

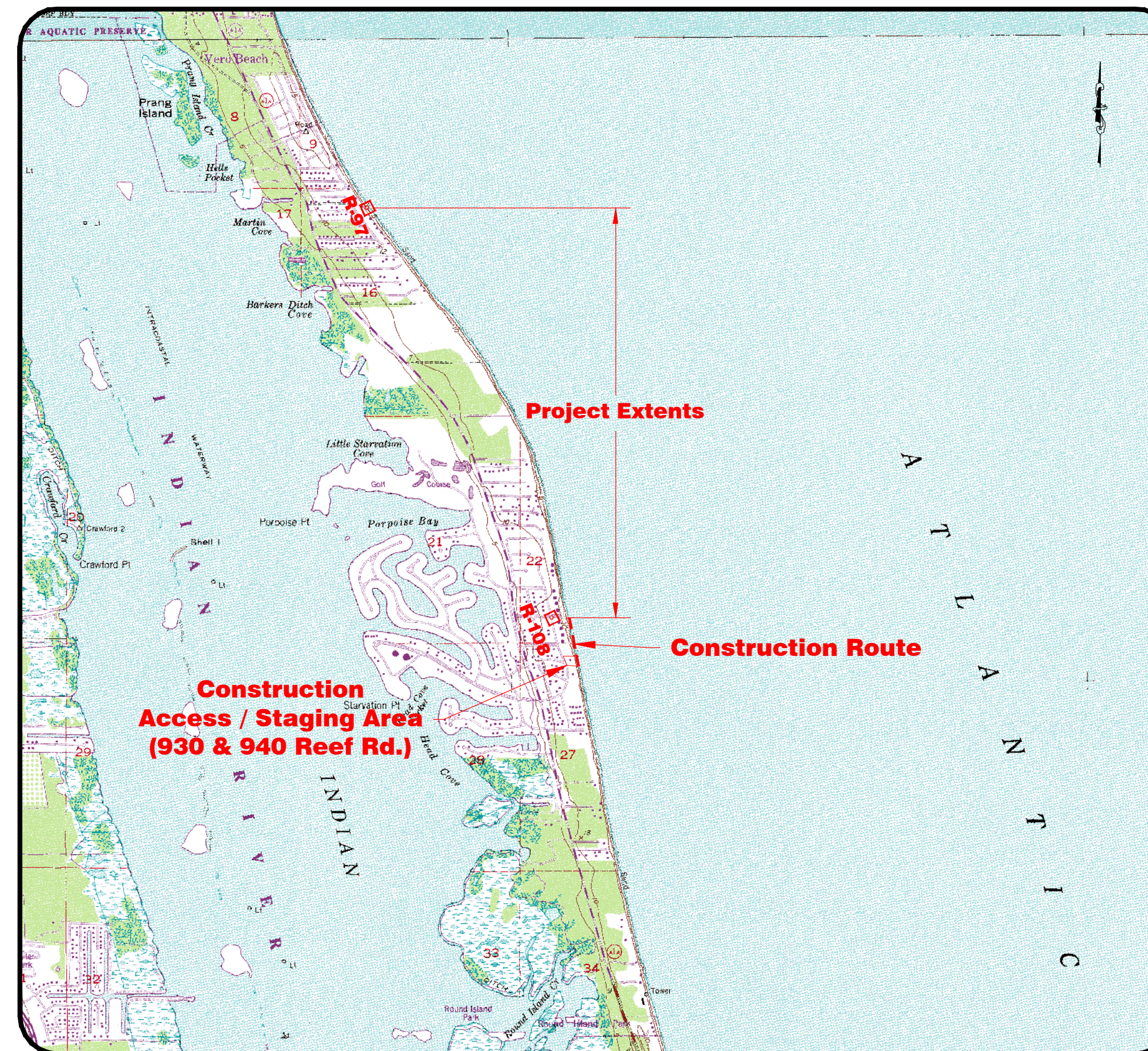
Sector 7 (Porpoise Point) Beach and Dune Restoration Project Indian River County

Indian River County Project Number IRC-1926

GENERAL NOTES

INDEX OF SHEETS

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1.....	Cover Sheet - Location Map
2.....	Plan View Project Area
3.....	Borrow Area Details & Pipeline Corridor / Location Map
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5.....	Profiles R-102.5 to R-105.25
6.....	Profiles R-105.5 to R-108 & Planting Details



LOCATION MAP
No Scale

1. On behalf of Indian River County (County), the Sector 7 Beach & Dune Restoration Project (Project) is to partially restore about 2.0 miles of shoreline from Florida Department of Environmental Protection (FDEP) reference monuments R-97 to R-108 via placement of 294,496± cubic yards of sand fill - based on 2019 monitoring surveys.
2. Upland property is dominated by single-family homes without public access or direct construction access to the beach. The Contractor may access the Project area via:
 - (a) the Atlantic Ocean within the "Pipeline/Sail Corridor" shown in these Drawings, and/or
 - (b) vacant lot near 930 and 940 Reef Rd. (the County's "Construction Access/Staging Area") then north along the beach to the Project area, and/or
 - (c) an alternate access site separately secured by the Contractor.
3. The Work consists of providing all plant, labor, equipment, supplies, and materials to perform all operations in connection with excavating, transporting, placing and grading (with tilling) of sand fill on Indian River County beaches as depicted in these Drawings with sand fill obtained from either:
 - (a) the County's offshore borrow area, and/or
 - (b) a County pre-approved upland sand source, and/or
 - (c) an alternate upland sand source approved by the Florida Department of Environmental Protection (FDEP).
4. The proposed offshore borrow area entails the southern portion of the borrow area previously used by the County for previous projects. Upland sand sources have been pre-qualified in collaboration with FDEP via County RFP #2018-73.
5. For use of the offshore sand source:
 - (a) Dredging of the offshore borrow area shall be performed either by:
 - (i) a hydraulic pipeline dredge pumping directly to shore or via scows/barges, or
 - (ii) a hopper dredge.
 A mechanical (clamshell) dredge will not be allowed.
 - (b) The beach material will be pumped onto the beach through pipelines on the Atlantic Ocean bottom via the "Pipeline/Sail Corridor" shown in these Drawings. A shore-parallel sand dike will be constructed and maintained along the beach as the discharge point moves to maintain at least 100 meters (328 feet) of dike ahead of the discharge pipe. The offshore limit of the mixing zone is the nearest continuous 2019 hardbottom or up to 120 meters from the discharge point - whichever is closest to the point of discharge.
6. For use of the upland sand source:
 - (a) The Contractor shall: excavate, process, and provide suitable beach-compatible sand fill material from the proposed upland sources; transport and deliver the sand fill to the "Construction Access/Staging Areas" for stockpiling.
 - (b) It is expected that the Contractor will transport sand fill from the "Construction Access/Staging Area", along the existing dry beach via off-road trucks and place fill in the Project area.
7. In addition to conforming to these Drawings, the Contractor shall ensure that all work also complies with the provisions of the Technical Specifications and with the requirements of approved permits from the Florida Department of Environmental Protection (FDEP) and US Army Corps of Engineers (USACE). A pre-construction meeting by Contractor with regulatory agency representatives, County staff and the Engineer is required prior to the Contractor's mobilization.
8. The Contractor is allowed to operate 24 hours per day, 7 days a week unless otherwise restricted by the Contract Documents. Actual hours of operation are at the discretion of the Contractor.
9. All Contractor equipment (front end loaders, bulldozers, or other similar earth moving equipment plus construction trailer/office) shall be stored only in designated "Construction Access/Staging Areas". Construction access to the Project area beach is available via the "Pipeline/Sail Corridor" and/or via the construction access - shown on these Drawings.
10. Elevations in these Drawings refer to North American Vertical Datum (NAVD 88). Coordinates refer to State Plane Florida North Zone North American Datum (NAD83).



Certificate of Authorization Number: 00004195

COASTAL TECH - G.E.C., INC.

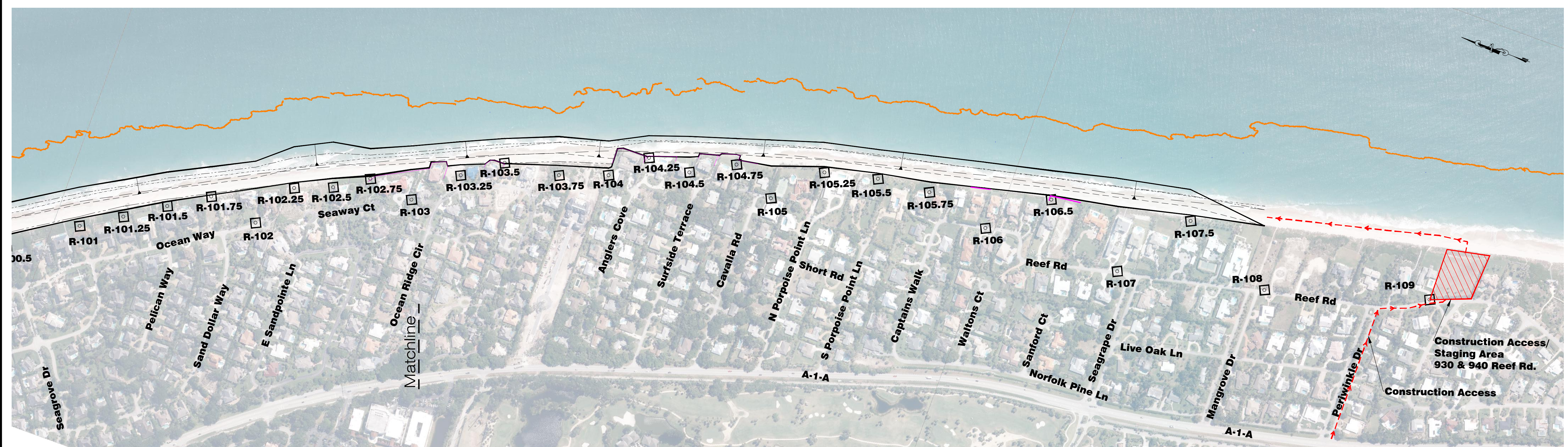
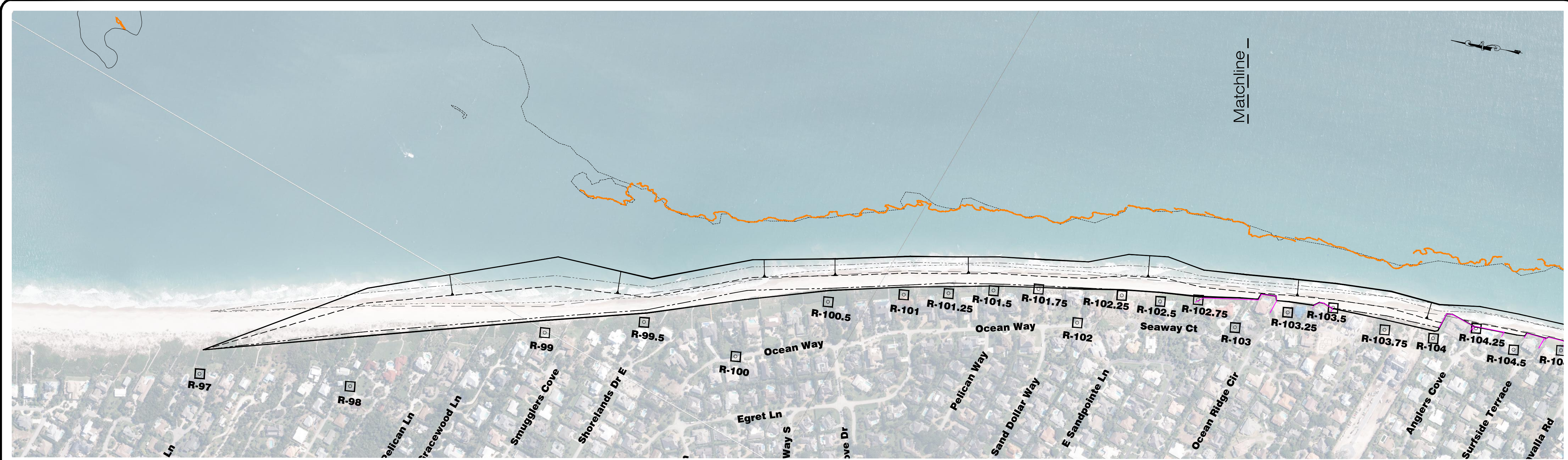
COASTAL, ENVIRONMENTAL, CIVIL ENGINEERING & PLANNING

3625 20th Street, Vero Beach, Florida 32960
(772) 562-8580

Date: 7/17/2020

COMM. NO. 2018C.007

SHEET 1 OF 6



NOTES:

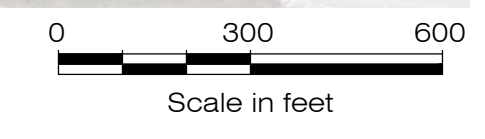
1. Aerial image from GPI Geospatial, Inc. dated 03/22/2018.
2. 2019 Landward Edge of Hardbottom from CSA.
3. Erosion Control Line (ECL) obtained from Morgan & Eklund survey date 09/02/2005.
4. Seawall locations were approximated from aerial photography.
5. 2019 Landward Edge of Hardbottom Sidescan Sonar from M&E.

Summary Table of Reference Monuments

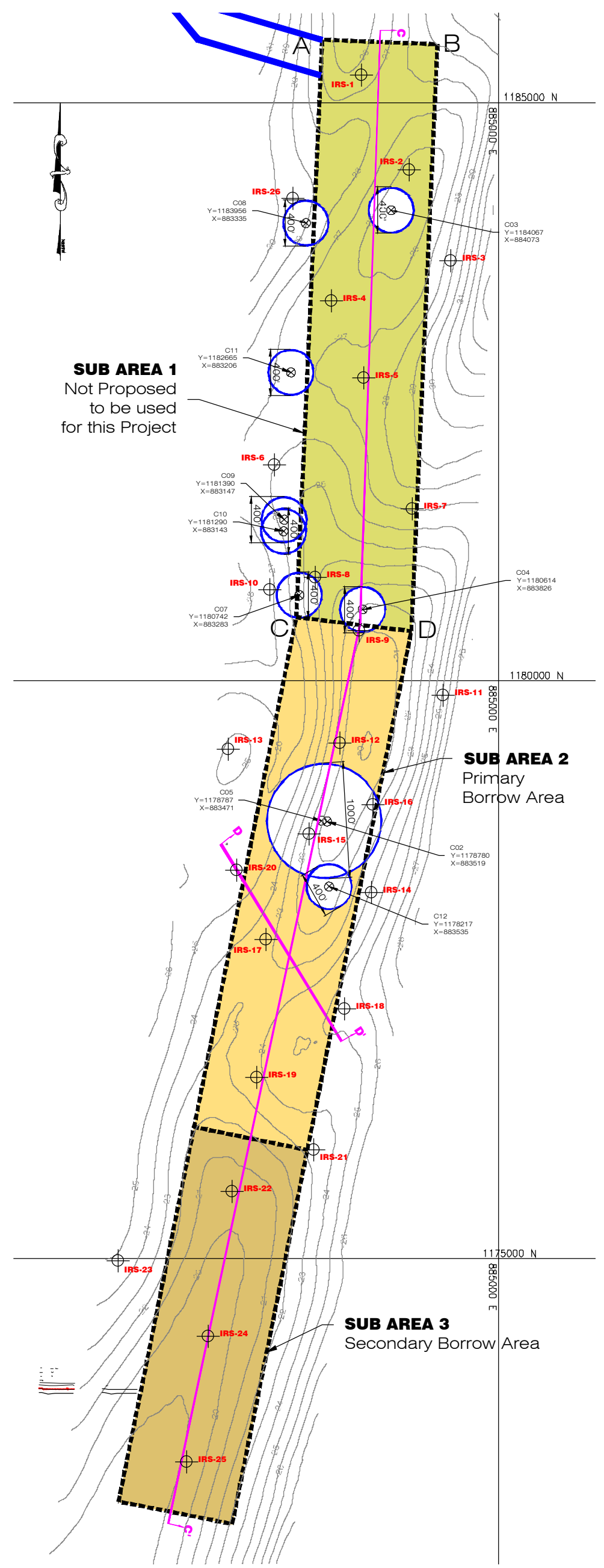
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R-97	1192366.04	868811.61	11.02	70°	R-103.5	1187372.39	872348.24	9.68	70°
R-98	1192297.39	869177.06	7.79	70°	R-103.75	1187454.17	872387.03	9.7	70°
R-99	1191500.39	86990.86	12.15	70°	R-104	1187552.54	872484.11	10.6	70°
R-99.5	1191045.08	870203.49	12.37	70°	R-104.25	1187671.58	872504.40	8.82	70°
R-100	1190502.29	870416.50	12.88	70°	R-104.5	1187728.91	872555.94	10.09	70°
R-100.5	1190006.51	870944.58	12.43	70°	R-104.75	1187849.63	872787.89	10.22	70°
R-101	1189857.74	871194.29	14.09	70°	R-105	1188247.85	872675.59	9.4	70°
R-101.25	1189643.40	871307.38	12.14	70°	R-105.25	1188313.91	872915.01	9.58	70°
R-101.5	1189431.14	871460.00	9.13	70°	R-105.5	1188372.02	872984.23	10.29	70°
R-101.75	1189216.01	871604.39	8.77	70°	R-105.75	1188418.83	873032.24	10.67	70°
R-102	1188932.03	871503.21	10.06	70°	R-106	1188502.03	872929.08	8.42	70°
R-102.25	1188793.30	871809.55	11.43	70°	R-106.5	1188796.59	873088.65	13.7	70°
R-102.5	1188588.30	871889.63	10.82	70°	R-107	1188420.95	872955.12	8.72	70°
R-102.75	1188408.10	872005.03	9.32	70°	R-107.5	1188378.57	873364.03	10.07	70°
R-103	1188149.83	872154.44	11.05	70°	R-108	1188343.94	873140.65	8.51	70°
R-103.25	1187936.38	872317.56	9.91	70°	R-109	1188259.67	873407.67	10.52	70°

LEGEND

- Proposed Construction Fill Template
- - - Seaward Edge of Top of Berm
- - - Seaward Edge of Top of Dune
- - - Mean High Water
- ▨ Construction Access / Staging Area
- FDEP reference monument
- Landward Edge of Hardbottom 2019 CSA
- Landward Edge of Hardbottom 2019 M&E
- - - Erosion Control Line (ECL)
- - - Mean High Water
- Seawall



Plan View Borrow Area



- Notes:**
- All elevations indicated are in feet, referenced to NAVD88 (North American Vertical Datum of 88).
 - Contours are from a survey by Aptim Environmental & Infrastructure, LLC dated December 18-19, 2018 & January 3-7, 2019.
 - All horizontal values are referenced to NORTH AMERICAN DATUM of 1983, FLORIDA STATE PLANE, EAST ZONE.
 - Magnetometer survey conducted by Morgan & Eklund dated May 10-12, 2000 & by Great Lakes Dredge & Dock dated January 2008.
 - Descriptive classification of borrow material modified from unified soils classification.

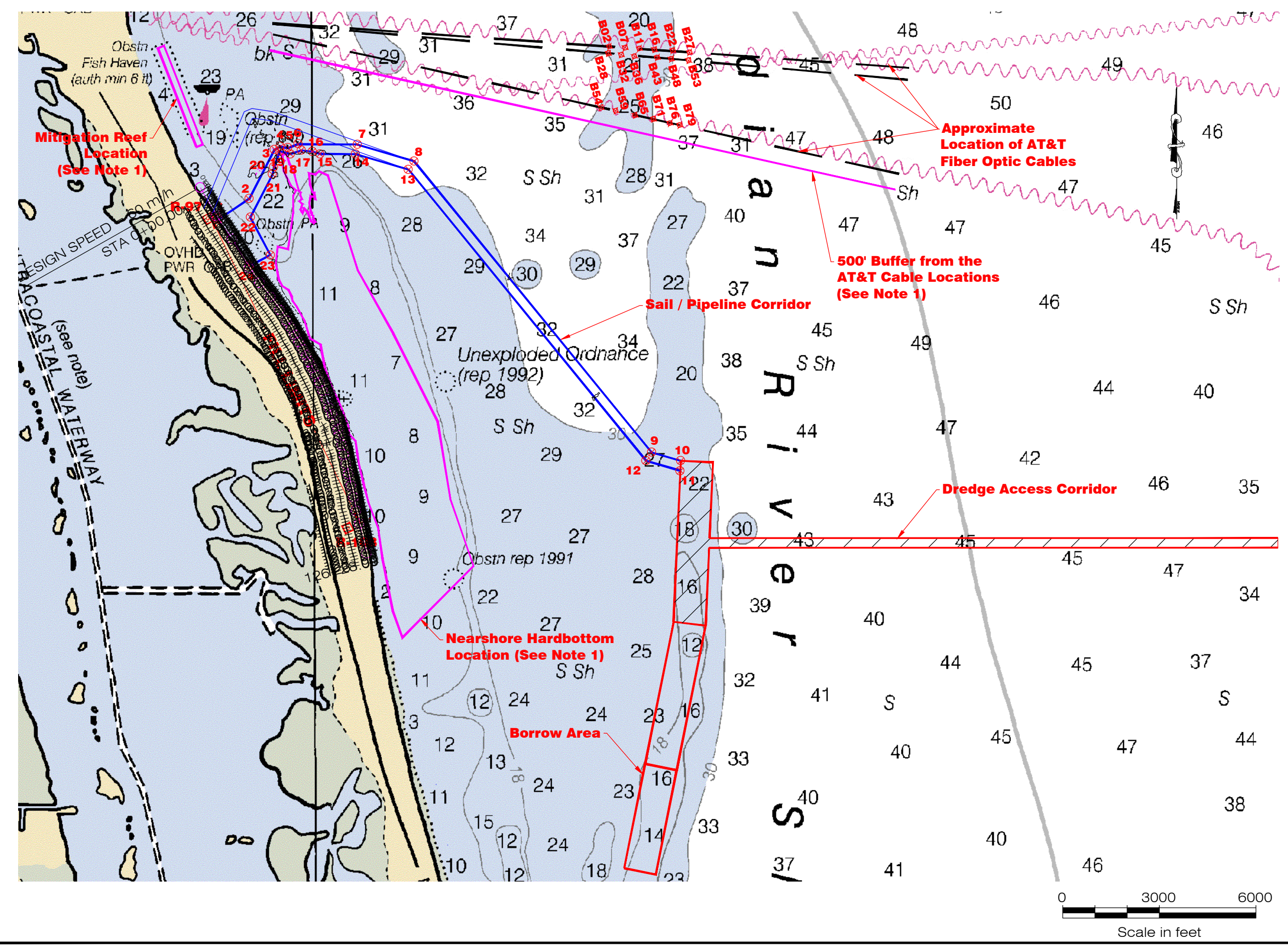
LEGEND

- Vibracore Location 1999
- Magnetic Anomalies
- Borrow Area Limits
- Magnetic Anomaly Dredge Buffer
- Sub Area 1 Borrow Area
- Sub Area 2 Borrow Area
- Sub Area 3 Borrow Area

Coordinates of Borrow Area Corners

Corners	Northing	Easting
A	1185543	883477
B	1185503	884473
C	1180547	883214
D	1180426	884248
E	1176135	882367
F	1175939	883350
G	1172896	881715
H	1172702	882697

Pipeline Corridor / Location Map



- Notes:**
- Contractor's vessel or equipment should not enter this Restricted Zone.
 - Horizontal Datum is NAD '83, State Plane Coordinates, Florida East Zone.
 - Map from NOAA Chart #11474 Florida - East Coast Bethel Shoal to Jupiter Inlet.
 - Mitigation Reef, Nearshore Hardbottom, and Corridors location are from Drawings by Applied Technology & Management, Inc. titled "Sector 7 - Beach Restoration Project Construction Set" dated January 04, 2007.
 - The Contractor is to use the Dredge Access Corridor to access the Borrow Area from deep water.
 - The Contractor is to use the Sail / Pipeline Corridor for offloading of material onto the beach.

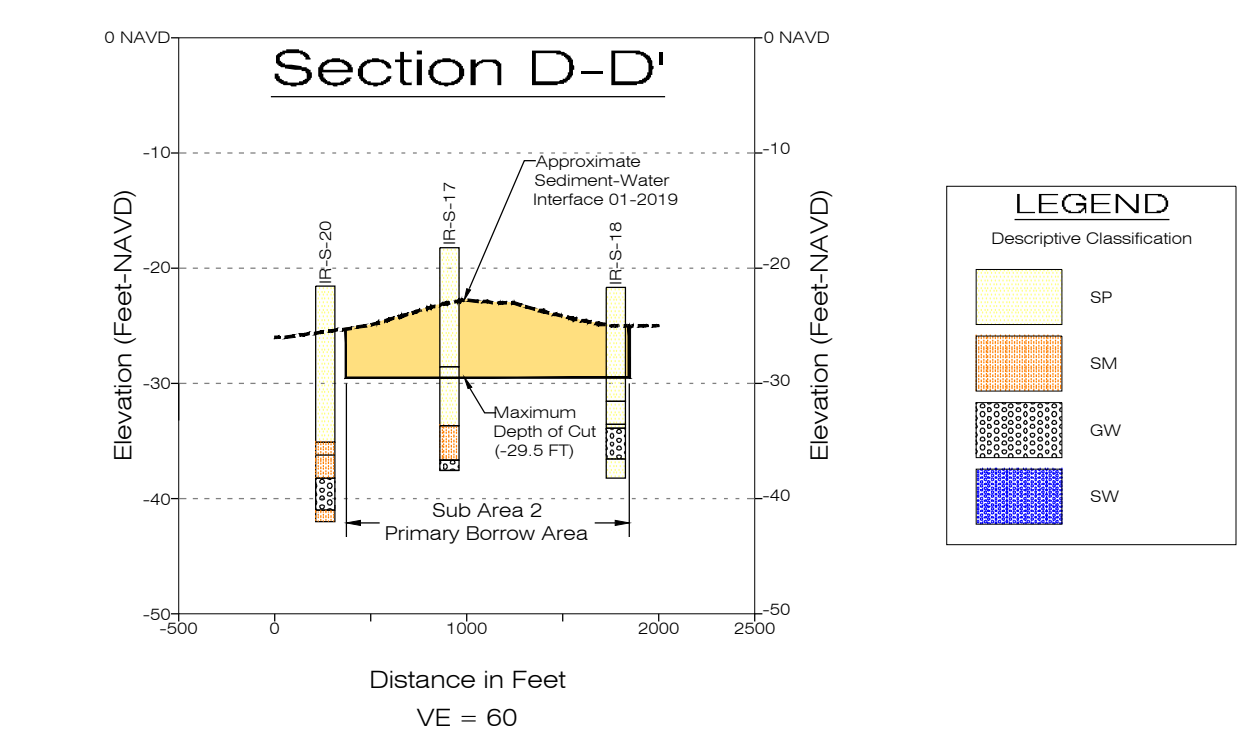
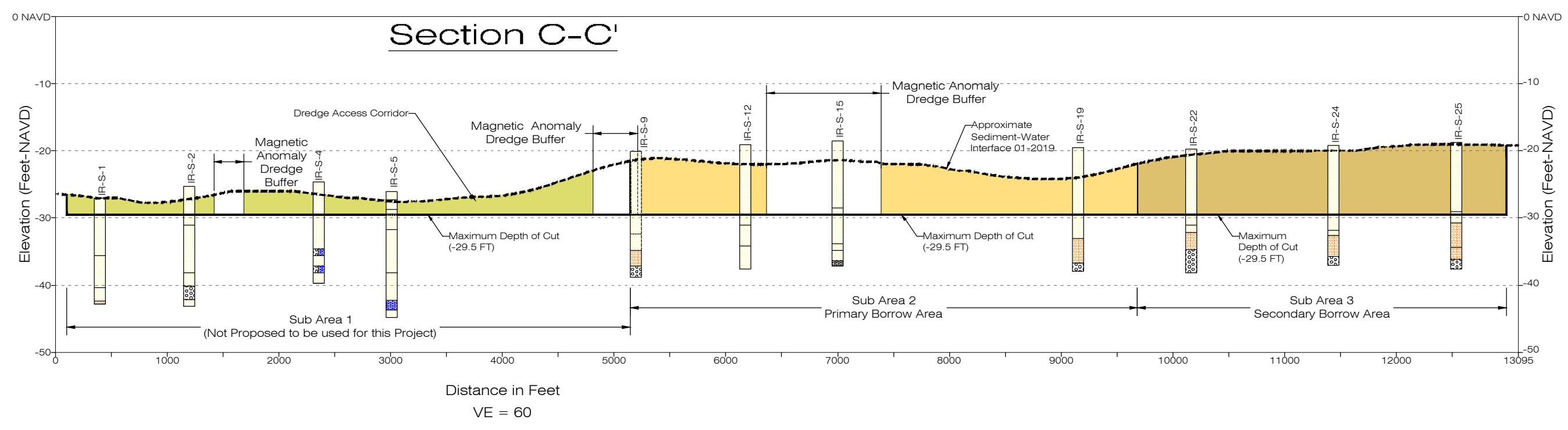
LEGEND

- Sail / Pipeline Corridor Point
- Depth MLLW
- Magnetometer Hit (Morgan & Eklund May, 2000)
- Dredge Access Corridor
- Sail / Pipeline Corridor
- Restricted Zones
- Reference Monument

Sail / Pipeline Corridor Coordinate Table

Point #	Easting	Northing
1	859131.01	1193044.60
2	870077.16	1193681.04
3	870868.10	1192214.50
4	871043.96	1192509.83
5	871285.92	1192261.52
6	871597.20	1193377.85
7	873436.34	1193359.01
8	875206.41	1194848.42
9	882574.71	1185808.24
10	883476.69	1185542.50
11	883462.86	1185233.83
12	882400.86	1185546.71
13	875031.88	1194886.22
14	873391.71	1192599.44
15	872279.61	1192074.65
16	872046.84	1195151.75
17	871699.68	1195184.32
18	871359.09	1195072.28
19	871019.99	1195149.19
20	870892.55	1194661.22
21	870824.70	1194437.09
22	870120.23	1193110.11
23	870734.61	1191934.10
24	870092.44	1191598.61

Cross-section C-C' & D-D' Borrow Area



LEGEND

- SP Descriptive Classification
- SM
- GW
- SW

- Note:**
- Vibracore locations are from report by ATM dated 2001 titled "Indian River County Beach Restoration Projects: Geotechnical Investigation of Offshore Sand Sources", which contains core logs, gradation analysis results, and other details of the borrow area; this report is available from the County.
 - Geological Cross-Sections and contours are developed from a Survey by Aptim Environmental & Infrastructure, LLC dated December 18-19, 2018 & January 3-7, 2019.
 - Magnetic Anomalies are determined from magnetometer surveys conducted by Morgan & Eklund dated May 10-12, 2000 & by Great Lakes Dredge & Dock dated January 2008.

COASTAL TECH GEC

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CHARLES T. FONTAINE, P.E. DATE
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Borrow Area Details & Pipeline Corridor / Location Map

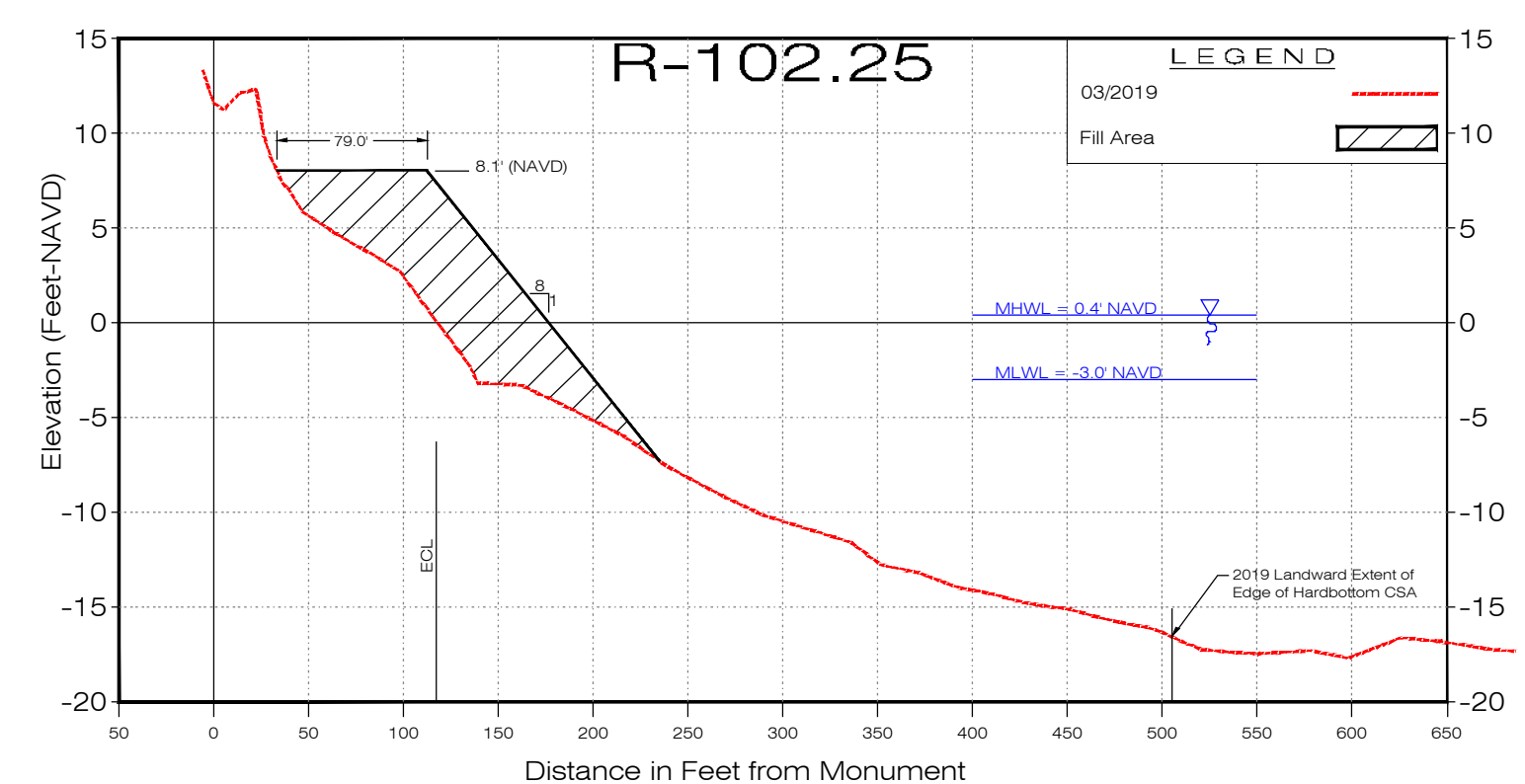
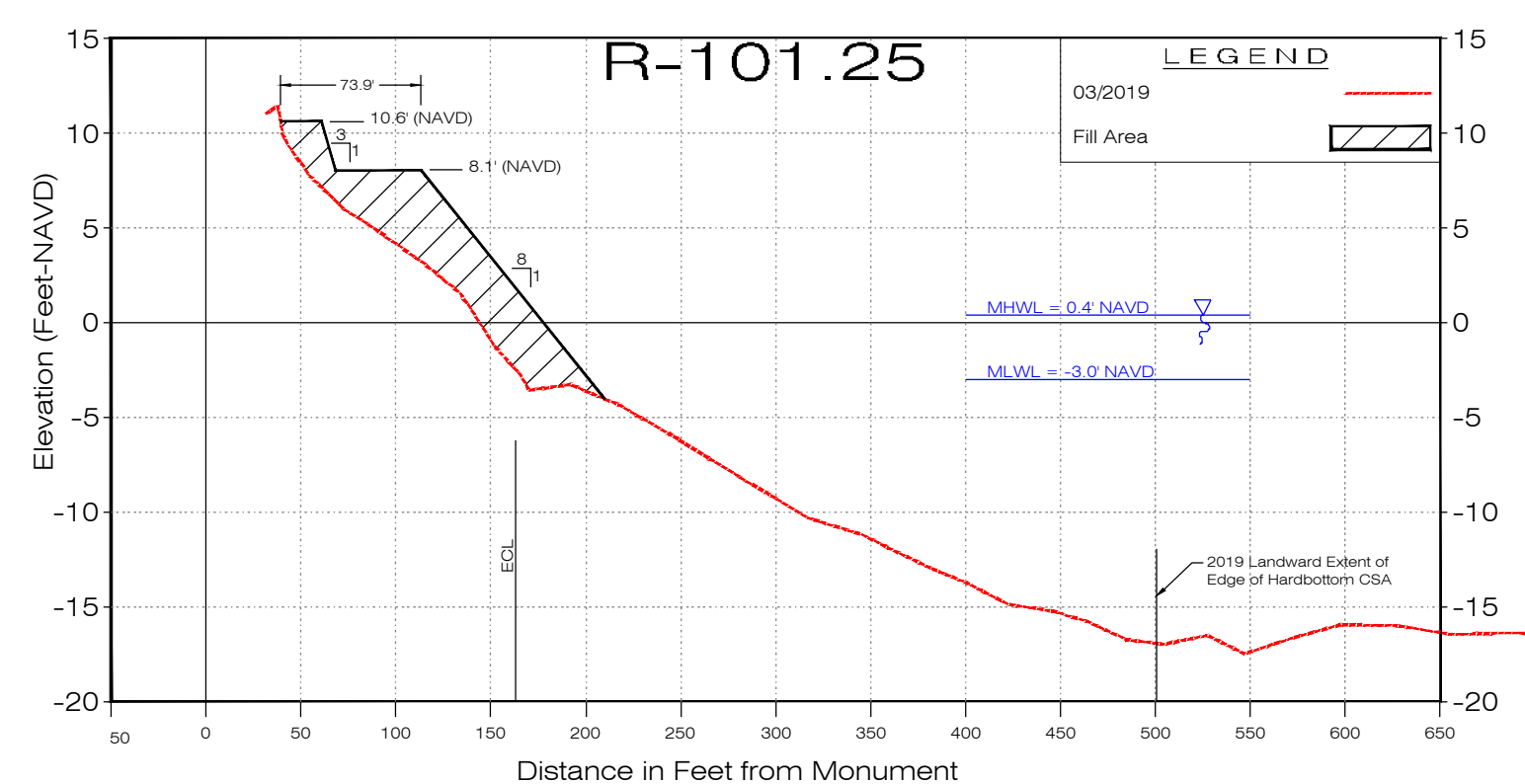
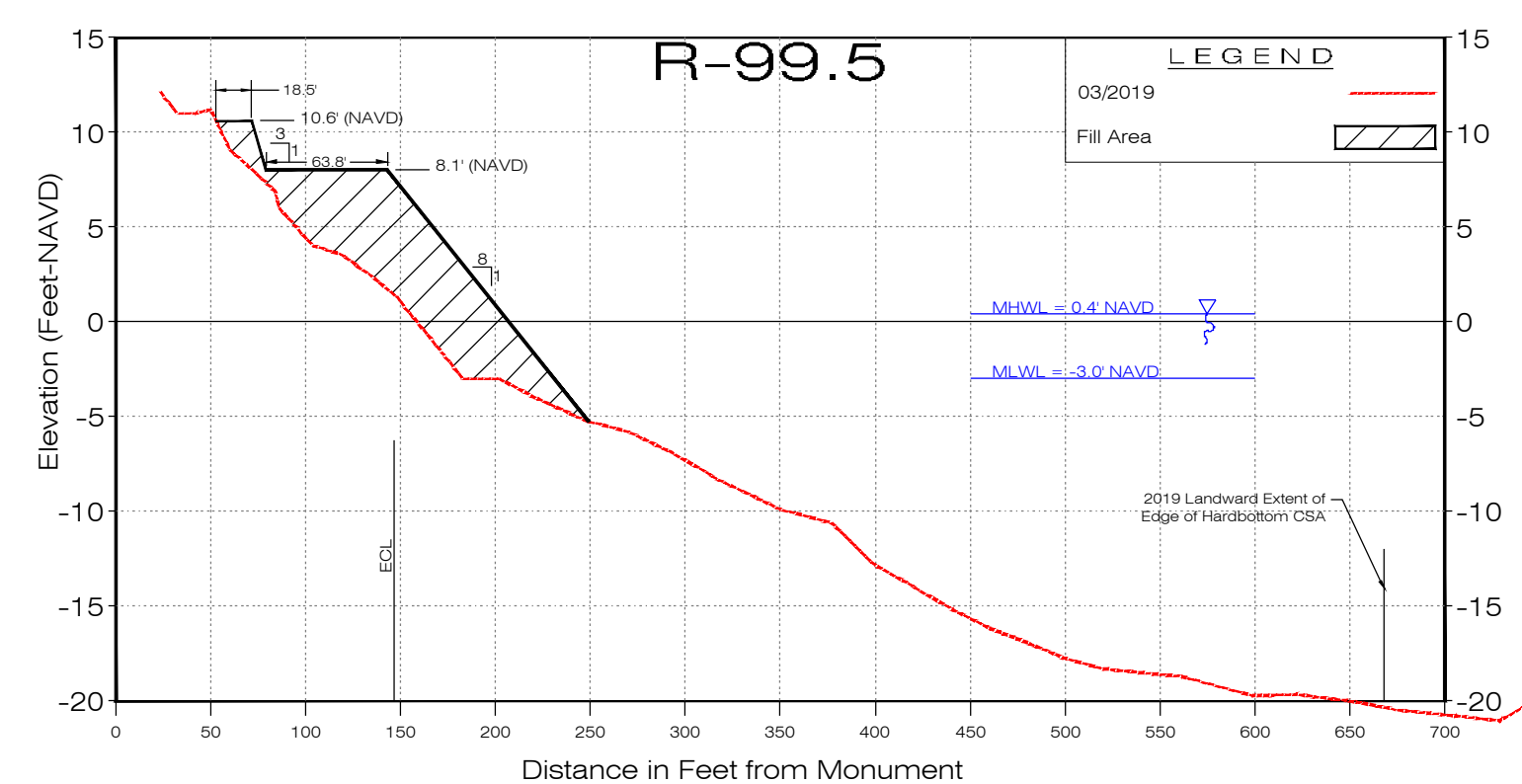
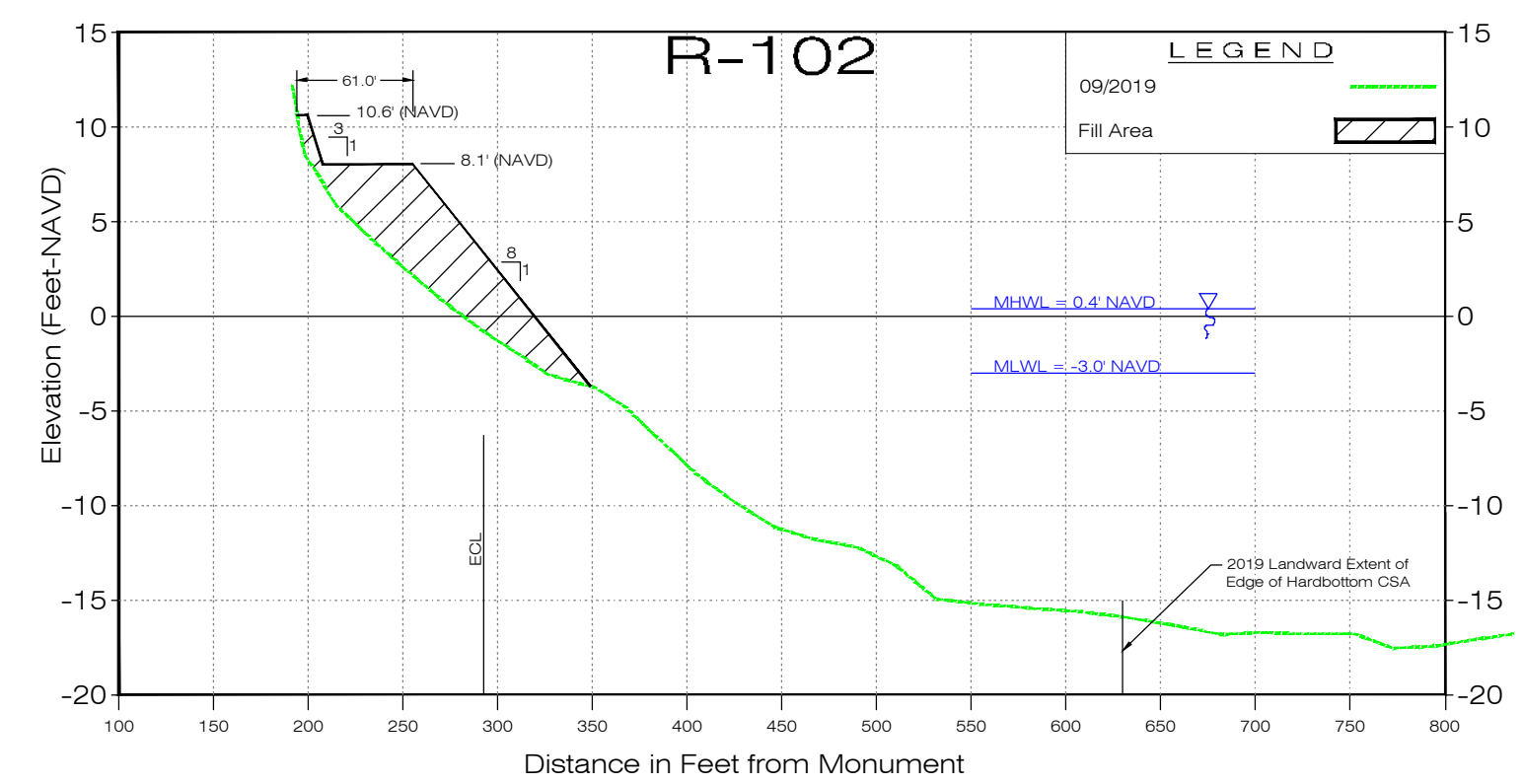
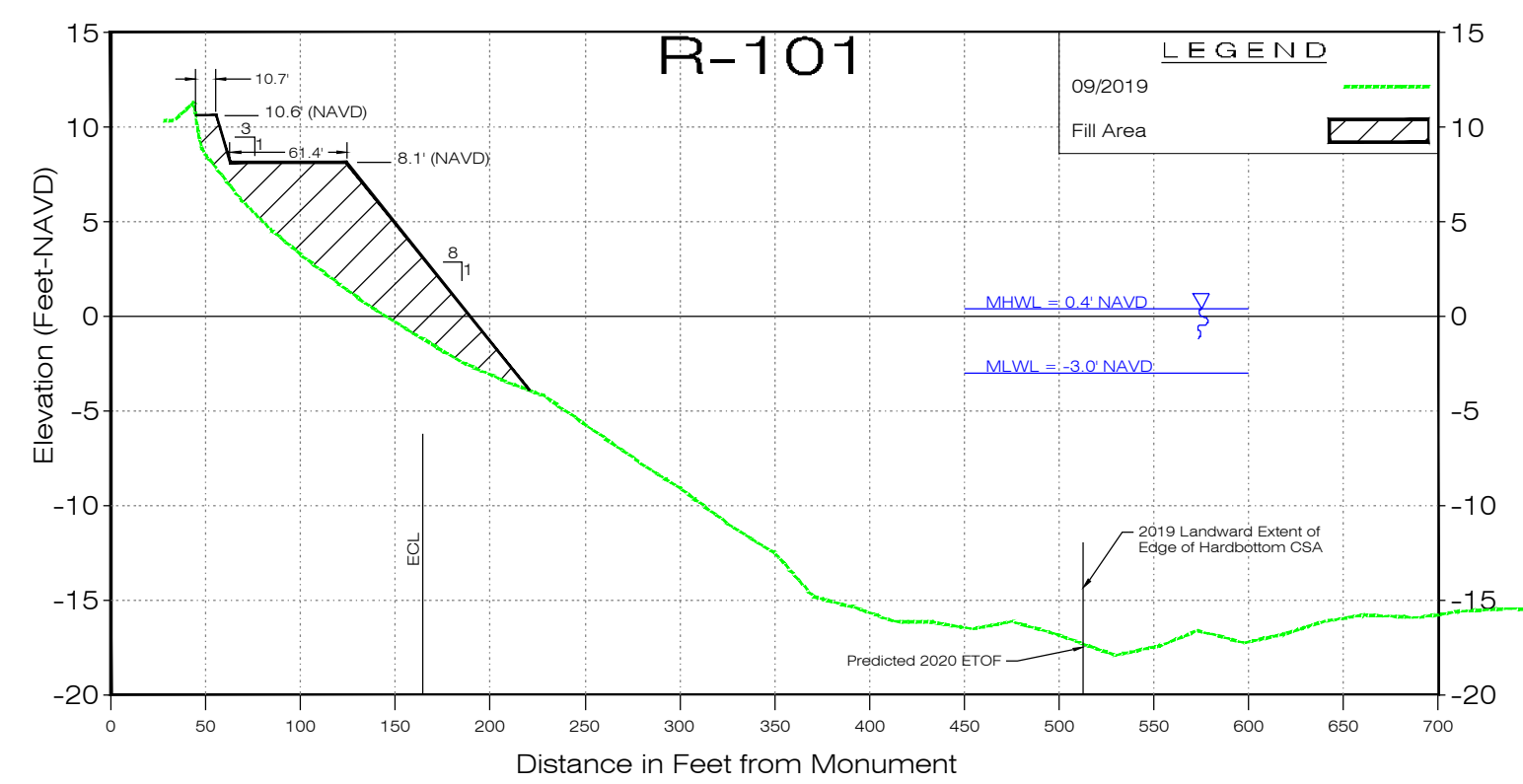
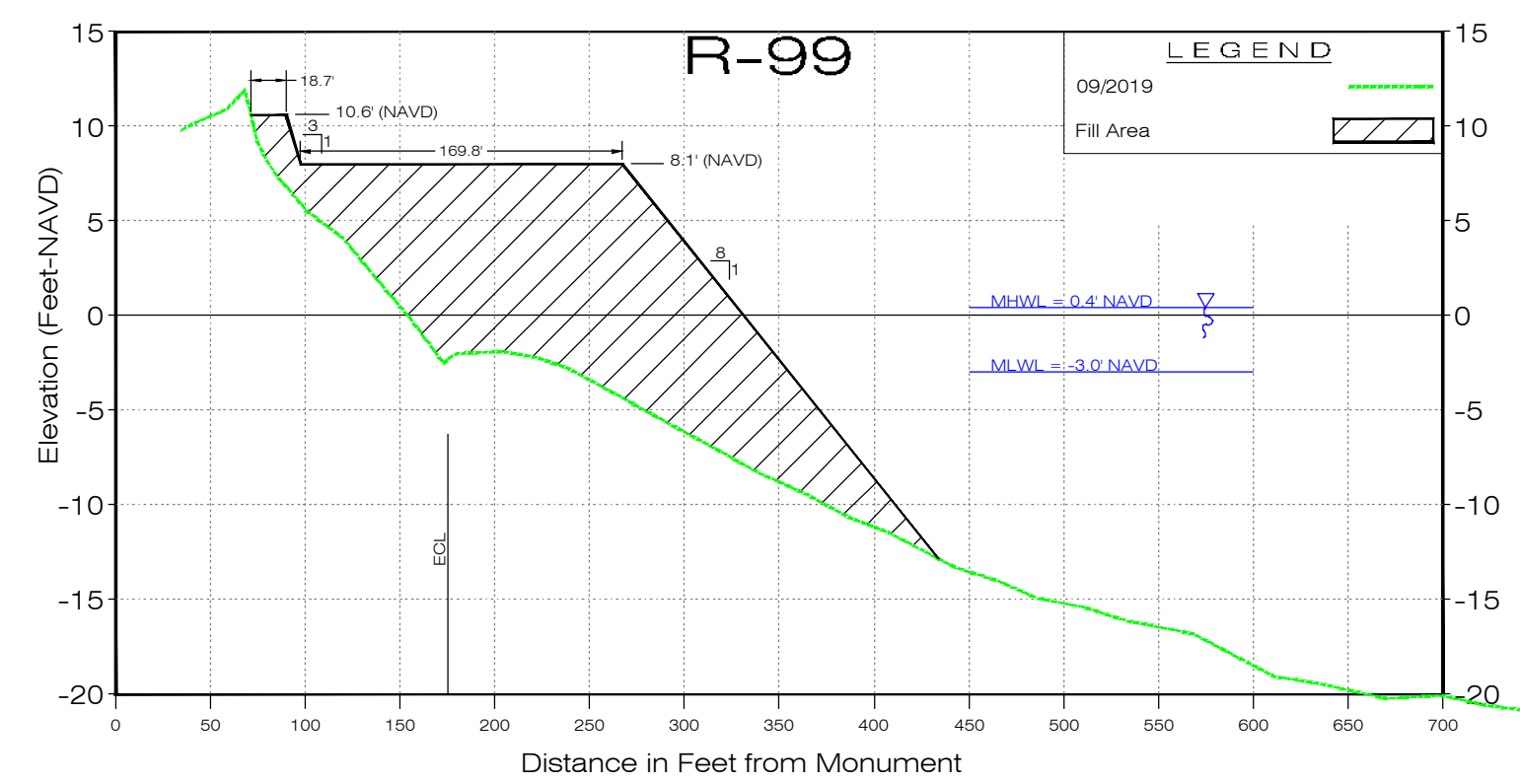
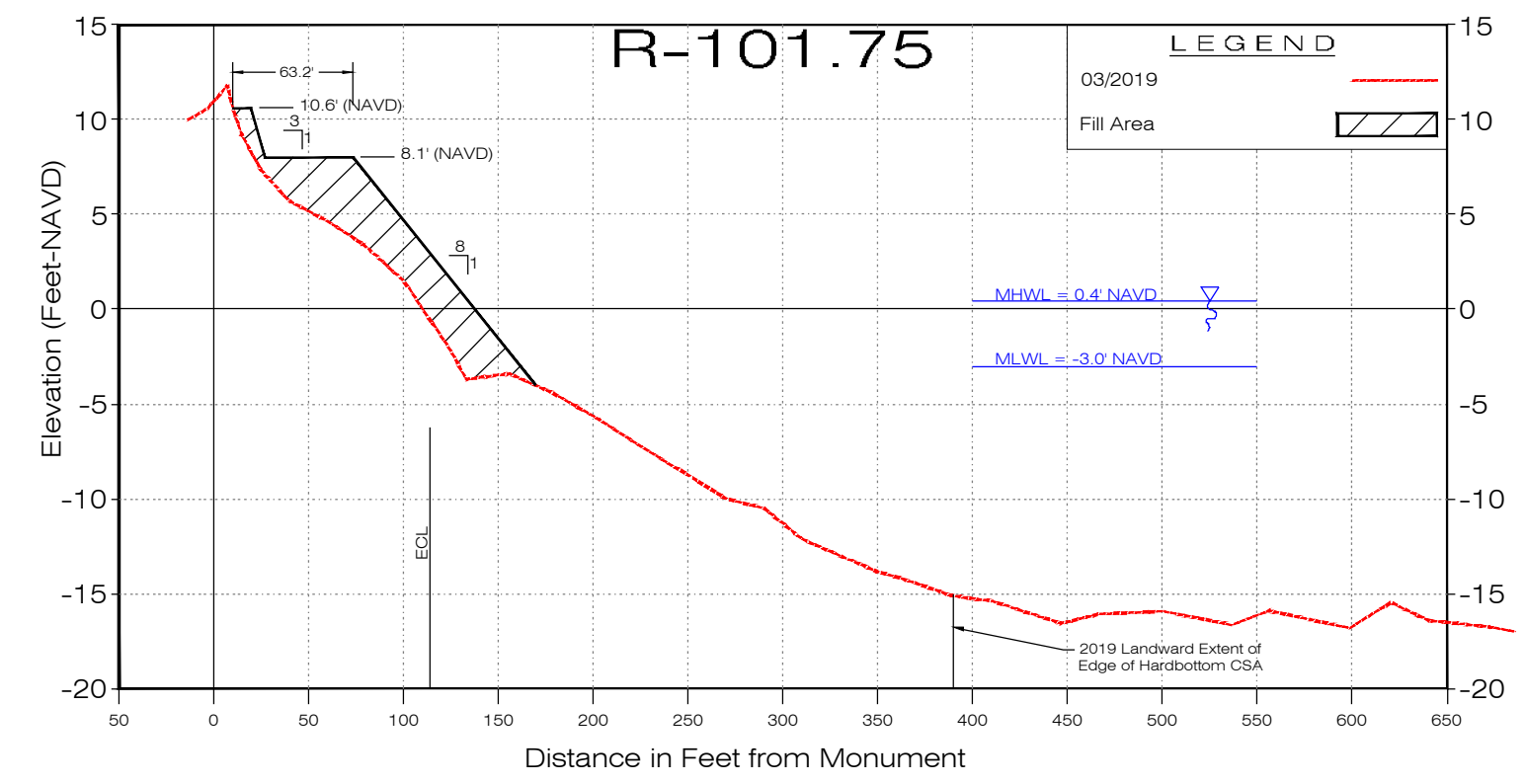
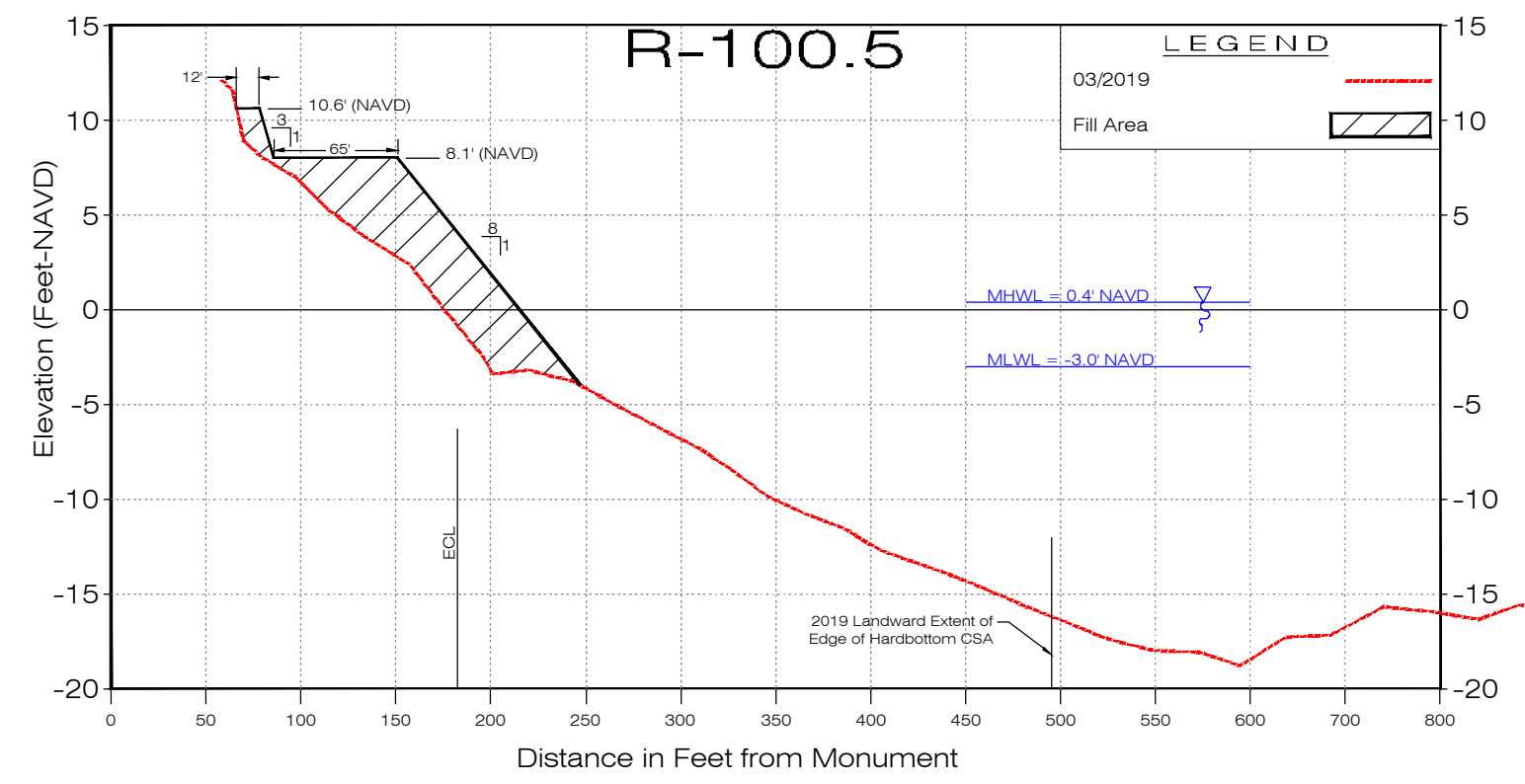
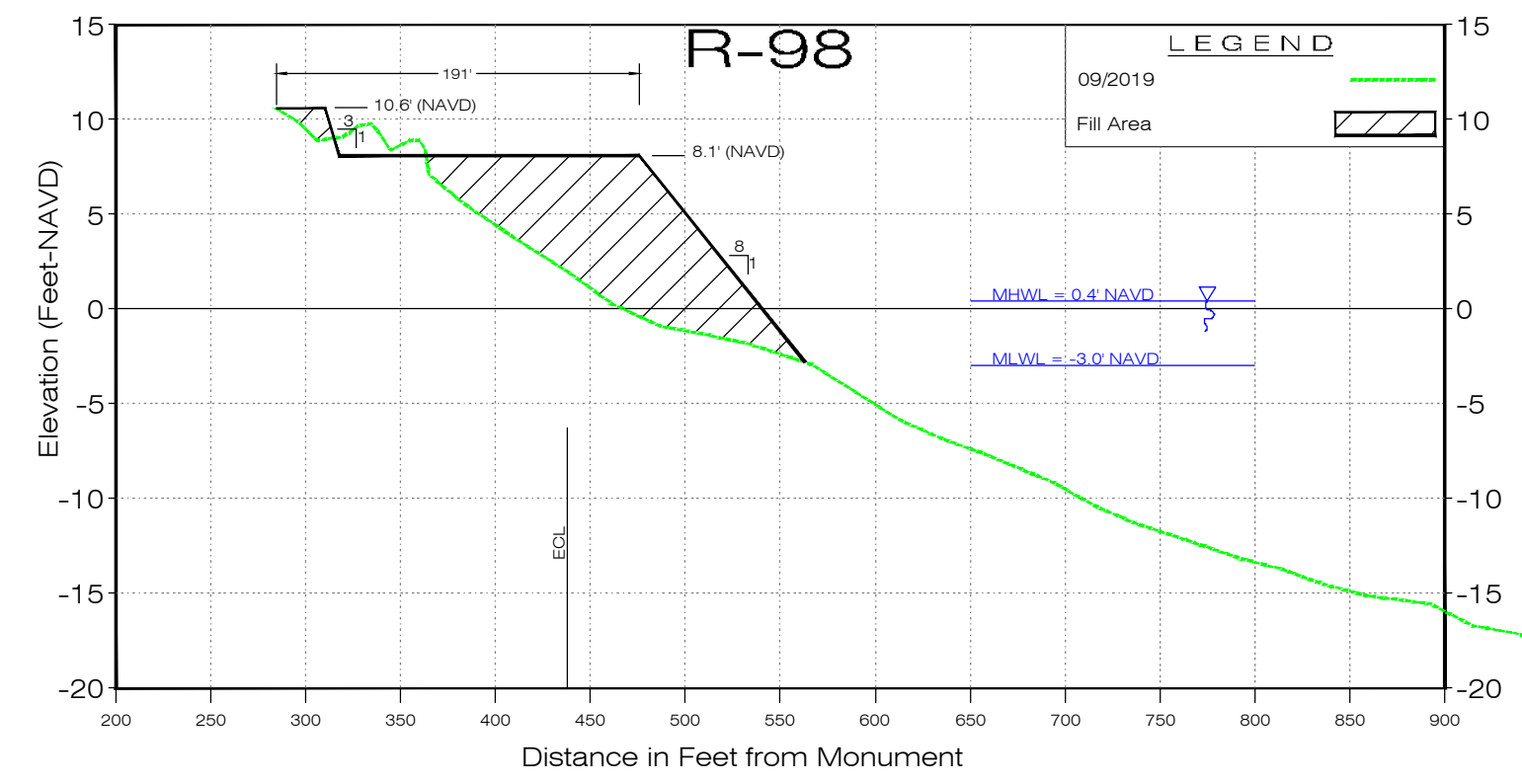
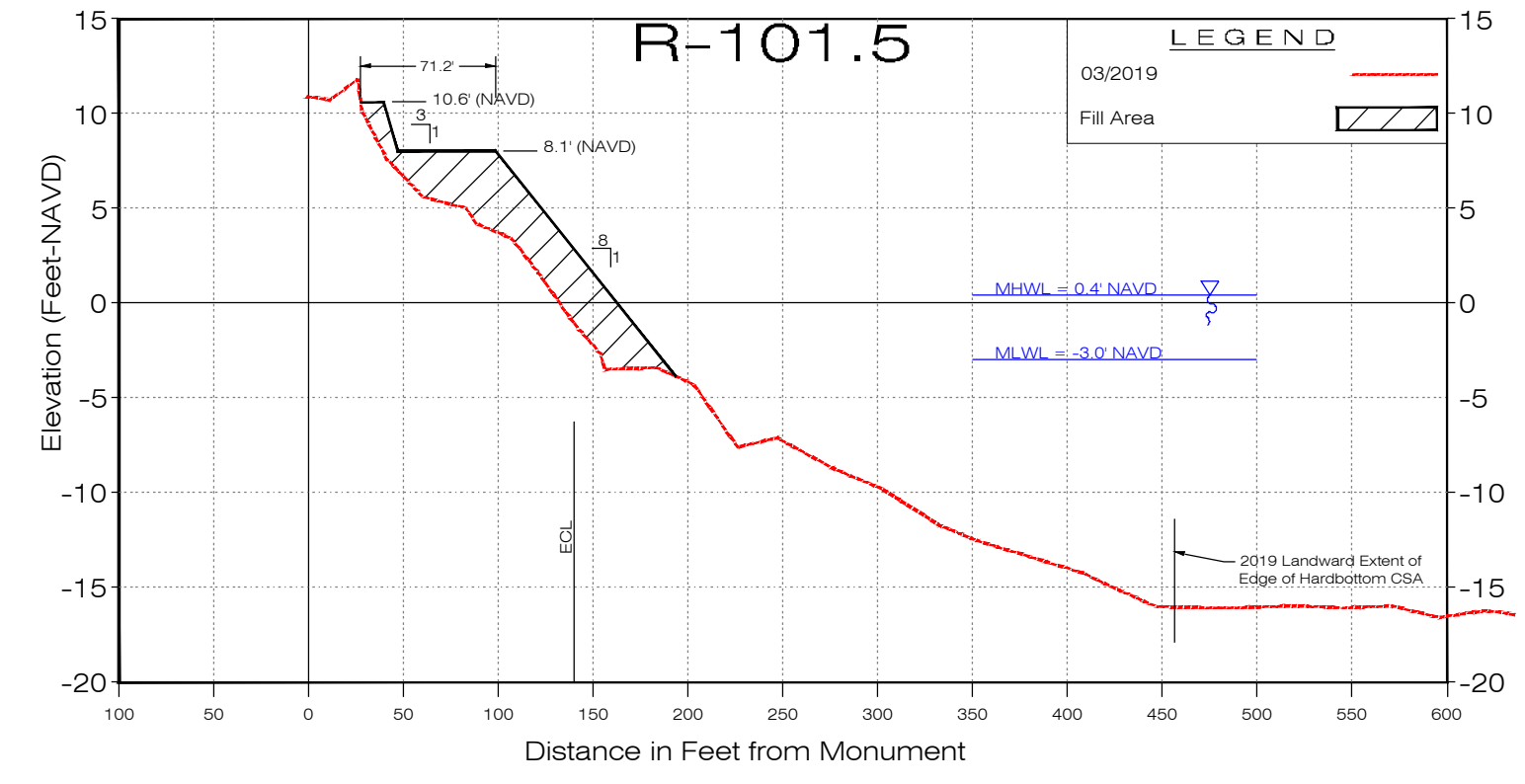
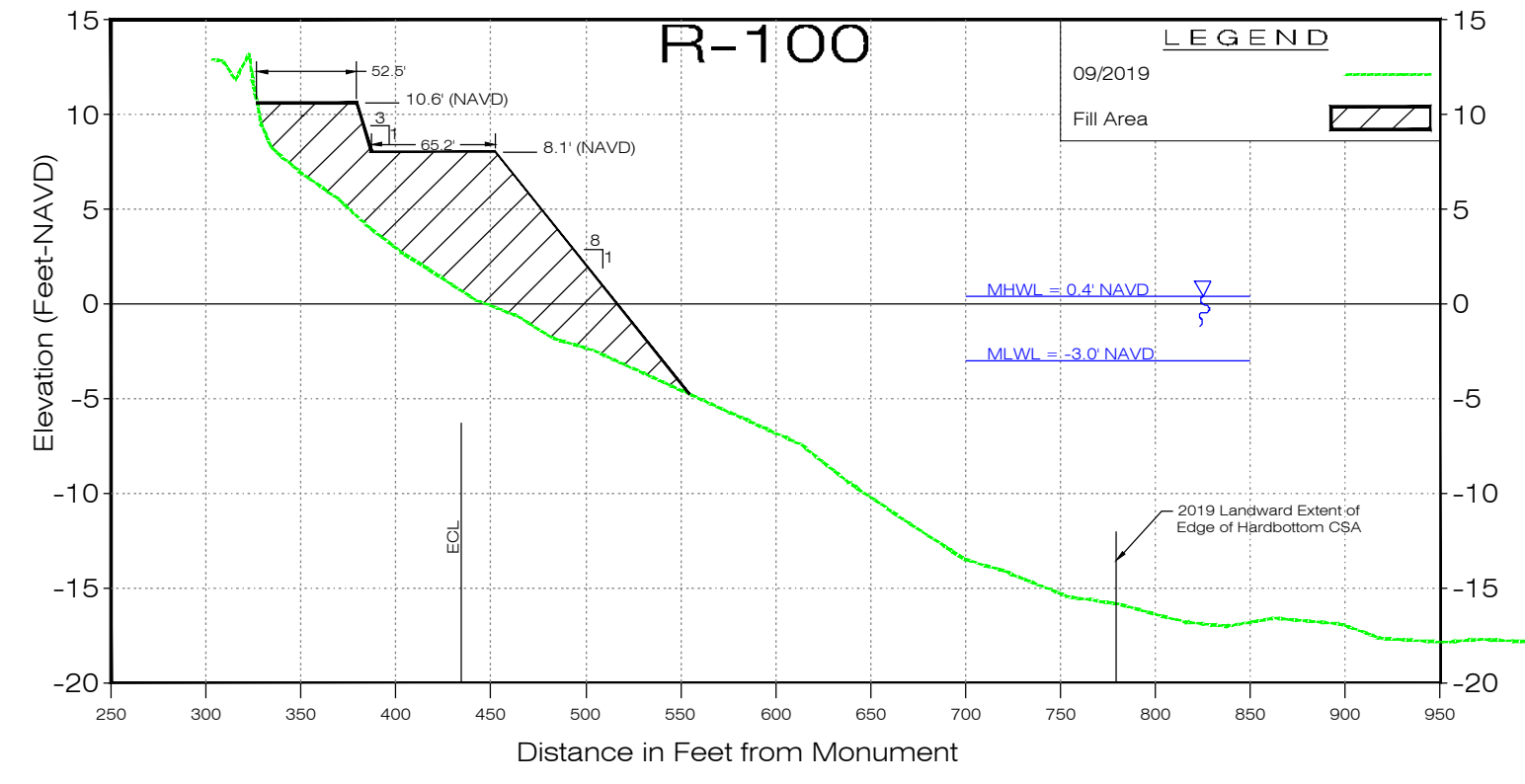
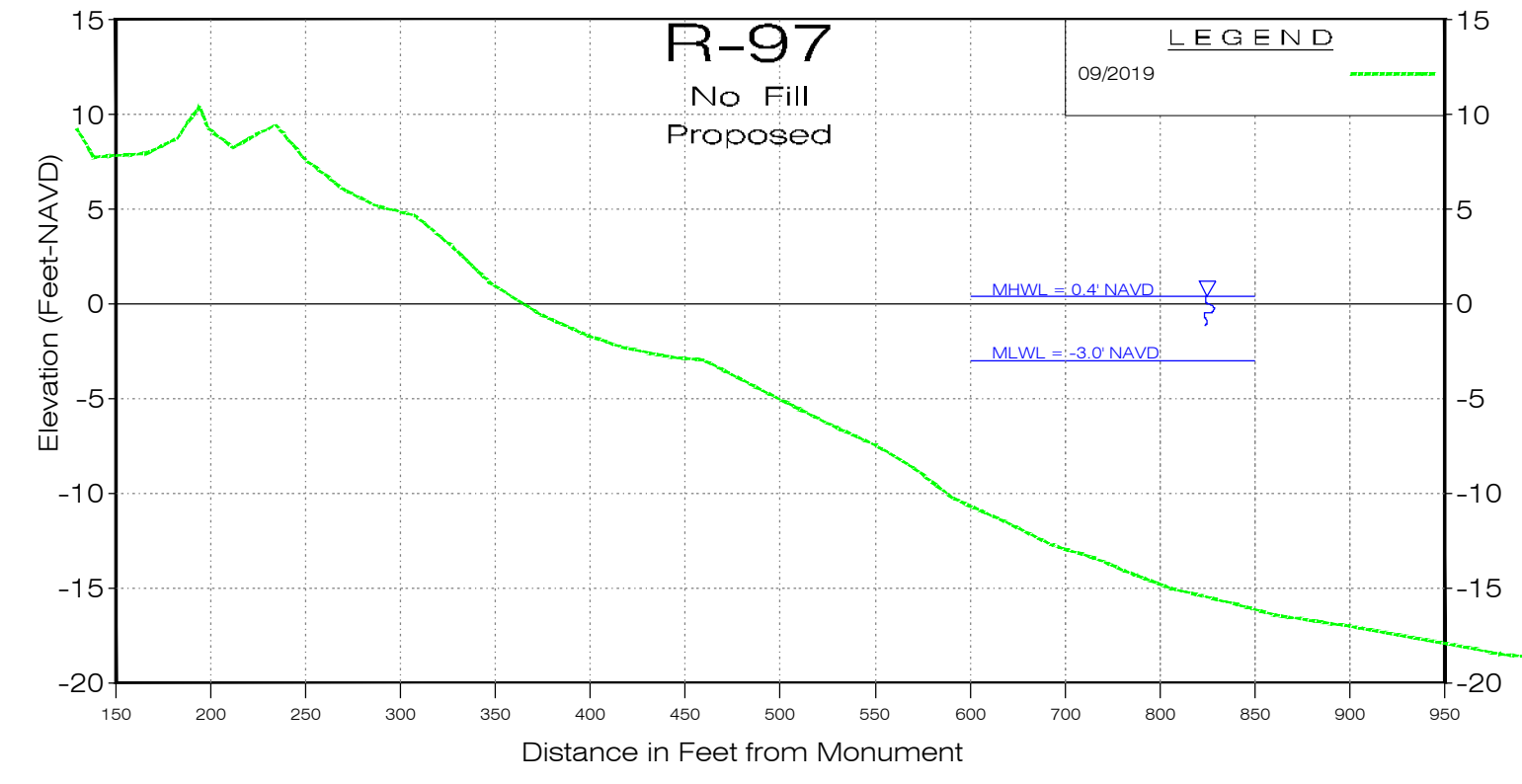
Sector 7 (Porpoise Point)
 Beach and Dune Restoration Project
 Indian River County

Rev. Date: Notes:

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 Project No. 2018C-007

SHEET 3 OF 6 SHEETS

Profiles



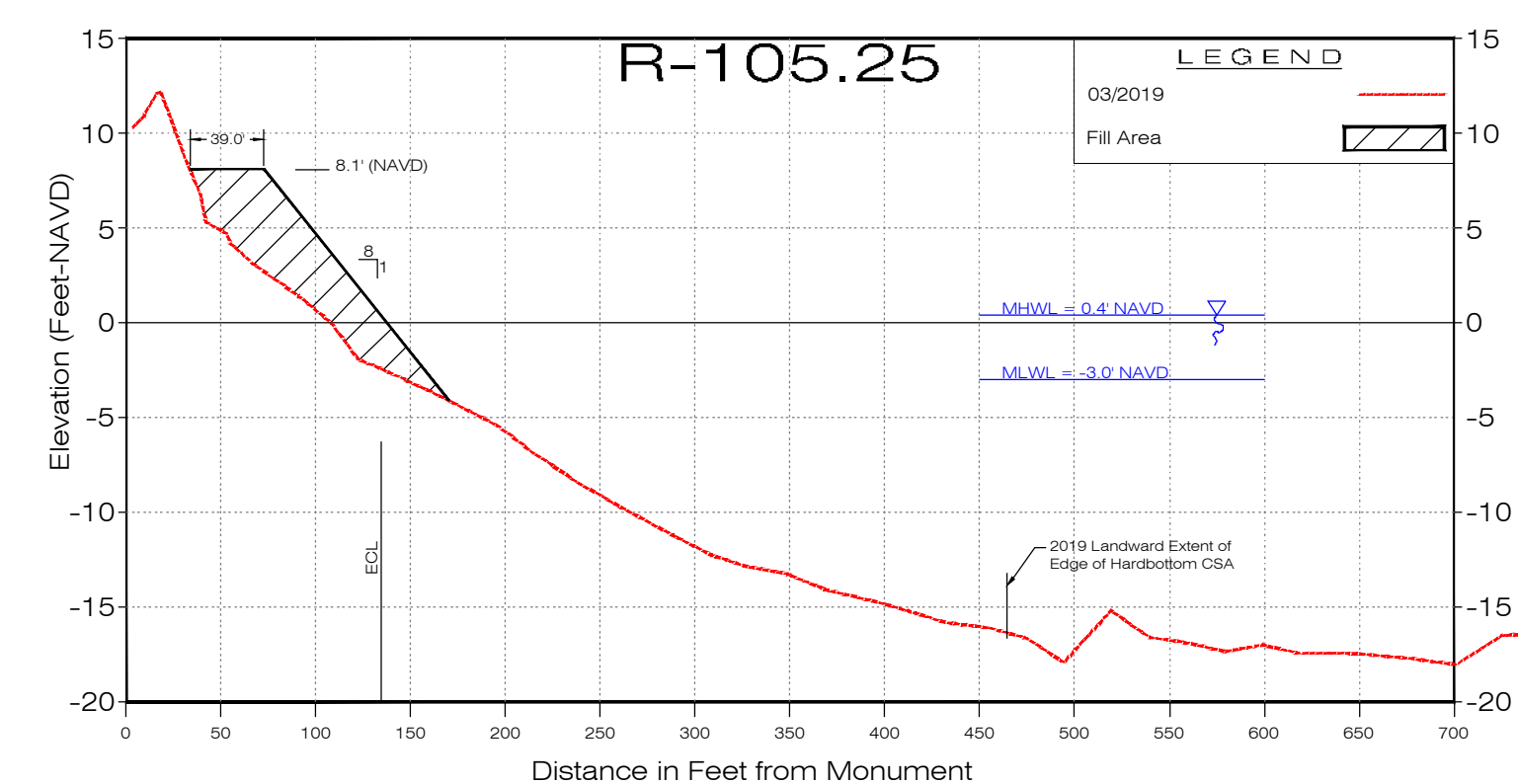
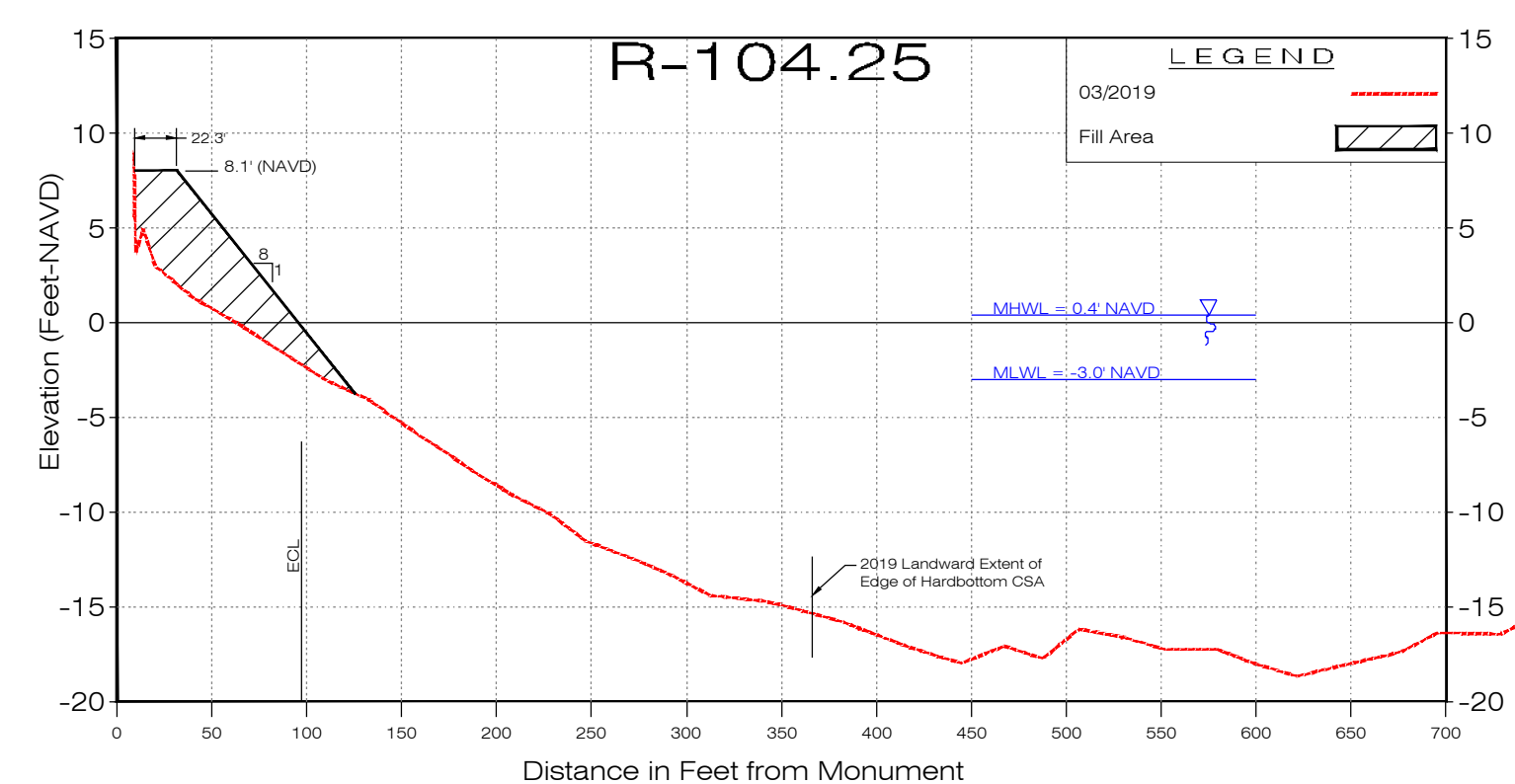
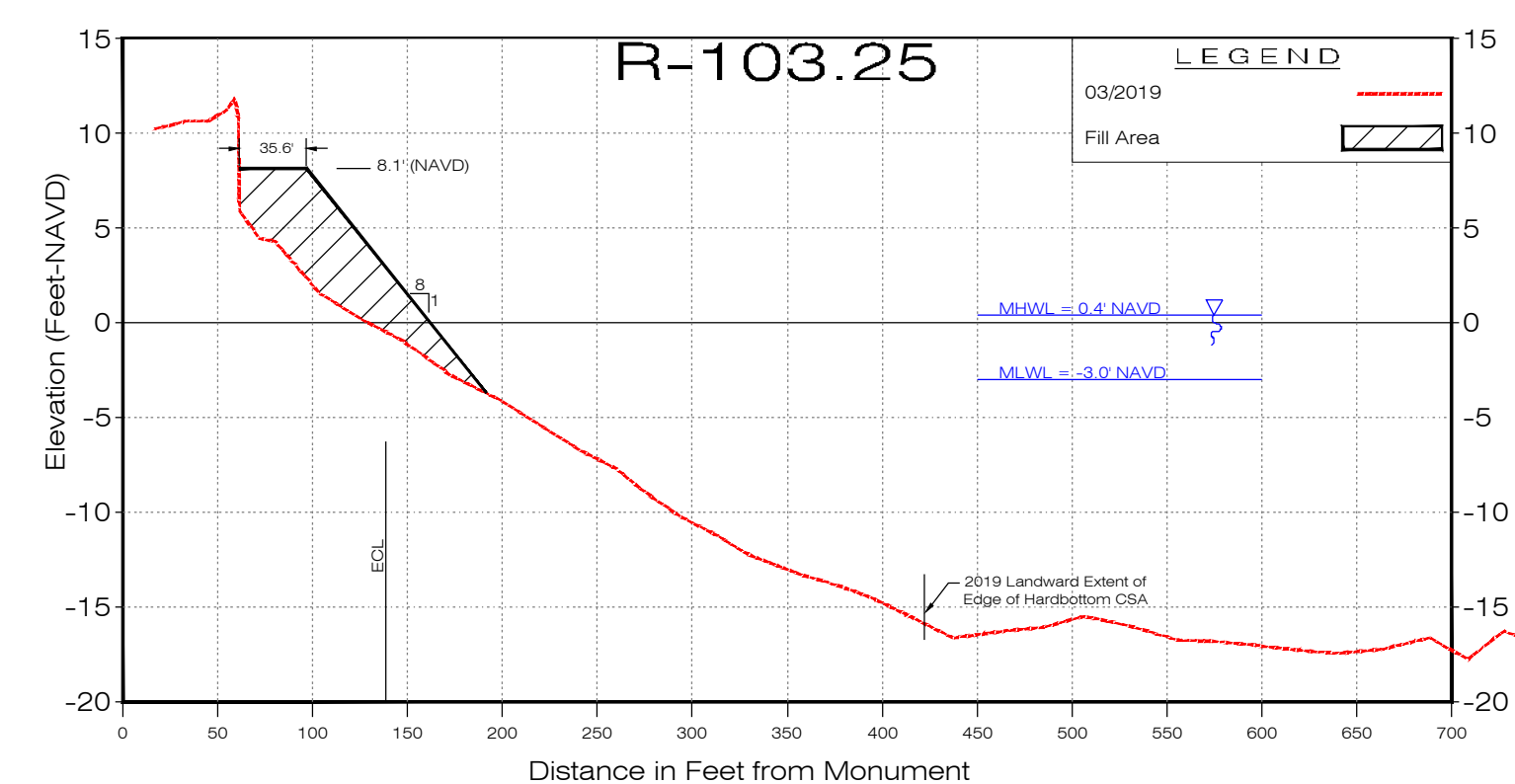
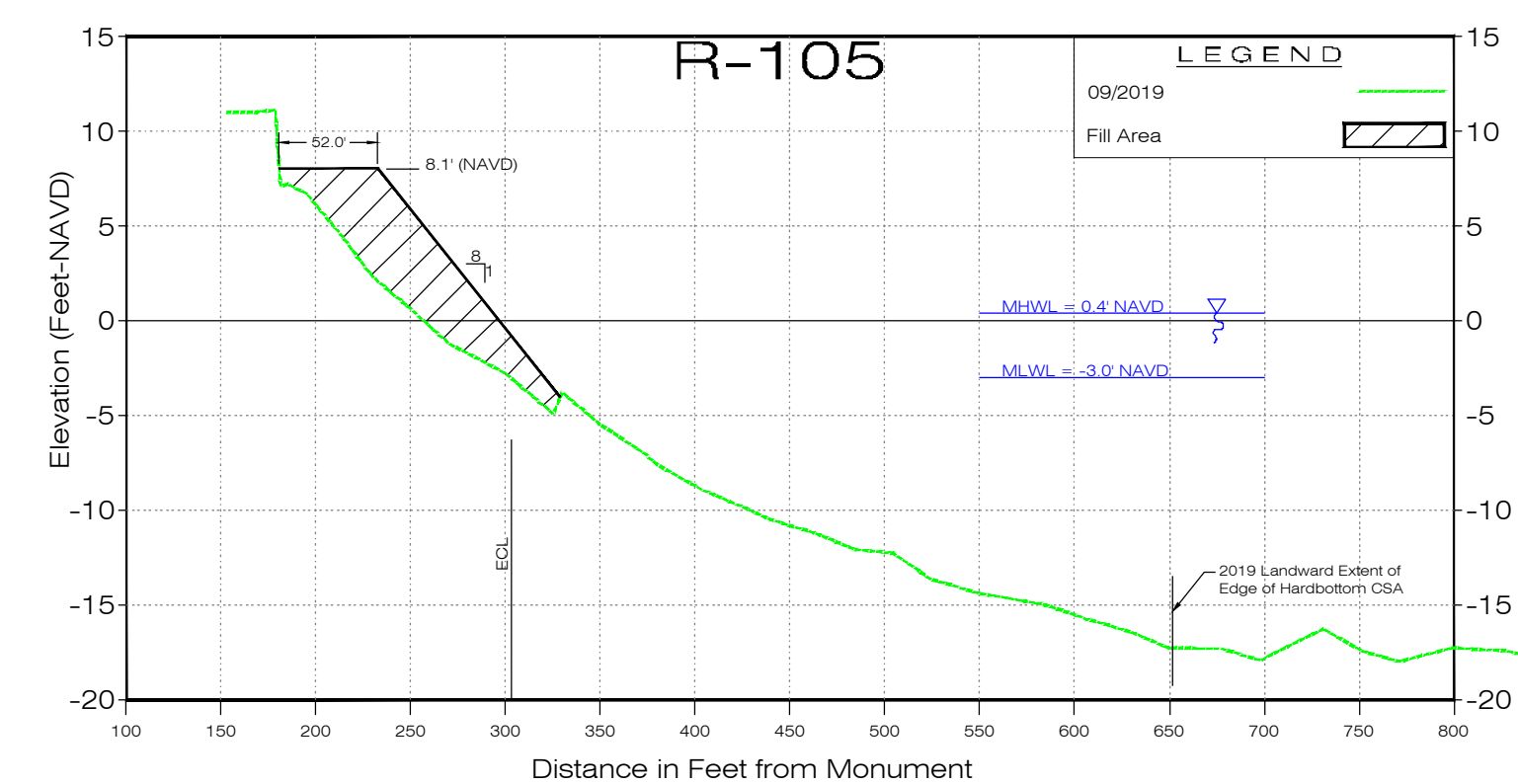
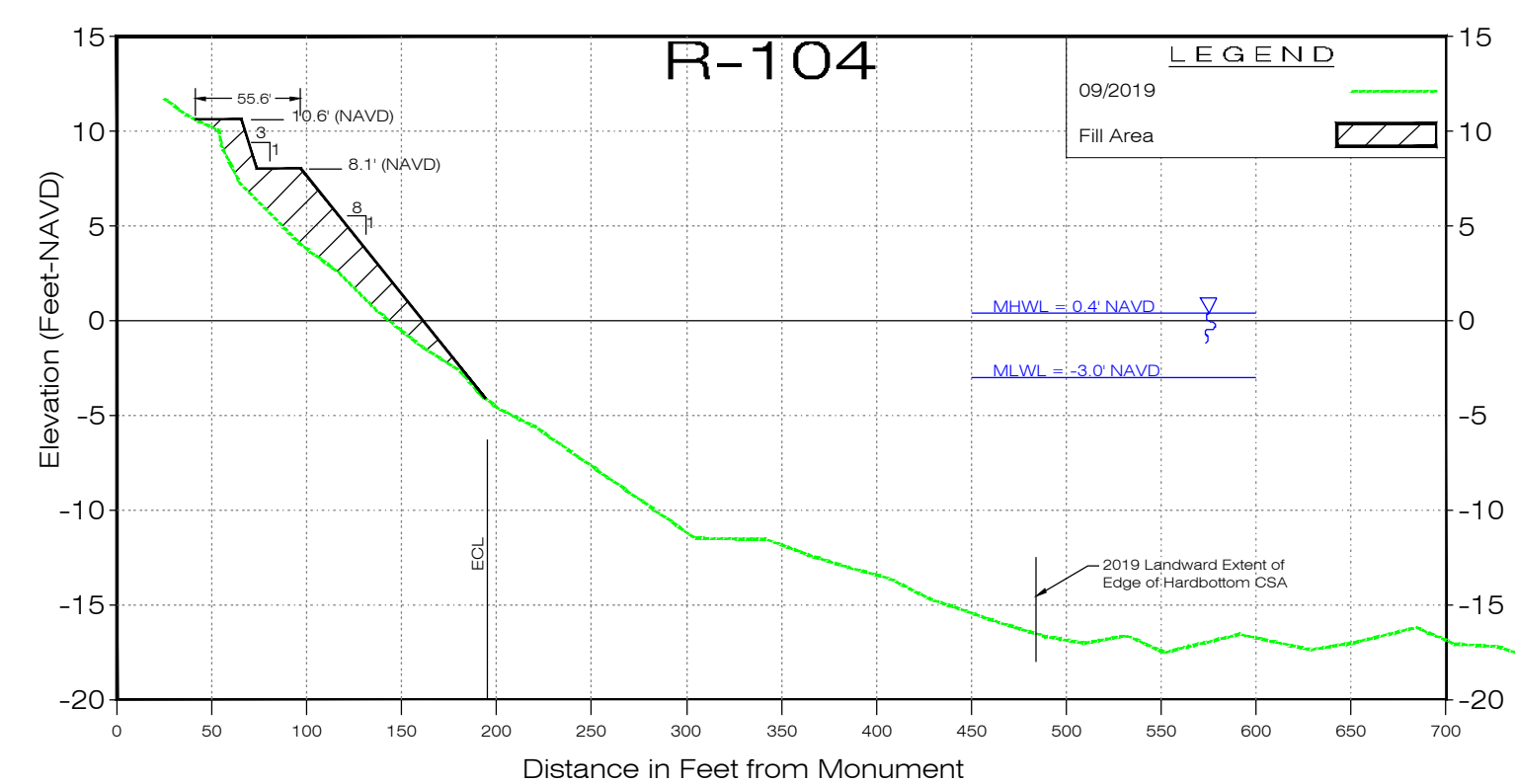
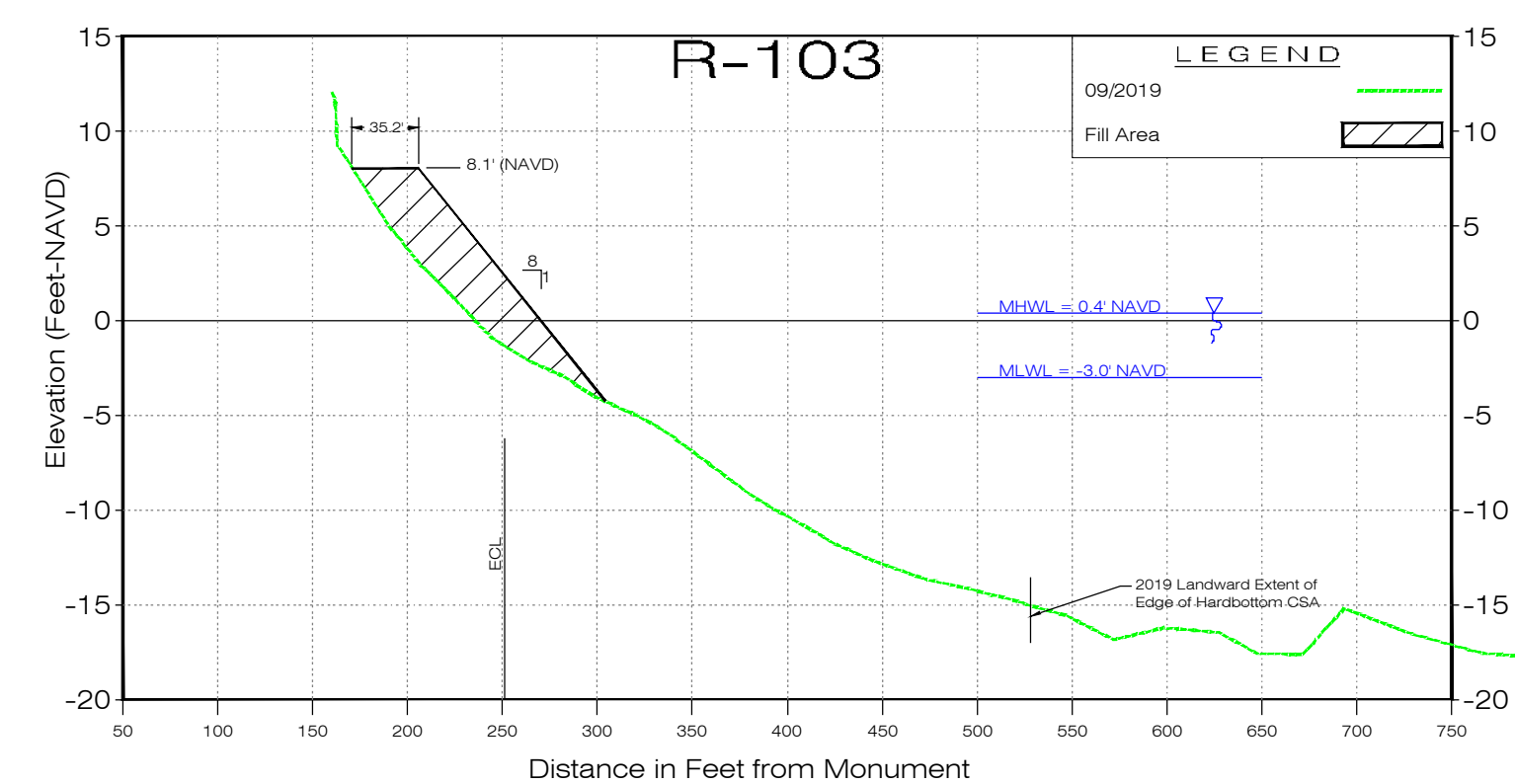
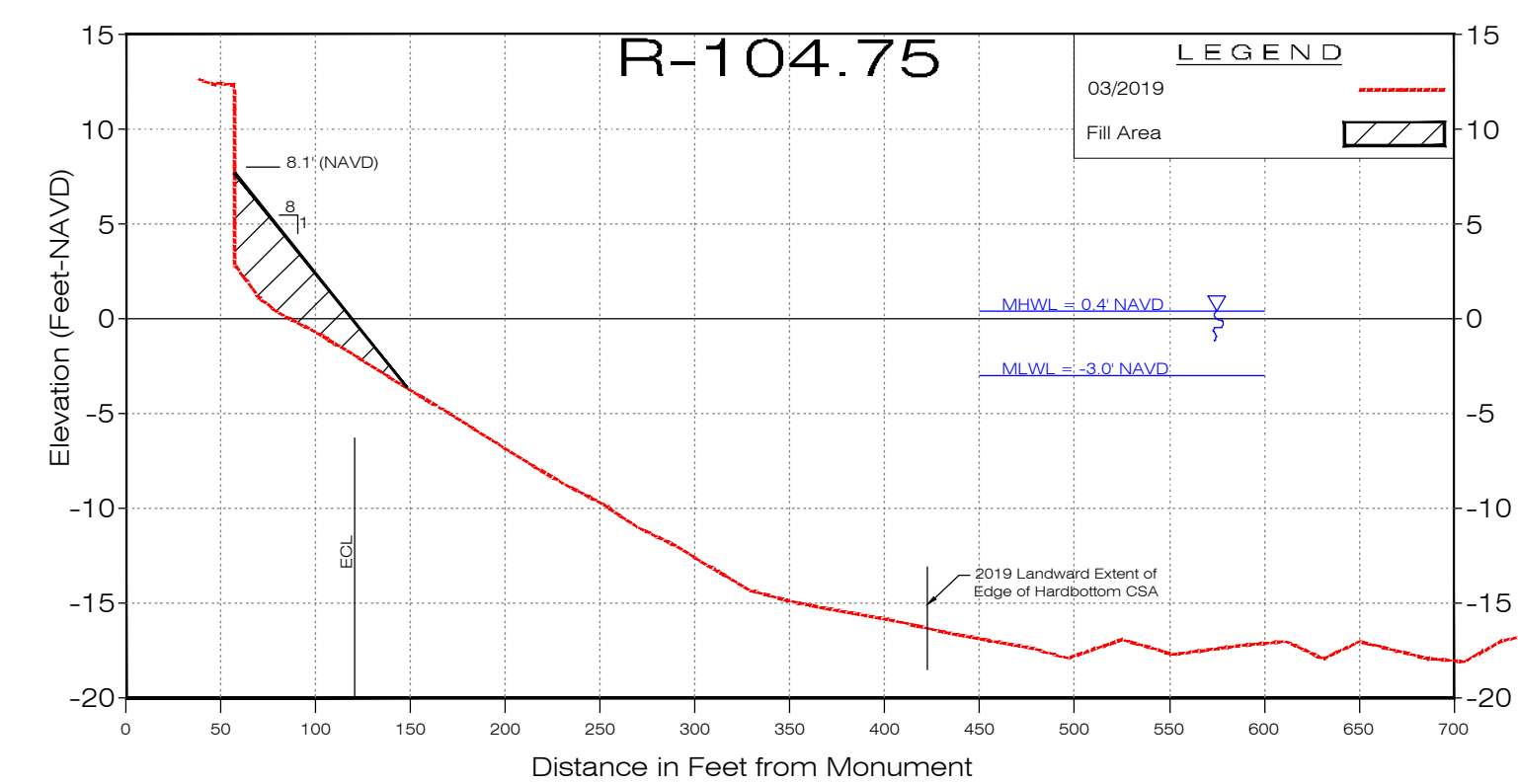
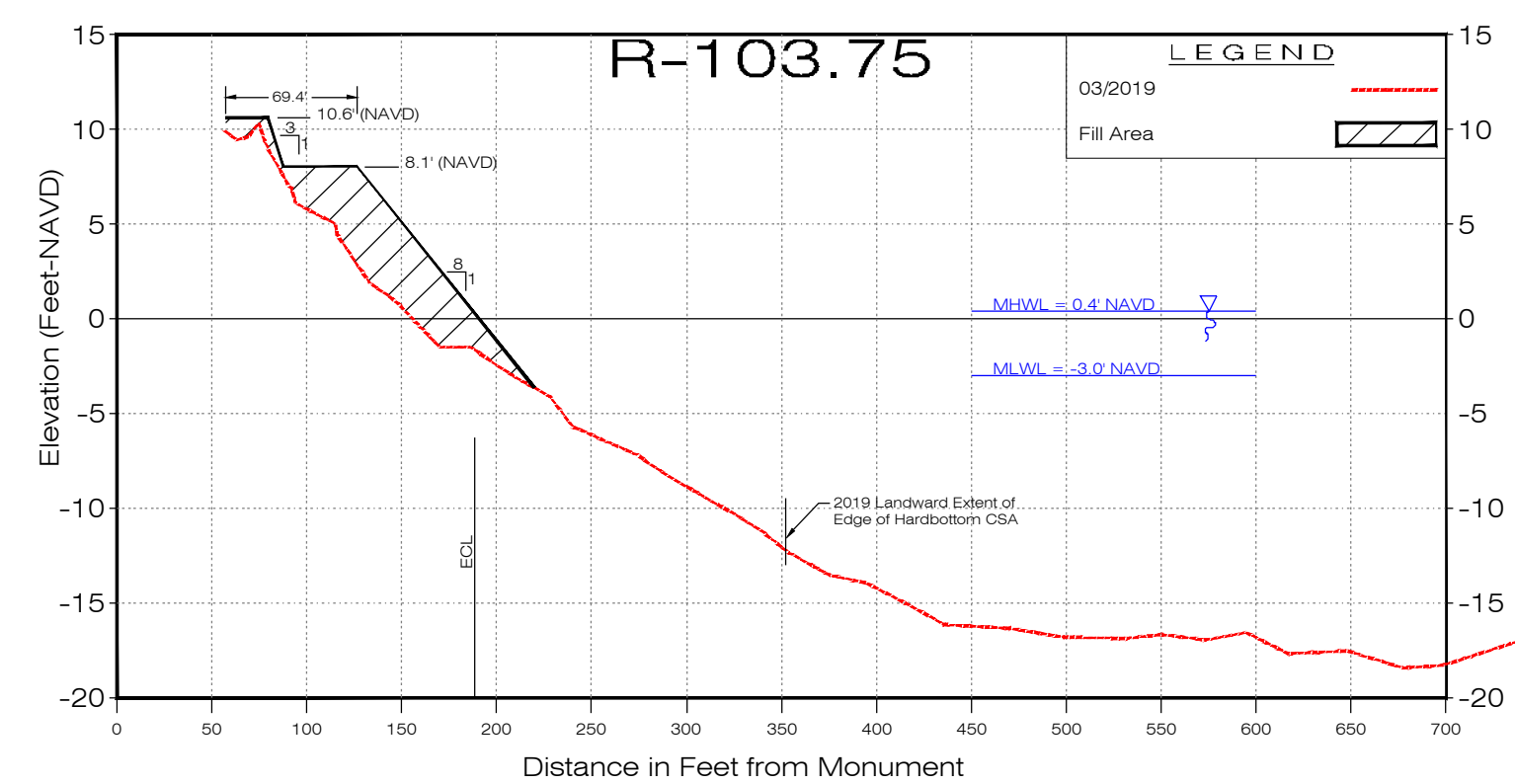
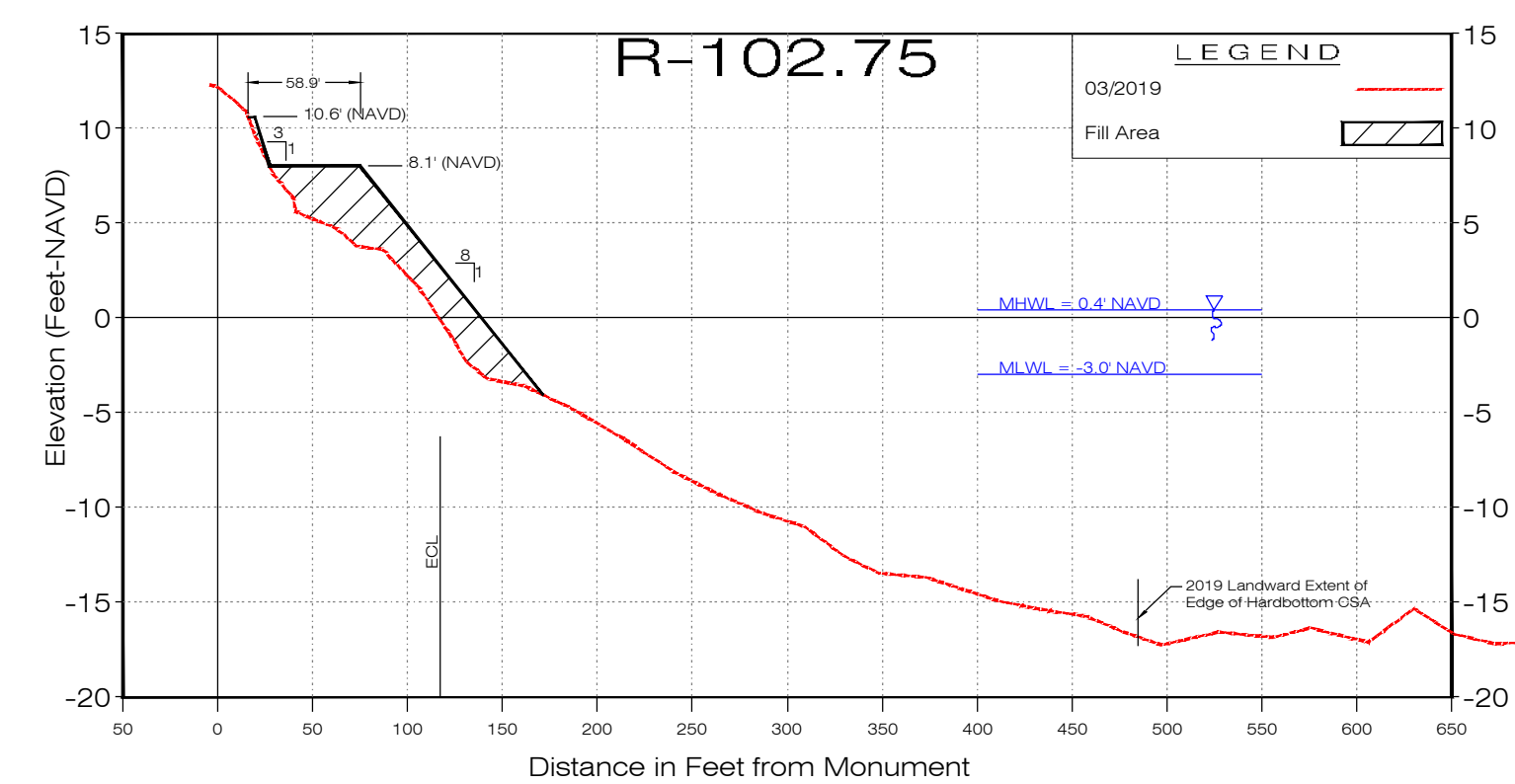
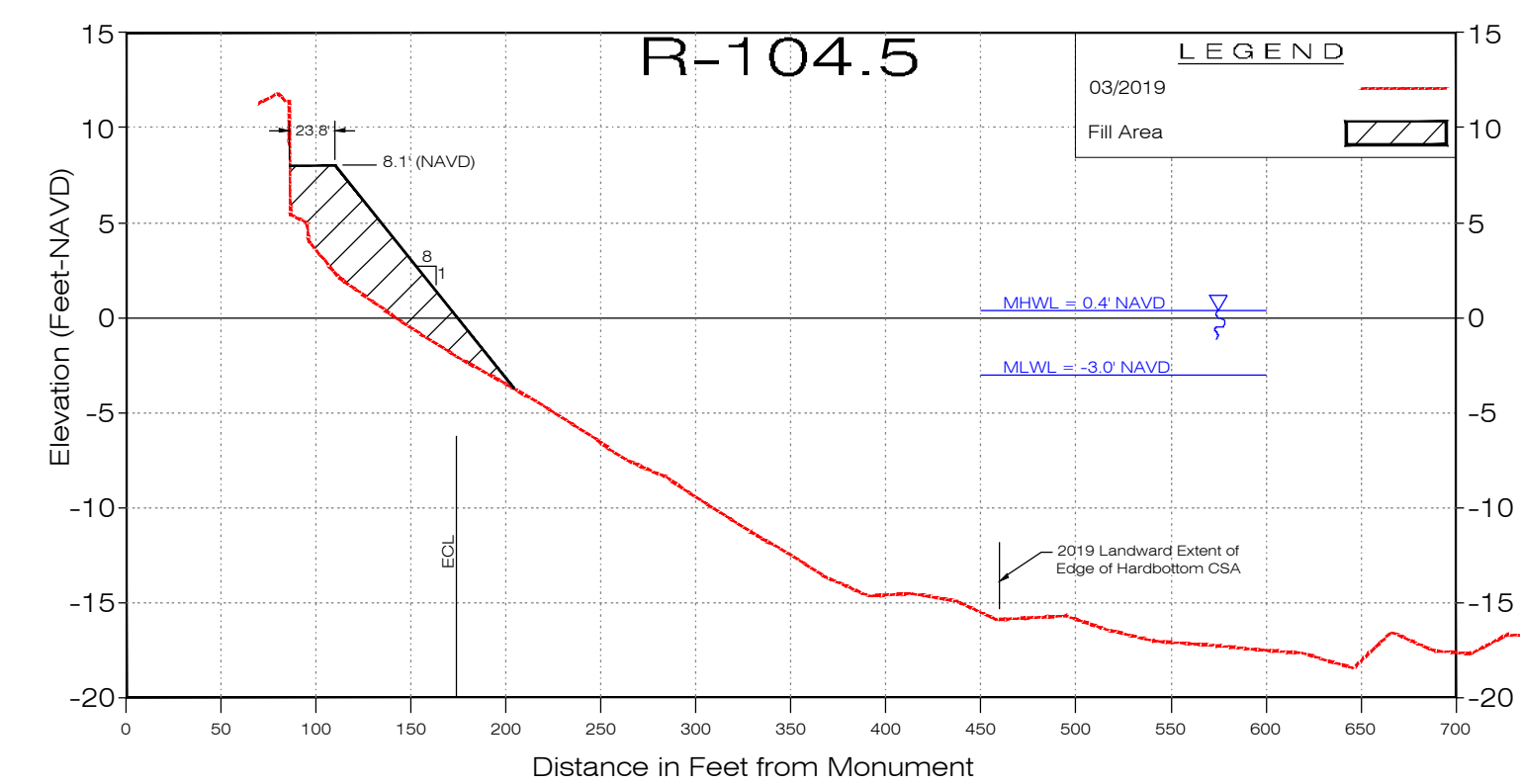
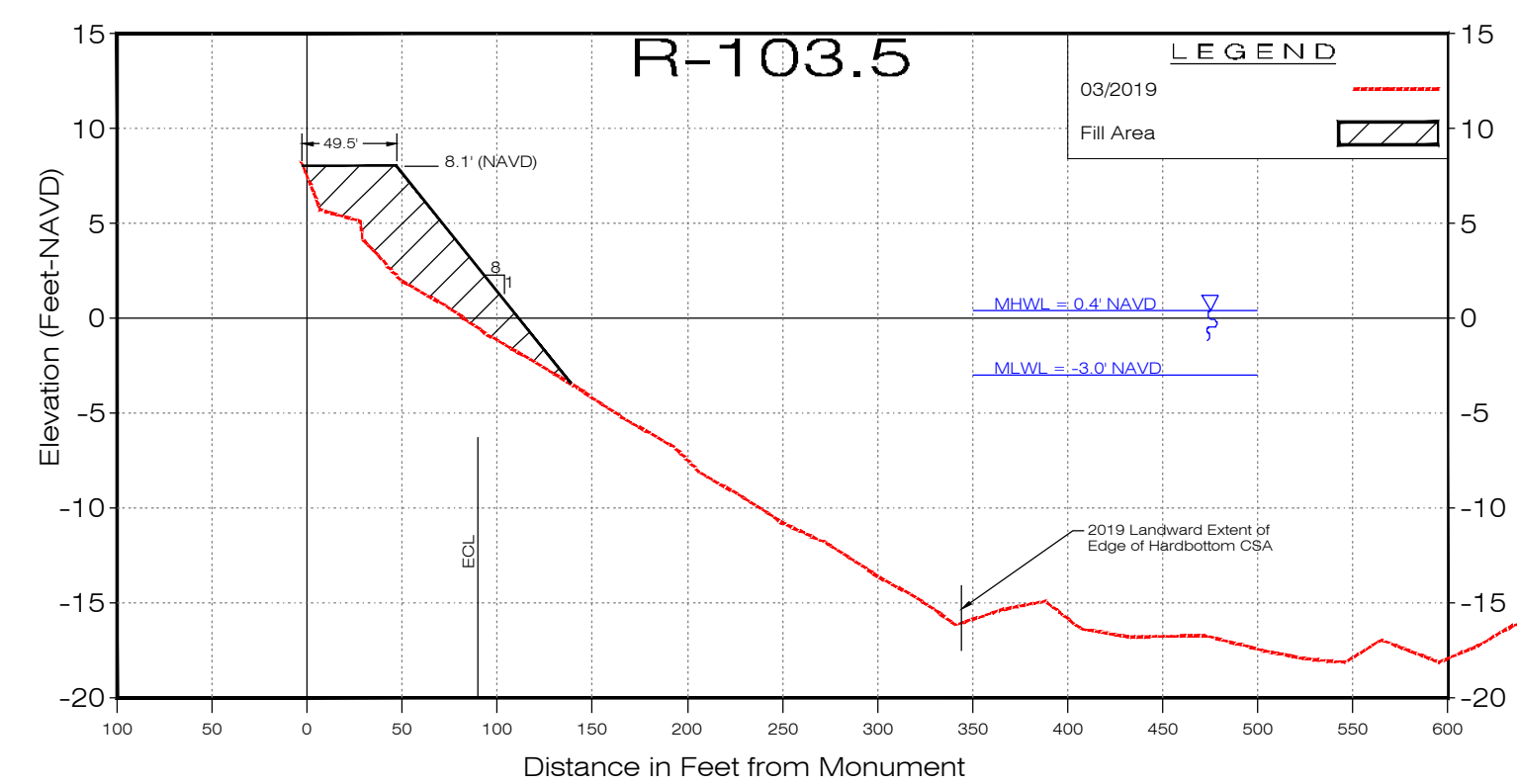
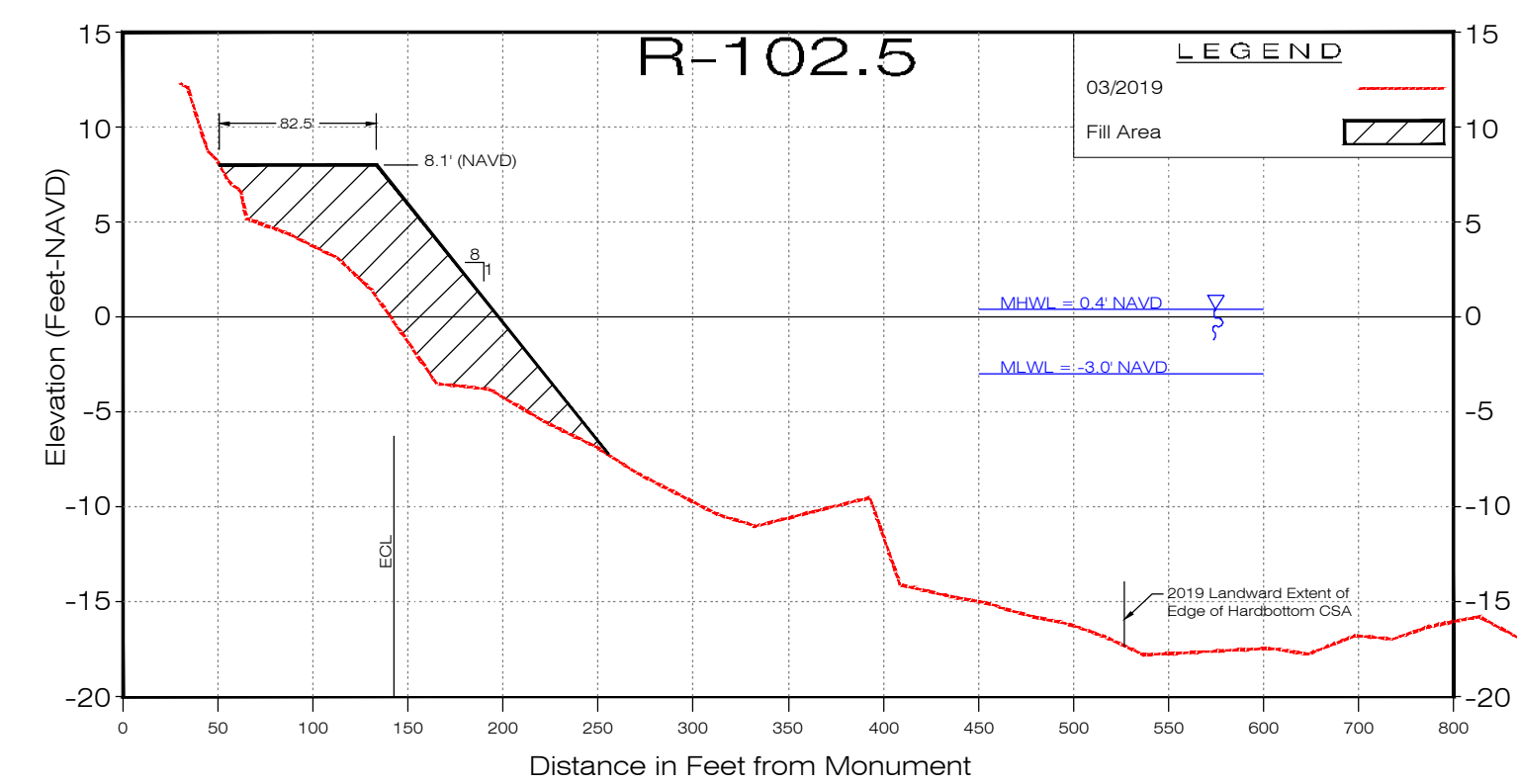
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Profiles Sector 7 (Porpoise Point) Beach and Dune Restoration Project Indian River County

Rev.	Date	Notes

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 Project No. 2018C 007

Profiles



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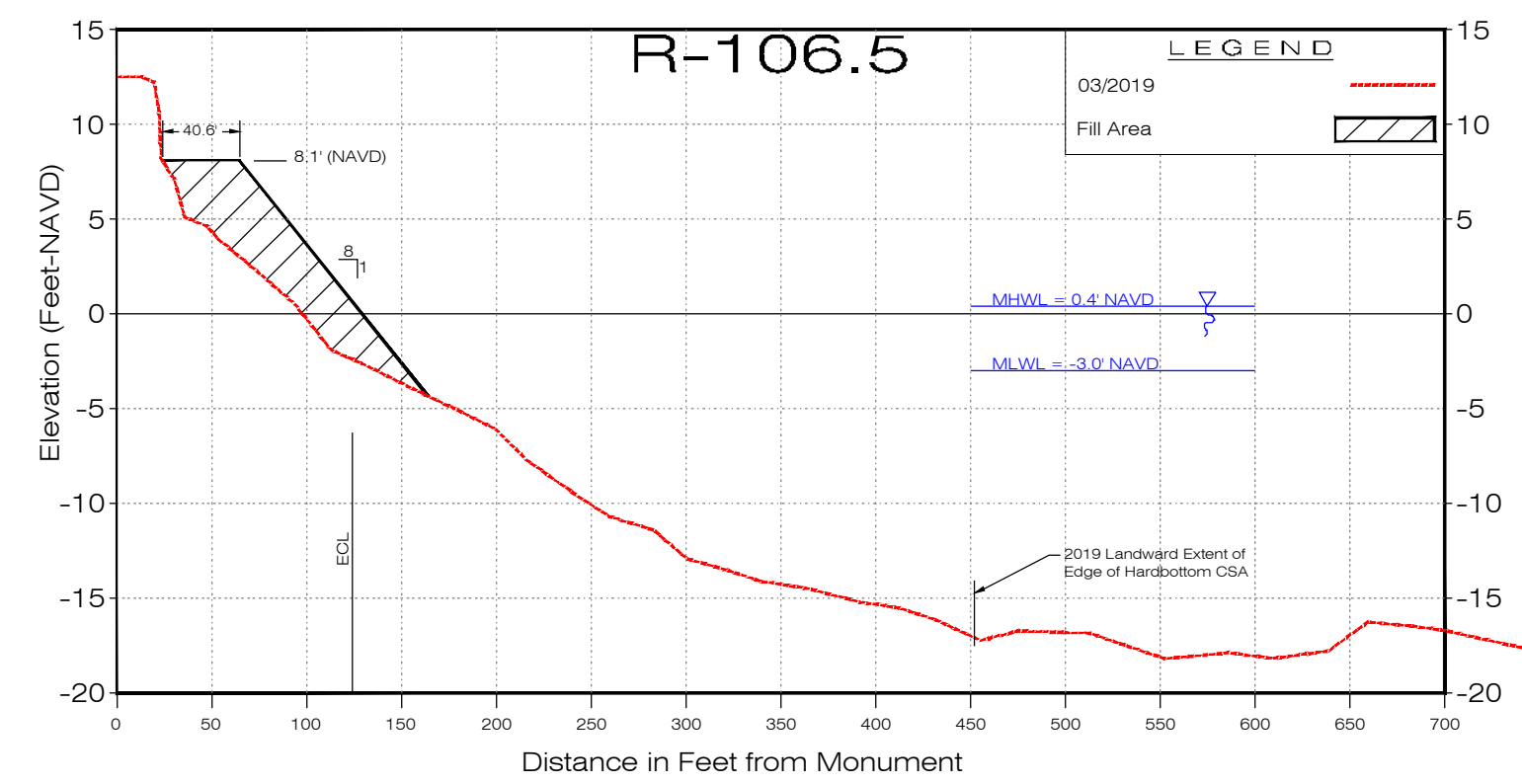
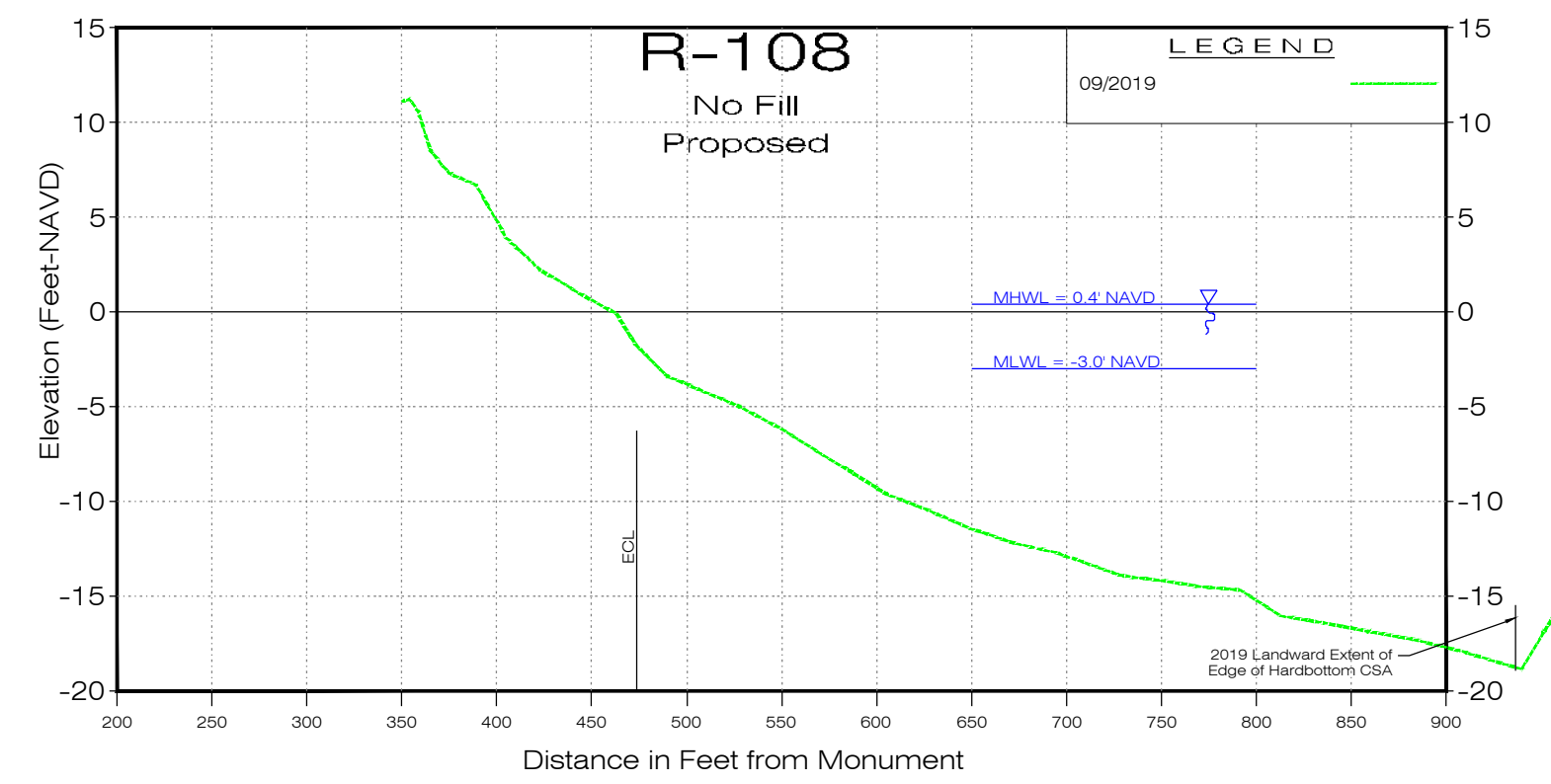
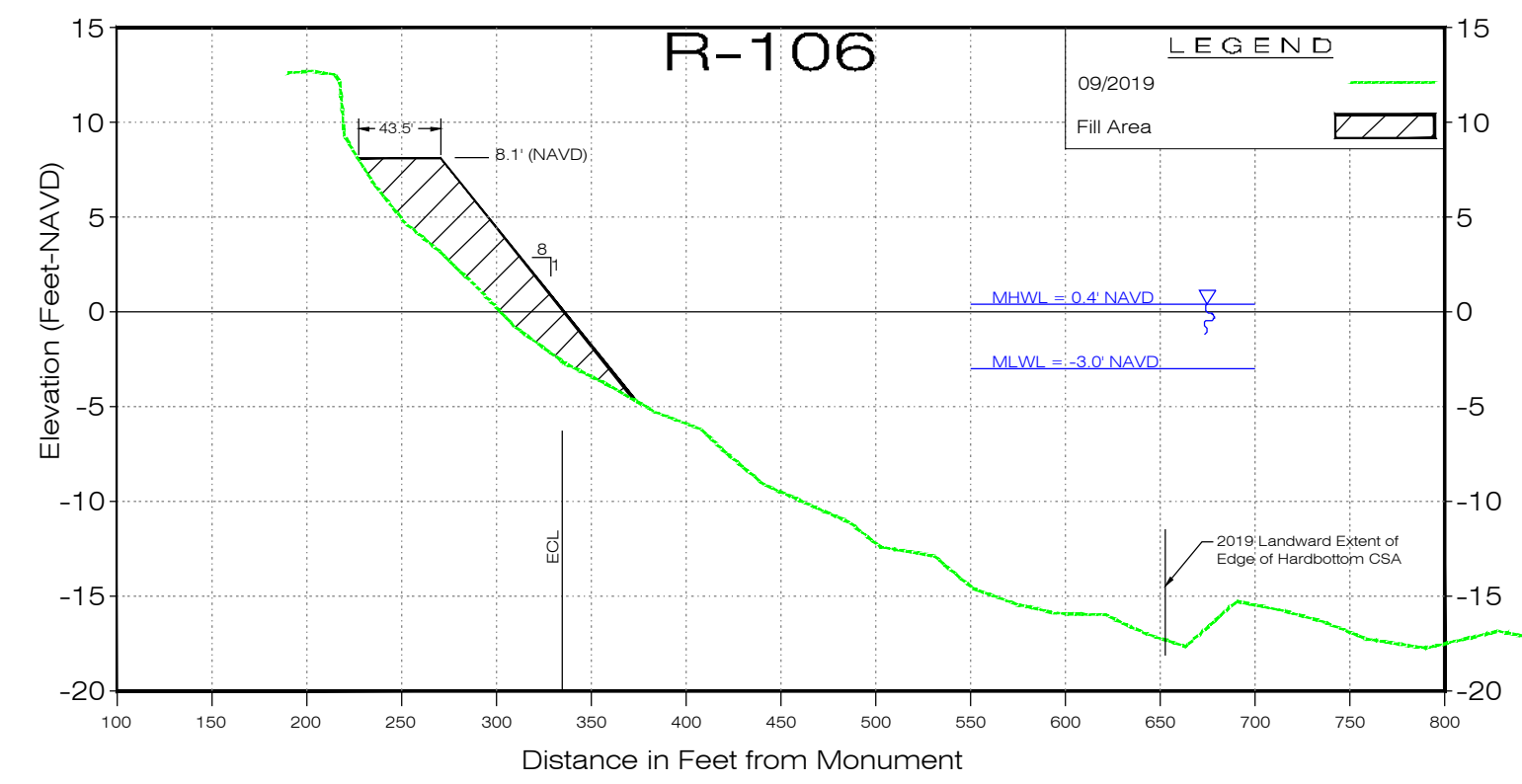
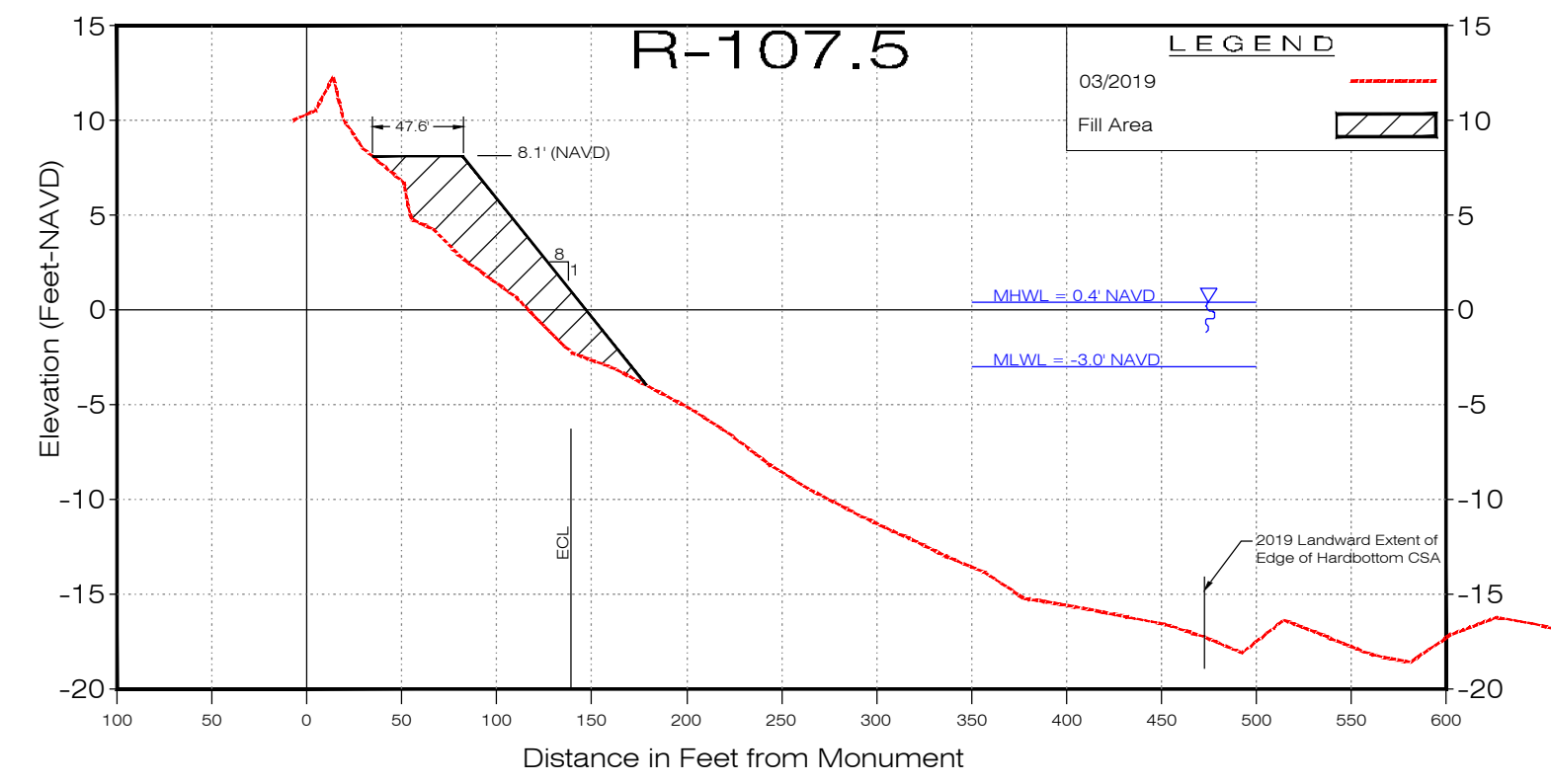
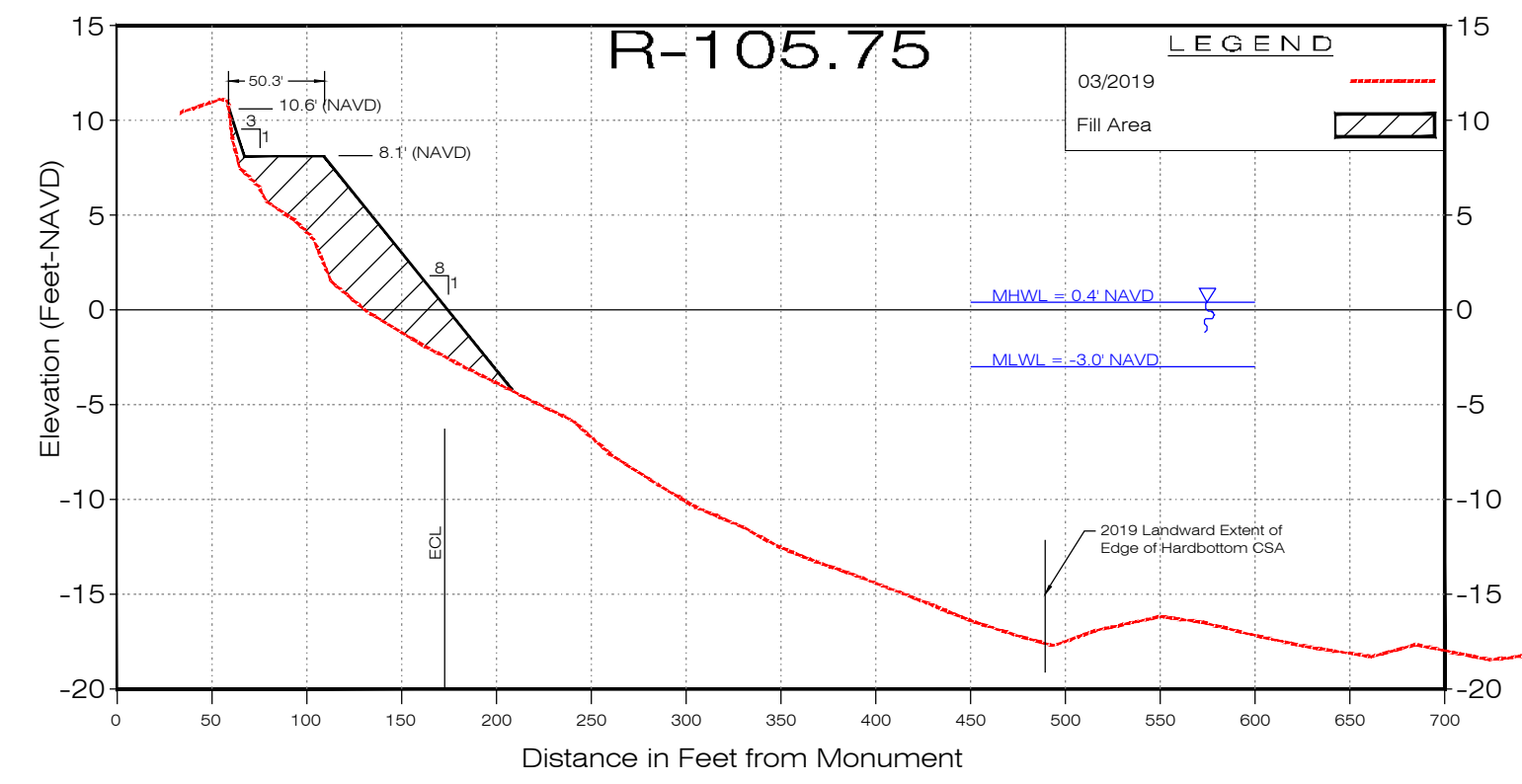
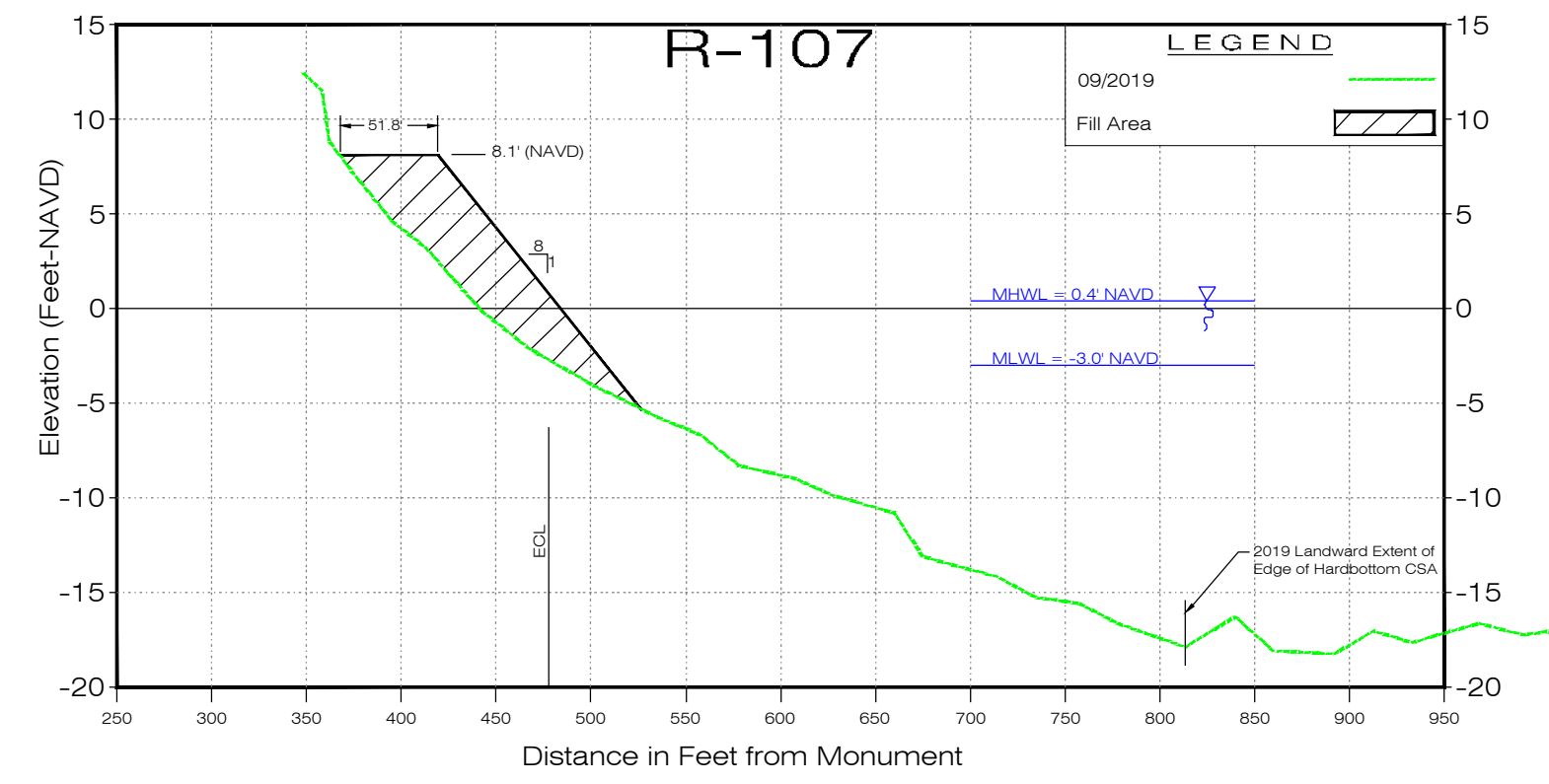
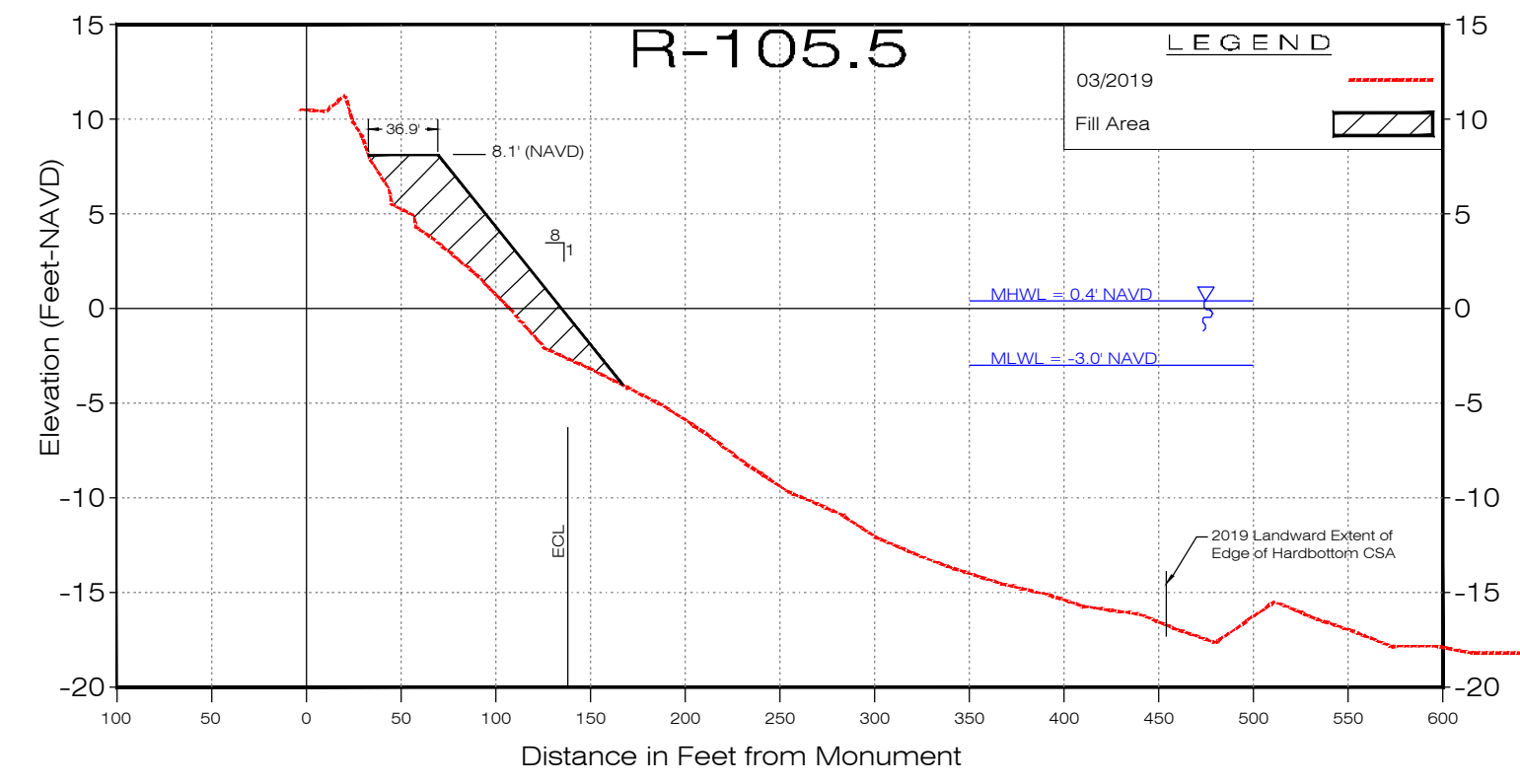
Sector 7 (Porpoise Point) Beach and Dune Restoration Project

Indian River County

Rev.	Date	Notes	Date Drawn

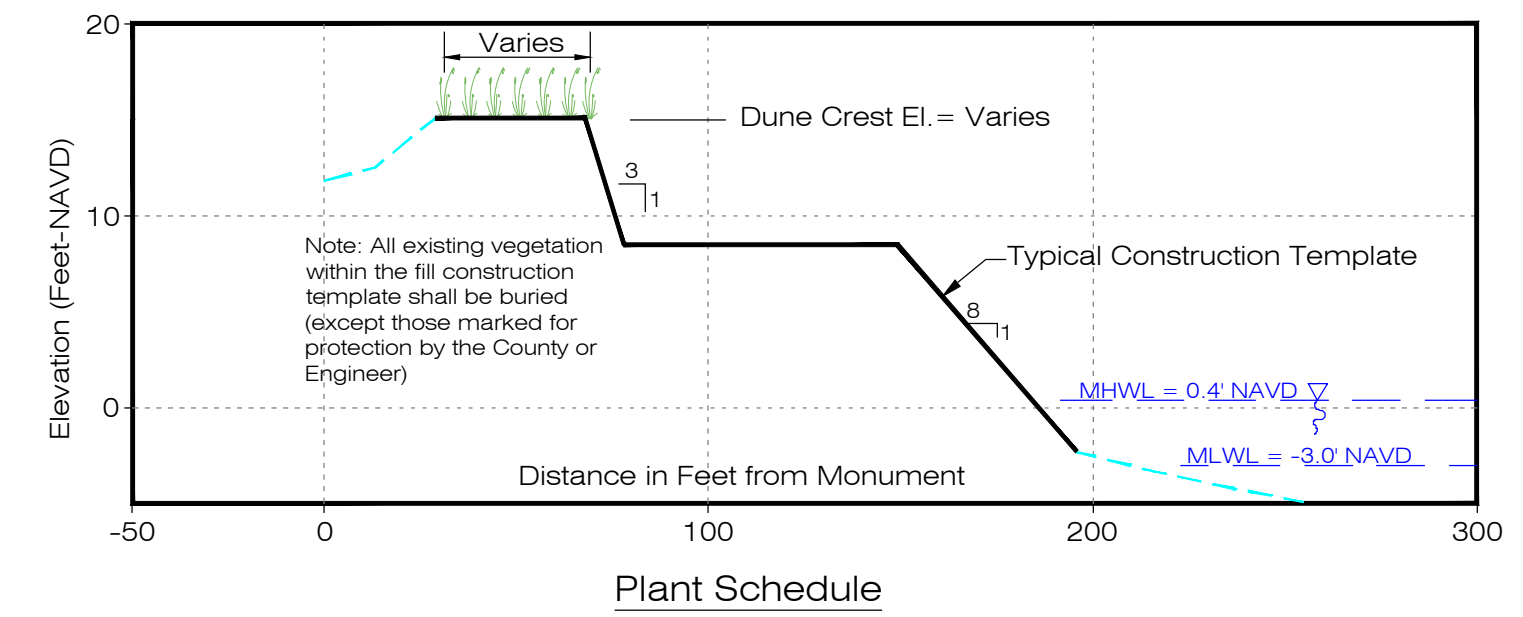
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Profiles



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Typical Planting Profile

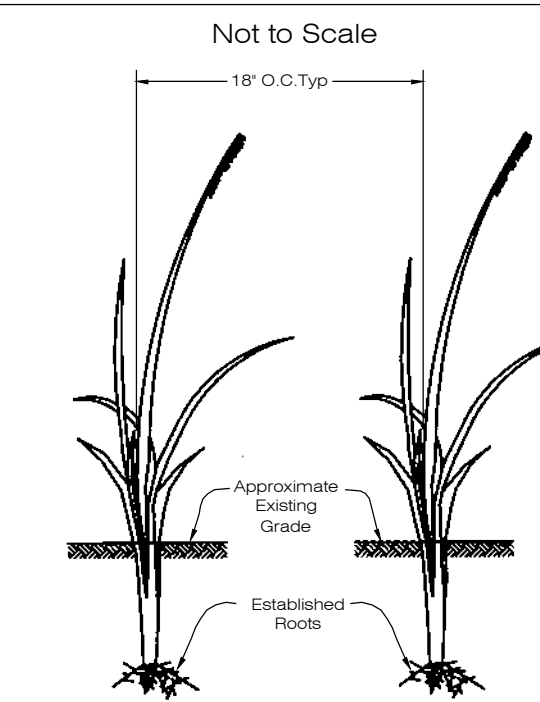


Plant Type	Scientific Name	Percent Distribution	Quantity	Size	Spacing
Sea oats	Uniola paniculata	80%	42,400	Liner	18" O.C.
Dune Panic Grass	Panicum amarum	13%	6,890	Liner	18" O.C.
Railroad Vine	Ipomoea pes-caprae	4%	2,1120	Liner	18" O.C.
Dune Sunflower	Helianthus debilis	3%	1,590	Liner	18" O.C.
TOTAL			53,000		

Dune Planting Notes

1. Planting is proposed on the proposed dune crest; see the profiles for the proposed dune crest widths.
2. Dune vegetation shall be planted 18 inches on center.
3. Planting units shall contain at least 2 viable emergent stems per liner.
4. Planting units shall be no less than 8" tall, and no more than 16" tall, (or length in the case of Railroad Vine), as measured from the top of the root ball to the apical meristem (top of stem).
5. All planting units shall be installed at a minimum depth of 6" below the surrounding grade, as measured from the top of the root ball to the sand surface.

Typical Dune Planting Detail



Typical Dune Planting Layout

