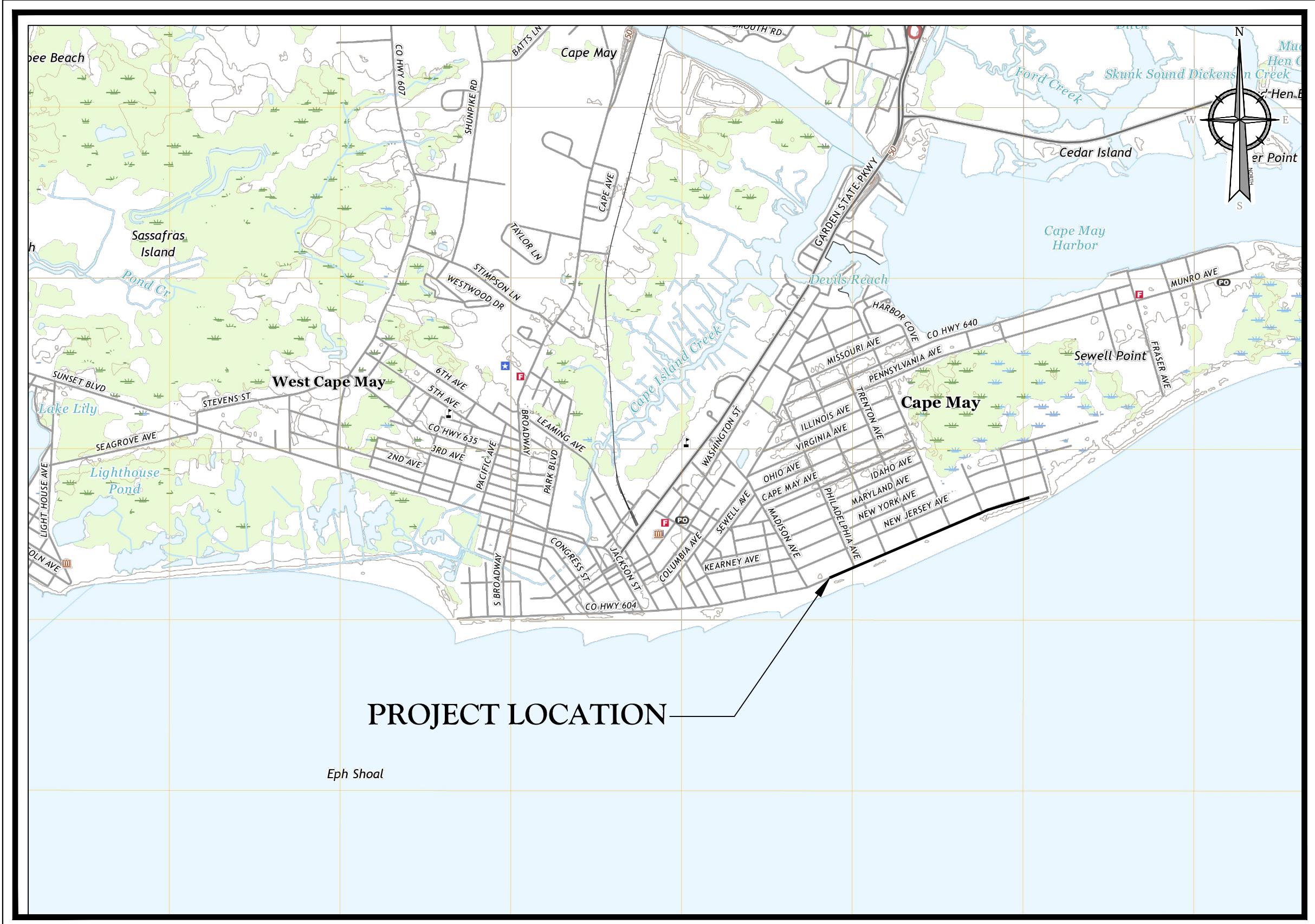


**CONSTRUCTION PLANS
FOR
FLOOD PROTECTION / CLIMATE RESILIENCY IMPROVEMENTS TO
CAPE MAY SEAWALL
MADISON TO WILMINGTON AVENUE
STA. 0+00 ~ STA. 42+00 (4,200 LF)
CITY OF CAPE MAY
CAPE MAY COUNTY
NEW JERSEY**

INDEX OF SHEETS		
SHT. No.	DESCRIPTION	LATEST REVISION
1	COVER SHEET (T-001.00)	
2	INFORMATION PLAN AND ESTIMATE & DISTRIBUTION OF QUANTITIES (G-001.00)	
3	KEY MAP PLAN (G-002.00)	
4	DEMOLITION PLAN (D-101.00)	
5	DEMOLITION PLAN (D-102.00)	
6	DEMOLITION PLAN (D-103.00)	
7	DEMOLITION PLAN (D-104.00)	
8	DEMOLITION PLAN (D-105.00)	
9	DEMOLITION PLAN (D-106.00)	
10	DEMOLITION PLAN (D-107.00)	
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14	CONSTRUCTION PLAN (C-103.00)	
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17	CONSTRUCTION PLAN (C-106.00)	
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20	CROSS SECTIONS (C-301.00)	
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30	SIGN DETAILS (C-503.00)	
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38	LANDSCAPE PLAN (L-206.00)	
39	LANDSCAPE PLAN (L-207.00)	
40	LANDSCAPE PLAN (L-208.00)	



KEY MAP

SOURCE: SCALE: 1:24,000

2000 0 2000
SCALE: 1" = 2000'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

UTILITIES
ATLANTIC CITY ELECTRIC - REAL ESTATE DEPT.
5100 HARDING HIGHWAY
MAYS LANDING, NJ 08330
(609) 463-3823

COMCAST CABLE SERVICES
1500 RT 47, SUITE C12
RIO GRANDE, NJ 08242
(800) 266-2279

VERIZON - NEW JERSEY
ENGINEERING DEPT.
10 TANSBORO ROAD, FLOOR 2
BERLIN, NJ 08009
(856) 753-0795

SOUTH JERSEY GAS CO.
1 SOUTH JERSEY PLAZA
FOLSOM, NJ 08037
(609) 561-9000

CAPE MAY COUNTY MUA
1523 US-9 NORTH
CAPE MAY COURT HOUSE, NJ 08210
(609) 465-9026

CITY OF CAPE MAY WATER & SEWER DEPT.
ROBERT CUMMISKEY
643 WASHINGTON ST.
CAPE MAY, NJ 08204
(609) 884-9575

CITY OF CAPE MAY
MIKE VOLL
643 WASHINGTON ST.
CAPE MAY, NJ 08204
(609) 884-9536

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Richard C. Maloney
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE39023
COLLIERS ENGINEERING & DESIGN, INC.
NJ C.O.A. #24047388959

FINIAL DESIGN PLANS

FOR
CAPE MAY SEAWALL
EXTENSION

CITY OF CAPE MAY
CAPE MAY COUNTY
NEW JERSEY

Colliers
Engineering & Design
HOLMDEL (Headquarters)
101 Crawfords Corner Road,
Suite 3400
Holmdal, NJ 07733
Phone: 732.383.1950
COLLIERS ENGINEERING & DESIGN, INC.
BUSINESS AS Maser Consulting

AS SHOWN 01/21/2020 DRAWN BY: M.M. CHECKED BY: IRW

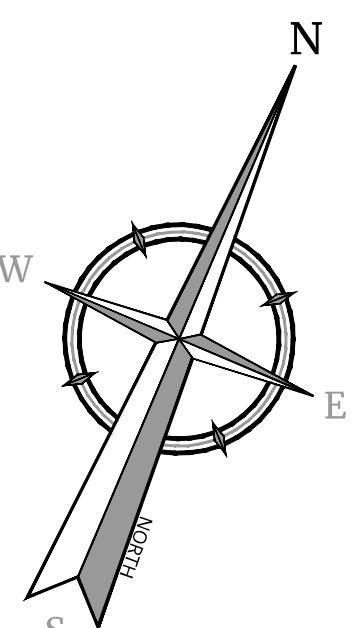
PROJECT NUMBER: 220934095 DRAWING NAME: C-COVER

SHEET NUMBER: 1 OF 1

SHEET NUMBER: COVER SHEET

SHEET NUMBER: T-001.00

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



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A blank 10x10 grid for a crossword puzzle, consisting of 100 empty squares. The grid is bounded by a thick black border.

Richard C. Maloney

JERSEY LICENSED PROFESSIONAL ENGINEER

FOR
**CAPE MAY SEAWALL
EXTENSION**

**CITY OF CAPE MAY
CAPE MAY COUNTY
NEW JERSEY**

The logo for Colliers Engineering & Design. It features the word "Colliers" in a bold, black, sans-serif font, with "Engineering" and "Design" stacked below it in a smaller, black, sans-serif font. The entire logo is enclosed within a white rectangular border with a thin black border.

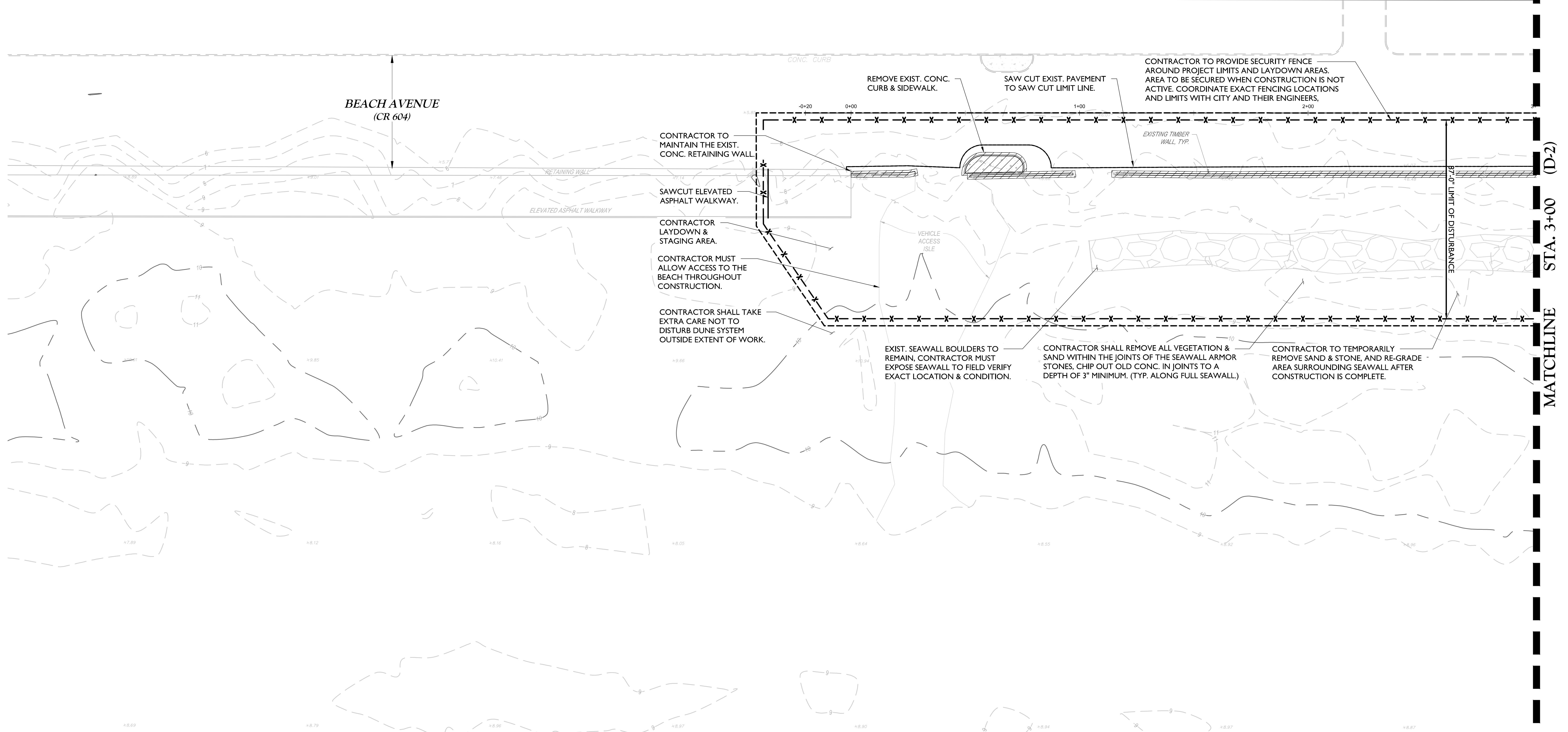
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NUMBER: 003409G	DRAWING NAME: C-DEMO		
TITLE:			

ITE DEMOLITION PLAN

NUMBER: **D-101.00**

5 DRAWINGS FOR CONSTRUCTION

The site plan illustrates the layout of Block 1101 across seven lots. The plan features a central rectangular area with a building footprint. To the left, Lot 1 contains a building footprint labeled 'BLDG.' and is labeled 'BLOCK 1101 LOT 1'. To the right, Lot 4 contains a building footprint labeled 'BLDG.' and is labeled 'BLOCK 1101 LOT 4'. Further to the right, Lots 5, 6, and 7 are shown as a series of stepped plots, each containing a building footprint labeled 'BLDG.' and labeled 'BLOCK 1101 LOT 5', 'BLOCK 1101 LOT 6', and 'BLOCK 1101 LOT 7' respectively. The plots are bounded by vertical and horizontal lines, with some plots having irregular or stepped boundaries. The entire plan is set against a background of a light gray sky and a dark gray ground.



EXISTING CONDITIONS & DEMOLITION PLAN (D-1)

SCALE: 1" = 20'

NOTES:

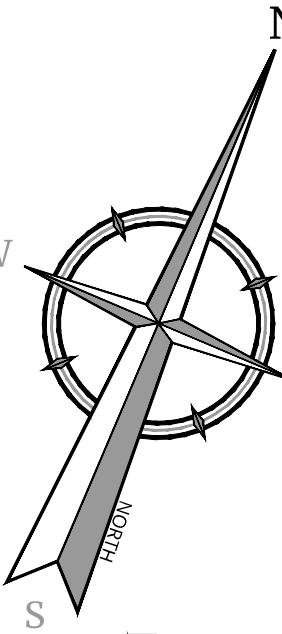
- I. CONTRACTOR SHALL PRESERVE ANY AMENITIES ON SITE THAT ARE NOT SCHEDULED TO BE DEMOLISHED, OR ARE NOT SHOWN ON THE PLAN, INCLUDING BUT NOT LIMITED TO SIGNS, POLES, TREES, ROCK, RAILINGS, TRASH CANS, PARKING METERS, BIKE RACKS, ETC. ANY DAMAGE TO EXISTING PROPERTY NOT SCHEDULED FOR REMOVAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPLACE TO OWNER'S SATISFACTION.
2. ANY SIGNS & PARKING METERS WITHIN THE WORK ZONE SHALL BE REMOVED, PRESERVED, AND RESET AS DIRECTED BY THE ENGINEER. SIGNS OR PARKING METERS IN POOR CONDITION SHALL BE REPLACED IN KIND.

SCALE : 1" = 20"

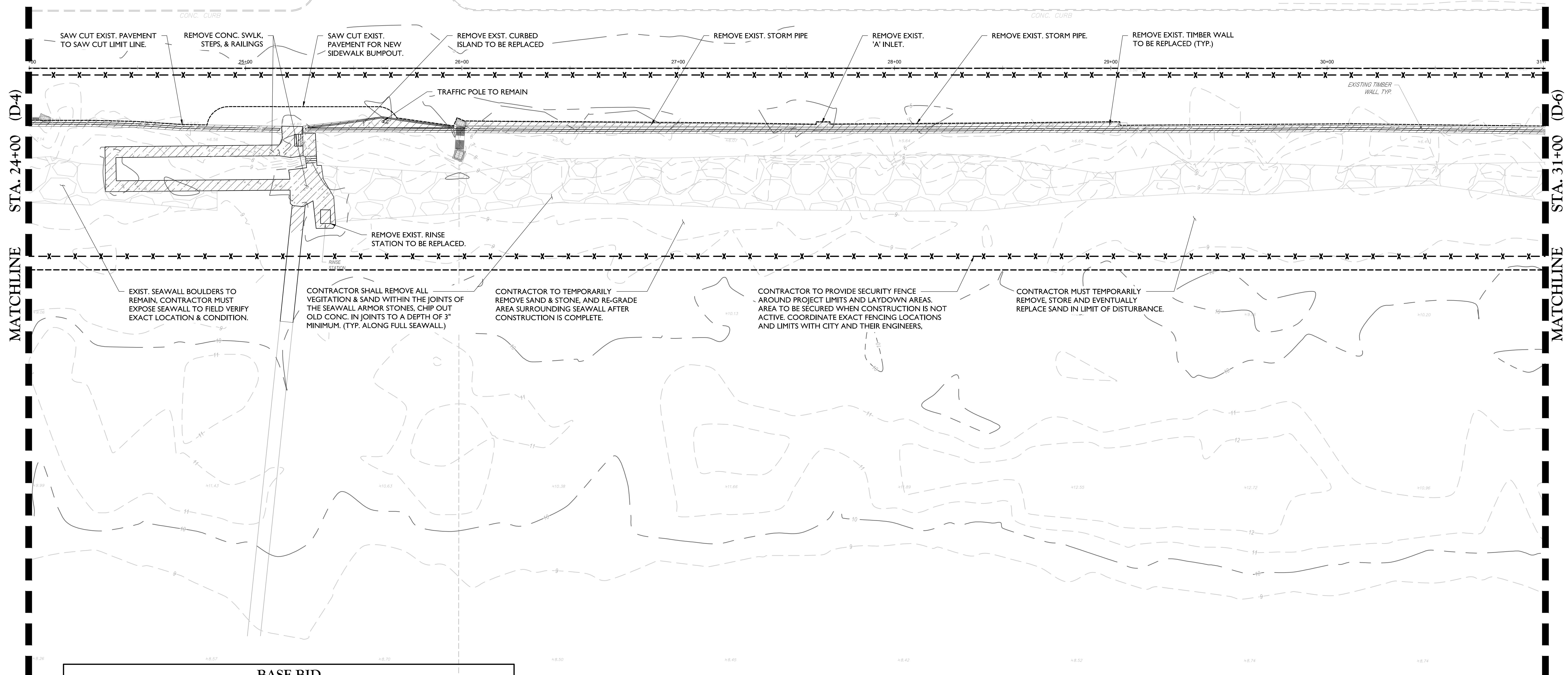
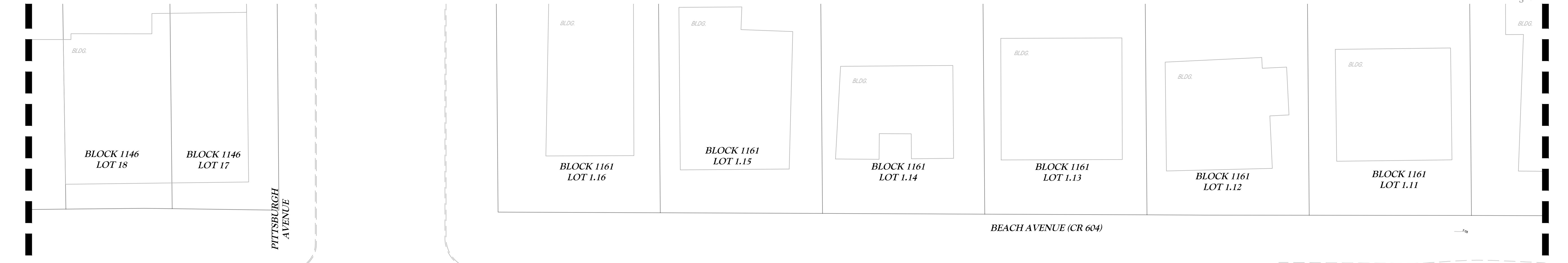
D-1
D-8

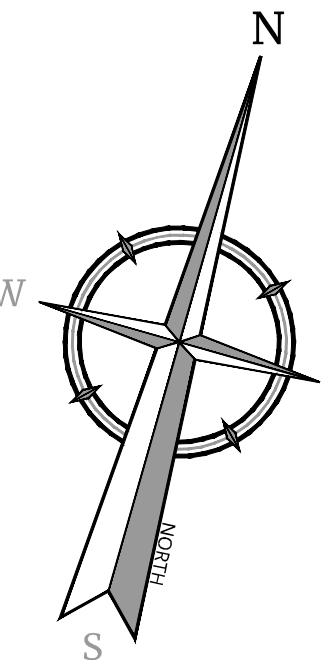
D-101.00

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A blank 10x10 grid for a crossword puzzle, consisting of 100 empty squares arranged in a single continuous line.

Richard G. Melaney

INITIAL DESIGN PLANS FOR CAPE MAY SEAWALL

**CITY OF CAPE MAY
CAPE MAY COUNTY
NEW JERSEY**

A business card for New Jersey. The top half features the state name 'NEW JERSEY' in a large, bold, black serif font. Below this is a horizontal line. The bottom half contains contact information for Holmdel: 'HOLMDDEL (Headquarters)' in a large, bold, black sans-serif font, followed by '101 Crawfords Corner Road, Suite 3400, Holmdel, NJ 07733' and 'Phone: 732.383.1950' in a smaller black sans-serif font. To the left of the contact information is a logo for 'COLLIERS' in a bold, black, sans-serif font, with 'Engineering' and 'Design' in a smaller, black, sans-serif font stacked below it. The bottom right corner of the card features the text 'COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS MASER CONSULTING' in a small, black, sans-serif font.

WN	DATE: 01/30/2025	DRAWN BY: MMM	CHECKED BY: IRW
NUMBER: 03409G	DRAWING NAME: C-DEMO		
LE:			
TE DEMOLITION PLAN			

NUMBER: D-107.00

THE DRAWINGS FOR CONSTRUCTION

The figure consists of two side-by-side site plan diagrams. The left diagram, titled 'BROOKLYN AVENUE', shows five lots: 'BLOCK 1174 LOT 19' (a narrow lot on the left), 'BLOCK 1174 LOT 18' (a long, narrow lot next to it), 'BLOCK 1174 LOT 17' (a long, narrow lot further right), 'BLOCK 1174 LOT 16' (a long, narrow lot further right), and 'BLOCK 1174 LOT 15' (a long, narrow lot on the far right). Each of these lots contains a rectangular 'BLDG.' footprint. The right diagram, titled 'BEACH AVENUE (CR 604)', shows four lots: 'BLOCK 1185 LOT 24' (a narrow lot on the left), 'BLOCK 1185 LOT 23' (a long, narrow lot next to it), 'BLOCK 1185 LOT 21.02' (a long, narrow lot further right), and 'BLOCK 1185 LOT 21.02' (another long, narrow lot on the far right). Each of these lots contains a rectangular 'BLDG.' footprint. The diagrams use a grid system with vertical and horizontal lines, and some lines are dashed to indicate property boundaries or easements. The text is in a bold, sans-serif font.

CONC. CURB

REMOVE EXIST. STORM PIPE

REMOVE EXIST. TIMBER WALL TO BE REPLACED (TYP.)

EXISTING TIMBER WALL, TYP.

REMOVE EXIST. CONC. STEPS, SWLK, & RAILINGS

CONC. CURB

STA. 37+00 (D-6)

STA. 37+00 (D-6)

STA. 42+00 (D-8)

STA. 42+00 (D-8)

MATCHLINE

MATCHLINE

BENCHMARK
N: 37655.8670
E: 379300.4200
ELEV: 9.75

CONC. CURB

CONC. CURB

BASE BID

BASE BII

QUANTITIES - STA. 37+00 TO STA. 42+50

EXISTING CONDITIONS & DEMOLITION PLAN (D-7)

SCALE: 1" = 20'

NOTES:


- I. CONTRACTOR SHALL PRESERVE ANY AMENITIES ON SITE THAT ARE NOT SCHEDULED TO BE DEMOLISHED, OR ARE NOT SHOWN ON THE PLAN, INCLUDING BUT NOT LIMITED TO SIGNS, POLES, TREES, ROCK, RAILINGS, TRASH CANS, PARKING METERS, BIKE RACKS, ETC. ANY DAMAGE TO EXISTING PROPERTY NOT SCHEDULED FOR REMOVAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPLACE TO OWNER'S SATISFACTION.
2. ANY SIGNS & PARKING METERS WITHIN THE WORK ZONE SHALL BE REMOVED, PRESERVED, AND RESET AS DIRECTED BY THE ENGINEER. SIGNS OR PARKING METERS IN POOR CONDITION SHALL BE REPLACED IN KIND.

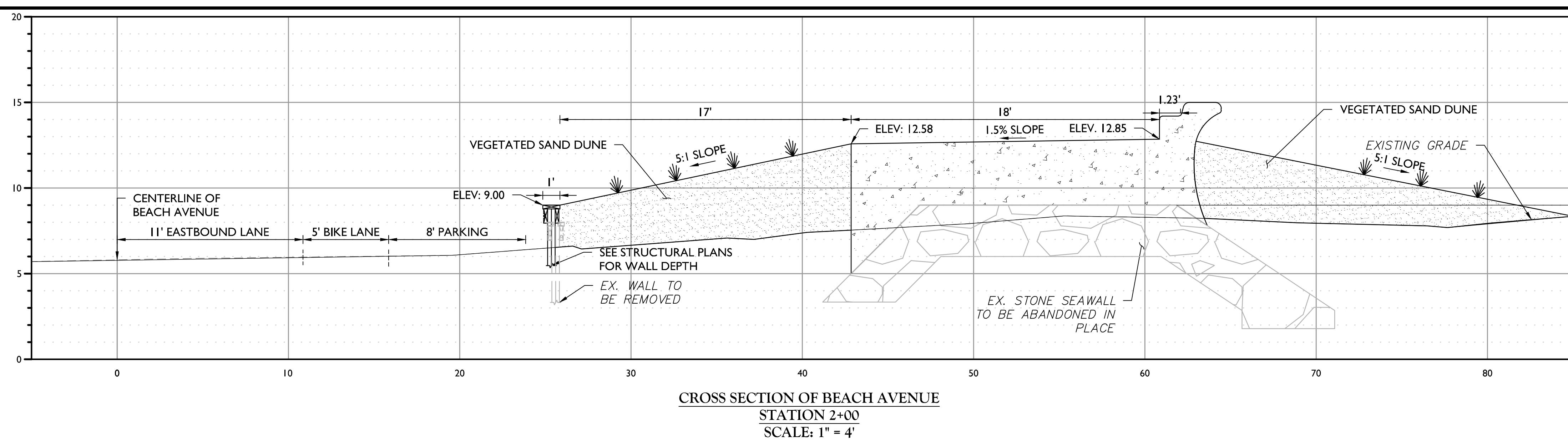
SCALE : 1" = 20'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

D-7
D-8

SHEET NUMBER: D-107

D-8





PROPOSED VOLUMES (STA 0+58 TO STA 2+00)

	CROSS SECTIONAL AREA (SF)	VOLUME (CY)
SEAWALL	88.89	467.48
SAND DUNE	120.52	633.83

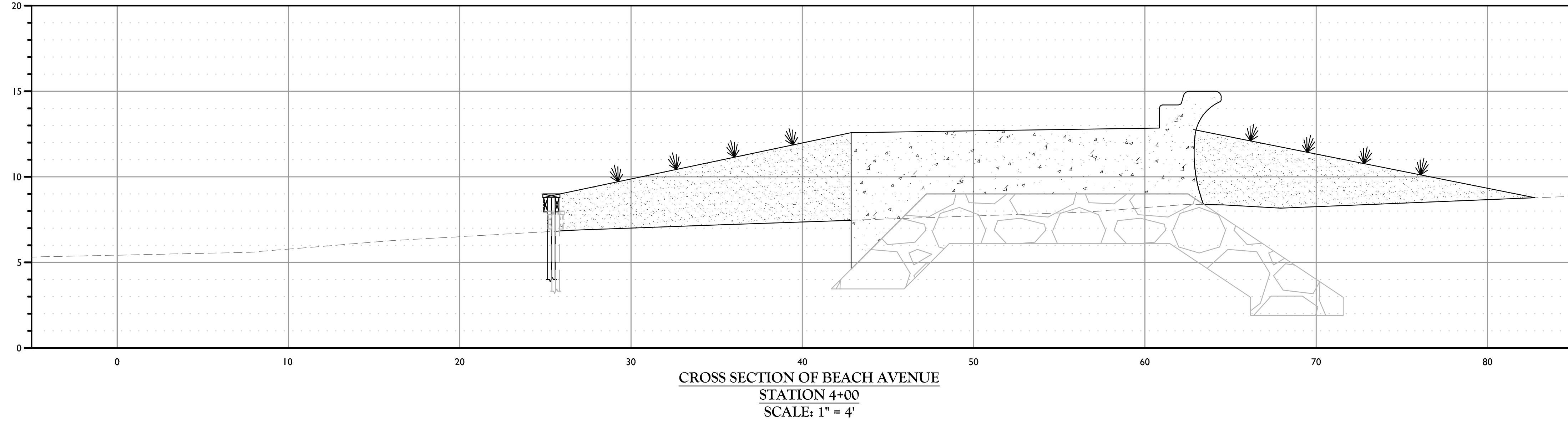


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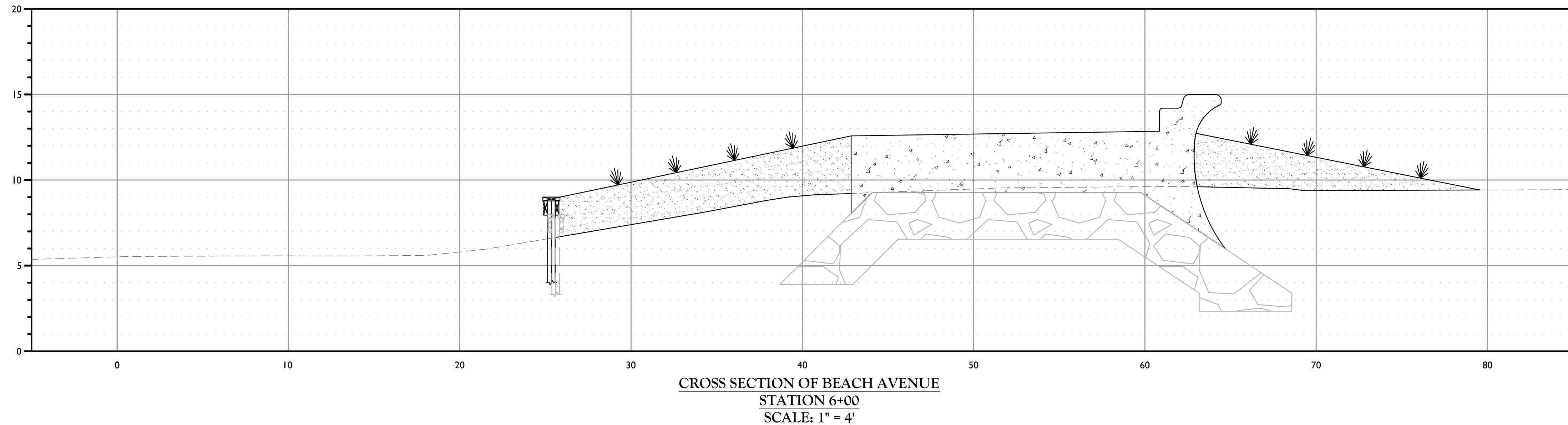
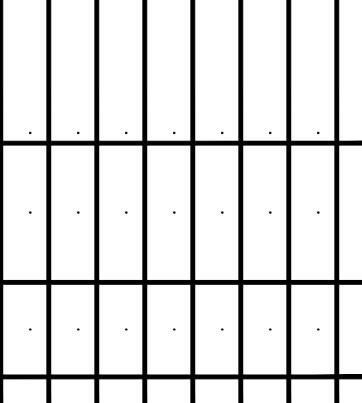
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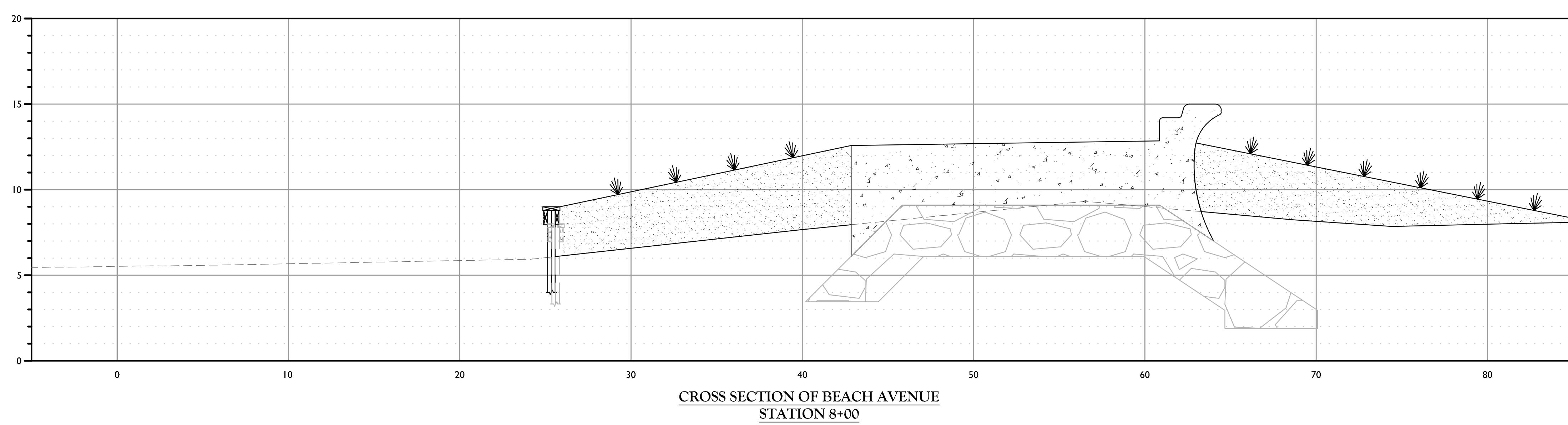
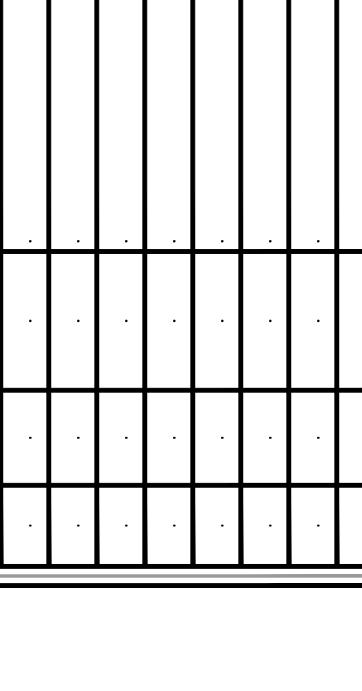
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PROPOSED VOLUMES (STA 2+00 TO STA 4+00)		
	CROSS SECTIONAL AREA (SF)	VOLUME (CY)
SEAWALL	89.94	666.25
SAND DUNE	107.53	796.53

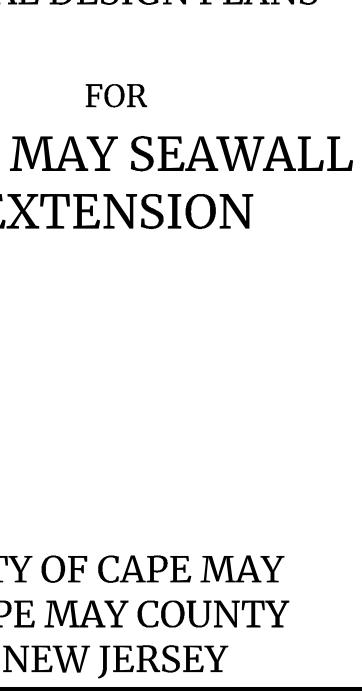


PROPOSED VOLUMES (STA 4+00 TO STA 6+00)		
	CROSS SECTIONAL AREA (SF)	VOLUME (CY)
SEAWALL	80.60	597.01
SAND DUNE	72.46	536.74

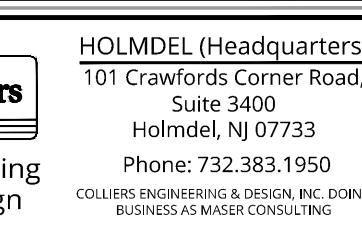


PROPOSED VOLUMES (STA 6+00 TO STA 8+00)

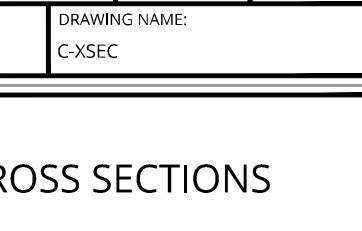
	CROSS SECTIONAL AREA (SF)	VOLUME (CY)
SEAWALL	84.77	627.92
SAND DUNE	111.52	242.47



THE
**CAPE MAY COUNTY
NEW JERSEY**



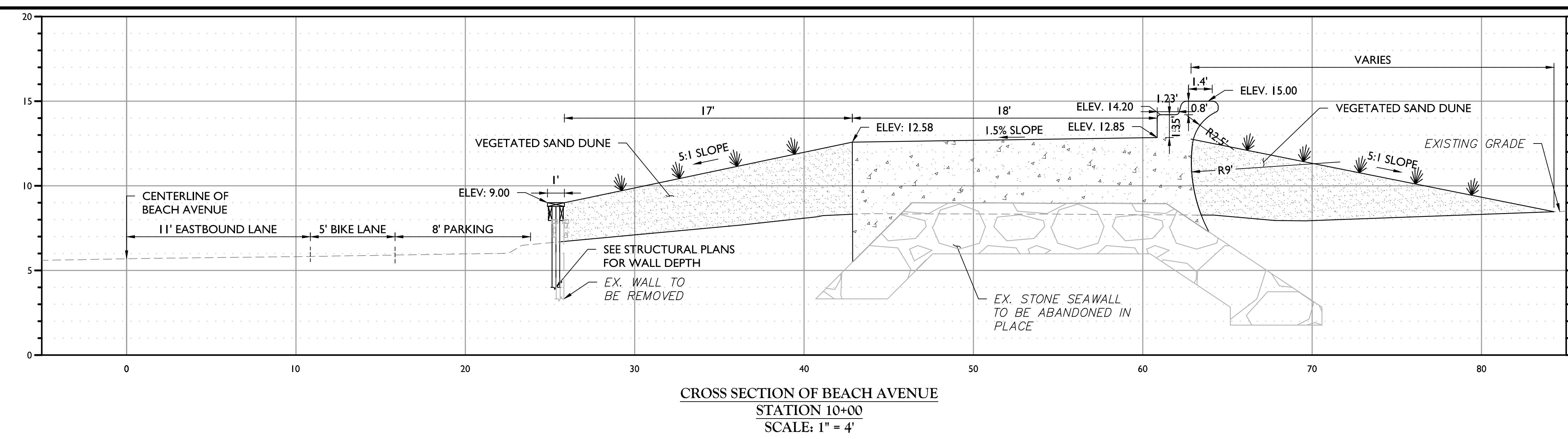
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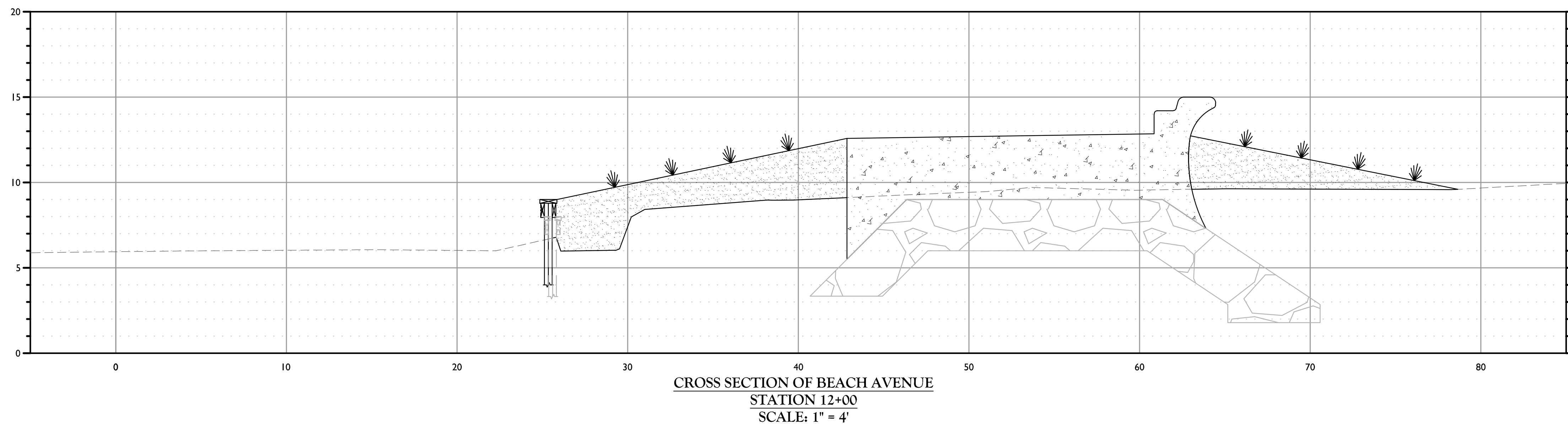
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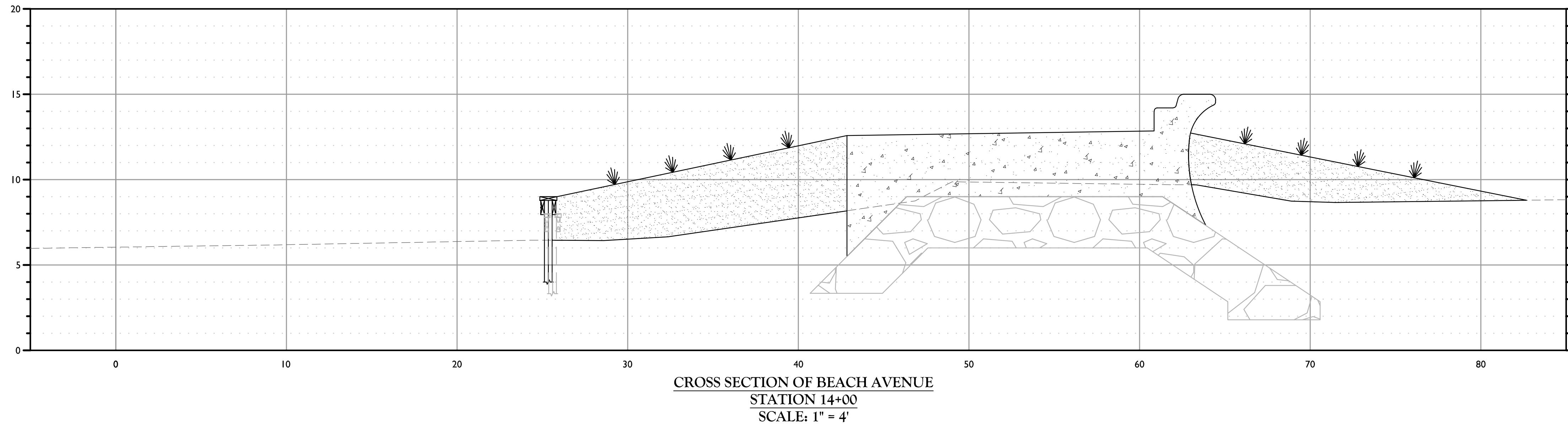
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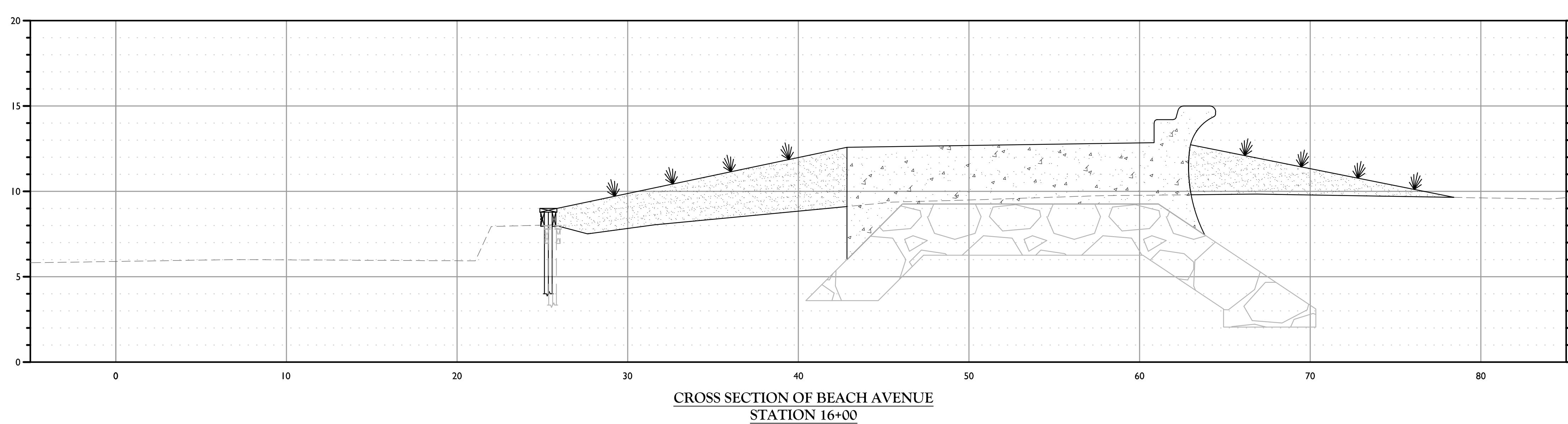
PROPOSED VOLUMES (STA 8+00 TO STA 10+00)		
	CROSS SECTIONAL AREA (SF)	VOLUME (CY)
SEAWALL	88.17	653.12
SAND DUNE	107.30	794.85



PROPOSED VOLUMES (STA 10+00 TO STA 12+00)		
	CROSS SECTIONAL AREA (SF)	VOLUME (CY)
SEAWALL	87.73	649.85
SAND DUNE	70.17	519.76



PROPOSED VOLUMES (STA 12+00 TO STA 14+00)		
	CROSS SECTIONAL AREA (SF)	VOLUME (CY)
SEAWALL	87.70	649.66
SAND DUNE	100.68	745.79



PROPOSED VOLUMES (STA 14+00 TO STA 16+00)		
	CROSS SECTIONAL AREA (SF)	VOLUME (CY)
SEAWALL	81.89	606.57
SAND DUNE	64.53	478.03

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NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE39023
COLLIERS ENGINEERING & DESIGN, INC.
NJ C.O.A. #2404738899

FINAL DESIGN PLANS FOR CAPE MAY SEAWALL EXTENSION

CITY OF CAPE MAY
CAPE MAY COUNTY
NEW JERSEY

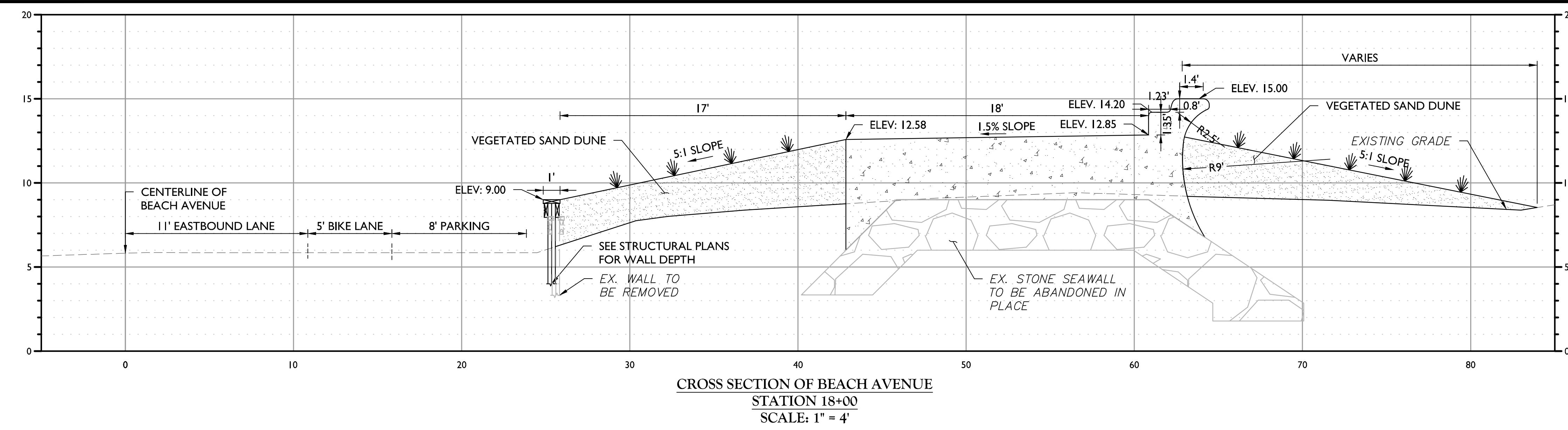
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Phone: 732.383.1950
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DRAWING NUMBER: C-XSEC
IRW

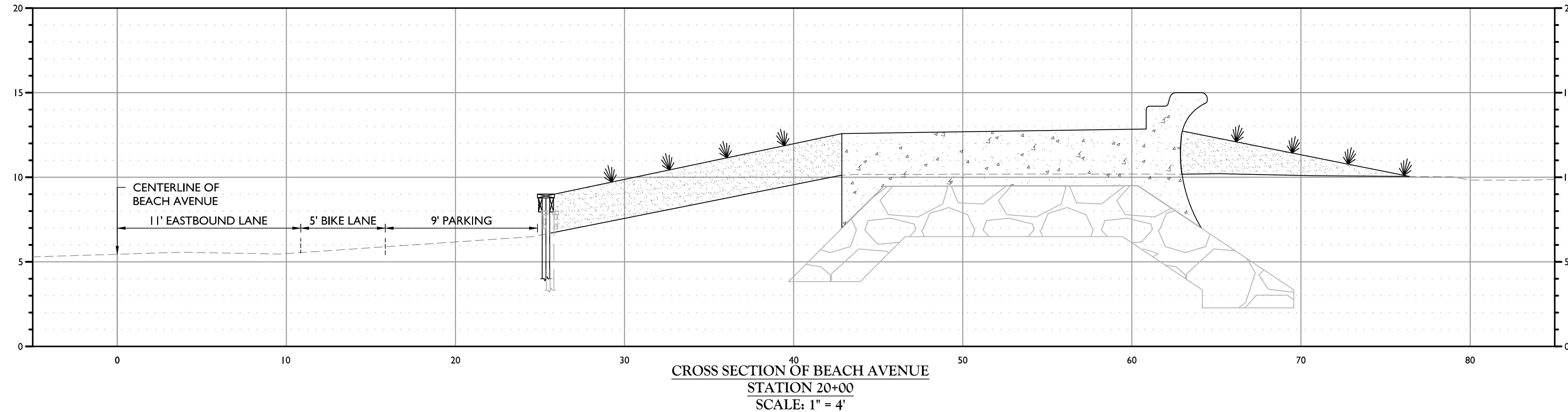
SHEET TITLE:
CROSS SECTIONS

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Linear unit of measure: US Survey Foot (1 ft = 1200/933 m)
C-10 C-16
SHEET NUMBER:
C-302.00

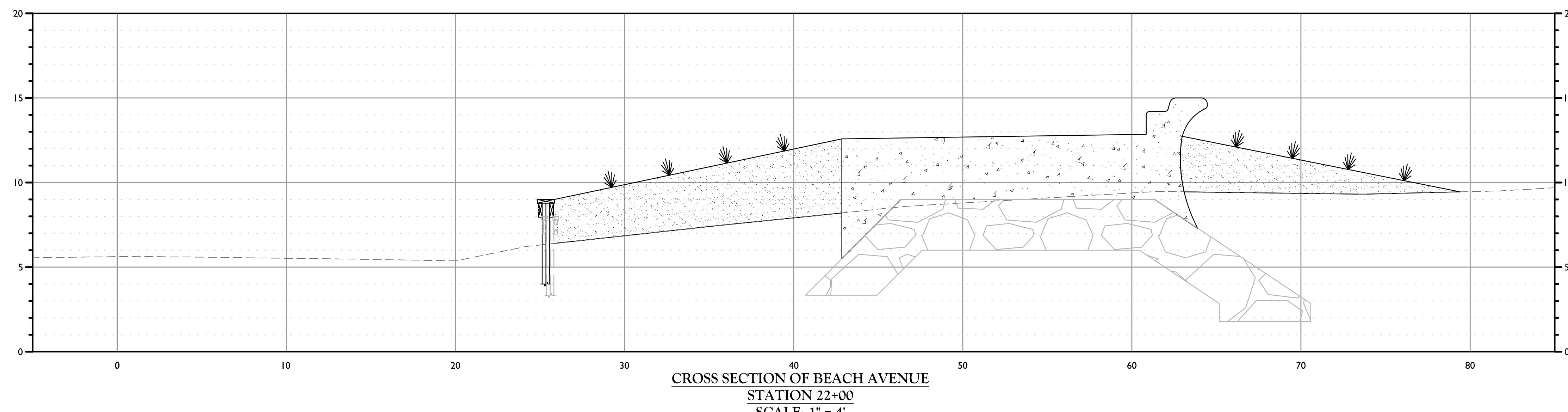
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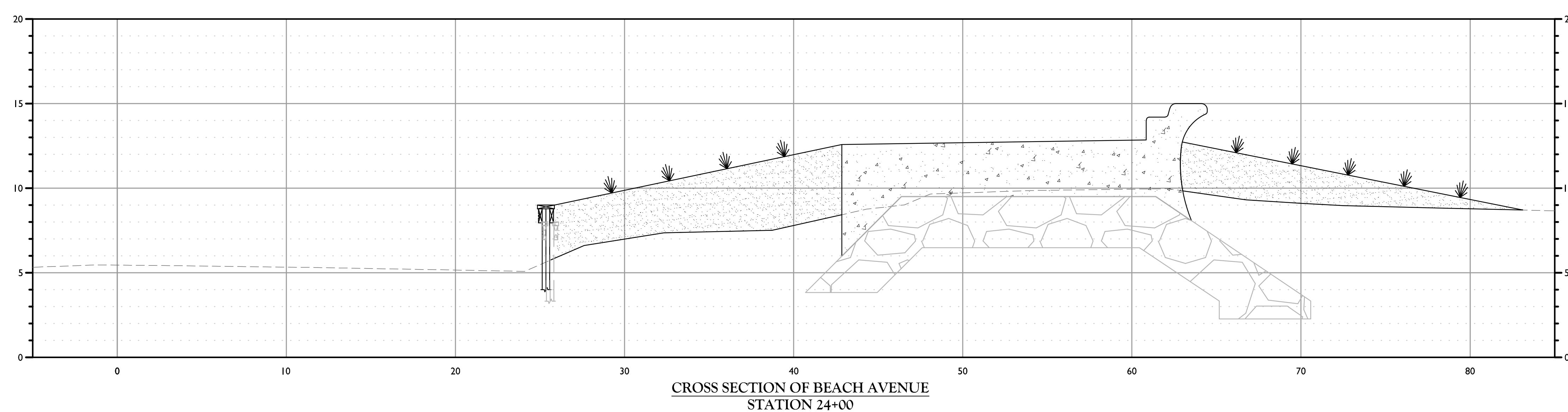
PROPOSED VOLUMES (STA 16+00 TO STA 18+00)		
	CROSS SECTIONAL AREA (SF)	VOLUME (CY)
SEAWALL	87.08	645.04
SAND DUNE	85.53	633.55



PROPOSED VOLUMES (STA 18+00 TO STA 20+00)		
	CROSS SECTIONAL AREA (SF)	VOLUME (CY)
SEAWALL	76.50	566.64
SAND DUNE	57.24	423.97



PROPOSED VOLUMES (STA 20+00 TO STA 22+00)		
	CROSS SECTIONAL AREA (SF)	VOLUME (CY)
SEAWALL	87.75	650.02
SAND DUNE	87.49	648.10



PROPOSED VOLUMES (STA 22+00 TO STA 24+00)		
	CROSS SECTIONAL AREA (SF)	VOLUME (CY)
SEAWALL	77.27	572.39
SAND DUNE	92.70	686.64

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COLLIERS ENGINEERING & DESIGN, INC.
NJ C.O.A. #2404738899

FINAL DESIGN PLANS
FOR
CAPE MAY SEAWALL
EXTENSION

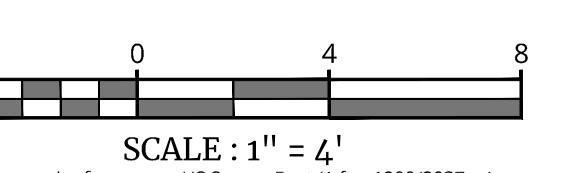
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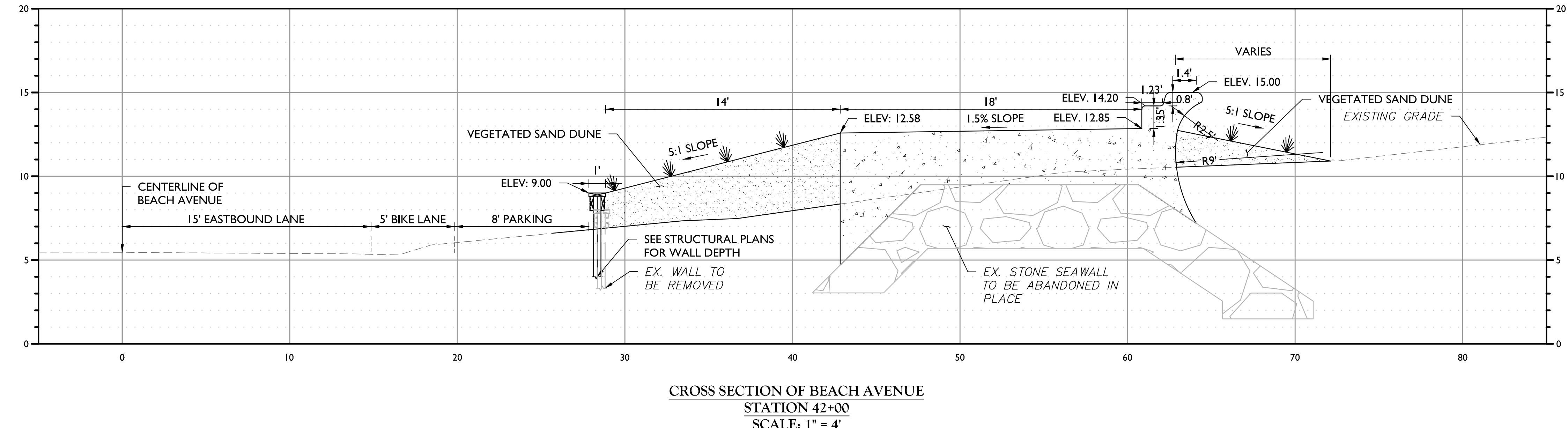
AS SHOWN DRAWN BY: C-SEC
PROJECT NUMBER: 220934096 DRAWING NAME: C-SEC
SHEET NUMBER: C-303.00 DRAWN DATE: 01/30/2025 CHECKED BY: IRW

SHEET TITLE: CROSS SECTIONS
C-11/C-16
SHEET NUMBER: C-303.00

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



Linear unit of measure: US Survey Foot (1 ft = 1200/933 m)



PROPOSED VOLUMES (STA 40+00 TO STA 42+00)		
	CROSS SECTIONAL AREA (SF)	VOLUME (CY)
SEAWALL	84.17	623.48
SAND DUNE	56.21	416.35

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FINIAL DESIGN PLANS
FOR
CAPE MAY SEAWALL
EXTENSION

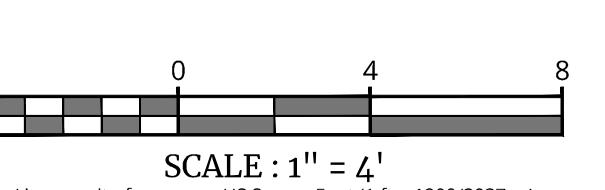
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CAPE MAY COUNTY
NEW JERSEY

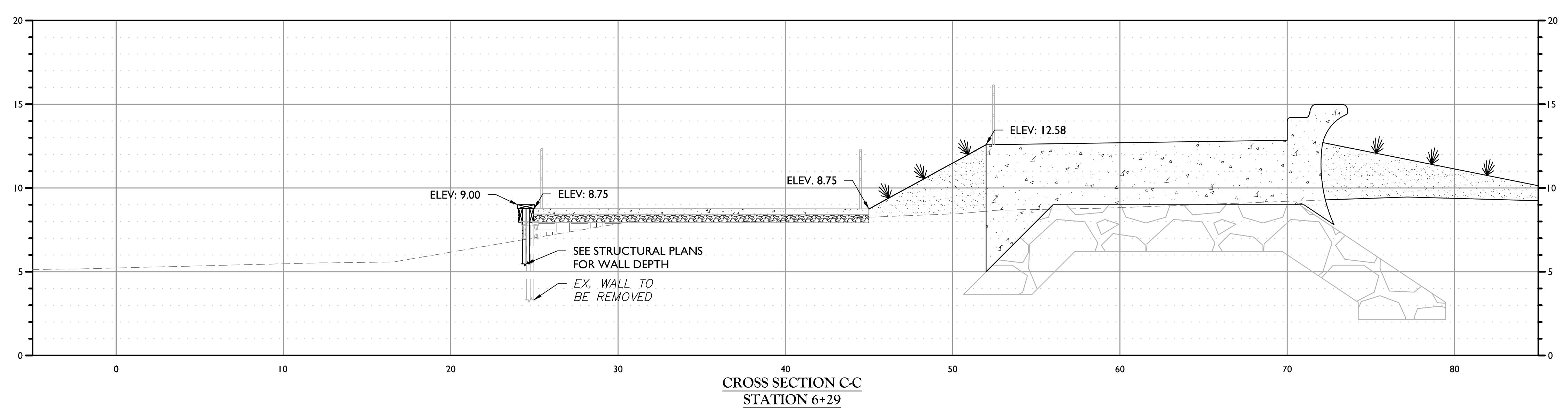
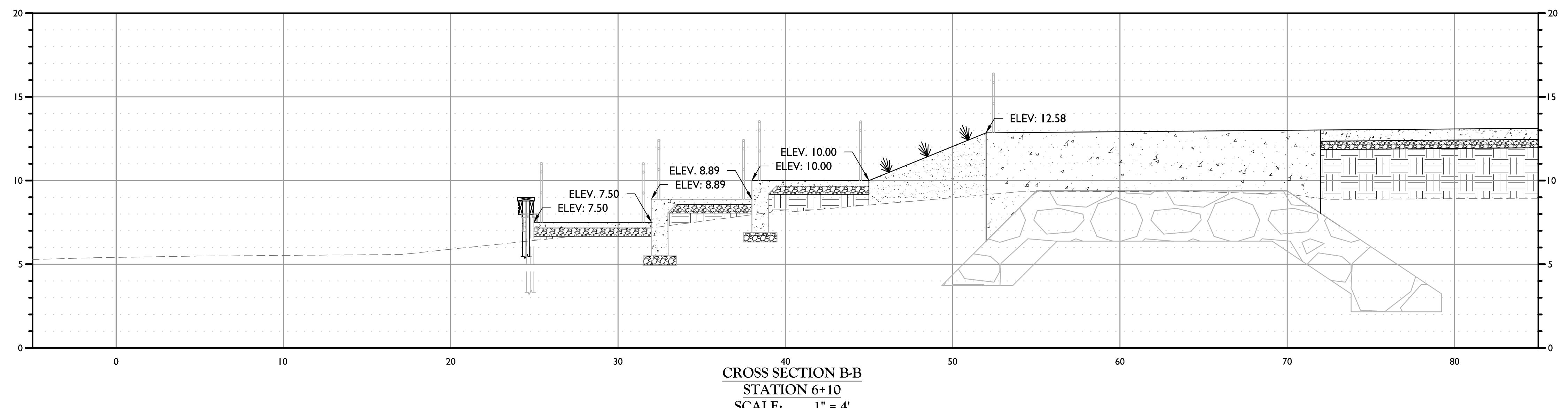
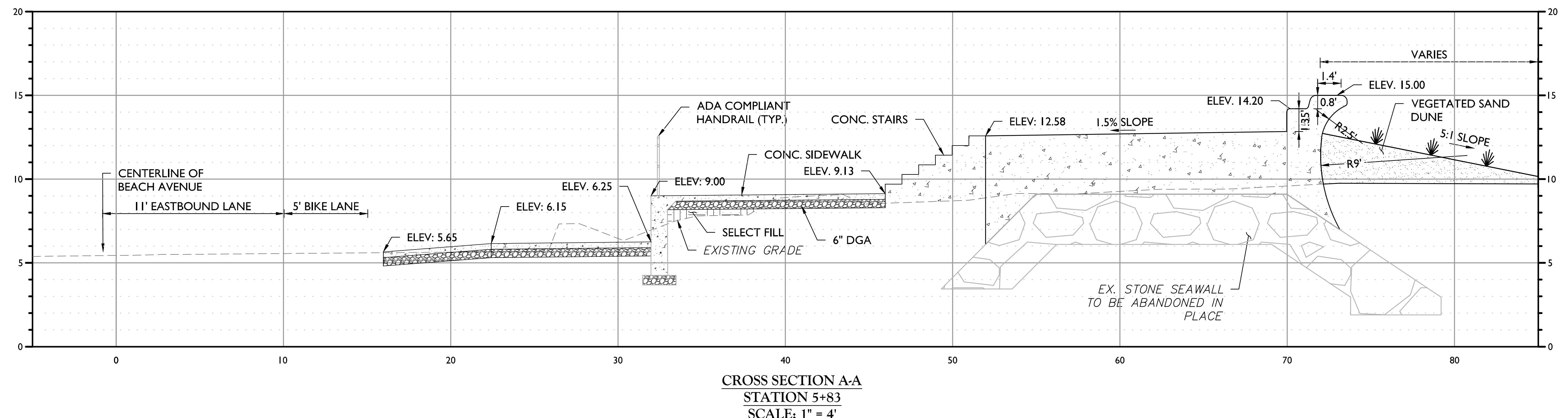
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AS SHOWN
01/20/2025
PROJECT NUMBER: 220934096
DRAWING NUMBER: C-XSEC
DRAWN BY: M.M.M.
CHECKED BY: I.R.W.

SHEET TITLE: CROSS SECTIONS
SHEET NUMBER: C-306.00
C-16

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.





Richard C. Maloney
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE39023
COLLIERS ENGINEERING & DESIGN, INC.
NJ C.O.A. # 24047398990

FINAL DESIGN PLANS
FOR
CAPE MAY SEAWALL
EXTENSION

CITY OF CAPE MAY
CAPE MAY COUNTY
NEW JERSEY

COLLIERS
Engineering & Design
101 Crawfords Corner Road,
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COLLIERS ENGINEERING & DESIGN CONSULTING
BUSINESS AS MASE CONSULTING

AS SHOWN DRAWN BY: C-SEC
PROJECT NUMBER: 220934096 DRAWING NAME: C-XSEC
SHEET TITLE: CROSS SECTIONS

4 0 4 8
SCALE: 1" = 4'
Linear unit of measure: US Survey Foot (1 ft = 1200/933 m)

C-15 C-16
SHEET NUMBER: C-307.00

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

GENERAL NOTES:

1. ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE BUILDING CODE OF THE NEW JERSEY UNIFORM BUILDING CONSTRUCTION CODE, THE INTERNATIONAL BUILDING CODE NEW JERSEY EDITION, AND LOCAL BUILDING CODES, AND OTHER APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.

2. THE CONTRACTOR SHALL OBTAIN ALL PERMITS FROM THE BUILDING DEPARTMENT PRIOR TO THE START OF WORK.

3. IN CASE OF CONFLICT BETWEEN THE GENERAL NOTES, SPECIFICATIONS, AND DETAILS, THE MOST STRINGENT REQUIREMENTS SHALL GOVERN.

4. EXISTING CONDITIONS, ELEVATIONS, DIMENSIONS AND SYSTEMS SHOWN ON PLANS ARE BASED ON LIMITED INFORMATION AND ARE NOT TO BE CONSTRUED AS A STATEMENT OF THE EXISTING CONDITIONS. THE CONTRACTOR SHALL NOT COMMENCE WORK UNTIL THE EXISTING CONDITIONS ARE DETERMINED AND APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL NOT COMMENCE WORK UNTIL THE EXISTING CONDITIONS ARE DETERMINED AND APPROVED BY THE ENGINEER.

5. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY SHORING AND BRACING REQUIRED FOR PLUMBNESS, STRUCTURAL STABILITY AND SAFETY WHENEVER REQUIRED TO SUPPORT LOADS AS MAY BE IMPOSED UPON THE STRUCTURE DURING CONSTRUCTION. BRACING AND SHORING AND SEQUENCES OF SUCH WORK SHALL BE THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL NOT COMMENCE WORK UNTIL THE EXISTING CONDITIONS ARE DETERMINED AND APPROVED BY THE ENGINEER.

6. CONTRACTOR TO PROTECT AT ALL TIMES EQUIPMENT, PIPE AND OTHER EXPOSED OR EMBEDDED ITEMS ON THE SITE AGAINST DAMAGE.

7. SHORE ALL EXISTING SUSPENDED CONDUITS, PIPES, DUCTS, ETC. REFASTEN TO NEW CONSTRUCTION. DO NOT DAMAGE ANY EMBEDDED CONDUITS OR OTHER EMBEDDED ITEMS SCHEDULED TO REMAIN DURING DEMOLITION. CONTRACTOR TO PROTECT EXISTING CONDUITS PRIOR TO CUTTING OPENING, REBOUT AS REQUIRED, COORDINATE WITH ARCHITECT.

8. SUBMIT SHOP DRAWINGS FOR ALL WORK. DO NOT PROCEED WITH ANY FABRICATION UNTIL THE SHOP DRAWINGS ARE FAVORABLY REVIEWED FOR ALL STRUCTURAL WORK, AND MECHANICAL/ARCHITECTURAL SHOP DRAWINGS RELATED TO THE STRUCTURAL WORK. SHOP DRAWINGS SHALL BE BASED ON FIELD VERIFIED CONDITIONS.

9. REVIEW OF SHOP DRAWINGS AND SUBMITTALS BY STRUCTURAL ENGINEER OF RECORD SHALL BE TO REVIEW AND APPROVE ALL CONSTRUCTION DETAILS AND SUBMITTALS FOR THE STRUCTURE. DOCUMENTS NOT SUBMITTED BY THE CONTRACTOR SHALL NOT BE ACCURATE FOR DIMENSIONS AND QUANTITIES REQUIRED FOR PROPER CONSTRUCTION, WHICH ARE THE CONTRACTOR'S RESPONSIBILITY.

10. REPRODUCTION OF ANY PORTION OF THE STRUCTURAL CONTRACT DRAWINGS FOR SUBMITTAL AS SHOP DRAWINGS IS PROHIBITED. SHOP DRAWINGS PRODUCED IN SUCH A MANNER WILL BE REJECTED AND RETURNED.

11. ANY ADDITIONAL WORK/FRAMING/DETAILS NOT SPECIFICALLY SHOWN OR CALLED FOR IN THE DRAWINGS AND SPECIFICATIONS THAT ARE REQUIRED TO COMPLETE THE INTENT OF THE WORK, SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR AS IF INCLUDED IN THE DRAWINGS/SPECIFICATIONS. THE CONTRACTOR SHALL ADVISE THE ENGINEER OF SUCH OCCURRENCES.

12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF ALL AREAS. PROVIDE ANY PROTECTIVE MEASURES DEEMED NECESSARY TO PROTECT PROPERTY AND PREVENT INJURY.

13. REMOVE ALL DEMOLITION MATERIALS FROM THE SITE PROMPTLY. TRANSPORT AND DISPOSE OF DEBRIS AS REQUIRED BY THE APPROVED CODES.

EXCAVATION, FOUNDATION, AND BACKFILLING:

1. BACKFILL SHALL BE PLACED IN 6 INCH MAXIMUM LIFTS AND COMPACTED TO A MINIMUM DENSITY OF 95% DRY UNIT WEIGHT. THE DENSITY AND EXCAVABLE DEPTH OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D373 MODIFIED PROCTOR.

2. BACKFILL SHALL CONSIST OF NON-EXPANSIVE, FREE-DRAINED, WELL GRADED SAND AND GRAVEL, FREE OF DEBRIS AND ORGANIC MATERIAL. FILL UNDER SLAB-ON-GRADE SHALL BE IN CONFORMANCE WITH ASTM D48, SIZE 10.

3. BACKFILL SHALL NOT BE PLACED AGAINST WALLS UNTIL CONCRETE HAS CURED 7 DAYS TO SUPPORT THE CONSTRUCTION. BACKFILL APPROXIMATELY 6 INCHES FROM THE APPROXIMATE CLOSER TO THE WALL THAN A DISTANCE EQUAL TO THE HEIGHT OF THE WALL. USE HAND COMPACTOR EQUIPMENT WITHIN A DISTANCE EQUAL TO THE HEIGHT OF THE FILL ABOVE THE FOOTINGS.

4. CONTRACTOR WILL BE RESPONSIBLE FOR, AND SHALL SAFEGUARD AND PROTECT, ALL EXCAVATIONS AND EXISTING STRUCTURES DURING CONSTRUCTION OF FOUNDATIONS BY PROPER SAFEGUARDS WHICH MAY INCLUDE BRACING.

5. ALL EXCAVATIONS AND BACKFILL OPERATIONS SHALL CONFORM WITH CURRENT OSHA REQUIREMENTS AND STATE AND LOCAL CODES.

6. THE DESIGN AND OPERATION OF THE GROUNDDWATER CONTROLS DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

7. BACKFILL OPERATIONS SHALL PROCEED EVENLY ON BOTH SIDES OF ALL WALLS UNTIL PROPOSED GRADE IS REACHED AT FRONT OF WALL.

TIMBER:

1. MATERIALS: SOUTHERN YELLOW PINE, No. 2 GRADE OR BETTER ALL TIMBER SHALL BE PRESERVE TREATED IN ACCORDANCE WITH NOTE #2, BELOW.

HARDWARE: STUDS, BOLTS, NUTS, AND CONNECTION HARDWARE SHALL BE ASTM 307.

2. ALL TIMBER SHALL BE ACQ PRESERVE TREATED IN ACCORDANCE WITH AWP A3 C3 AND C1B. RETENTION OF 0.6 LBS/CF SHALL BE FIELD TREATED WITH PRESERVE TREATMENT OF OTHER ITEMS SHALL BE PERMITTED.

3. ALL FIELD CUTS SHALL BE FIELD TREATED WITH PRESERVE TREATMENT IN ACCORDANCE WITH AWP A3A. SATURATE BOLTS AND NUTS IN HOT SEALING COMPOUND BEFORE INSERTING INTO HOLES.

4. ALL STEEL HARDWARE AND BOLTS SHALL BE OF SUFFICIENT LENGTH FOR THEIR INTENDED USE. ALL BOLTS SHALL INCLUDE FLAT WASHERS AND HEAVY HEX NUTS.

5. ALL STEEL FASTENERS, BOLTS, WASHERS, NUTS, AND CONNECTION HARDWARE SHALL BE HOT-DIPPED GALVANIZED PER ASTM A133 WITH 20 OZ. OF ZINC PER SQUARE FOOT UNLESS OTHERWISE NOTED.

CONCRETE:

1. ALL CONCRETE SHALL BE MINIMUM 28 DAYS COMPRESSIVE STRENGTH OF 3500 PSI UNLESS OTHERWISE NOTED. CONCRETE TO BE AIR ENTRAINED AS PER ACI 318. SLUMP TO BE 4 INCHES. ALL CONCRETE SHALL BE NORMAL WEIGHT.

2. REINFORCING STEEL FOR CONCRETE SHALL CONFORM TO ASTM A615 GRADE 60.

3. THE FOLLOWING MINIMUM REINFORCEMENT COVER SHALL BE PROVIDED UNLESS OTHERWISE SHOWN ON THE DRAWINGS.

CONCRETE EXPOSED AGAINST EARTH: 3 INCHES

CONCRETE EXPOSED TO EARTH OR WEATHER: 2 INCHES

CONCRETE NOT EXPOSED TO EARTH OR WEATHER: 1 INCH

BEAMS AND COLUMNS: 1/2 INCHES

4. ALL REINFORCING SHALL BE DETAILED, FABRICATED AND SUPPORTED IN FORMS AND SPACED WITH ACCESSORIES FOLLOWING THE REQUIREMENTS OF THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" ACI 318. PLACING OF BARS SHALL CONFORM TO THE LATEST CS1 RECOMMENDED PRACTICES FOR PLACING REINFORCING BARS.

5. NO ADMIXTURE SHALL BE ALLOWED WITHOUT PRIOR APPROVAL OF THE ENGINEER. THE USE OF CALCIUM CHLORIDE IS PROHIBITED.

6. AFTER CONCRETE HAS STARTED, IT SHALL BE CARRIED ON AS A CONTINUOUS OPERATION UNTIL PLACING OF CONCRETE AS DEEMED BY ITS BOUNDARIES OR PREDETERMINED JOINTS IS COMPLETED.

7. ALL CONCRETE SHALL BE THOROUGHLY CONSOLIDATED BY SUITABLE MEANS SUCH AS MECHANICAL VIBRATION DURING PLACEMENT AND THOROUGHLY WORKED AROUND REINFORCEMENT.

8. FINISH CONCRETE IN ACCORDANCE WITH "FINISHING OF FORMED SURFACES" OF ACI 301. FLOOR SLABS TO BE STEEL TROWEL, FINISH EXTERIOR WALKS, RAMPS, ETC. TO BE LIGHT BROOM FINISH AFTER STEEL TROWELING. UNLESS OTHERWISE NOTED, PROVIDE 3/4" CHAMFER ON ALL EXPOSED EDGES AS PER ACI 301, SECTION 4.2.

9. ON INTERIOR FLATWORK APPLY TWO (2) COATS OF LIQUID COMBINATION HARDENER/CURING AGENT; ONE (1) COAT UPON INITIAL SET AND SECOND COAT AT LEAST TWELVE (12) HOURS LATER. CLEAR COMPATIBILITY WITH OWNER PRIOR TO APPLICATION AS REGARDS ANY OVERLAY FLOORING INTENDED.

10. CONSTRUCTION LOADS SHALL NOT BE PLACED ON NEW CONCRETE CONSTRUCTION, FOR AT LEAST 7 DAYS AFTER CONCRETE PLACEMENT.

11. ISOLATION JOINTS SHALL CONSIST OF SHEET FORM, PRE-MOLDED, BITUMINOUS JOINT MATERIAL 1/2 INCH THICK, UNLESS NOTED OTHERWISE. ISOLATION JOINTS SHALL BE FULL DEPTH.

STRUCTURAL CONCRETE AND REINFORCEMENT NOTES:

1. ALL CONCRETE SHALL CONTAIN A WATER REDUCING, PLASTICIZING ADMIXTURE. ALL CONCRETE EXPOSED TO WEATHER SHALL CONTAIN AN AIR-ENTRAINING ADMIXTURE.

2. THE CONTRACTOR SHALL OBTAIN ALL PERMITS FROM THE BUILDING DEPARTMENT PRIOR TO THE START OF WORK.

3. IN CASE OF CONFLICT BETWEEN THE GENERAL NOTES, SPECIFICATIONS, AND DETAILS, THE MOST STRINGENT REQUIREMENTS SHALL GOVERN.

4. EXISTING CONDITIONS, ELEVATIONS, DIMENSIONS AND SYSTEMS SHOWN ON PLANS ARE BASED ON LIMITED INFORMATION AND ARE NOT TO BE CONSTRUED AS A STATEMENT OF THE EXISTING CONDITIONS. THE CONTRACTOR SHALL NOT COMMENCE WORK UNTIL THE EXISTING CONDITIONS ARE DETERMINED AND APPROVED BY THE ENGINEER.

5. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY SHORING AND BRACING REQUIRED FOR PLUMBNESS, STRUCTURAL STABILITY AND SAFETY WHENEVER REQUIRED TO SUPPORT LOADS AS MAY BE IMPOSED UPON THE STRUCTURE DURING CONSTRUCTION. BRACING AND SHORING AND SEQUENCES OF SUCH WORK SHALL BE THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL NOT COMMENCE WORK UNTIL THE EXISTING CONDITIONS ARE DETERMINED AND APPROVED BY THE ENGINEER. ALL CONTRACTOR'S SEAL AND SIGNATURE.

6. CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR DESIGN OF CONCRETE MIXES AND FOR MAINTAINING STRENGTH AND PROPER SLUMP DURING CONSTRUCTION. CONCRETE MIXES SHALL BE DESIGNED IN ACCORDANCE WITH METHOD DESCRIBED IN THE GOVERNING CODE. THE MIX DESIGNS BEING USED SHALL BE APPROVED BY THE ENGINEER.

7. CONTRACTOR SHALL CONSTRUCT SO CONCRETE MEMBERS AND STRUCTURES ARE OF SIZE, SHARE, ALIGNMENT, ELEVATION AND POSITION INDICATED WITHIN TOLERANCE LIMITS OF ACI 117.

8. ALL FORMWORK SHALL BE CONSTRUCTED SO CONCRETE MEMBERS AND STRUCTURES ARE OF SIZE, SHARE, ALIGNMENT, ELEVATION AND POSITION INDICATED WITHIN TOLERANCE LIMITS OF ACI 117.

9. CONTRACTOR SHALL DETAILED AND PLACED IN ACCORDANCE WITH ACI MANUAL OF STANDARD PRACTICE, UNLESS OTHERWISE NOTED. PLACING OF CONCRETE SHALL NOT START UNTIL THE PLACEMENT OF REINFORCING HAS BEEN APPROVED BY THE SPECIAL INSPECTOR OR SPECIAL INSPECTION AGENCY.

10. SUBMIT SHOP DRAWINGS AFTER COORDINATION WITH LATEST STRUCTURAL DRAWINGS, SHOWING THE LOCATIONS OF ALL CONSTRUCTION JOINTS, CURB, SLAB DEPRESSION, SLEEVES, OPENINGS, ETC.

11. REINFORCING SPACES SHALL BE APPROVED WITH ACI 318, BUT SHALL IN NO CASE BE LESS THAN 40 DIAMETERS, UNLESS OTHERWISE NOTED.

12. REVIEW OF SHOP DRAWINGS FOR ALL WORK. DO NOT PROCEED WITH ANY FABRICATION UNTIL THE SHOP DRAWINGS ARE FAVORABLY REVIEWED FOR ALL STRUCTURAL WORK, AND MECHANICAL/ARCHITECTURAL SHOP DRAWINGS RELATED TO THE STRUCTURAL WORK. SHOP DRAWINGS SHALL BE BASED ON FIELD VERIFIED CONDITIONS.

13. WHERE REQUIRED, DOVETAIL SHALL MATCH SIZE AND NUMBER OF MAIN REINFORCING AND LAP A MIN. OF 400 (NOT OTHERWISE NOTED).

14. DO NOT PLACE CONCRETE WITHOUT FAVORABLY REVIEWED SHOP DRAWINGS.

15. AT EXTERIOR EXPOSURE PROVIDE EXPANSION JOINTS IN ALL SLABS AT 18'-0" O.C. MAX. WITH COMPRESSIBLE JOINT FILLER.

16. ALL CONSTRUCTION JOINTS SHALL BE CLEANED AND MOISTENED IMMEDIATELY PRIOR TO PLACING NEW CONCRETE.

17. NO CALCIUM CHLORIDE SHALL BE USED IN ANY CONCRETE.

18. CONCRETE SLABS SHALL HAVE A MONOLITHIC FINISH AND SHALL BE SCREED, COMPACTED BY ROLLING OR TAMMING, DROPPED OFF AND GRADED AS REQUIRED. AFTER SUFFICIENT HARDENING, SLAB SHALL BE PROTECTED AND CURED, START CURING AS SOON AS POSSIBLE WITHOUT MARKING FINISH. COVER SLABS WITH REINFORCED PAPER AS REQUIRED. KEEP SURFACE CONTINUOUSLY MOIST FOR 7 DAYS.

19. CONDUITS AND PIPES IMBEDDED IN CONCRETE SHALL CONFORM TO ACI 318 REQUIREMENTS. CONDUITS AND PIPES SHALL NOT BE LARGER THAN 1/3 OF THE SLAB/JOINT THICKNESS AND SHALL NOT BE SPACED CLOSER THAN 3 INCHES ON CENTER. COORDINATE WITH ARCHITECTURAL, HVAC, ELECTRICAL AND PLUMBING DRAWINGS.

CONCRETE CURING:

1. PROPER CURING OF CONCRETE IS OF THE UTMOST IMPORTANCE. BEGINNING IMMEDIATELY AFTER PLACEMENT, CONCRETE SHALL BE PROTECTED FROM PREMATURE DRYING, EXCESSIVELY HOT OR COLD TEMPERATURES, AND EXCESSIVE VIBRATION. CONCRETE SHALL NOT BE EXPOSED TO TEMPERATURES WHICH WILL CAUSE A RELATIVELY CONSTANT TEMPERATURE FOR AT LEAST 7 DAYS. THE MATERIALS AND METHODS OF CURING SHALL BE SUBJECT TO ACCEPTANCE BY THE ENGINEER. UNSATISFACTORILY FINISHED CONCRETE SHALL BE REWORKED AND REPLACED. ALL COSTS ASSOCIATED WITH REWORK AND REPLACEMENT OF CONCRETE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

2. SLABS - IT IS RECOMMENDED THAT 7 DAYS OF WET CURING ON ALL MAT SLABS, AND FORMED SLABS BE PROVIDED. USE SOAKER HOSE, WET BULKAP AND PLASTIC SHEETS OVER BULKAP ON ALL EXPOSED SURFACES FOR 7 DAYS MINIMUM.

3. COLD WEATHER - WHEN THE MEAN DAILY OUTDOOR TEMPERATURE IS LESS THAN 30°, THE TEMPERATURE OF THE CONCRETE SHALL BE MAINTAINED BETWEEN 50° AND 70° FOR THE REQUIRED CURING PERIOD. WHEN NECESSARY, ARRANGEMENTS FOR HEATING, COVERING, INSULATION, OR INSULATED CONCRETE FORMS SHALL BE MADE TO MAINTAIN THE REQUIRED TEMPERATURE. CONCRETE SHALL BE ADEQUATE TO MAINTAIN THE REQUIRED TEMPERATURE WITHOUT INJURY TO THE CONCRETE DUE TO CONCRETING.

4. HOT WEATHER - WHEN NECESSARY, PROVISION FOR WINDBREAKS, SHADING, AND/OR COOLING VAPORS TO PREVENT OVERHEATING SHALL BE MADE IN ADVANCE OF CONCRETE PLACEMENT. SUCH PROTECTIVE MEASURES SHALL BE TAKEN AS QUICKLY AS CONCRETE HARDENING AND FINISHING OPERATIONS WILL ALLOW. TEMPERATURE OF CONCRETE AT PLACEMENT SHALL NOT EXCEED 85°.

PRECAST CONCRETE:

1. ALL PRECAST CONCRETE WORK SHALL BE IN COMPLETE ACCORDANCE WITH THE REQUIREMENTS OF ACI 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, AND ACI 350, "SPECIFICATIONS FOR PRECAST CONCRETE", LATEST EDITIONS, AND IN ACCORDANCE WITH THE GENERAL NOTES ON CONCRETE CONSTRUCTION ON THIS SHEET.

2. ALL PRECAST CONCRETE SHALL ALSO BE IN COMPLETE ACCORDANCE WITH PCI MNL120, "PCI DESIGN HANDBOOK - PRECAST AND PRESTRESSED CONCRETE", LATEST EDITION.

3. PRECAST CONCRETE SHALL BE MANUFACTURED WITH PROCEDURES AND TESTING REQUIREMENTS IN ACCORDANCE WITH THE REQUIREMENTS IN THIS SECTION. PRECAST CONCRETE PRODUCTS AND PRECAST CONCRETE PRECAST CONCRETE PRODUCTS.

4. ALL PRECAST CONCRETE SHALL BE DESIGNED BY THE MANUFACTURER'S ENGINEER, DESIGN SHALL BE PREPARED BY A PROFESSIONAL ENGINEER, LICENSED IN THE STATE OF NEW JERSEY.

TIDAL ELEVATIONS: NEED TO UPDATE

ALL ELEVATIONS REFER TO NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88), AS FOLLOWS:

MEAN HIGHER HIGH WATER (MHHW) = 0.07'
NAVD 88 ELEVATION = -0.07'
MEAN HIGH WATER (MHW) = -0.05'
MEAN TIDE LEVEL (MTL) = -0.21'
MEAN LOW WATER (MLW) = -0.37'
MEAN LOWER LOW WATER (MLLW) = -0.43'

VINYL BULKHEAD NOTES:

1. MATERIALS:

SHETING: TIMBER SHEETING AS SPECIFIED IN DETAILS, MARINE GRADE SOUTHERN YELLOW PINE NO. 2 OR BETTER.
TIE RODS: ASTM A36
HARDWARE:
STAINLESS BOLTS, NUTS AND WASHERS: ASTM A307
PLATES, STRAPS AND ANGLES: ASTM A36
OGEE WASHERS: ASTM A47

2. BULKHEAD CAP DECKING SHALL BE ACQ PRESERVE TREATMENT, WITH 0.6 LBS/CF

3. ALL FIELD CUTS SHALL BE FIELD TREATED WITH PRESERVATIVE TREATMENT IN ACCORDANCE WITH AWP A3A. SATURATE BOLTS IN HOT SEALING COMPOUND BEFORE INSERTING INTO HOLES.

4. ALL HARDWARE AND BOLTS SHALL BE OF SUFFICIENT LENGTH FOR THEIR INTENDED USE. ALL BOLTS SHALL CONTAIN WASHERS, Ogee WASHERS AND HEAVY HEX NUTS. USE CARRIAGE BOLTS WHERE APPROPRIATE.

5. ALL STEEL FASTENERS, BOLTS, WASHERS, NUTS, AND CONNECTION HARDWARE SHALL BE HOT-DIPPED GALVANIZED PER ASTM A133 WITH 20 OZ. OF ZINC PER SQUARE FOOT UNLESS OTHERWISE NOTED.

CONTRACTOR TO PROVIDE ALL TEMPORARY SHORING AND BRACING REQUIRED FOR PLUMBNESS, STRUCTURAL STABILITY AND SAFETY WHENEVER REQUIRED TO SUPPORT LOADS AS MAY BE IMPOSED UPON THE STRUCTURE DURING CONSTRUCTION. BRACING AND SHORING AND SEQUENCES OF SUCH WORK SHALL BE THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL NOT COMMENCE WORK UNTIL THE EXISTING CONDITIONS ARE DETERMINED AND APPROVED BY THE ENGINEER.

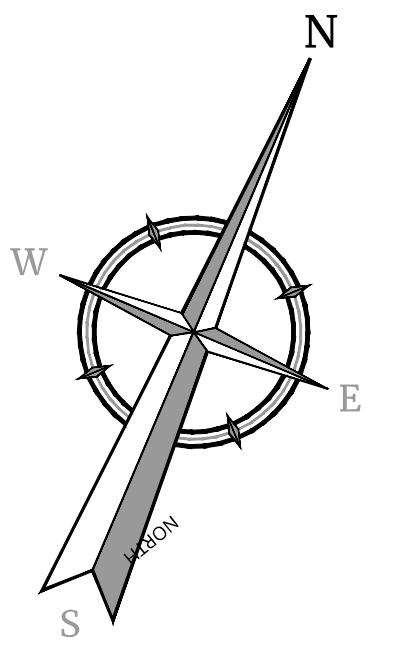
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7. CONTRACTOR SHALL CONSTRUCT SO CONCRETE MEMBERS AND STRUCTURES ARE OF SIZE, SHARE, ALIGNMENT, ELEVATION AND POSITION INDICATED WITHIN TOLERANCE LIMITS OF ACI 117.

8. ALL FORMWORK SHALL BE CONSTRUCTED SO CONCRETE MEMBERS AND STRUCTURES ARE OF SIZE, SHARE, ALIGNMENT, ELEVATION AND POSITION INDICATED WITHIN TOLERANCE LIMITS OF ACI 117.

9. CONTRACTOR SHALL DETAILED AND PLACED IN ACCORDANCE WITH ACI MANUAL OF STANDARD PRACTICE, UNLESS OTHERWISE NOTED. PLACING OF CONCRETE SHALL NOT START UNTIL THE PLACEMENT OF REINFORCING HAS BEEN APPROVED BY THE SPECIAL INSPECTOR OR SPECIAL INSPECTION AGENCY.

10. SUBMIT SHOP DRAWINGS AFTER COORDINATION



A large, empty grid of 10 columns and 10 rows, outlined by thick black lines. The grid is composed of 90 smaller squares. The top row and left column are slightly taller and wider than the subsequent 9 rows and 9 columns respectively, creating a header and a margin.

Richard C. Maloney
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE39023
OLLIERS ENGINEERING & DESIGN, INC.

LANDSCAPE PLAN (L-4)

SCALE: 1" = 20'

NOTE

1. REFER TO SHEET **L8 (L-208)** FOR PLANTING NOTES, PLANTING DETAILS, AND PLANTING SCHEDULE.
2. PLANT LOCATIONS INDICATED ON THE LANDSCAPE PLAN ARE APPROXIMATE; ACTUAL LOCATION OF PLANT MATERIAL IS SUBJECT TO SITE CONDITIONS.
3. THE LANDSCAPE PLAN SHALL TAKE PRECEDENCE OVER THE PLANT SCHEDULE SHOULD ANY PLANT MATERIAL DISCREPANCIES OCCUR.
4. THIS SHEET TO BE USED FOR LANDSCAPE PURPOSES ONLY.

PLANTING LEG

SHRUBS

GROUNDCOVER

SCALE: 1" - 30

FINIAL DESIGN PLANS
FOR
CAPE MAY SEAWALL

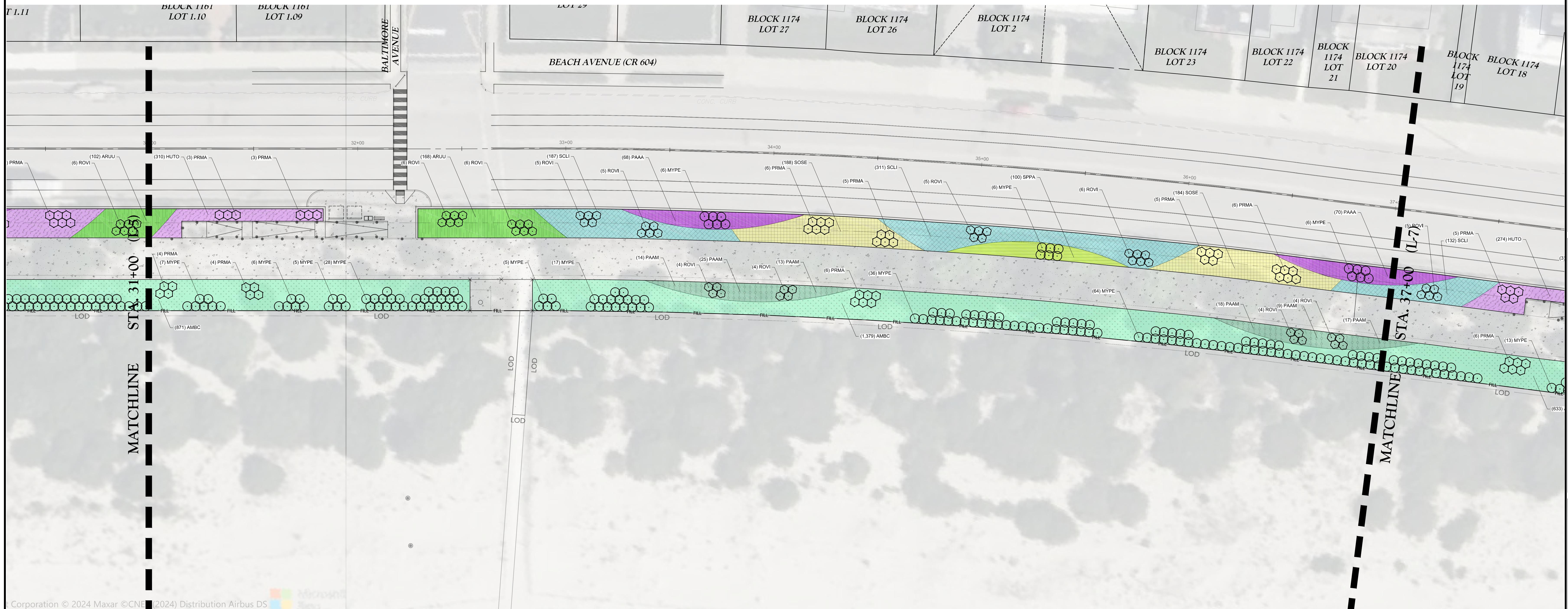
**CITY OF CAPE MAY
CAPE MAY COUNTY
NEW JERSEY**

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NUMBER:	DATE: 01/30/2025	DRAWN BY: ZWR	CHECKED BY: CRG
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LANDSCAPE PLAN

MBER: L-204.00

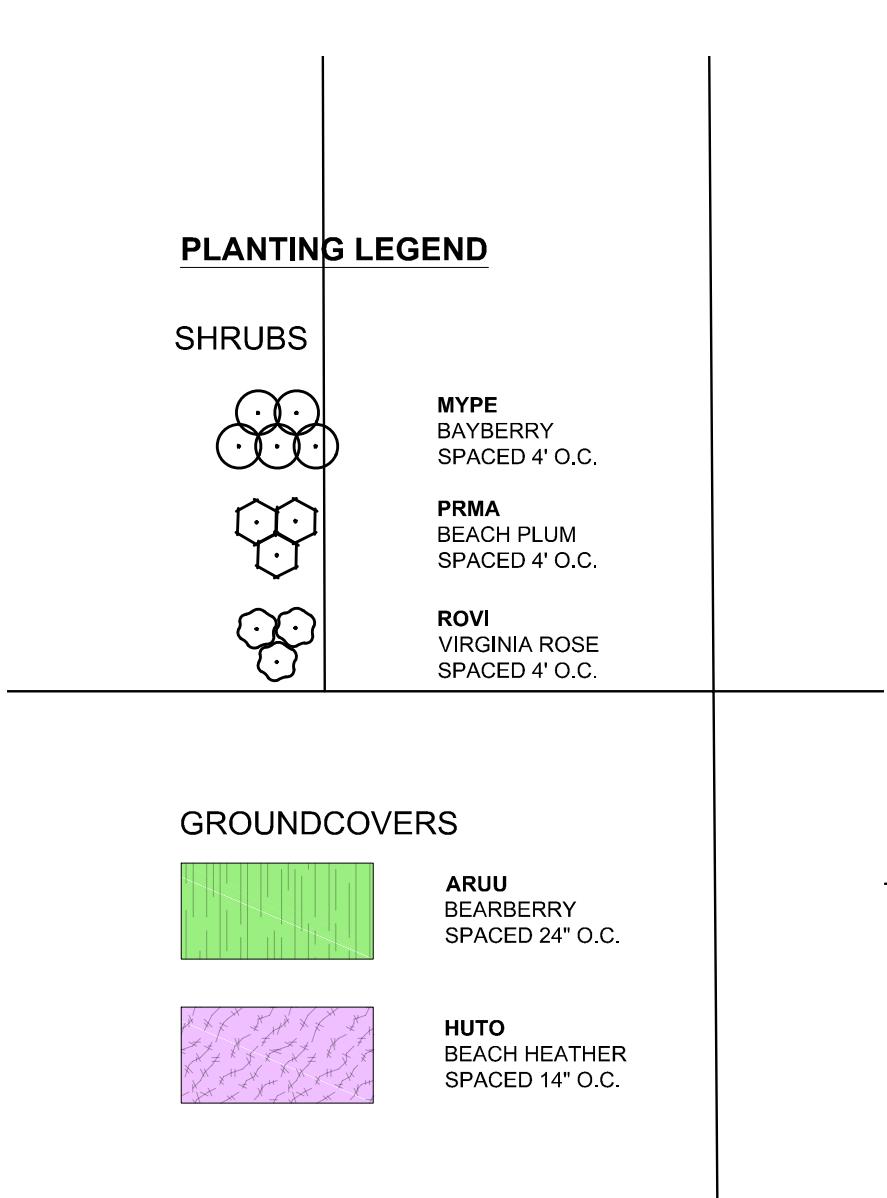


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LANDSCAPE PLAN (L-6)
SCALE: 1" = 20'

NOTES

- REFER TO SHEET L8 (L-208) FOR PLANTING NOTES, PLANTING DETAILS, AND PLANTING SCHEDULE.
- PLANT LOCATIONS INDICATED ON THE LANDSCAPE PLAN ARE APPROXIMATE; ACTUAL LOCATION OF PLANT MATERIAL IS SUBJECT TO SITE CONDITIONS.
- THE LANDSCAPE PLAN SHALL TAKE PRIORITY OVER THE PLANT SCHEDULE SHOULD ANY PLANT MATERIAL DISCREPANCIES OCCUR.
- THIS SHEET TO BE USED FOR LANDSCAPE PURPOSES ONLY



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20
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SCALE: 1" = 20'
Linear unit of measure: US Survey Foot (1 ft = 1200/3937 m)

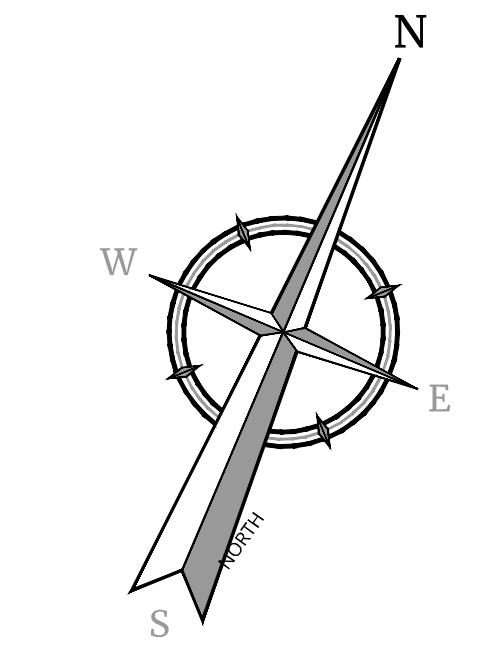
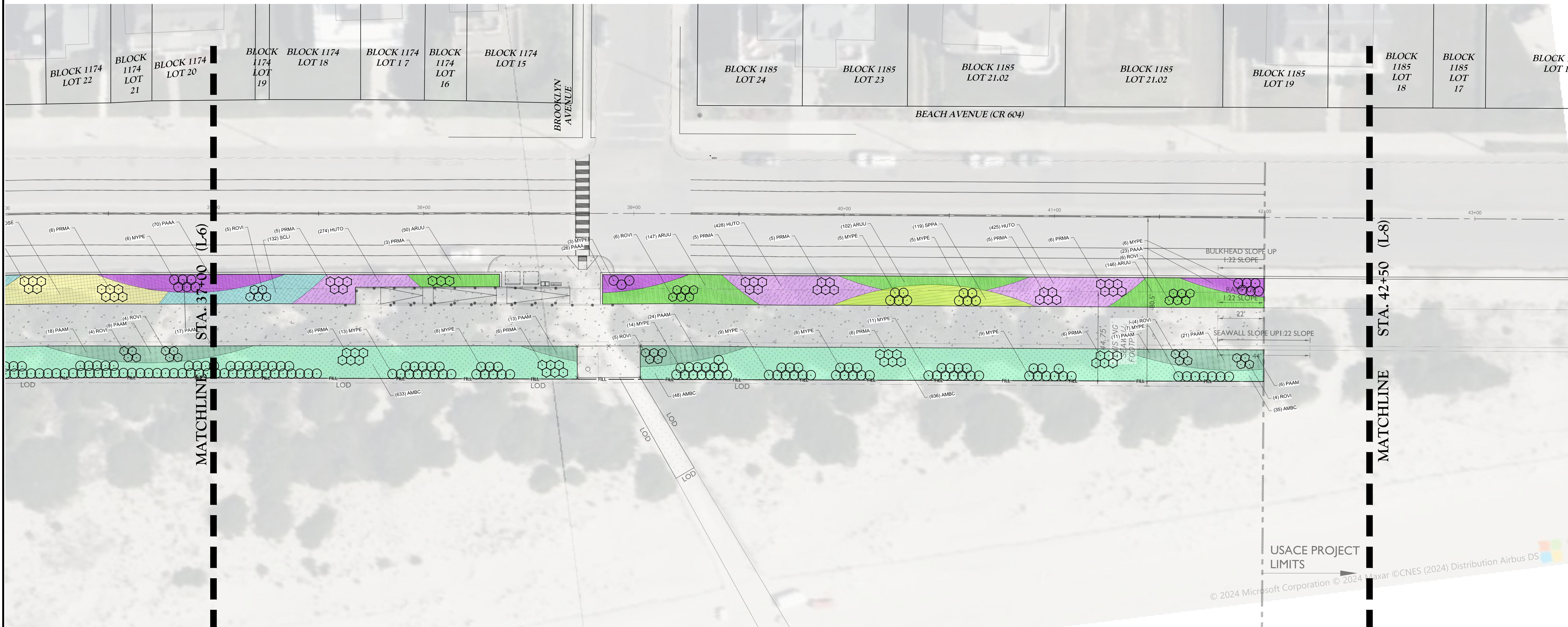
FINAL DESIGN PLANS
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CITY OF CAPE MAY
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DOING BUSINESS AS MASER CONSULTING

AS SHOWN
01/30/2025
PROJECT NUMBER
220934096
DRAWING NUMBER
L-206.00
DRAWN BY: ZWR
CHECKED BY: ORG

SHEET TITLE:
LANDSCAPE PLAN
SHEET NUMBER:
L-206.00
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



20 0 20 40

SCALE: 1" = 20'

Linear unit of measure US Survey Foot (1 ft = 1200/3937 m)

FINAL DESIGN PLANS
FOR
CAPE MAY SEAWALL
EXTENSION

CITY OF CAPE MAY
CAPE MAY COUNTY
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COLLIERS ENGINEERING & DESIGN INC.
DOING BUSINESS AS Maser Consulting

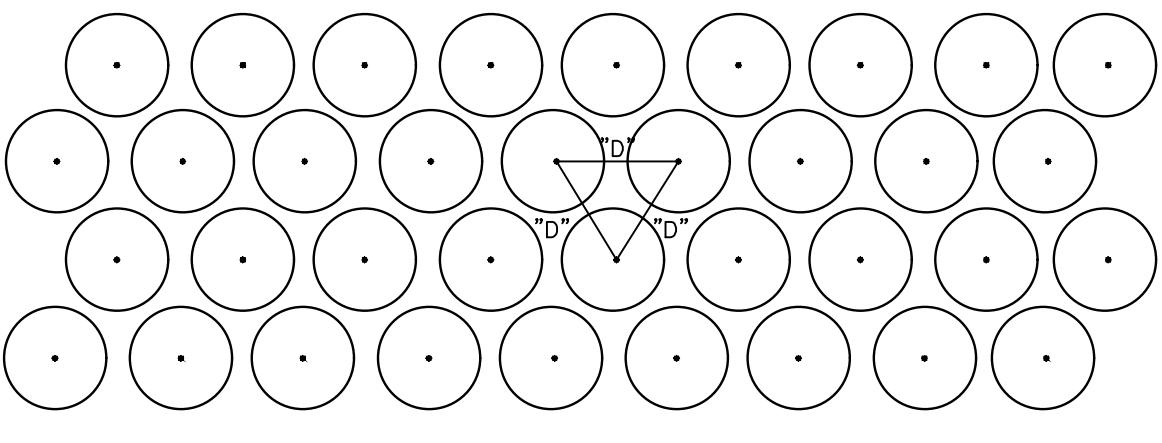
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SHEET TITLE: LANDSCAPE PLAN

SHEET NUMBER: L-207.00

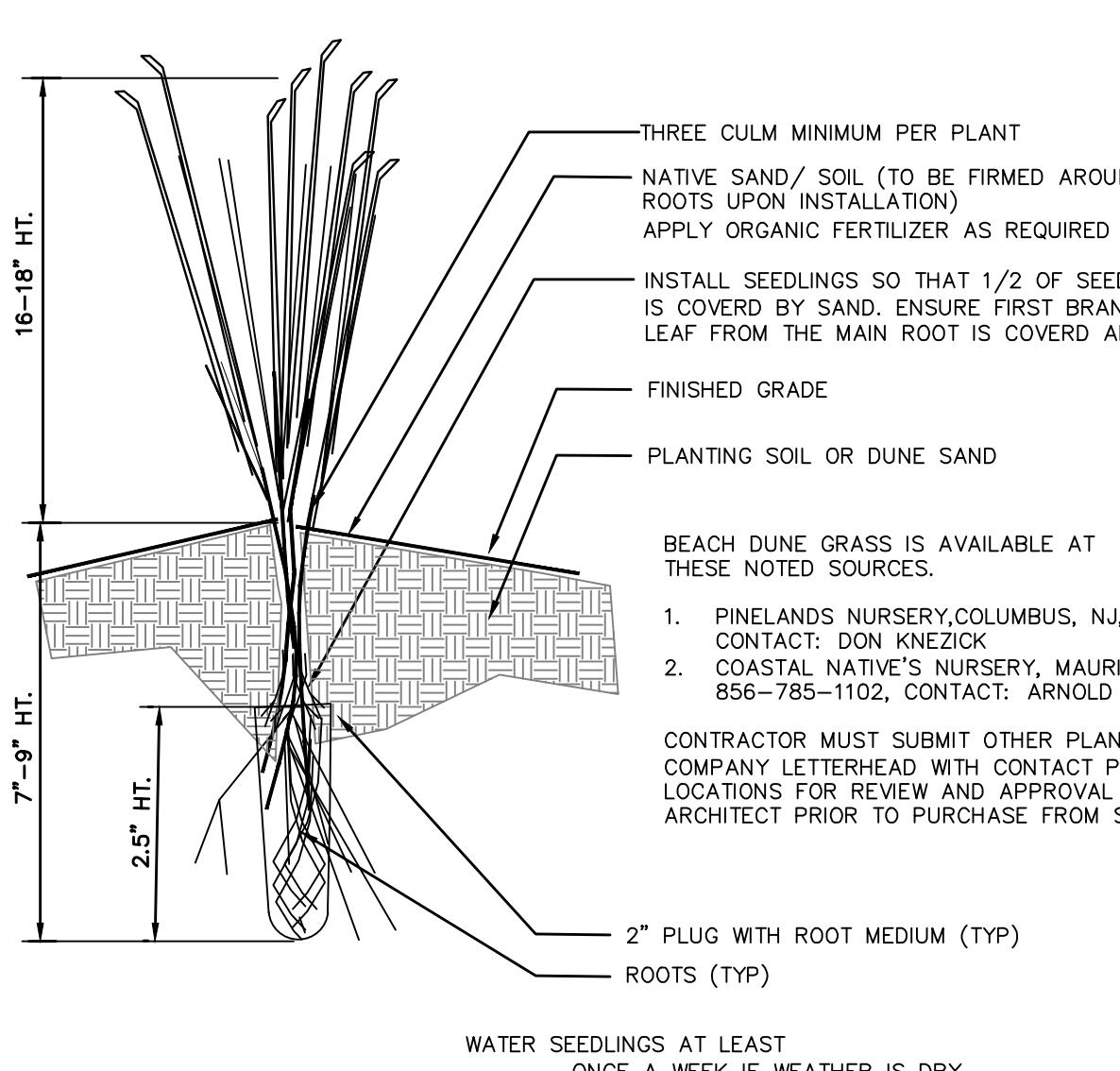
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

L7 L8



PLANT SPACING DETAIL

N.T.S.



GROUND COVER MATERIAL SHALL REACH SAME RELATION TO FINISHED GRADE AS IT BORE TO PREVIOUS GRADE IN THE NURSERY.

GROUND COVER PLANT - SEE PLANT LIST FOR SPECIES AND SPACING

FINISHED GRADE BACKFILL MIXTURE-2 PARTS SAND (NATIVE SOILS) WITH 1 PART PEAT MOSS (TYP.)

EXISTING SOIL TO BE LOOSENED TO A MINIMUM DEPTH OF 4 INCHES

GROUNDCOVER PLANTING DETAIL

N.T.S.

REQUIRED SOIL AMENDMENTS:

ALL PLANTING PITS (TREES, SHRUBS AND PERENNIALS) SHALL HAVE ADDED THE FOLLOWING SOIL AMENDMENTS AS MANUFACTURED BY PLANT HEALTH CARE INC., 1-800-421-9051, OR APPROVED EQUAL. AMENDMENTS SHALL BE ADDED AS PER THE SPECIFICATIONS:

A. HEALTHY START ORGANIC FERTILIZER 3-4-3 WITH BENEFICIAL MYCORRHIZAL FUNGI AND BACTERIA

B. DERITA SOB potassium hydrogel

NOTES: DO NOT PRUNE EVERGREENS EXCEPT TO REMOVE DEAD AND BROKEN BRANCHES THIN BRANCHES AND FOLIAGE (NOT ALL BRANCH TIPS) BY 1/3, REMAINING NORMAL PLANT SHAPE (EXCEPT EVERGREEN).

REMOVE BURLAP FROM PLANTS AND REMOVE FOR 6" DEPTH, OR WITH CONTINUOUS FENCE REMOVE FOR 12" DEPTH.

4" OF SHREDDED MULCH COVERING 24" DIAMETER CIRCLE OF PLANT BED

CONSTRUCT 3" HIGH SAUCER AROUND PERIMETER

BACKFILL MIXTURE-2 PARTS SAND (NATIVE SOILS) WITH 1 PART PEAT MOSS (TYP.)

COMPACTED BACKFILL MIX OF UNDISTURBED SUBSOIL

SHRUB SHALL BE PLANTED SLIGHTLY LOWER THAN THE GRADE IT BORE IN THE NURSERY

EXISTING SOIL TO BE LOOSENED TO 6" DEPTH WHERE SOILS ARE OF HIGH CLAY CONTENT

BALLED AND BURLAPPED SHRUBS

BARE ROOT OR CONTAINER SHRUBS

DUNE SHRUB PLANTING DETAIL

N.T.S.

PERMITTEE REQUIREMENTS

PERMITTING CONDITION

Prerequisite to the commencement of site preparation, inclusive of site clearing, project staging, onsite storage of materials, pre-construction site movement, other site disturbance, and all authorized activities, the permittee shall submit a written mitigation proposal for the proposed project. The mitigation proposal for the footprint of the area of the project must be submitted within 30 days of the date of permit issuance for review and approval to the NJDEP watershed and land management program, endangered & threatened species unit. The permittee shall first submit a proposal of mitigation for direct impacts to 2.86 acres of steamer habitat for mitigation of the 2.11 reduced area. The mitigation proposal must be submitted to the NJDEP within 30 days of the date of the permit or prior to or concurrent with construction. After the mitigation proposal is accepted by the division in writing, the permittee shall then proceed with the placement of a conservation restriction over the approved mitigation area. The permittee shall then commence site preparation. The permittee shall file the restriction with the appropriate county clerk's office (the office of deeds and mortgages). The conservation restriction shall run with the land and be binding upon all successive owners. A copy of the recorded mitigation proposal may be submitted to the division. No project site preparation and authorized activities may commence until the recorded conservation restriction has been recorded and a signed copy has been received by the division and resource protection. Any activities undertaken on the site before the facility review act.

MONITORING & SURVIVORSHIP REQUIREMENTS:

The permittee is required to monitor the plantings for five full growing seasons beginning the year after the plantings have been completed. The permittee shall submit monitoring reports to the division no later than December 31st of each full monitoring year (especially for years 1, 2 and 5). All monitoring reports must include the standards identified in the checklist entitled, "wetland mitigation monitoring project checklist" (available on the DLRF website).

When the required monitoring period has expired, and the permittee has submitted the final monitoring report, the division will make the finding that the mitigation (planting) effort is either a success or a failure. The effort will be considered a success if the following criteria are demonstrated:

i.) 85 % of plantings, which are species identified on the approved site plan, are surviving and 85% of the area designated for planting is covered by these species;

ii.) All planted material must be healthy and thriving; and,

iii.) The site has less than 10% coverage by species that are not native to this region and/or are invasive.

The permittee is responsible for assuming all liability for any corrective work necessary to meet the success criteria established above. The division will notify the permittee in writing if the mitigation effort is considered a failure. Within 30 days of that notification, the permittee shall submit a revised mitigation plan to meet the success criteria identified above for division review and approval.

PLANTING NOTES:

1. THE CONTRACTOR SHALL REVIEW ARCHITECTURAL/ENGINEERING PLAN TO BECOME THOROUGHLY FAMILIAR WITH GRAVING AND SOIL UTILITIES.
2. ALL EQUIPMENT AND TOOLS SHALL BE PLACED SO AS NOT TO INTERFERE OR HINDER THE PEDESTRIAN AND VEHICULAR TRAFFIC FLOW.
3. THE CONTRACTOR SHALL COORDINATE WITH LIGHTING AND IRRIGATION CONTRACTORS REGARDING TIMING OF INSTALLATION OF PLANT MATERIAL AS REQUIRED.
4. THE CONTRACTOR SHALL INSURE THAT HIS WORK DOES NOT INTERRUPT ESTABLISHED OR PROJECTED DRAINAGE.
5. DURING PLANTING OPERATIONS, EXCESS WASTE MATERIALS SHALL BE PROMPTLY AND FREQUENTLY REMOVED FROM THE SITE.
6. THE CONTRACTOR SHALL CALL NJ UNDERGROUND UTILITY LOCATION SERVICE UTILITY A MINIMUM OF THREE DAYS PRIOR TO ANY EXCAVATION. THE CONTRACTOR IS ADVISED OF THE EXISTENCE OF UNDERGROUND UTILITIES ON THE SITE. THEIR EXACT LOCATION SHALL BE VERIFIED IN THE FIELD WITH THE OWNER OR GENERAL CONTRACTOR PRIOR TO COMMENCEMENT OF ANY DIGGING OR TRENCHING. IF ANY EXCAVATION IS MADE, THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY DAMAGE TO UTILITIES AND SUCH DAMAGE SHALL NOT RESULT IN ADDITIONAL EXPENSES TO THE OWNER. ANY DAMAGE OF UNREPORTED LINES SHALL NOT BE THE RESPONSIBILITY OF THE CONTRACTOR.
7. IF UTILITY LINES ARE ENCOUNTERED IN EXCAVATION FOR PLANTING PITS, OTHER LOCATIONS FOR PLANTS SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL COMPENSATION. NO CHANGES OF LOCATION SHALL BE MADE WITHOUT APPROVAL OF THE LANDSCAPE ARCHITECT.
8. MAINTAIN POSITIVE DRAINAGE OUT OF PLANTING BEDS AT A MINIMUM 2% SLOPE. ALL GRADES, DIMENSIONS, AND EXISTING CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR ON SITE BEFORE COMMENCEMENT OF PLANTING. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT OR OWNER.
9. EVERY POSSIBLE SAFEGUARD SHALL BE TAKEN TO PROTECT BUILDING SURFACES, ROADWAYS, SIDEWALKS, EQUIPMENT, AND FURNISHINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE OR INJURY TO PERSONS OR PROPERTY WHICH MAY OCCUR AS A RESULT OF HIS NEGLIGENCE IN THE EXECUTION OF THE WORK.
10. IN THE EVENT OF VARIATIONS BETWEEN WRITTEN QUANTITIES SHOWN ON THE PLANT AND THE PLANT LIST, THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT AS SOON AS POSSIBLE. THE CONTRACTOR SHALL NOT COMMENCE THE COMMENCEMENT OF WORK UNTIL APPROVAL IS RECEIVED FROM THE LANDSCAPE ARCHITECT FOR CLARIFICATION PRIOR TO BIDDING. THE CONTRACTOR SHALL FURNISH PLANT MATERIAL AS SPECIFIED IN PLANT LIST.
11. PLANTS SHALL BE LOCATED AS SHOWN ON THE DRAWINGS, OR AS DESIGNATED IN THE FIELD. THE CONTRACTOR SHALL NOT PLANT PLANTS LOCATED ON THE DRAWINGS FOR ADJUSTMENT BY THE LANDSCAPE ARCHITECT PRIOR TO PLANTING. ALL LOCATIONS ARE TO BE APPROVED BY THE LANDSCAPE ARCHITECT BEFORE EXCAVATION.
12. PLANTS SHALL CONFORM TO CURRENT "AMERICAN STANDARDS FOR NURSERY STOCK" BY AMERICAN SOCIETY FOR TEST METHODS, PARTICULARLY AS RELATED TO SIZE, GROWTH, SIZE OF BALL, AND DENSITY OF BRANCH STRUCTURE. PLANT MATERIAL SHALL BE TAGGED AT THE SOURCE BY THE LANDSCAPE ARCHITECT UNLESS THIS REQUIREMENT IS SPECIFICALLY WAIVED.
13. ALL PLANTS (B&B OR CONTAINER) SHALL BE PROPERLY IDENTIFIED BY WEATHERPROOF LABELS SECURELY ATTACHED THERETO BEFORE DELIVERY TO PROJECT SITE. LABELS SHALL IDENTIFY PLANTS BY NAME, SPECIES, AND SIZE. LABELS SHALL NOT BE REMOVED UNTIL THE FINAL INSPECTION BY THE LANDSCAPE ARCHITECT.
14. ANY MATERIAL AND/OR WORK MAY BE REJECTED BY THE LANDSCAPE ARCHITECT IF IT DOES NOT MEET THE REQUIREMENTS OF THE SPECIFICATIONS. ALL REJECTED MATERIALS SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.
15. NO PLANTING SHALL BE MADE WITHOUT WRITTEN CONSENT OF THE OWNER OR LANDSCAPE ARCHITECT.
16. THE LANDSCAPE ARCHITECT OR OWNER SHALL HAVE THE RIGHT, AT ANY STAGE OF THE OPERATIONS, TO REJECT ANY AND ALL WORK AND MATERIAL WHICH, IN HIS OPINION, DOES NOT MEET THE REQUIREMENTS OF THESE PLANS AND SPECIFICATIONS.
17. THE CONTRACTOR SHALL BE WHOLLY RESPONSIBLE FOR STABILITY AND CONDITIONS OF ALL TREES, SHRUBS, DUNE GRASS AND PLANTS INSTALLED. CONTRACTOR WILL BE LEGALLY LIABLE FOR ANY DAMAGE CAUSED BY INSTABILITY OR DAMAGE TO PLANTS OR PLANT BEDS. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY DAMAGE AS REQUIRED OR USE OF OTHER REVIEWED AND AGREED UPON MEANS AND METHODS MAYBE REQUIRED.
18. ALL PROPOSED TREES TO BE INSTALLED EITHER ENTIRELY OR ENTIRELY OUT OF PLANTING BEDS. PLANTING BED LINES ARE NOT TO BE OBSTRUCTED. ALL SHRUBS AND GROUND COVER AREAS SHALL BE PLANTED IN CONTINUOUS PREPARED BED AND TO BE DRESSED WITH 4-INCH SHREDDED HARDWOOD MULCH. MULCH SHALL HAVE BEEN STRIPPED WITHIN THE LAST SIX MONTHS. AREAS OF DUNE GRASS DOES NOT REQUIRE MULCH.
19. ALL PLANTING BEDS ADJACENT TO LAWN, SOIL, OR SEEDED AREAS SHALL BE EDGED.
20. THE CONTRACTOR SHALL FERTILIZE ALL PLANT MATERIAL WITH 5-10-5 FERTILIZER, OR APPROVED EQUAL UNLESS SPECIFIED OTHERWISE. THE STATE SPECIFIED BY THE MANUFACTURER. TURF AREA SHALL BE FERTILIZED AND FERTILIZER APPLIED AS SPECIFIED IN THE DRAWINGS. TURF AREA SHALL BE FERTILIZED AND FERTILIZER APPLIED AS SPECIFIED IN THE DRAWINGS. THE CONTRACTOR IS RESPONSIBLE TO HAVE THE SOIL ACIDITY AND A SOIL TEST CONDUCTED BY THE COUNTY SOIL DISTRICT OR EXTENSION SERVICE TO ESTABLISH THE SOIL'S LIME AND FERTILIZER RATES.
21. ALL WATER APPLIED TO PLANTED OR DUNE AREAS SHALL BE FREE FROM IMPURITIES HARMFUL TO VEGETATION AND APPLIED AT A RATE OF 5 GALLONS OF WATER PER SQUARE YARD OF PLANT AREA. THE CONTRACTOR SHALL NOT OVERWATER PLANTED AREAS. THE CONTRACTOR SHALL PROVIDE ADEQUATE IRRIGATION TO ALL PLANT MATERIALS AND DUNE AREAS INSTALLED AS PART OF THIS CONTRACT DURING THE CONSTRUCTION TIME PERIOD UP TO AND INCLUDING THE TIME PERIOD ESTABLISHED FOR PLANTING. THE CONTRACTOR SHALL NOT OVERWATER PLANTED AREAS.
22. BACK FILL MATERIAL FOR RAISED PLANT BEDS SHALL CONSIST OF NATURAL LOAM TOPSOIL, FREE FROM SUBSOIL, AND SHALL BE OBTAINED FROM AN AREA WHICH HAS NEVER BEEN STRIPPED. TOPSOIL SHALL HAVE BEEN REMOVED FROM A DEPTH OF NO MORE THAN 1 FOOT, OR LESS IF SUBSOIL IS PRESENT. BACK FILL MATERIAL SHALL NOT CONTAIN ANY DISEASED, DECAYING, OR SICK PLANTS, HARMFUL OR UNDESIRABLE MATERIAL.
23. ALL PLANTS ARE SHOWN SEMI-MATURE SIZE ON PLANS. SIZES INDICATED IN PLANT LIST ARE SIZES AT TIME OF INSTALLATION.
24. PLANT MATERIAL SHOWN IN A MASS OR TOUCHING EACH OTHER SHALL BE ALLOWED TO GROW TOGETHER PLANTS!
25. THE CONTRACTOR SHALL INSURE ADEQUATE VERTICAL DRAINAGE IN ALL PLANT BEDS AND PLANTERS.

BEACHGRASS INSTALLATION DETAIL

N.T.S.

BEACH GRASS PLANTING NOTES: (NOT FOR SEEDING)

1. PLANT BEACH GRASS (BARE ROOT) FROM OCTOBER 1ST TO MARCH 1ST DURING THE PLANT'S DORMANCY IN THE MIDL-ATLANTIC REGION (NEW JERSEY, CONN., N.Y., N.J., DELAWARE).
2. BEACH DUNE GRASS (PLUGS OR PLUGS) MAY BE USED WHERE ACCEPTABLE, SUBMIT NURSERY OR PLANT SOURCES AND PLANTING SCHEDULES.
3. DON'T PLANT BEACH PLANTING SOILS OR BURN SAND IS FROZEN.
4. DON'T PLANT BEACH GRASS DURING THE SUMMER MONTHS.
5. PLANT BEACH GRASS CULM WILL BE USED FOR PLANTING. A THREE STEM MINIMUM WILL BE REQUIRED FOR EACH PLANT LOCATION.
6. THE BEACH GRASS STEM OR CULM SHALL BE USED FOR PLANTING. A THREE STEM MINIMUM WILL BE REQUIRED FOR EACH PLANT LOCATION.
7. PLANT BEACH GRASS AT REQUIRED SPACING AS INDICATED IN PLANT LIST. IF SPACING IS NOT INDICATED USE THE FOLLOWING:
 - 24" ON CENTER FOR PROTECTED PLANTINGS, BACK DUNE AREAS.
 - 18" ON CENTER FOR UNPROTECTED PLANTINGS, DUNE AREAS.
8. PLANT BEACH GRASS BEING PLANTED IN A STAGGERED ALTERNATE ROWS PATTERN TO PLANT SPACING DETAIL SHEET.
9. CONTRACTORS RESPONSIBLE FOR PLANTING. PLANT BACK DUNE GRASS CULM AND ROOT MOST UPON PURCHASE, DELIVERY AND STORAGE OF PLANTS BEFORE AND DURING PLANTING INSTALLATION PURCHASE PLANT STOCK THAT IS DORMANT ONLY AND DISPLAYS VERY LITTLE NEW GROWTH.
10. CONTRACTOR RESPONSIBLE TO PROVIDE TEMPORARY IRRIGATION, MEANS AND METHODS TO BE SUBMITTED AND REVIEWED BY THE LANDSCAPE ARCHITECT.
11. FERTILIZING OF NEWLY PLANTED BEACH GRASS IS REQUIRED.
12. APPLY FERTILIZER 30 DAYS AFTER PLANTING BUT NO EARLIER THAN APRIL 1ST IN THE MID-ATLANTIC REGION (NEW JERSEY).
13. FERTILIZE WITH AN INORGANIC FERTILIZER HIGH IN NITROGEN CONTENT - USE FERTILIZERS WITH N-P-K ANALYSIS OF THE FOLLOWING:
 - 30-0-0
 - 10-8-8
 - 10-10-10
 - 18-0-0
14. APPLY FERTILIZER AT THREE INSTANCES - ONCE IN THE SPRING, SECOND IN EARLY SUMMER AND THIRD LATE SUMMER A RATE OF 1.8# OF NITROGEN PER 1,000 SQ. FT. FOR EACH APPLICATION.
15. TAKE SOIL SAMPLES TO DETERMINE FERTILIZER REQUIREMENTS FOR BEACH GRASS. AFTER STAND OF BEACH GRASS HAS ESTABLISHED, REDUCE FERTILIZER AS INDICATED IN TESTING. FERTILIZE AS REQUIRED, AND WHEN STAND APPEARS MAINTAINED.
16. CONTRACTOR MUST PROTECT BEACH GRASS PLANTING FROM VEHICULAR, PEDESTRIAN AND PET TRAFFIC. PROTECTIVE FENCING AND REINFORCEMENT BY LANDSCAPE ARCHITECT, SUBMIT METHODS FOR REVIEW.
17. DUNE (SURFACE) FENCING OR PERIMETER OF NEWLY PLANTED AREAS MUST BE INSTALLED AND MAINTAINED UNTIL ACCEPTANCE AND DURR MAINTENANCE PERIOD.
18. ANY DUNE BLOWOUT, WASHOUT OR OTHER NATURAL AND HUMAN PRODUCED DAMAGE MUST BE REPAVED QUICKLY AND IN A TIMELY AND WORKMAN LIKE MANNER.

PLANT DATA :

Plant Species	Scientific Name	Planting Season	Depth	Planting Notes
SHRUBS				
MYPR 990	MYRICA PENNSYLVANICA		3 GAL.	
PRMA 445	PRUNUS MARITIMA		3 GAL.	
ROVI 306	ROSA VIRGINIANA		3 GAL.	
GROUND COVERS				
ARUJ 2,690	ARCTOSTAPHYLOS UVA-URSI	BEARBERRY	1 QT.	
IUTO 5,908	HUDSONIA TEMENTOSA	BEACH HEATHER	1 QT.	
GRASSES				
AMBC 13,025	AMMOPHILA BREVIPILULATA 'CAPE'	CAPE AMERICAN BEACHGRASS	2 1/2" PEAT POT	
PAAM 710	PANICUM AMARUM	BITTER PANICGRASS	2 1/2" PEAT POT	
PAAV 1,461	PANICUM AMARUM VAR. AMARULUM	ATLANTIC COASTAL PANICGRASS	2 1/2" PEAT POT	
SCLI 2,862	SCHIZACHYRIUM LITOREALE	DUNE CREST COASTAL LITTLE BLUESTEM	2 1/2" PEAT POT	
BPPA 1,200	Spartina patens	avalon saltmeadow cordgrass	2 1/2" PEAT POT	
PERENNIALS				
SOSE 3,030	SOLIDAGO SEMPERVIRENS	MONARCH GERMPLASM SEASIDE GOLDENROD	1 QT.	
TOTAL CRITICAL WILDLIFE HABITAT RESTORATION AREA				
132,200 SF OR 2.83 ACRES				
NOTE				
SEE PLANTING LEGEND ON SHEETS L1 - L7 FOR PLANT SPACING				

Richard C. Maloney
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE39023
COLLIERS ENGINEERING & DESIGN, INC.
NJ COA # P-24047988990

FINIAL DESIGN PLANS
FOR
CAPE MAY SEAWALL
EXTENSION

CITY OF CAPE MAY
CAPE MAY COUNTY
NEW JERSEY

HOLMDEL (Headquarters)
101 Crawfords Corner Road,
Suite 3400
Holmdel, NJ 07733
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