONTINUOUS INTERLOCKING GROIN STRUCTURE.
5. EXISTING PROFILES ARE UNKNOWN AT THIS TIME, END DESIGN OF GROIN TO BE RESPONSIBLY HAVING COMMON DESIGN PHASE.
6. MATCH ELEVATION WITH EXISTING GROIN CREST.
7. EXISTING BERM PROFILE NOT SHOWN ON PLAN FOR CLARITY.
8. SEE SHEET CS-352 FOR COMPOSITE WALL SECTIONS.
9. SEE CS-44 FOR TYPICAL GROIN HSS, OS AND HEAD SECTIONS.

ABBREVIATION

EL: ELEVATION
HSS: HORIZONTAL SHORE SECTION
ISS: INTERMEDIATE SLOPING SECTION
OS: OUTER SECTION
TRANS: TRANSITION
NOTES

1. EXISTING GRADE NOT SHOWN FOR CLARITY.
2. EXCAVATE TO EXISTING GRADE TO FACILITATE GROIN CONSTRUCTION.
NOT FOR CONSTRUCTION

PRELIMINARY

1. Existing Profiles are based on post-sandy survey performed by Army & Civil from January 23, 2015 to March 31, 2015.

2. The width of the Design Shoreline is generally 10 feet or more on the seaward side of the Dune Crest at which does not always follow the Boardwalk Alignment.

3. The distance from the baseline to the Design Shoreline is always measured. The design contours are always with the natural shoreline, excluding the seaward crest of the Design BERM.

4. Removal of Existing Armor Stone and re-assembly are no longer necessary to create continuous interlocking groin structure.

5. Extents of Existing Groin are unknown at this time, and is determined from area. Existing Groin has been located from aerial imagery except for determined point to high majority.

6. Existing Contours not shown on plan for clarity.

7. Existing Contours not shown on plan for clarity.

8. See Sheet CS-405 for Typical GROIN HSS, OS and Head Sections.

9. Extents of Existing GROIN to be determined prior to Preliminary Design Phase.

10. Extents of GROIN to be determined prior to Preliminary Design Phase.

11. Extents of EXISTING GROIN are unknown at this time. Ends.
NOTES

1. EXISTING GRADE NOT SHOWN FOR CLARITY.
2. EXCAVATE TO EXISTING GRADE TO FACILITATE GROIN CONSTRUCTION.
NOTES
1. EXISTING PROFILE IS BASED ON POST-SANDY SURVEY
   PERFORMED BY McKIM & CREED FROM FEBRUARY
   2013 TO MARCH 5TH, 2013.
2. THE WIDTH OF THE DESIGN SECTIONS CORRESPONDS TO
   THE WIDTH OF THE DESIGN BERM, WHICH DOES NOT ALWAYS FOLLOW
   THE SUPERFICIAL ALIGNMENT.
3. THE DISTANCE BETWEEN THE BASELINE TO THE DESIGN
   SLOPES IS DETERMINED PRIOR TO PRELIMINARY DESIGN
   PHASE. THE ALIGNMENT OF THE BERM IS DETERMINED PRIOR TO
   PRELIMINARY DESIGN PHASE.
4. REMOVE EXISTING ARMOR STONE AND REWORK AS
   NECESSARY TO CREATE CONTINUOUS INTERLOCKING
   SECTIONS.
5. EXISTING GROIN ARE UNMARKED AT TIME OF EXCAVATION.
   MAGNETIC EXTENT OF GROIN TO BE
   DETERMINED PRIOR TO PRELIMINARY DESIGN PHASE.
6. MATCH EXCAVATION WITH EXISTING GROIN CREST.
7. EXISTING CONTOURS NOT SHOWN ON PLAN FOR
   CLARITY.
8. SEE SHEET CS-322 FOR COMPOSITE WALL SECTIONS.
9. SEE SHEET CS-410 FOR EXISTING GROIN HSS, OS AND
   TRANS. SECTIONS.

ABBREVIATION
EL. ELEVATION
HSS HORIZONTAL SHORE SECTION
OS OUTER SECTION
TRANS. TRANSITION
OVERLAP OVERLAP

GROINS 52 & 53 SIMILAR
GROIN CONSTRUCTION REACH 5

PLAN - GROIN EXTENSION 51 (49th STREET)

SCALE 1"=50'

SEE SHEET CS-410 FOR TYPICAL GROIN HSS, OS AND
SEE SHEET CS-322 FOR COMPOSITE WALL SECTIONS.

EXISTING CONTOURS NOT SHOWN ON PLAN FOR
CLARITY.

MATCH EXCAVATION WITH EXISTING GROIN CREST.

EXISTING CONTOURS NOT SHOWN ON PLAN FOR
CLARITY.

SEE SHEET CS-322 FOR COMPOSITE WALL SECTIONS.

SEE SHEET CS-410 FOR TYPICAL GROIN HSS, OS AND
TRANS. SECTIONS.

GROINS 52 & 53 SIMILAR
GROIN CONSTRUCTION REACH 5

PLAN - GROIN EXTENSION 51 (49th STREET)

SCALE 1"=50'

SEE SHEET CS-410 FOR TYPICAL GROIN HSS, OS AND
SEE SHEET CS-322 FOR COMPOSITE WALL SECTIONS.

EXISTING CONTOURS NOT SHOWN ON PLAN FOR
CLARITY.

MATCH EXCAVATION WITH EXISTING GROIN CREST.

EXISTING CONTOURS NOT SHOWN ON PLAN FOR
CLARITY.

SEE SHEET CS-322 FOR COMPOSITE WALL SECTIONS.

SEE SHEET CS-410 FOR TYPICAL GROIN HSS, OS AND
TRANS. SECTIONS.

GROINS 52 & 53 SIMILAR
GROIN CONSTRUCTION REACH 5

PLAN - GROIN EXTENSION 51 (49th STREET)

SCALE 1"=50'

SEE SHEET CS-410 FOR TYPICAL GROIN HSS, OS AND
SEE SHEET CS-322 FOR COMPOSITE WALL SECTIONS.

EXISTING CONTOURS NOT SHOWN ON PLAN FOR
CLARITY.

MATCH EXCAVATION WITH EXISTING GROIN CREST.

EXISTING CONTOURS NOT SHOWN ON PLAN FOR
CLARITY.

SEE SHEET CS-322 FOR COMPOSITE WALL SECTIONS.

SEE SHEET CS-410 FOR TYPICAL GROIN HSS, OS AND
TRANS. SECTIONS.

GROINS 52 & 53 SIMILAR
PLAN - GROIN 61 (40th STREET)

Scale: 1"=50'

GEOTEXTILE FILTER FABRIC
STONE/EXCAVATION/BOTTOM OF BLANKET TOP OF BLANKET STONE

EXISTING PROFILE

PROFILE - GROIN 61 (40th STREET)

Scale: 1"=50'

GROINS 62 SIMILAR

NOTES
1. EXISTING PROFILE IS BASED ON POST-SANDY SURVEY PERFORMED BY NUBA & CREST FROM FEBRUARY 2011 TO MARCH 15TH, 2013.
2. THE WIDTH OF THE DESIGN SHORELINE IS DETERMINED FROM AERIAL IMAGERY AND ONLY APPLIES TO THE EXISTING PROFILE ON THIS SHEET. IT DOES NOT ALWAYS FOLLOW THE BRANDING ALIGNMENT.
3. THE DISTANCE FROM THE BASELINE TO THE DESIGN SHORELINE IS DETERMINED TO CREATE A CONSISTENT INTERLOCKING SHORELINE. THE ALIGNMENT OF THE DUNE FOLLOWS THE STRUCTURAL ALIGNMENT OF THE DUNE.
4. REMOVE EXISTING ARMOR STONE AND REWORK AS NECESSARY TO CREATE CONSISTENT INTERLOCKING SHORELINE.
5. EXTENTS OF EXISTING GROIN ARE UNKNOWNING AT THIS TIME. EXTENTS OF EXISTING GROIN TO BE DETERMINED PRIOR TO PRELIMINARY DESIGN PHASE.
6. MATCH REVOLUTION WITH EXISTING GROIN CREST.
7. DESIGNING CONTINUOUS NOT SHOWN ON PLAN FOR CLARITY.
8. SEE SHEET CS-323 FOR COMPOSITE WALL SECTIONS.
9. SEE SHEET CS-430 FOR TYPICAL GROIN HSS, OS AND HEAD SECTIONS.

ABBREVIATION
CL. ELEVATION
HSS HORIZONTAL SHORE SECTION
ISS INTERMEDIATE SLUMPING SECTION
OS OUTER SECTION
TRANS. TRANSITION
O/LAP OVERLAP
NOTES
1. EXISTING PROFILE IS BASED ON POST-SANDY SURVEY
   PERFORMED BY MCKIM & CREED FROM FEBRUARY
2. THE WIDTH OF THE DESIGN SECTIONS IS GENERALIZED
   AS NEEDED TO PROVIDE CLEAR ARRAYS OF THE DESIGN
   PLAN AND PROFILE FOR EASY NAVIGATION.
3. THE DESIGN SECTIONS ARE RESPONSIVE TO THE
current sand elevation and the alignment of the 

4. THE EXISTING ARMOR STONE IS TO BE REMOVED AS 
   NECESSARY TO CREATE CONTINUOUS INTERLOCKING 

5. MATCH EXISTING GROIN CREST.
   MISMATCH BETWEEN EXISTING AND DESIGN CREST.

6. THE DESIGN PROFILE IS BASED ON EXISTING 
   PROFILE, EXTENDED TO CREST TO DETERMINE DESIGN

7. THE DISTANCE FROM THE BASELINE TO THE DESIGN 
   BASELINE, WHICH DOES NOT ALWAYS FOLLOW THE 

8. THE EXISTING ARMOR STONE AND ROADWORK AS 
   NECESSARY TO CREATE CONTINUOUS INTERLOCKING 

9. THE SHORELINE IS ALWAYS 243.0 FEET. THE DESIGN 

10. THE SHORELINE IS 243.0 FEET OR MORE. THE SEAWARD CREST OF THE DESIGN 

11. THE DESIGN BERM IS GENERALLY 60

ABBREVIATION
EL. ELEVATION
HSS HORIZONTAL SHORE SECTION
ISS INTERMEDIATE SLOPING SECTION
OS OUTER SECTION
OS1 OUTER SECTION 1
OS2 OUTER SECTION 2
TRANS TRANSITION