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## MEMORANDUM

**TO:** Hideaway Beach District Board  
**COPY:** Justin Martin, Mohamed Dabees  
**FROM:** Michael Poff  
**DATE:** October 7, 2025  
**SUBJECT:** Hideaway Beach T-Groin Inspection Letter Report  
**CEC FILE NO.** 25.320

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### INTRODUCTION

Due to impacts from major storms including Hurricane Irma (2017), Hurricane Ian (2022), Hurricane Idalia (2023), and Hurricane Milton (2024), the Hideaway Beach District Board (District) and City of Marco Island (City) authorized Coastal Engineering Consultants, Inc. (CEC) to inspect the existing 19 T-Groins and prepare repair recommendations and budgets to restore the structures to their design function. The Erosion Control Project location map is presented in Figure 1 and the T-groin location map is presented in Figure 2.

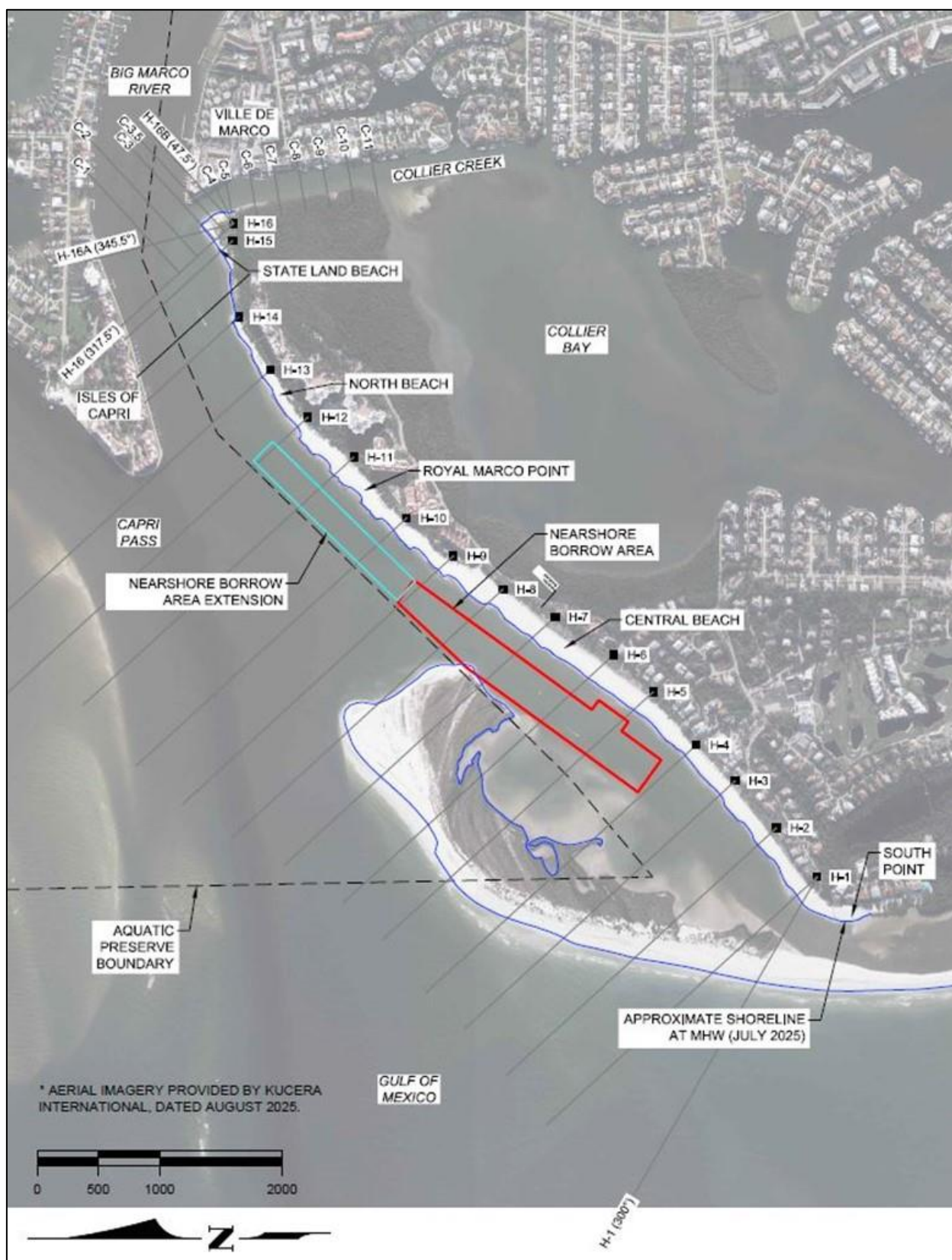
### SCOPE OF WORK

The scope of services includes the following tasks:

- Conduct visual inspection of the visible portions of the 19 T-Groins. Conduct select cross-sections and profiles of the T-Groins. Compare the existing conditions of the T-Groins to their design templates and quantify the volume of rock needed to restore the T-Groins to their design function.
- Develop recommendations to repair the T-Groins considering the age of their installation and the amount of damage they have experienced.
- Develop construction budget to implement the repairs.
- Based on the analysis, provide a recommendation for the time line to implement repairs considering the location of each T-Groin in relation to coastal processes and forcing functions.
- Prepare a letter report summarizing the results of the inspection, repair recommendations, construction budget, and time line.

### HISTORY OF EROSION CONTROL PROJECT MANAGEMENT ACTIVITIES

Collier County, City, and District have undertaken several projects to stabilize the shoreline, provide storm damage reduction benefits, and create and sustain natural resource habitats along Hideaway Beach since the early 1990's. Since 1997, the management activities have included installation of t-groin structures. The time line presented below summarizes the various t-groin installations. The key dates include the construction of the five (5) T-Groins at South Point and five (5) T-Groins at Royal Marco Point in 2005, and six (6) T-Groins at Central Beach in 2010 (Figure 3); and three (3) T-Groins at North Beach in 2013 (Figure 4). The original T-Groin design was developed by Humiston and Moore and utilized for the 2005 and 2010 projects. CEC adopted their design as requested by the District for consistency among shoreline segments. The typical plan, profile, section and details are presented in Figures 5 and 6.



**Figure 1. Erosion Control Project Location Map**





**Figure 2. T-Groin Location Map**

***Timeline of Erosion Control Project Management Activities***1997

- Two (2) temporary geotextile T-Groins were constructed at South Point
- Three (3) temporary geotextile T-Groins were constructed at Royal Marco Point

2001

- Collier Bay Entrance Dredging; 24,100 cubic yards (cy) were placed at Royal Marco Point
- Two (2) additional temporary geotextile T-Groins were constructed, one each at South Point and Royal Marco Point

2005

- Seven (7) temporary geotextile T-Groins constructed were removed
- 136,350 cy were dredged from Ebb Shoal Borrow Area and placed at South Point
- 180,420 cy were dredged from Ebb Shoal Borrow Area and placed at Royal Marco Point
- Five (5) T-Groins were constructed at South Point
- Five (5) T-Groins were constructed at Royal Marco Point
- Terminal jetty was constructed at the entrance to Collier Bay

2008

- Emergency revetment was constructed along Central Beach

2010

- 122,000 cy were dredged from Nearshore Borrow Area (NBA) and placed at Central Beach
- Six (6) T-Groins were constructed at Central Beach

2012

- Collier Bay Entrance Dredging; 8,400 cy were placed nearshore along North Beach

2013

- 25,000 cy were dredged from NBA and placed at North Beach
- 50,000 cy were dredged from NBA and placed at Royal Marco Point and Central Beach
- Three (3) T-Groins were constructed at North Beach
- Scour holes were filled around existing T-Groins

2016

- 9,800 cy were dredged from NBA and placed at South Point
- 23,700 cy were dredged from NBA and placed on Marco's gulf-front beach
- Scour holes were filled around existing T-Groins

2019

- 55,500 cy were dredged from NBA and placed from North Beach to South Point

2024

- Hideaway Beach was regraded to address storm impacts



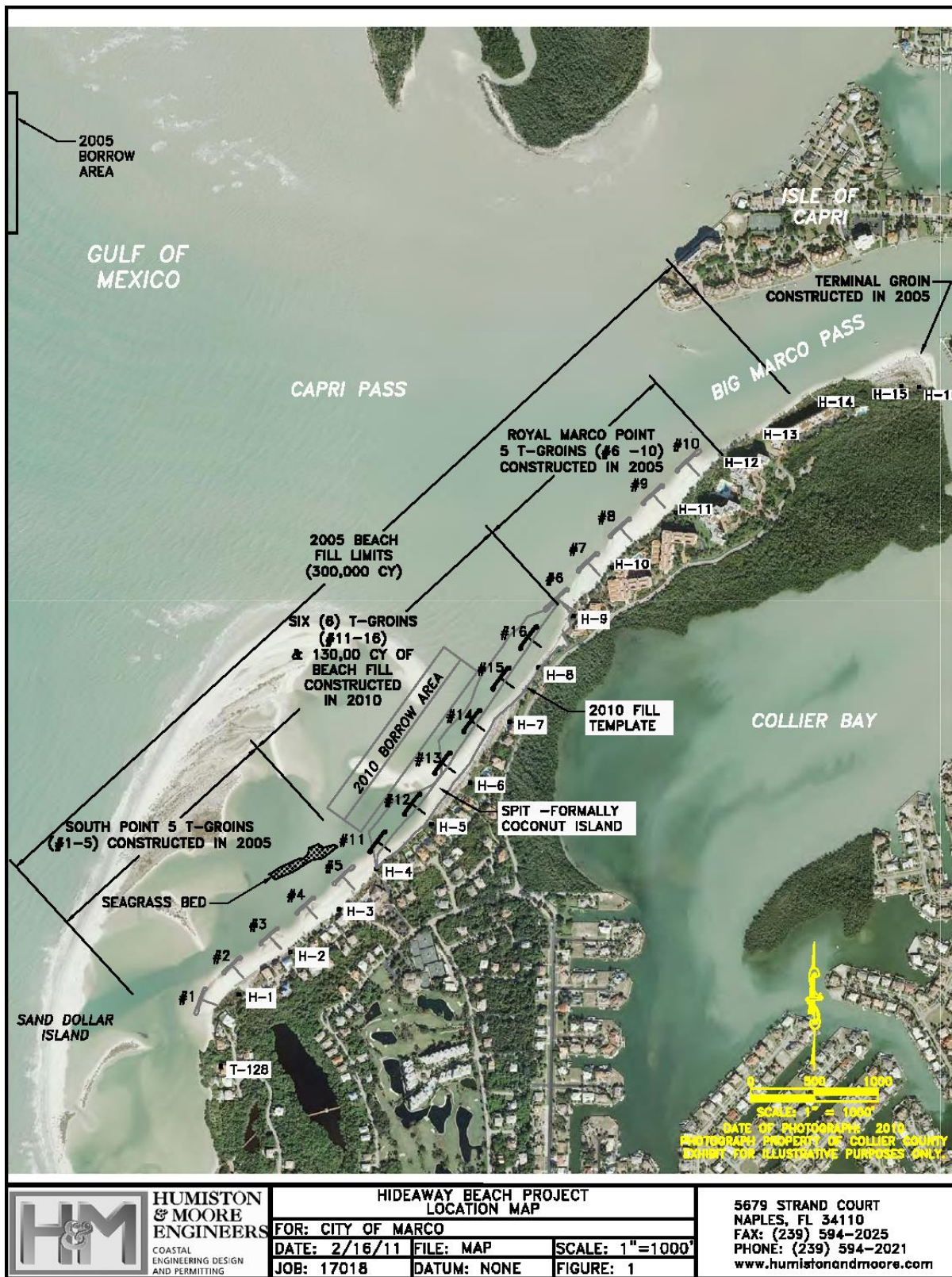


Figure 3. 2005 and 2010 T-Groin Installations on Hideaway Beach (Humiston and Moore)



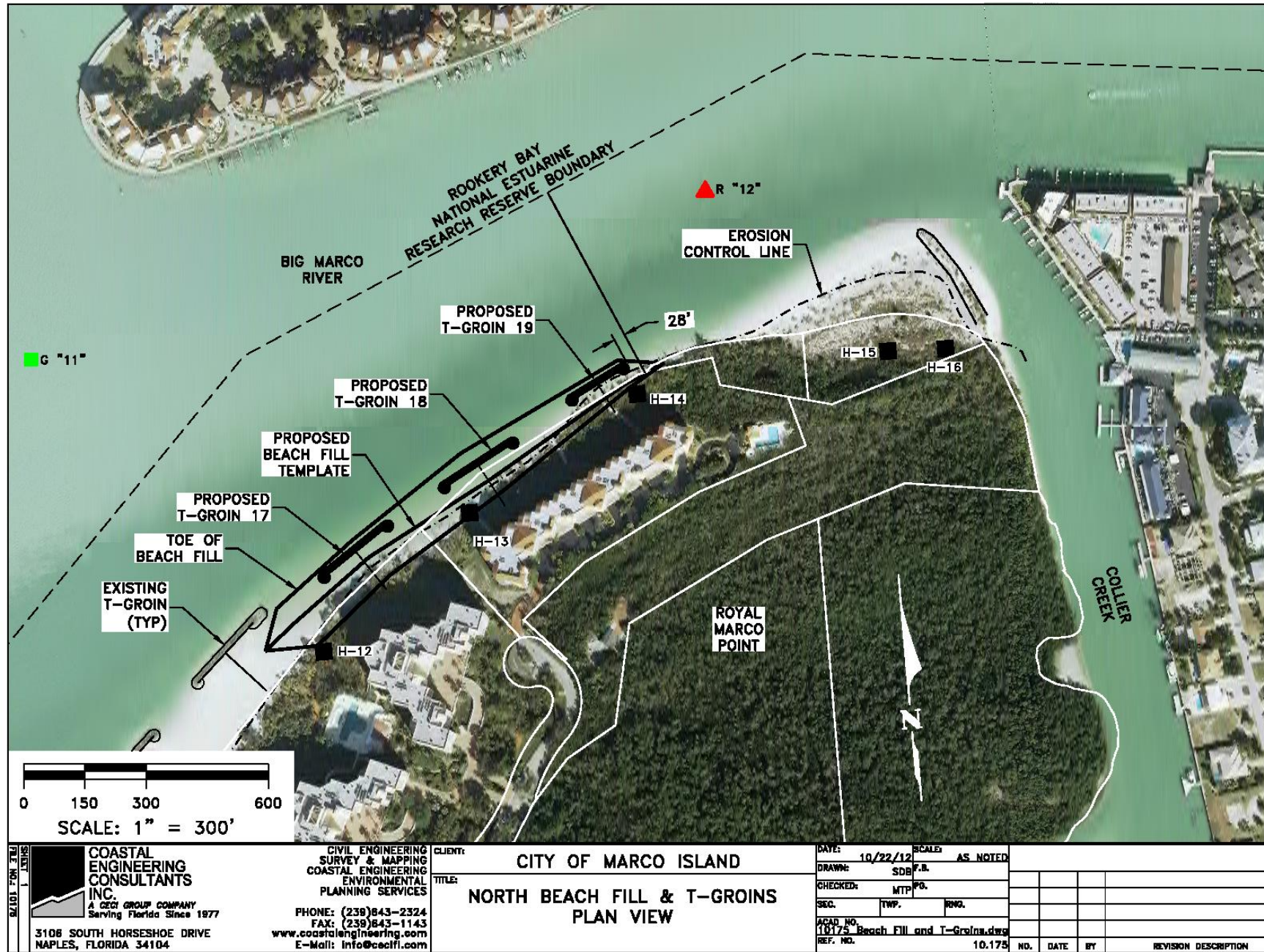


Figure 4. 2013 T-Groin Installation at North Beach (CEC)

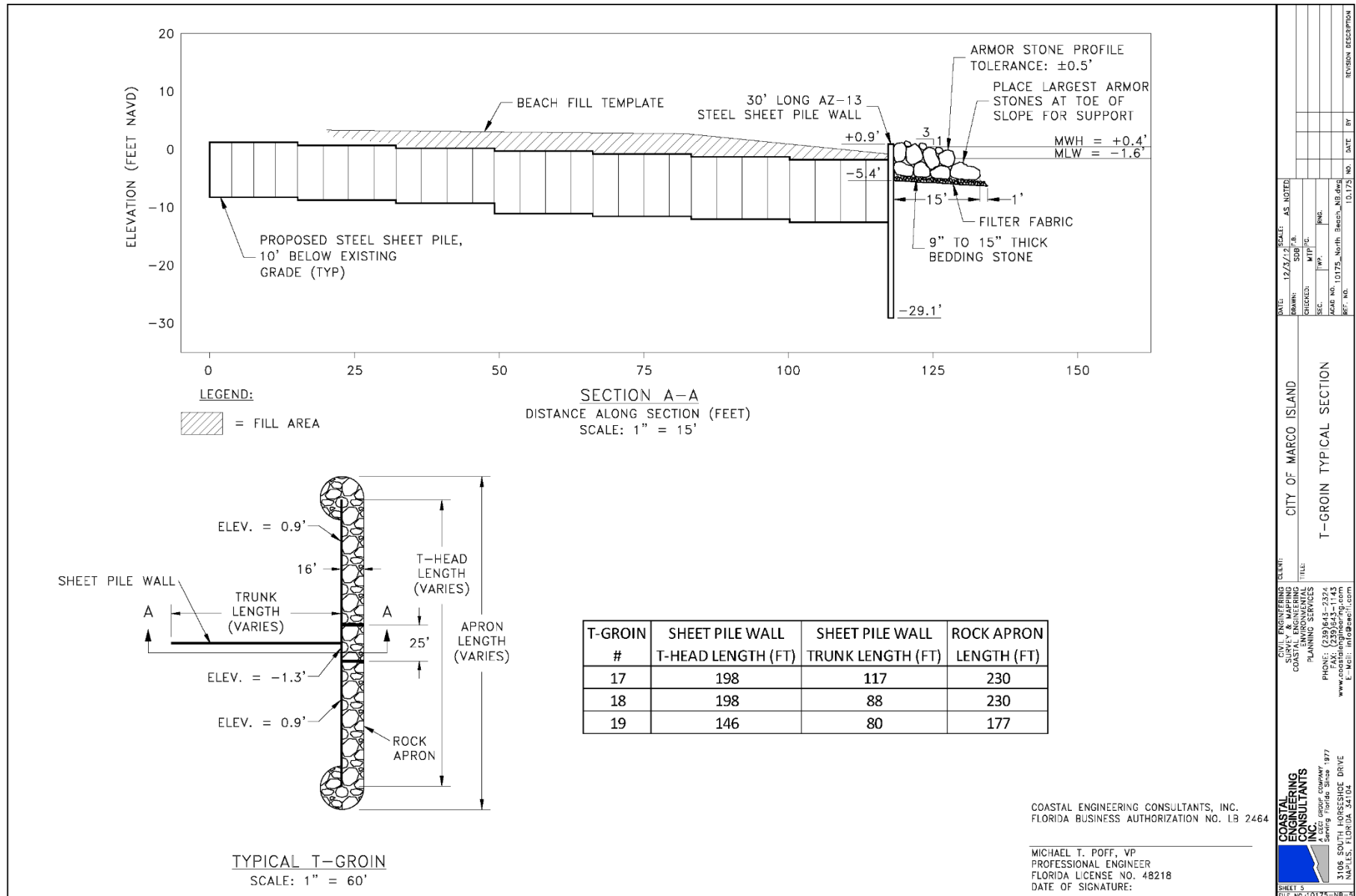


Figure 5. North Beach T-Groin Typical Plan and Profile Views



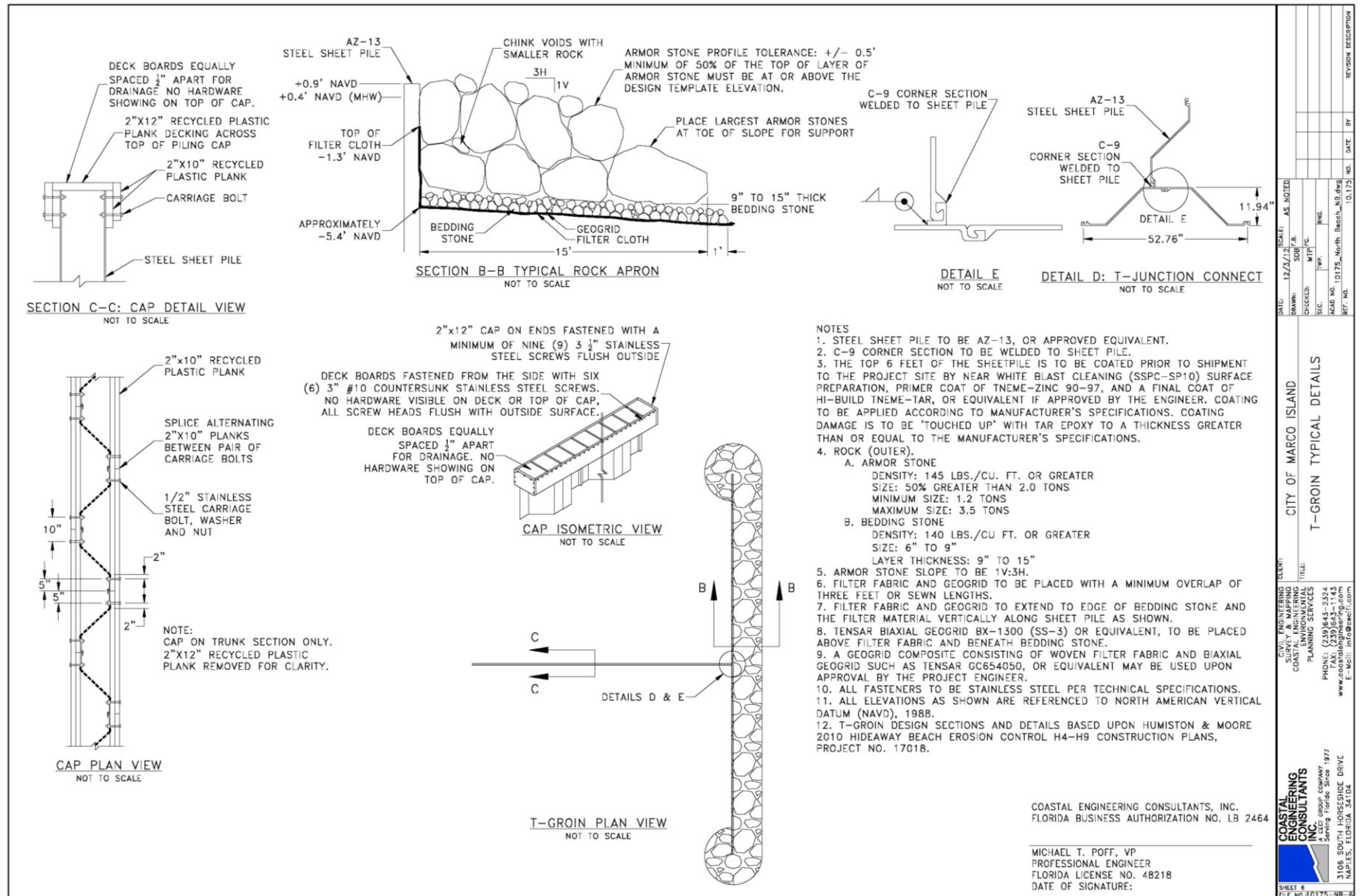


Figure 6. North Beach T-Groin Typical Section View and Details

## INSPECTION

On September 16, 2025, CEC's engineering crew conducted the visual inspection of the visible portions and collected representative elevation data along select transects of each T-Groin. Several of the structures were buried or partially buried, which precluded inspection of these specific structures or sections of structures. Representative photographs of the T-Groins are presented in Attachment 1. Representative cross sections of the T-Groins are presented in Attachment 2.

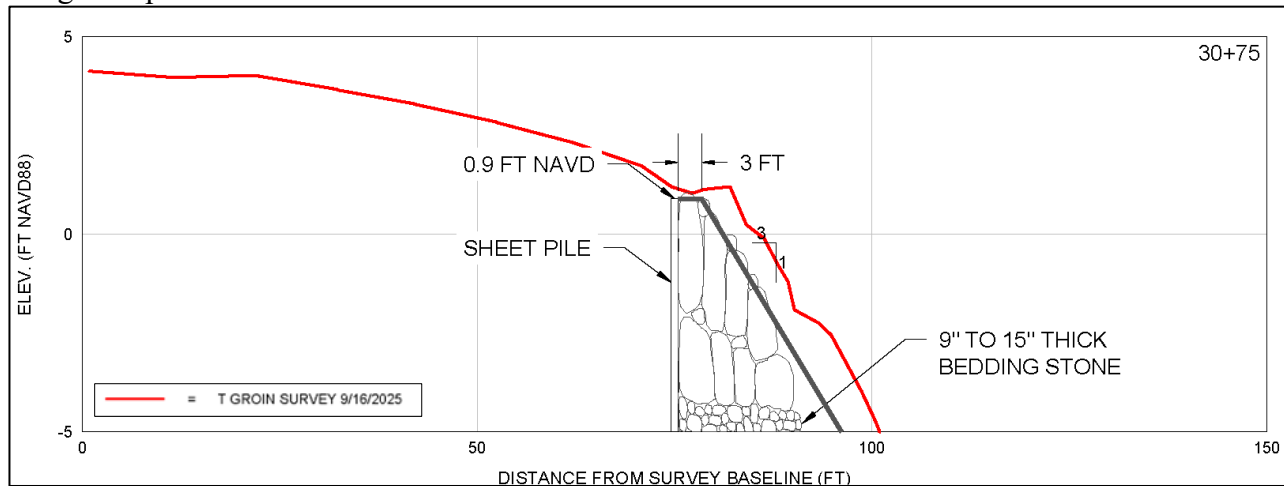
CEC located the existing signage marking several T-Goins. They were installed as part of the 2005 and 2010 projects. The original intent was to advise boaters and beach-users of newly placed rock along the beach and nearshore. The 2013 project did not include any signage. Only two signs remain and they are located at T-Groin 12 and T-Groin 16.

## RESULTS

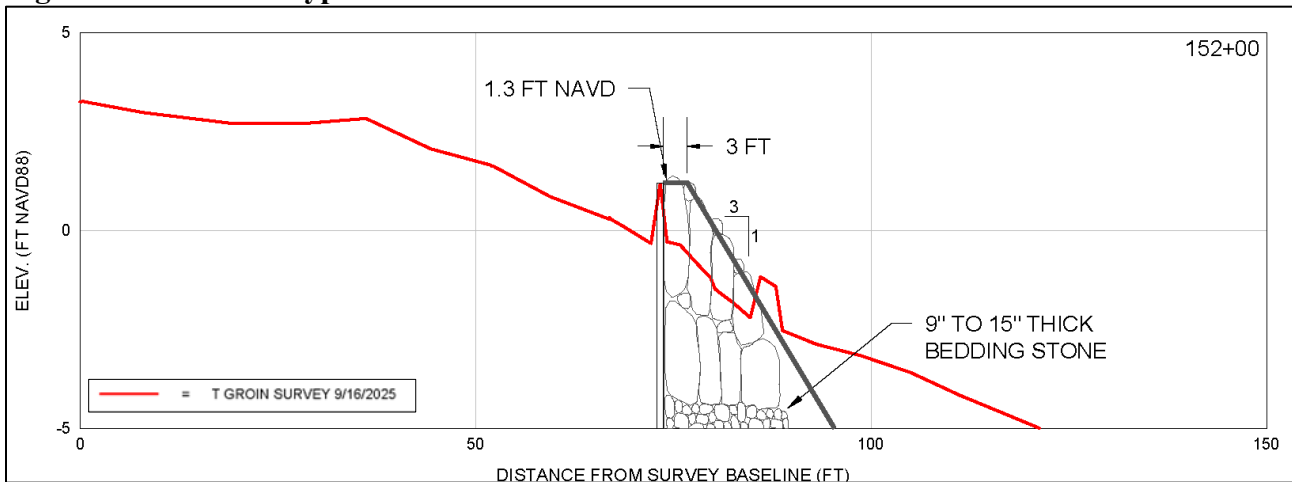
Presented in Table 1 are the results of the T-Groin inspections. The structures were rated as follows:

- Good: New or good condition
- Fair: Performing the function for which it was intended but is in need of minor repair or maintenance
- Poor: Performing the function for which it was intended but is in need of significant repairs

Presented in Figures 7 and 8 are typical T-groin sections depicting the existing condition versus the design templates.



**Figure 7. T-Groin 3 Typical Section**



**Figure 8. T-Groin 15 Typical Section**

There were twelve (12) T-Groins rated good. Four (4) of the T-Groins were buried and three (3) T-Groins were partially buried allowing for partial survey and inspection. There were no T-Groins rated fair or poor.

**Table 1. T-Groin Inspection Results**

<b>T-Groin No.</b>	<b>Beach Segment</b>	<b>Rating</b>
1	South Point	Buried
2	South Point	Buried
3	South Point	Good
4	South Point	Good
5	South Point	Partially Buried
6	Central Beach	Good
7	Central Beach	Partially Buried
8	Central Beach	Buried
9	Central Beach	Buried
10	Central Beach	Partially Buried
11	Central Beach	Good
12	Royal Marco Point	Good
13	Royal Marco Point	Good
14	Royal Marco Point	Good
15	Royal Marco Point	Good
16	Royal Marco Point	Good
17	North Beach	Good
18	North Beach	Good
19	North Beach	Good

## **REPAIR PLAN**

Comparing the current conditions of the T-Groins to the design templates, the volume of rock needed to bring the T-Groins to their design function was computed equal to 312 cy equal to 430 tons assuming a density of 145 pounds per cubic foot (pcf) and a void ratio of 30%. The T-Groins identified for minor repair, that is, importing small quantities of rock, included T-Groin 10 through T-Groin 16. The minor areas of deficit are attributed to the age of the structures and their exposure to direct wave attack noting they are not protected by Sand Dollar Island Spit.

Of particular note, T-Groin 12 and T-Groin 16 were constructed in 2005. The design template for their end segments were bolstered as there were no neighboring structures. Excluding these end segments due to presence of the adjacent T-Groins constructed in 2010 and 2013, the repair tonnage drops to 300 tons.

The repair plan consists of importing armor stone meeting the original specifications and filling the voids in the structures to restore them to their design function. Some minor reworking of existing stone may be needed to achieve the design templates.



The equipment needed for the repairs may include some or all of the following: dump trucks to transport the rock from the quarry to Hideaway Beach, offroad truck to move rock from the construction access and staging area to each T-Groin, excavator with thumb to place the rock, and grader or dozer to smooth beach areas disturbed by the repair work plus fill scour holes adjacent to the structures.

CEC's preliminary opinion of probable construction cost to implement the repairs is \$121,700 inclusive of contingencies and soft costs (engineering, surveying), but exclusive of species monitoring.

Routine operation and maintenance (O&M) activities for the erosion control structures are authorized by the FDEP and USACE permit, including repair and maintenance of the T-Groins. Prior to commencement of an O&M activity, a Notice to Proceed (NTP) from FDEP is required. Conditions for the NTP include providing plans and specifications and hosting a pre-construction conference. If the work is conducted during shorebird or sea turtle nesting season, multiple additional conditions will have to be complied with.

## **RECOMMENDATIONS**

Considering the age of the T-Groins, minor amount of damage recorded by the inspection, and continued successful beach fill performance along Hideaway Beach despite the significant hurricanes that have impacted the Project Area over the past several years, at this time, the recommendation is to continue to monitor the structures. One of the signs on T-Groin 12 is upside down and should be fixed.

The District may consider implementing the minor repairs to T-Groin 10 through T-Groin 16 due to their direct exposure in conjunction with a future O&M project on Hideaway Beach to take advantage of a mobilized contractor to realize cost savings and reduce impacts to the beach.

The current permits are active through December 2027. If the District elects to implement the repairs, it is highly recommended this work be done outside of both sea turtle and shorebird nesting seasons to avoid the additional costs and need for monitoring and special protection plans associated thereto.

## **APPENDIX A: T-GROIN PHOTOGRAPHS**

**SEPTEMBER 16, 2025**



**Photo 1:** T-Groin 1 facing Northeast



**Photo 2:** T-Groin 1 facing Southwest





**Photo 3:** T-Groin 2 facing Northeast



**Photo 4:** T-Groin 2 facing Southwest





**Photo 5:** T-Groin 3 facing Northeast



**Photo 6:** T-Groin 3 facing Southwest





**Photo 7:** T-Groin 4 facing Northeast



**Photo 8:** T-Groin 4 facing Southwest





**Photo 9:** T-Groin 5 facing Northeast



**Photo 10:** T-Groin 5 facing Southwest





**Photo 11:** T-Groin 6 facing Northeast



**Photo 12:** T-Groin 6 facing Southwest





**Photo 13:** T-Groin 7 facing Northeast



**Photo 14:** T-Groin 7 facing Southwest





**Photo 15:** T-Groin 8 facing Northeast



**Photo 16:** T-Groin 8 facing Southwest





**Photo 17:** T-Groin 9 facing Northeast



**Photo 18:** T-Groin 9 facing Southwest





**Photo 19:** T-Groin 10 facing Northeast



**Photo 20:** T-Groin 10 facing Southwest





**Photo 21:** T-Groin 11 facing Northeast



**Photo 22:** T-Groin 11 facing Southwest





**Photo 23:** T-Groin 12 facing Northeast



**Photo 24:** T-Groin 12 facing Southwest





**Photo 25:** T-Groin 13 facing Northeast



**Photo 25:** T-Groin 13 facing Southwest





**Photo 26:** T-Groin 14 facing Northeast

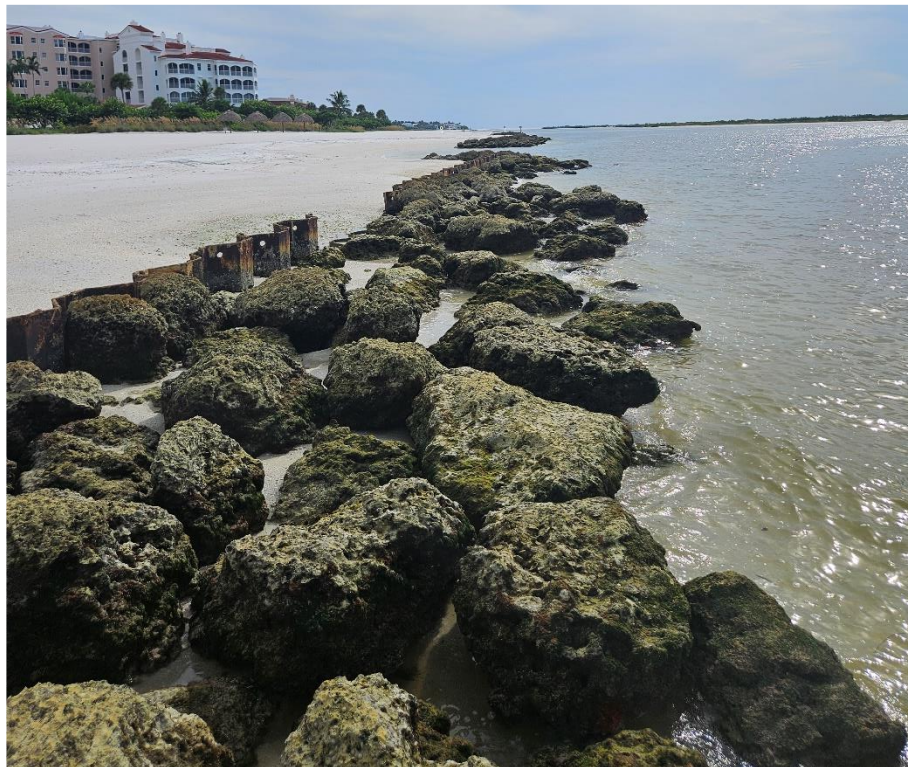


**Photo 27:** T-Groin 14 facing Southwest





**Photo 28:** T-Groin 15 facing Northeast

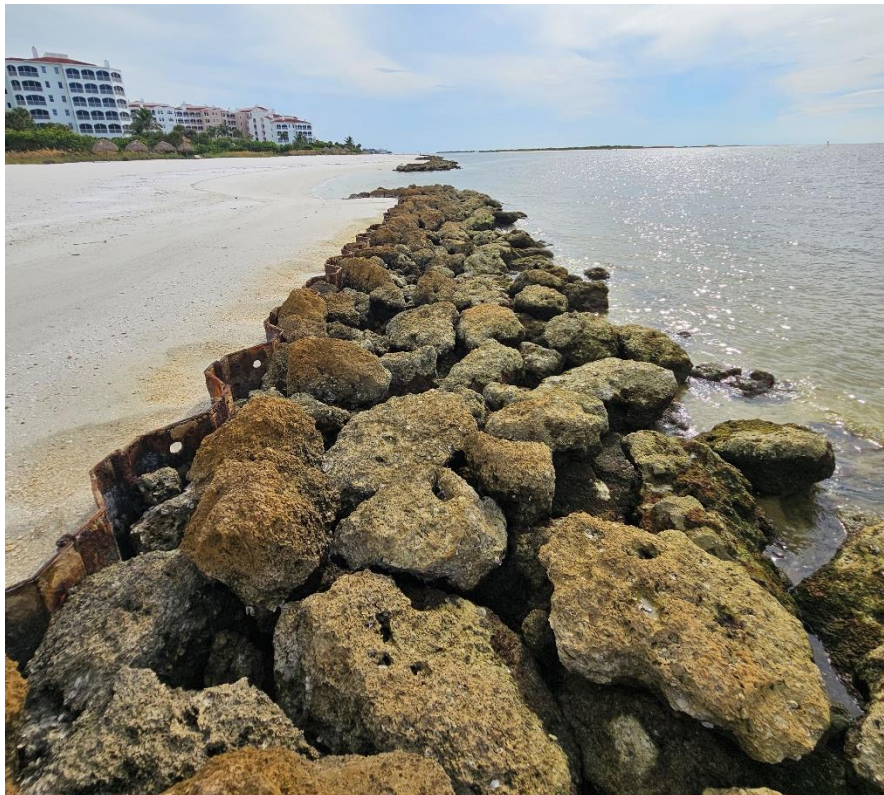


**Photo 29:** T-Groin 15 facing Southwest





**Photo 30:** T-Groin 16 facing Northeast

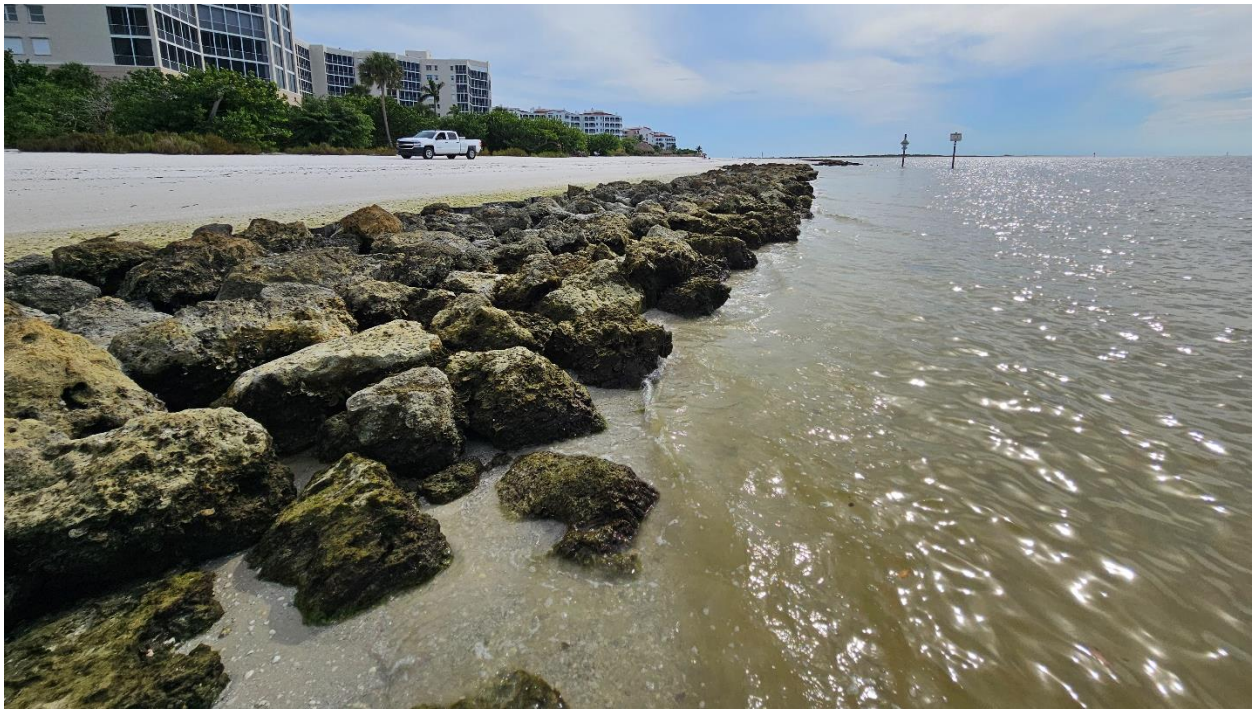


**Photo 31:** T-Groin 16 facing Southwest





**Photo 32:** T-Groin 17 facing Northeast



**Photo 33:** T-Groin 17 facing Southwest





**Photo 34:** T-Groin 18 facing Northeast



**Photo 35:** T-Groin 18 facing Southwest





**Photo 36:** T-Groin 19 facing Northeast



**Photo 37:** T-Groin 19 facing Southwest

## **APPENDIX B: T-GROIN CROSS-SECTIONS**

**SEPTEMBER 16, 2025**



# HIDEAWAY BEACH T-GROIN INSPECTION

PREPARED FOR:  
CITY OF MARCO ISLAND



**LOCATION MAP**

N.T.S.

## INDEX

1. COVER SHEET
2. PLAN VIEW
- 3-21. T-GROINS 1-19

## NOTES

1. TOPOGRAPHIC SURVEY COMPLETED BY COASTAL ENGINEERING CONSULTANTS, INC., ON 9/16/2025.
2. PLANE COORDINATES ARE BASED ON THE TRANSVERSE MERCATOR PROJECTION FOR THE WEST ZONE OF FLORIDA AND REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD 83).
3. ELEVATIONS SHOWN HEREON ARE IN FEET AND TENTHS AND REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 1988). REFERENCE BENCHMARK: 872 4991D.
4. TIDAL REDUCTIONS WERE OBTAINED UTILIZING REAL-TIME KINEMATIC GPS AND REFERENCED TO NAVD88.
5. SURVEY ACCURACY STANDARDS, QUALITY CONTROL, AND QUALITY ASSURANCE REQUIREMENTS WERE FOLLOWED DURING THIS SURVEY IN ACCORDANCE WITH USACE EM 1110-2-1003, HYDROGRAPHIC SURVEYING MANUAL, 11/30/2013.
6. INFORMATION SHOWN HEREON REFLECTS CONDITIONS AS THEY EXISTED ON THE SURVEY DATE SHOWN AND CAN ONLY BE CONSIDERED INDICATIVE OF CONDITIONS AT THAT TIME.
7. AERIAL PHOTOGRAPHY OBTAINED FROM KUCERA INTERNATIONAL, DATED 8/26/2025.

## PUBLISHED TIDAL INFORMATION

TIDAL DATUMS AT MARCO, BIG MARCO RIVER  
ARE BASED ON FLORIDA 872 4991

TIME PERIOD	= JULY 1989 - JULY 1989
TIDAL EPOCH	= 1983 - 2001
CONTROL TIDE STATION	= NAPLES, GULF OF MEXICO (872 5110)

ELEVATIONS OF TIDAL DATUMS ARE REFERENCED IN  
NAVD 1988.

MEAN HIGHER HIGH WATER (MHHW)	= +0.65 FT NAVD
MEAN HIGH WATER (MHW)	= +0.43 FT NAVD
MEAN LOW WATER (MLW)	= -1.62 FT NAVD
MEAN LOWER LOW WATER (MLLW)	= -2.13 FT NAVD

SHEET 1  
FILE NO. 25320-T Groins

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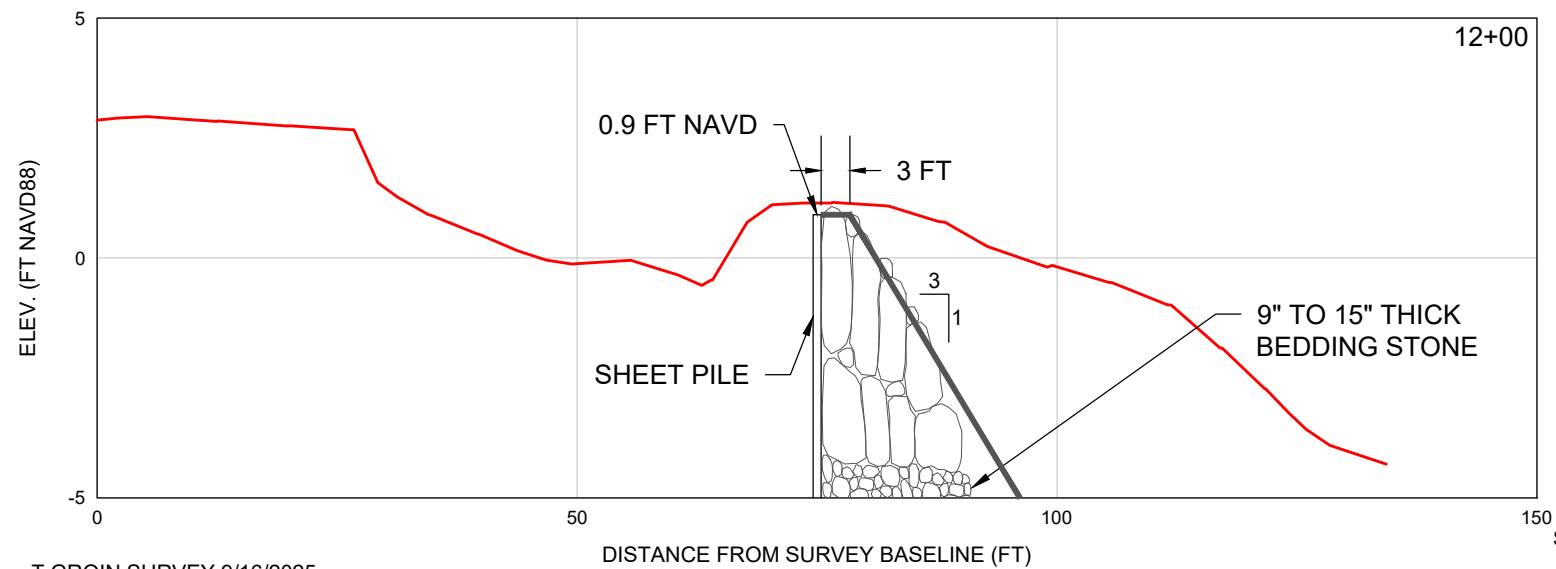
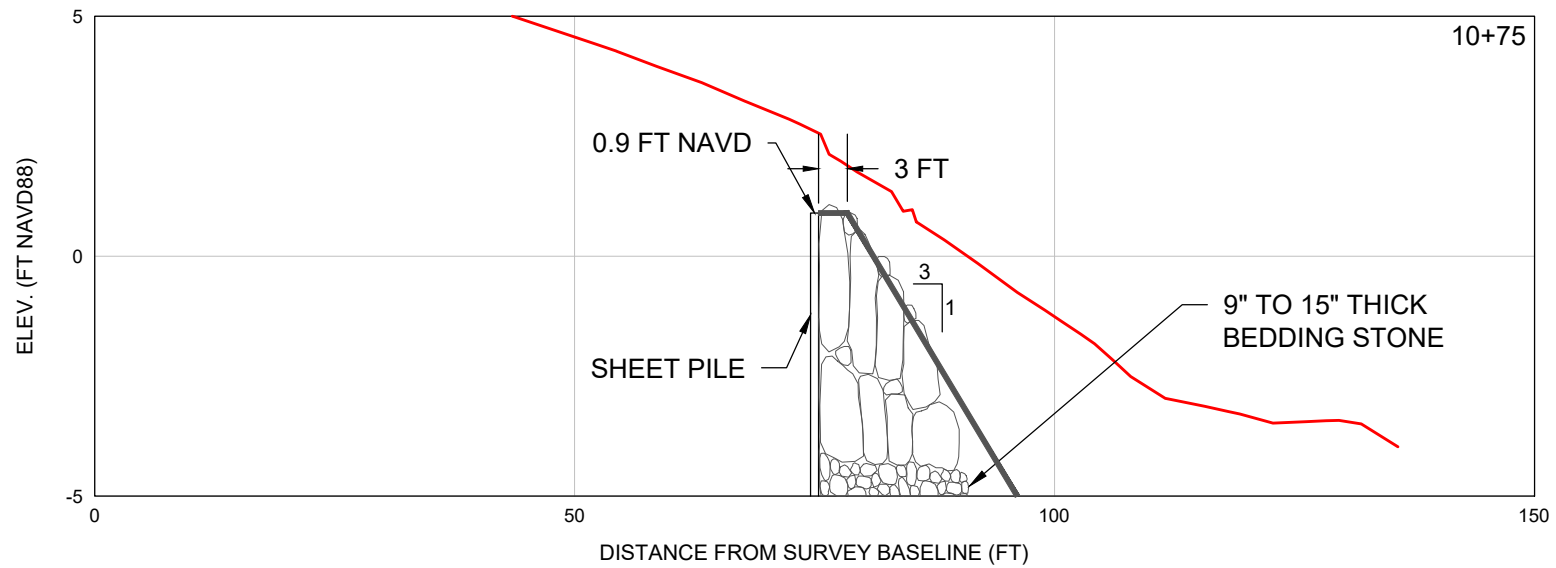
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<div><div>SHEET 2</div><div>FILE NO.: 25320 T Groins</div></div> <div><div><div><div>COASTAL ENGINEERING CONSULTANTS INC.</div><div>Serving Florida Since 1977</div></div><div><div>28421 BONITA CROSSINGS BLVD BONITA SPRINGS, FLORIDA 34135</div><div>PHONE: (239)643-2324 FAX: (239)643-1143 www.coastalengineering.com E-Mail: info@ceciff.com</div></div></div></div> <tr><td colspan="2">CLIENT: CITY OF MARCO ISLAND</td><td colspan="2">DATE: 10/7/2025</td><td colspan="2">SCALE: AS SHOWN</td><td colspan="2"></td></tr> <tr><td colspan="2">TITLE: PLAN VIEW</td><td colspan="2">DRAWN: KMG</td><td colspan="2">F.B.</td><td colspan="2"></td></tr> <tr><td colspan="2"></td><td colspan="2">CHECKED: MTP</td><td colspan="2">PG.</td><td colspan="2"></td></tr> <tr><td colspan="2"></td><td colspan="2">SEC. TWP. RNG.</td><td colspan="2"></td><td colspan="2"></td></tr> <tr><td colspan="2"></td><td colspan="2">ACAD NO. 25320-T Groins.dwg</td><td colspan="2"></td><td colspan="2"></td></tr> <tr><td colspan="2"></td><td colspan="2">REF. NO. 25.320</td><td colspan="2"></td><td colspan="2"></td></tr> <tr><td colspan="2"></td><td colspan="2"></td><td colspan="2">NO. DATE BY</td><td colspan="2">REVISION DESCRIPTION</td></tr>	CLIENT: CITY OF MARCO ISLAND		DATE: 10/7/2025		SCALE: AS SHOWN				TITLE: PLAN VIEW		DRAWN: KMG		F.B.						CHECKED: MTP		PG.						SEC. TWP. RNG.								ACAD NO. 25320-T Groins.dwg								REF. NO. 25.320										NO. DATE BY		REVISION DESCRIPTION	
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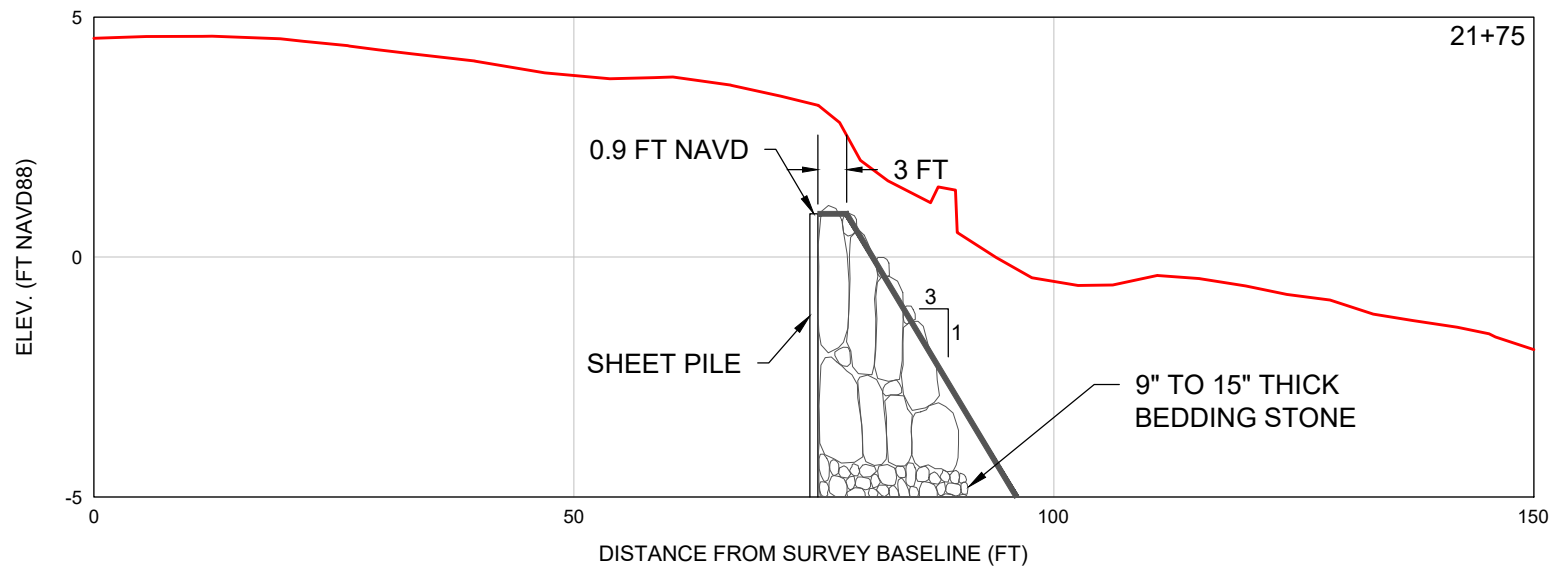
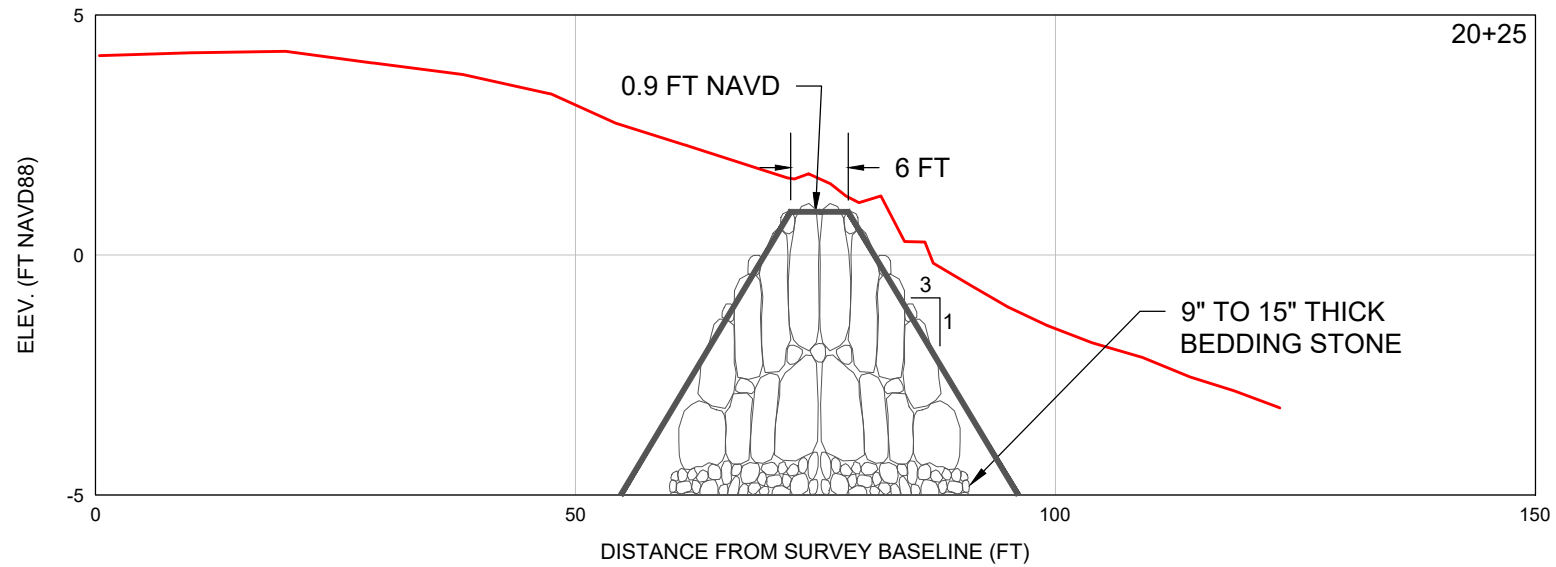
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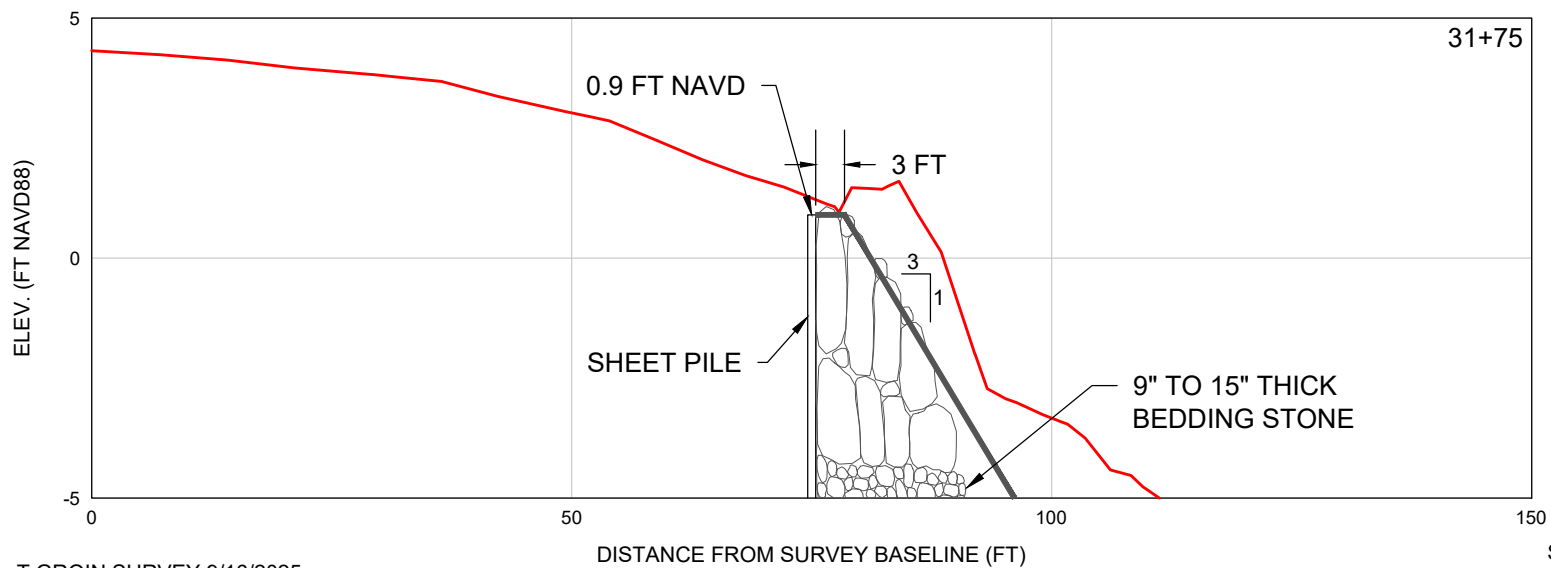
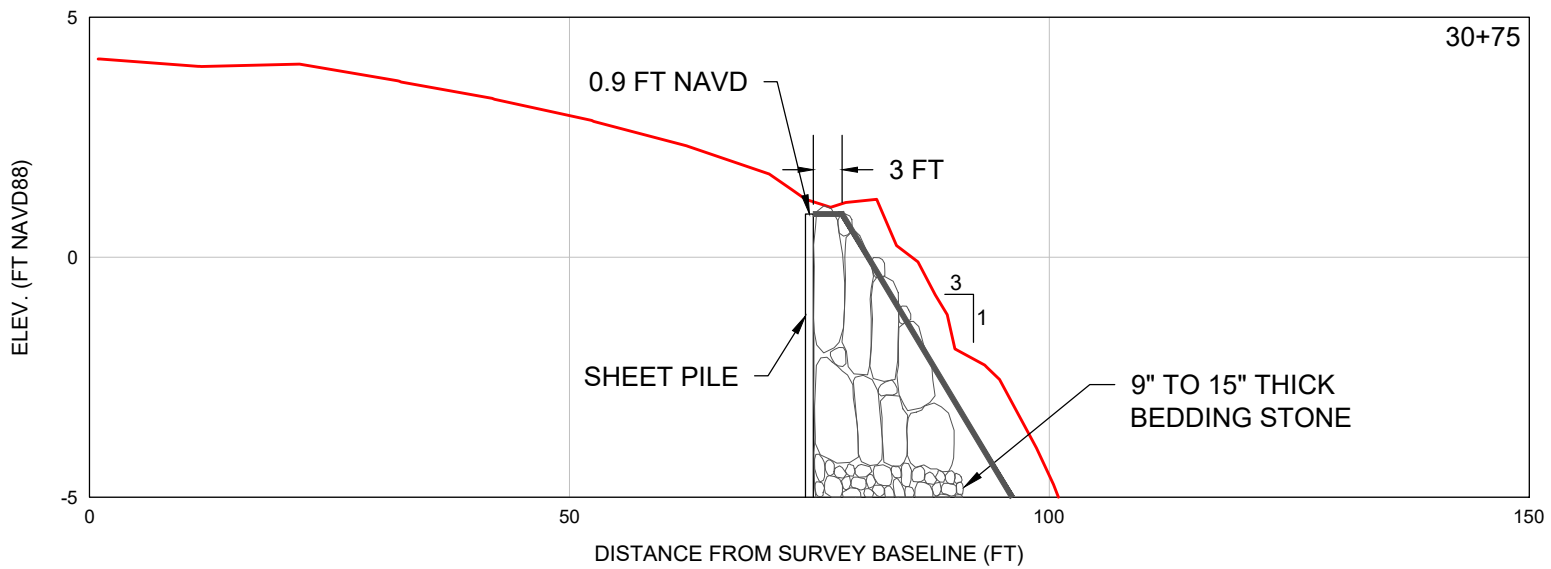
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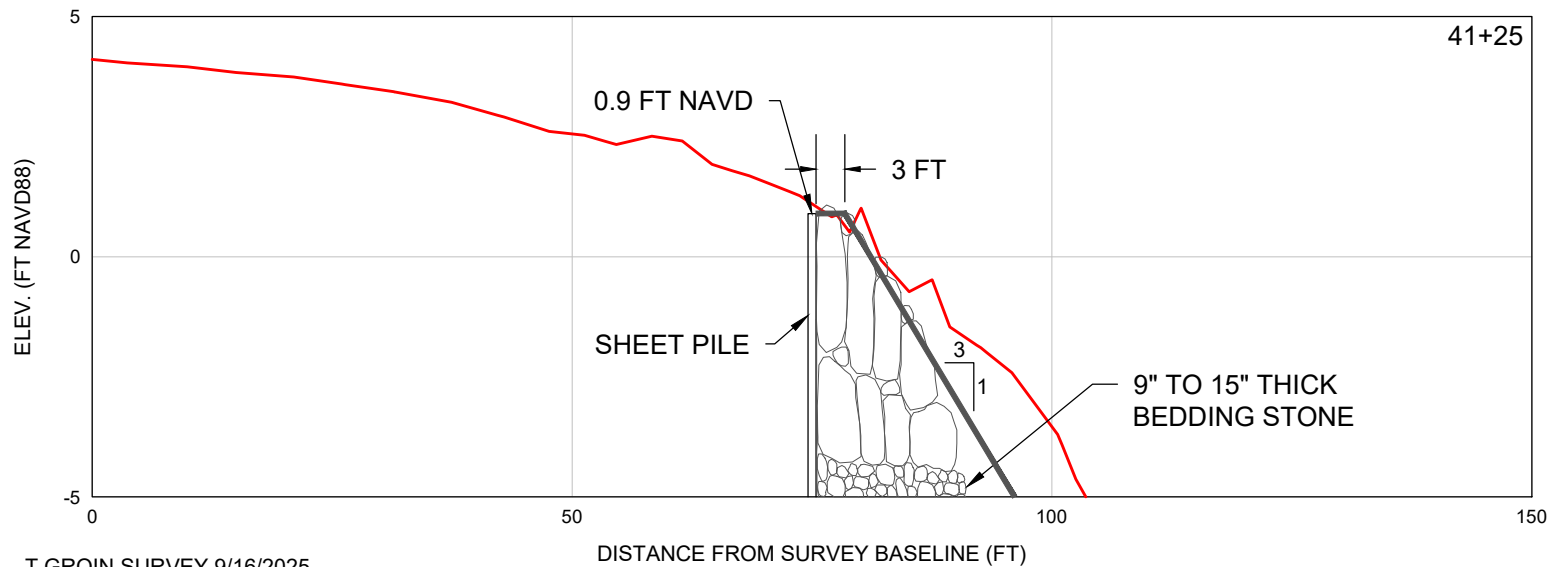
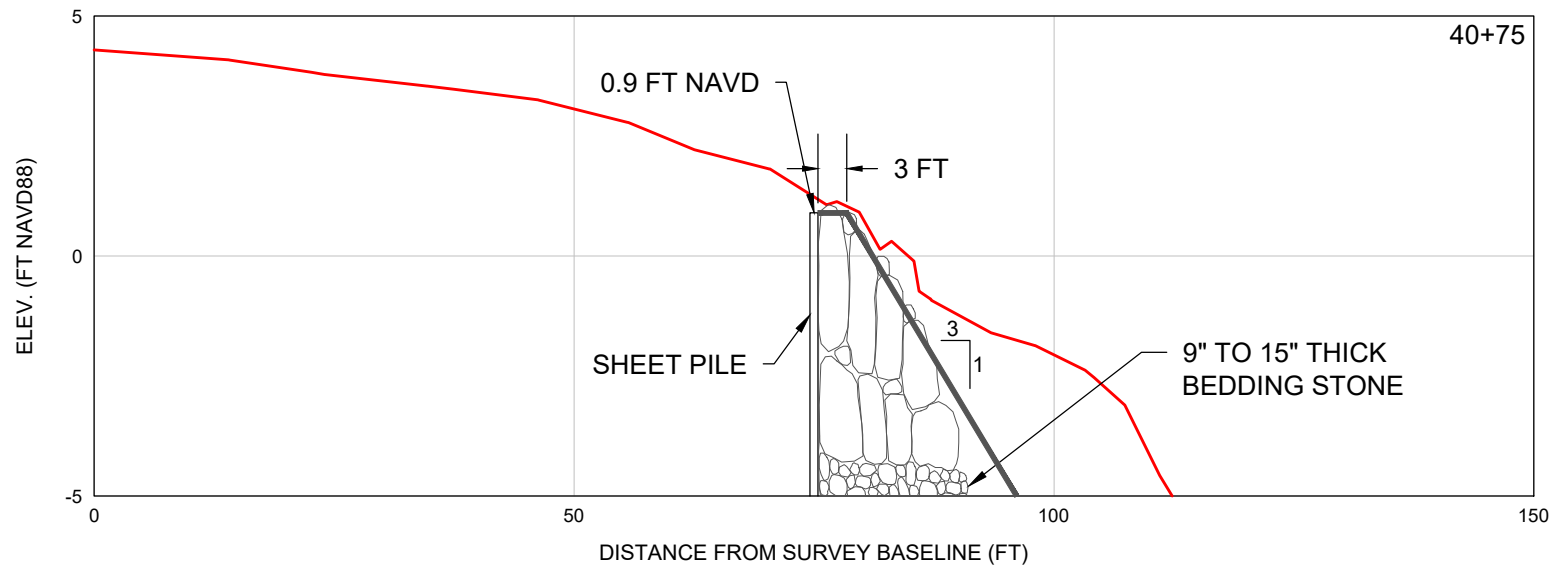
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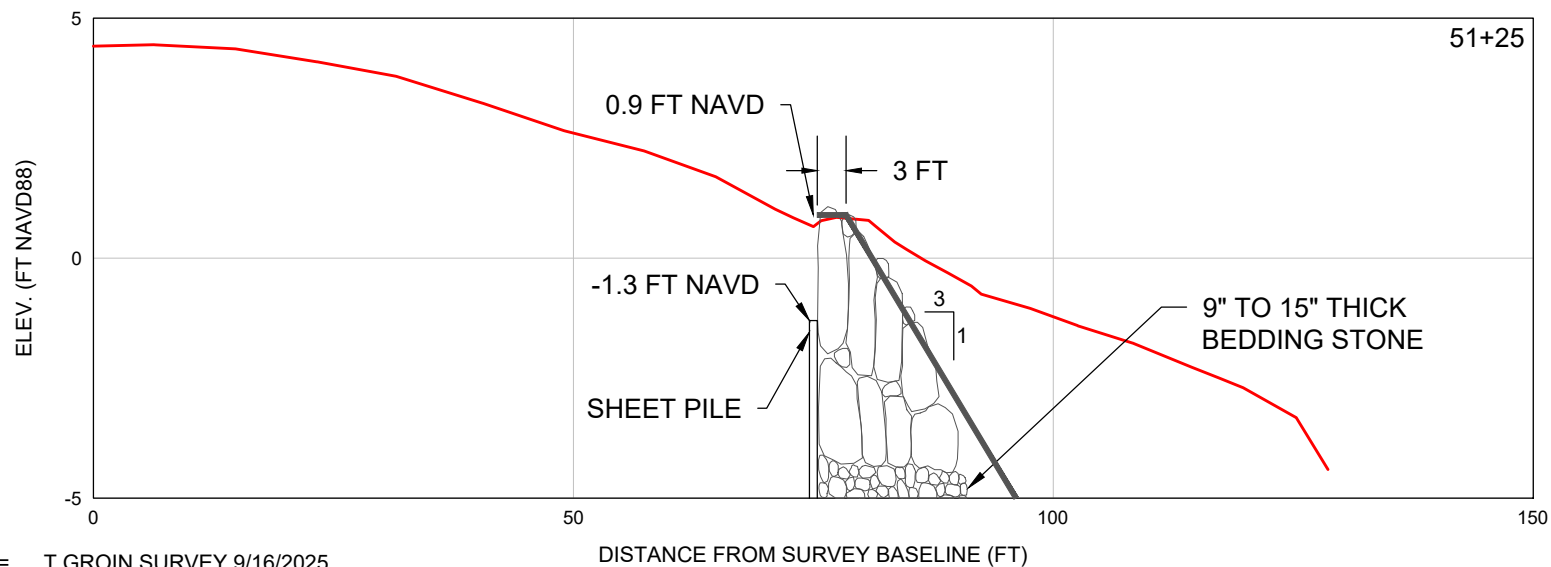
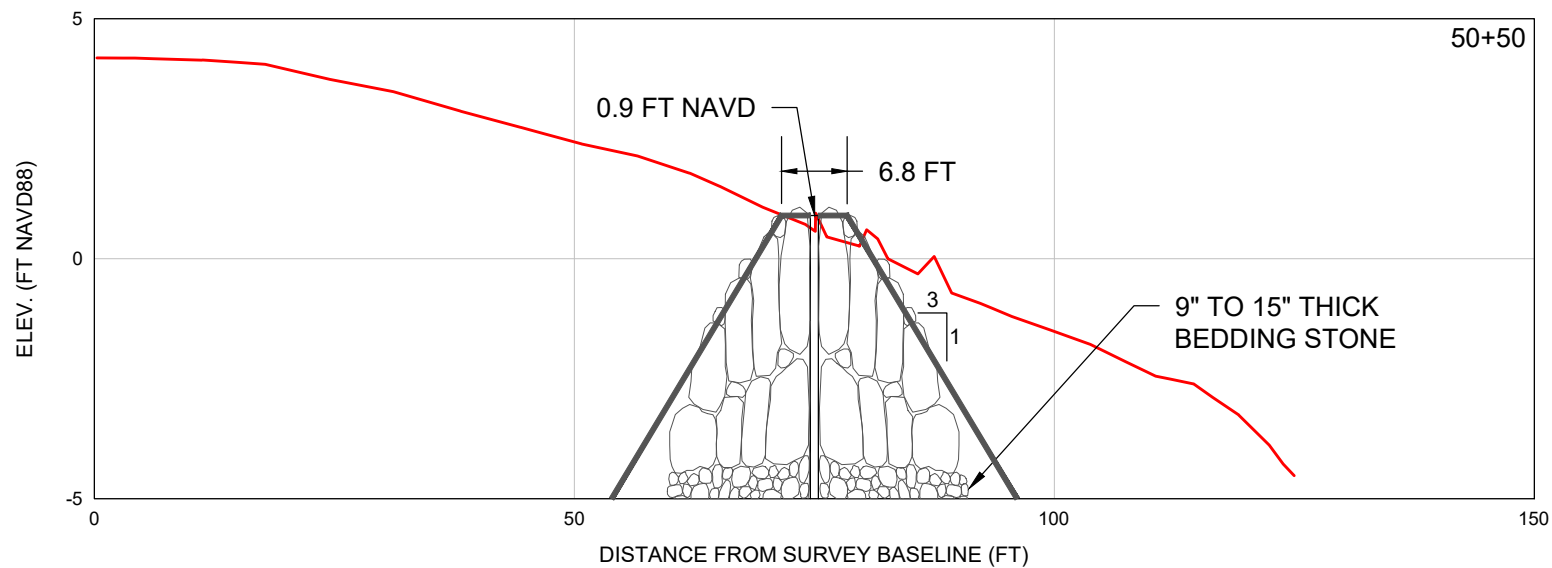
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ACAD NO.

25320-T Groins.dwg

REF. NO.

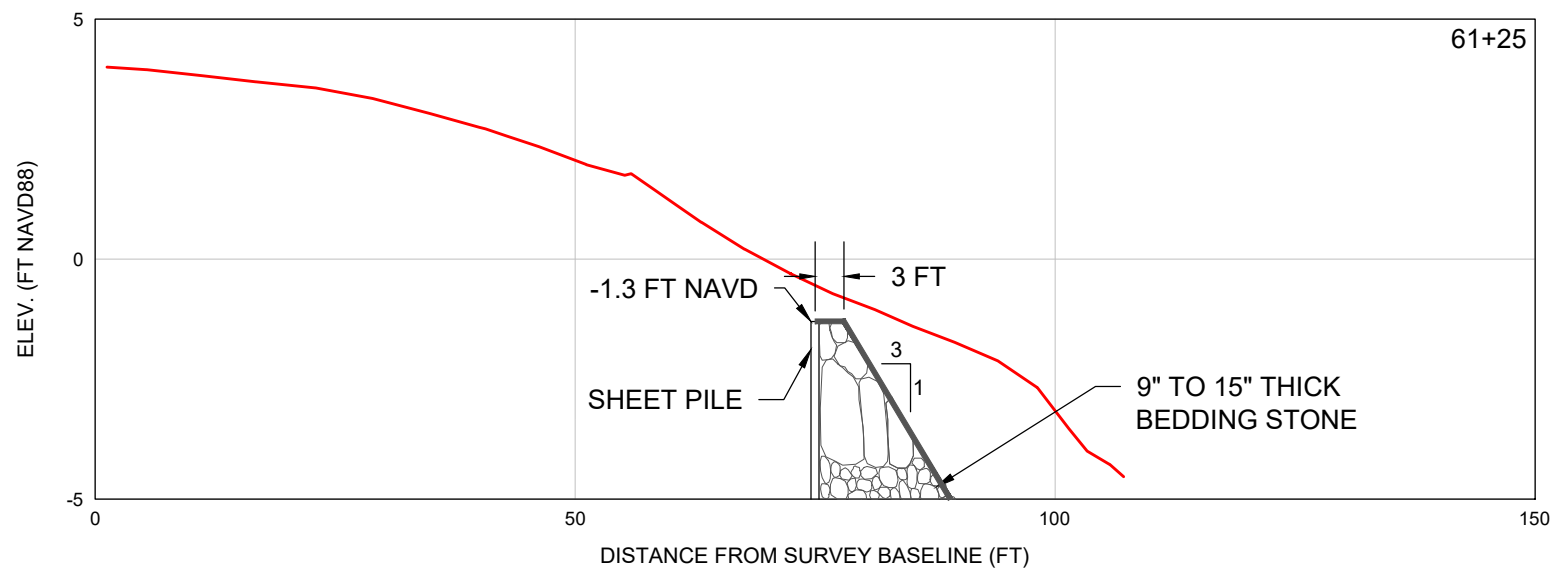
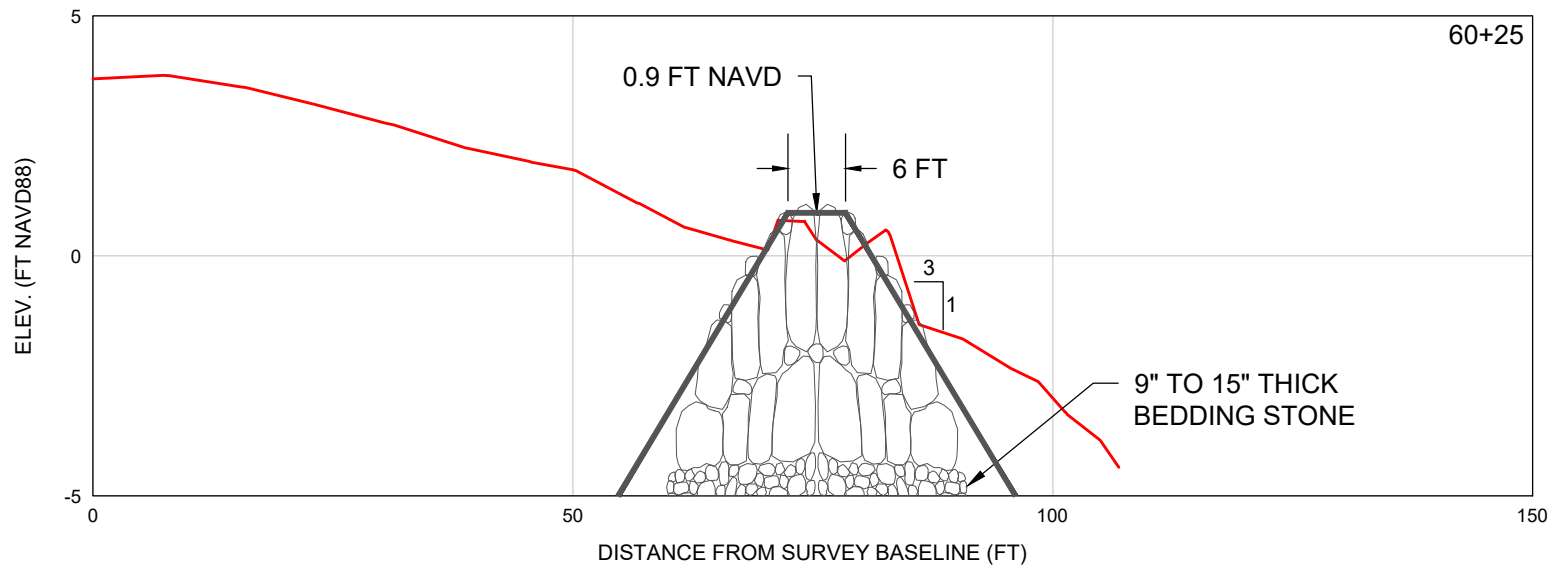
25.320

NO.

DATE

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REVISION DESCRIPTION



# LEGEND

— = T GROIN SURVEY 9/16/2025

SCALE: Horiz: 1" = 20'  
Vert: 1" = 4'

SHEET 8  
FILE NO.: 25320-T Groins

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TITLE:

T-GROIN 6

DATE:

10/7/2025

SCALE:

AS SHOWN

DRAWN:

KMG

CHECKED:

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SEC.

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ACAD NO.

25320-T Groins.dwg

REF. NO.

25.320

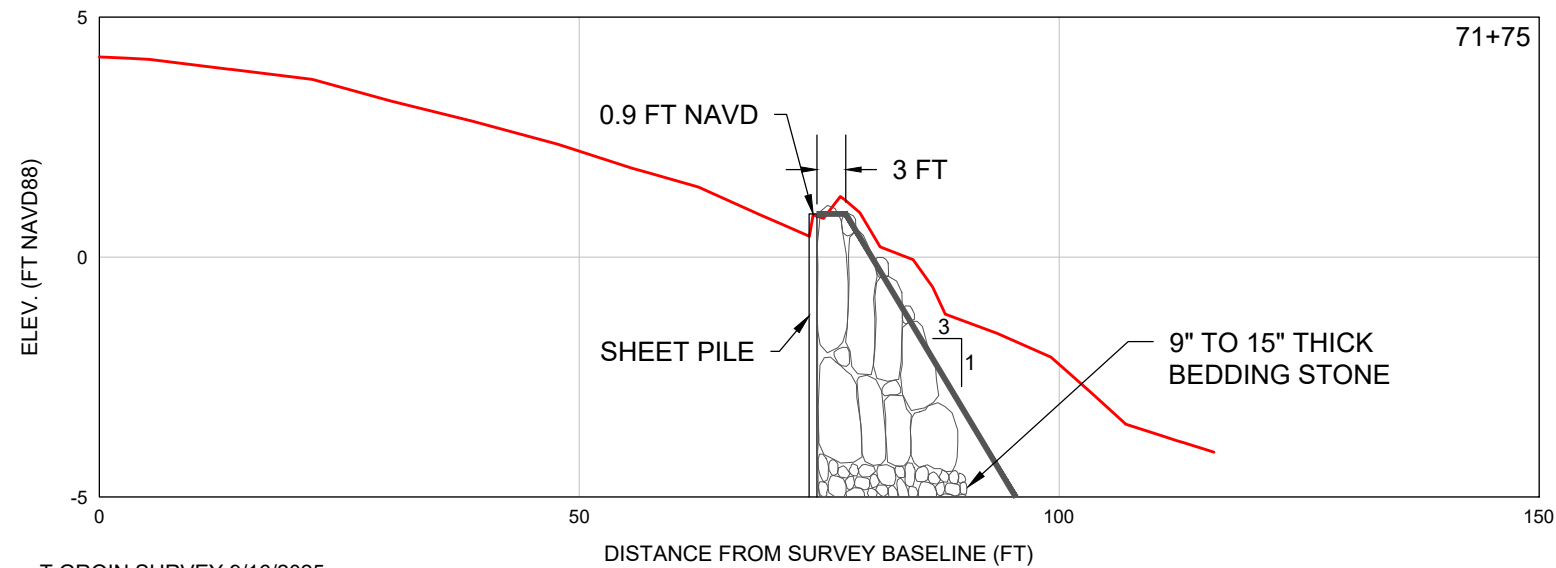
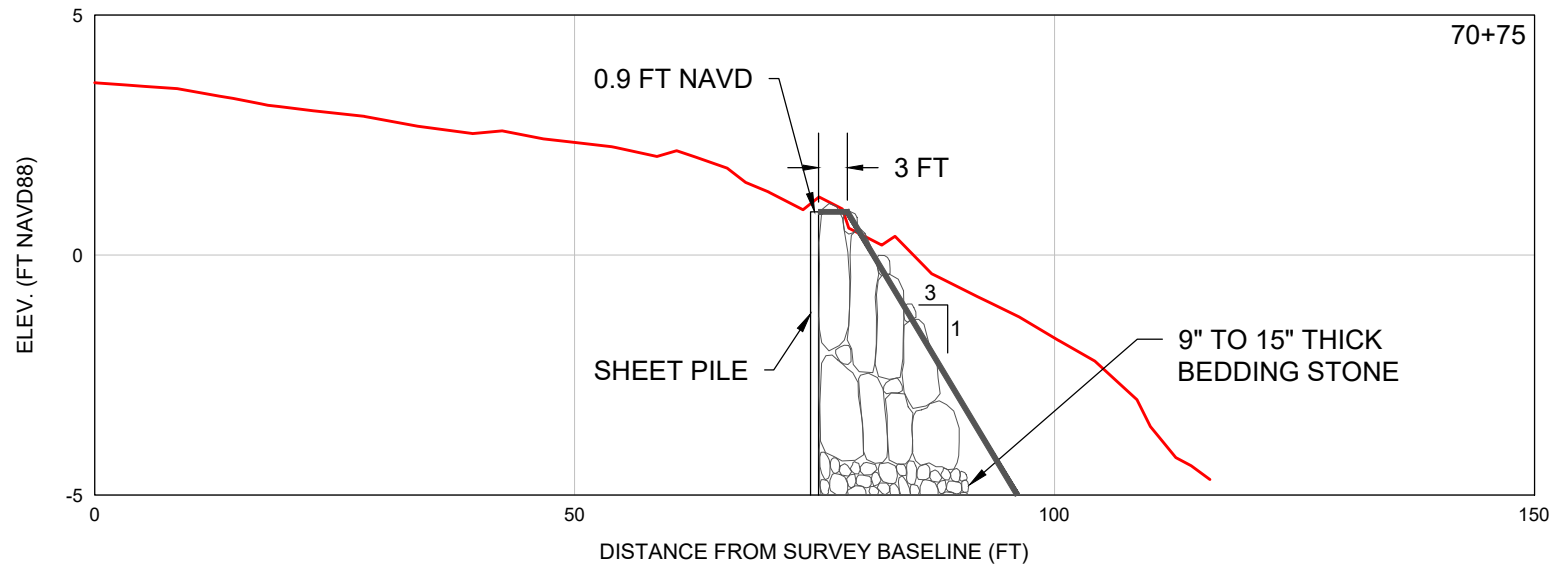
NO.

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# LEGEND

— = T GROIN SURVEY 9/16/2025

SCALE: Horiz: 1" = 20'  
Vert: 1" = 4'

SHEET 9  
FILE NO.: 25320-T Groins

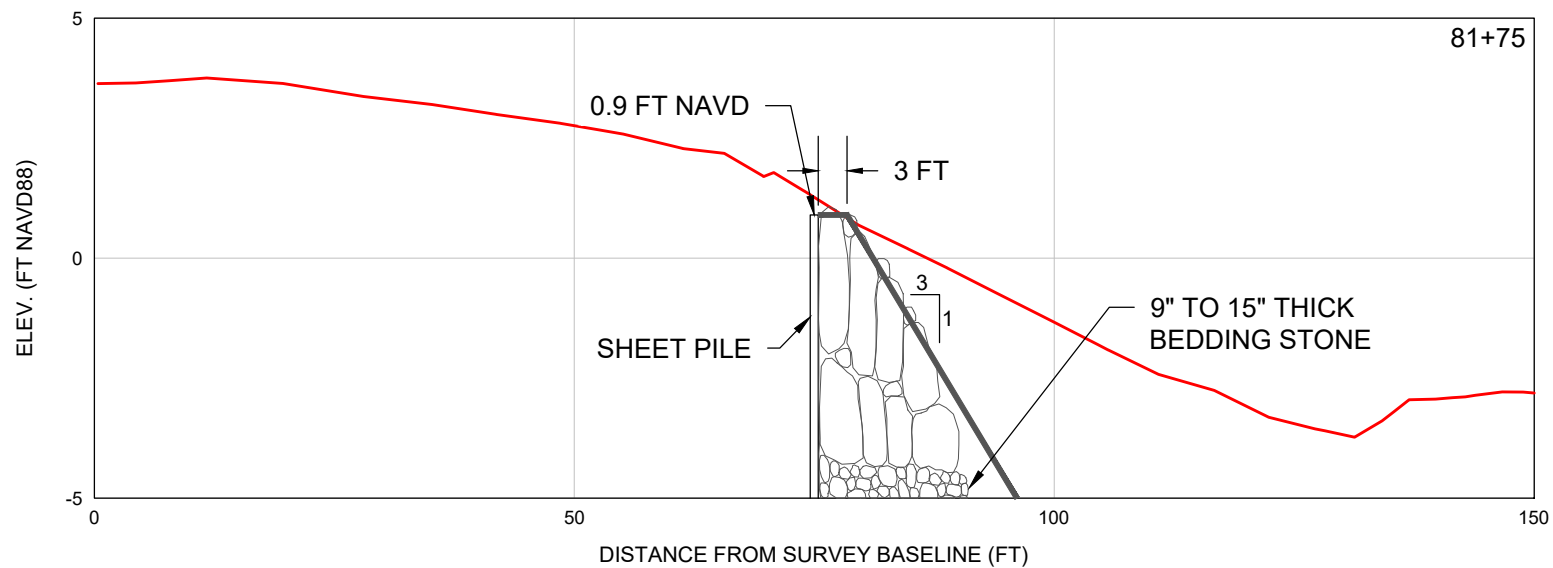
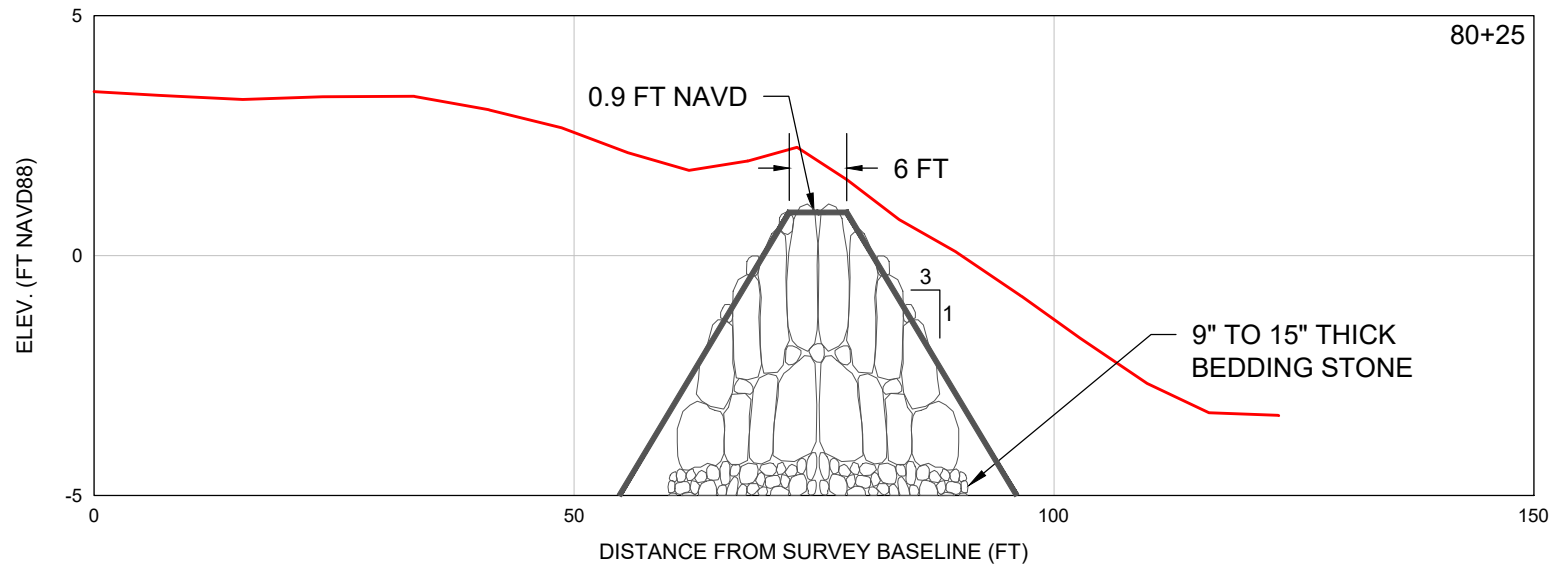
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DATE:	10/7/2025	SCALE:	AS SHOWN
DRAWN:	KMG	F.B.	
CHECKED:	MTP	PG.	
SEC.	TWP.	RNG.	
ACAD NO.	25320-T Groins.dwg		
REF. NO.	25.320	NO.	DATE
		BY	REVISION DESCRIPTION



# LEGEND

— = T GROIN SURVEY 9/16/2025

SCALE: Horiz: 1" = 20'  
Vert: 1" = 4'

SHEET 10  
FILE NO.: 25320-T Groins

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DATE:

10/7/2025

DRAWN:

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TWP.

RNG.

ACAD NO.

25320-T Groins.dwg

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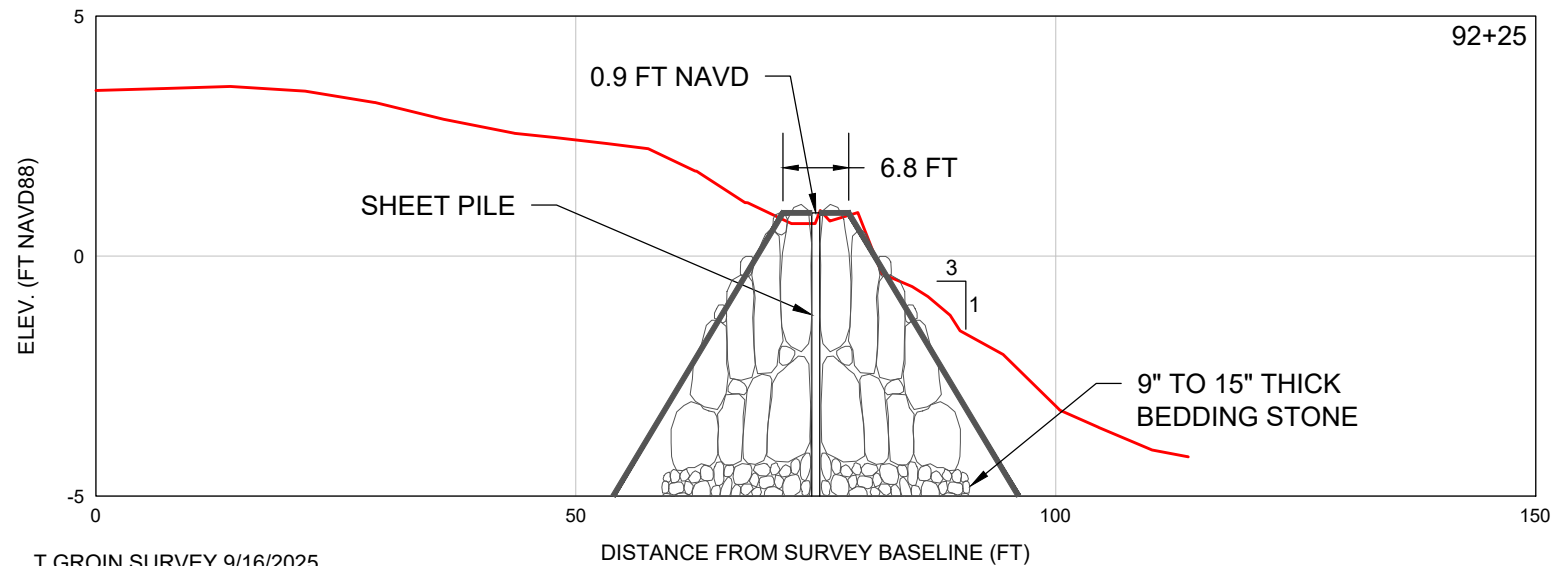
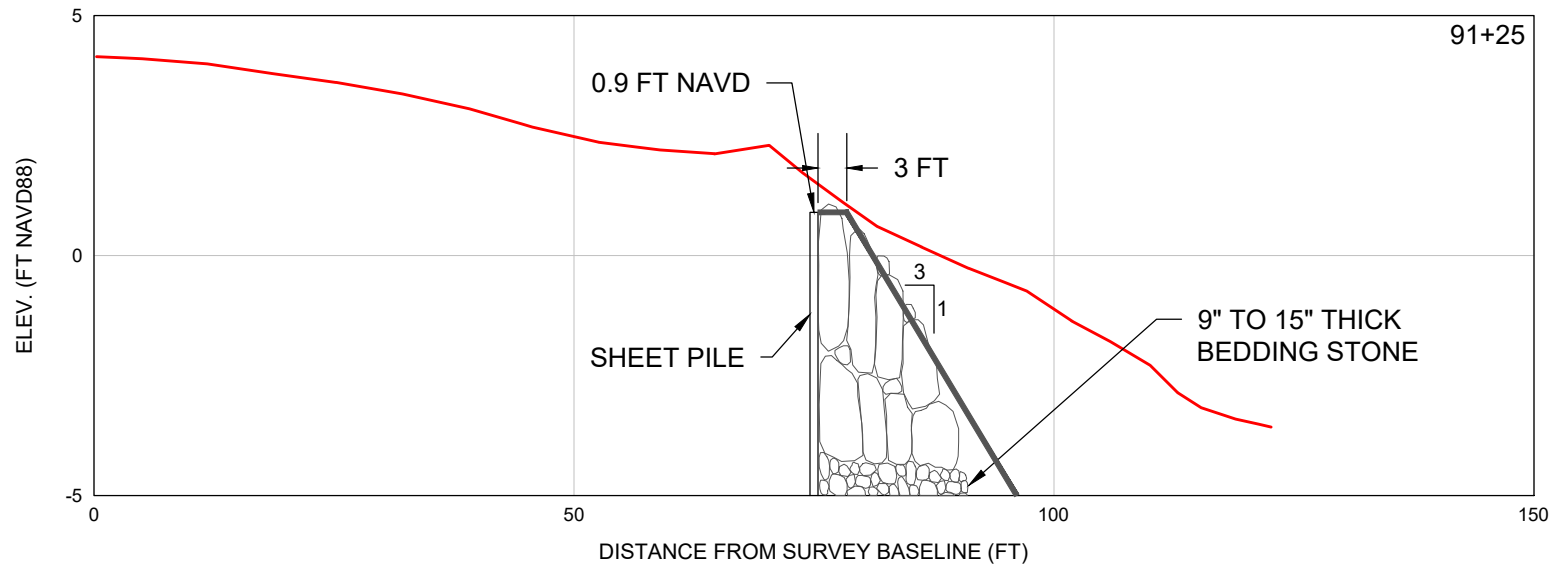
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PG.

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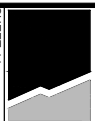


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SCALE: Horiz: 1" = 20'  
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SHEET 11  
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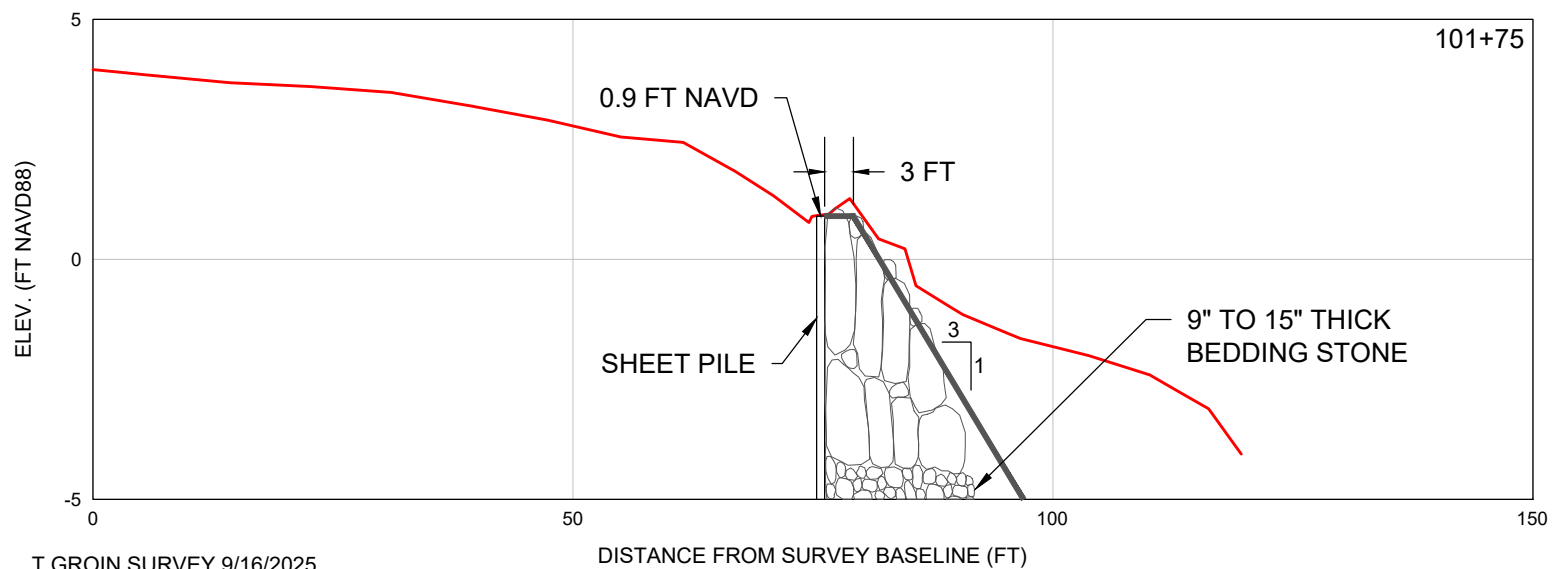
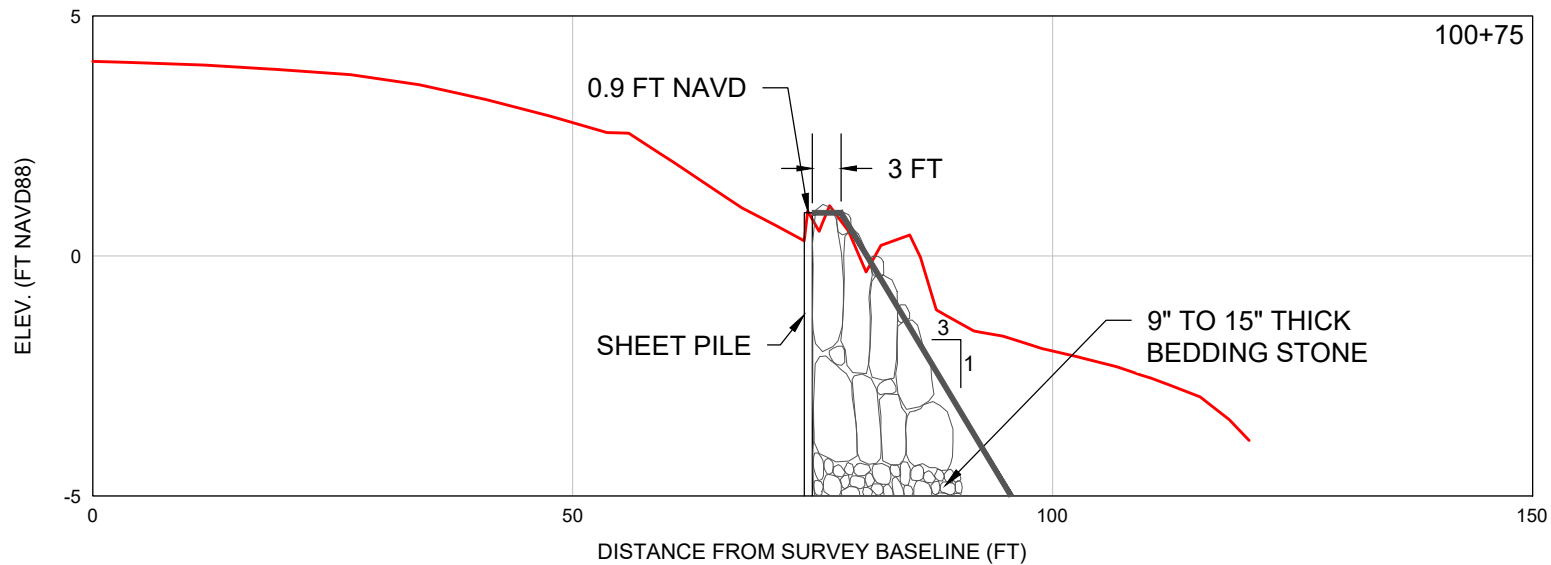
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DATE:

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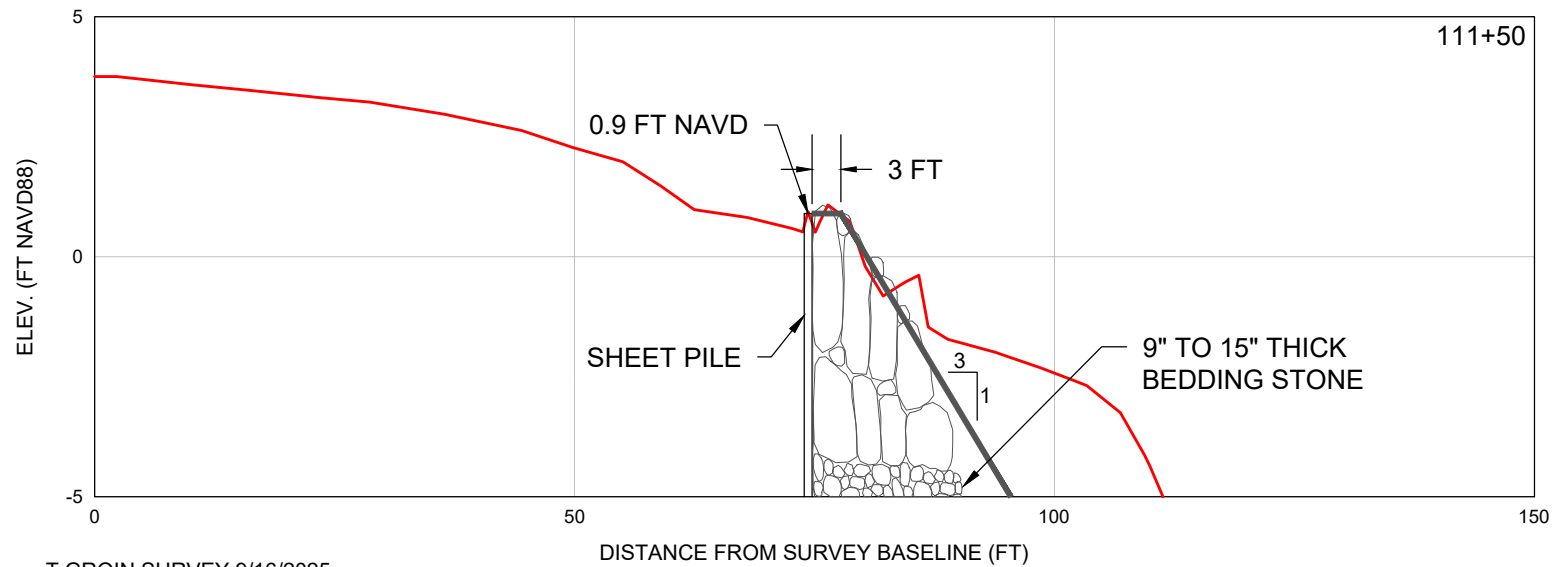
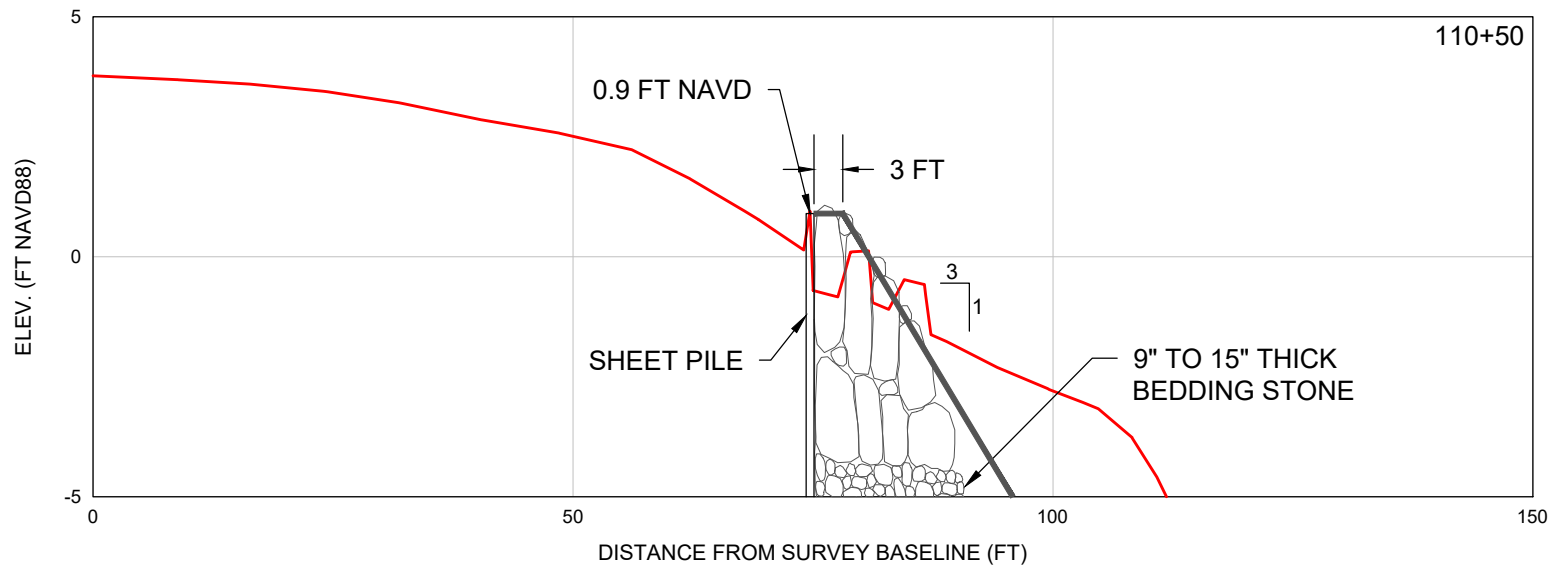
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DATE:

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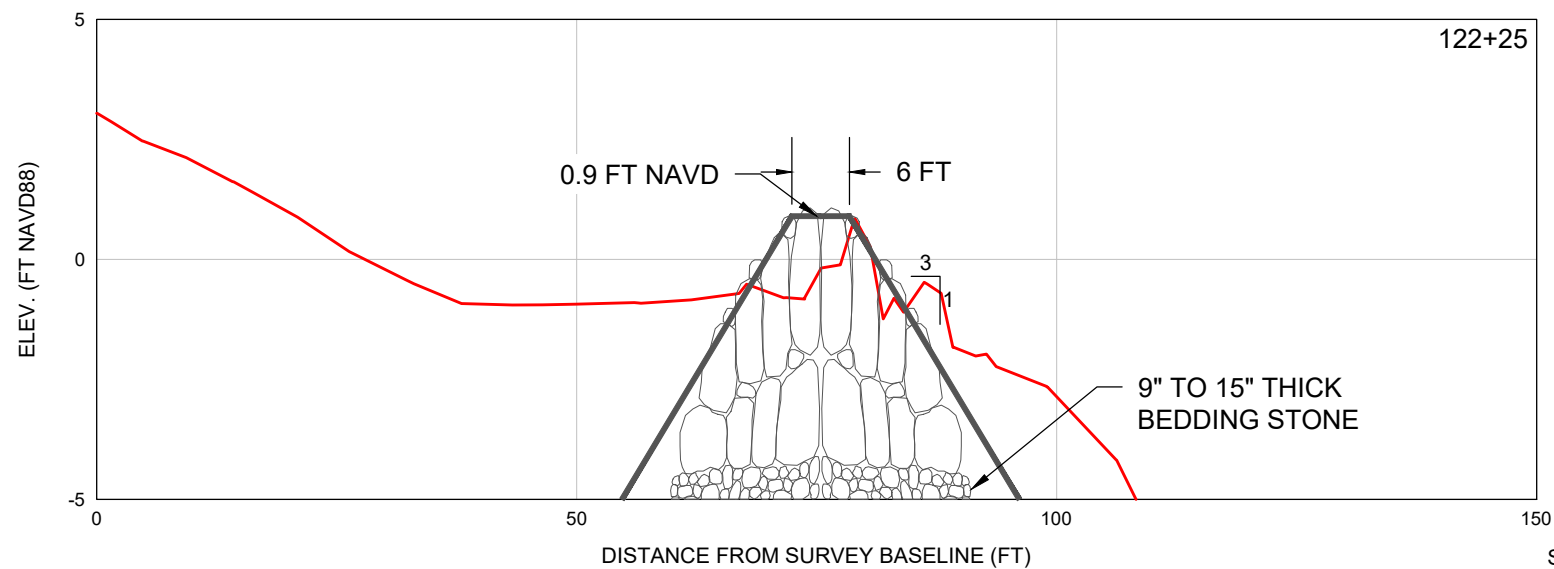
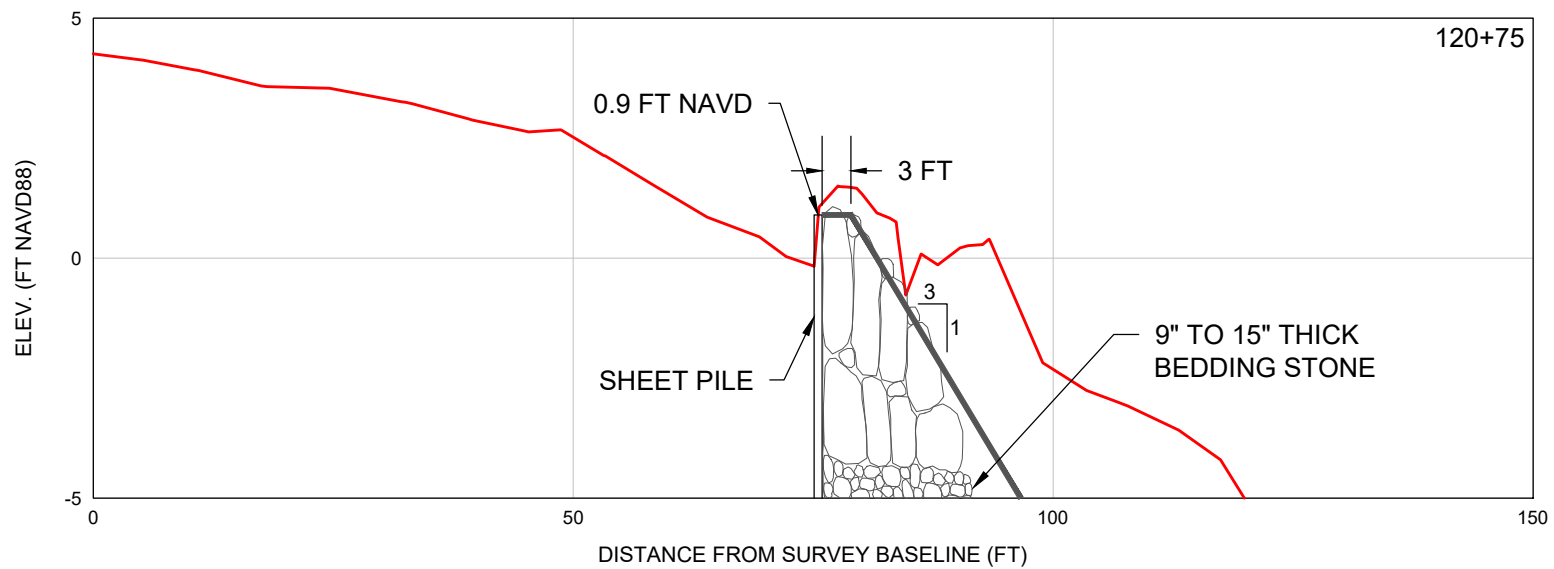
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Vert: 1" = 4'

SHEET 14  
FILE NO.: 25320-T Groins

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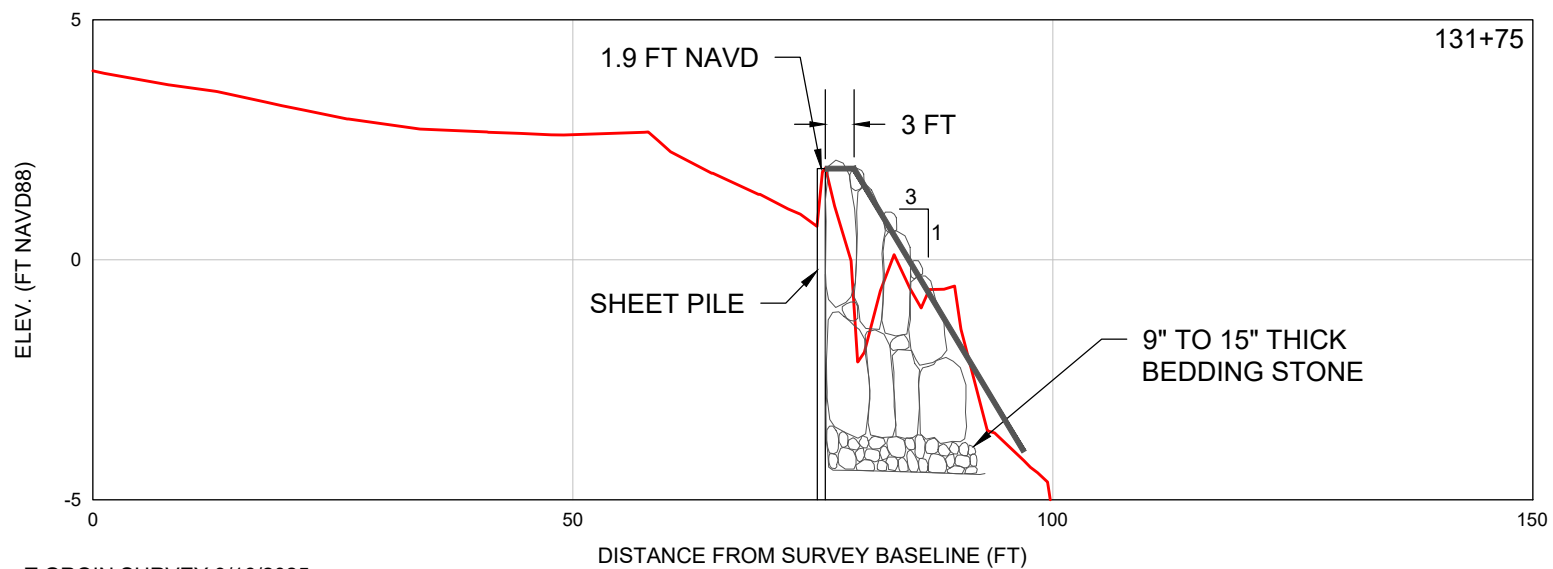
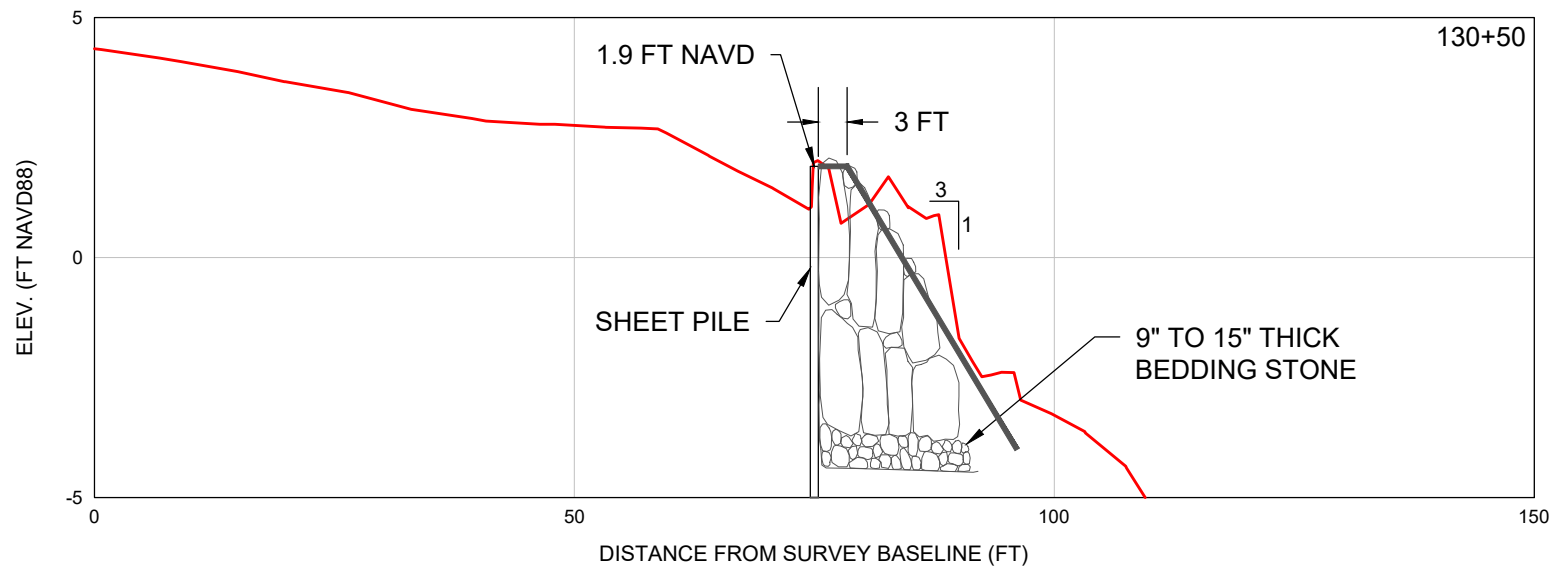
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TITLE: T-GROIN 12

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SEC. TWP. RNG.  
ACAD NO. 25320-T Groins.dwg  
REF. NO. 25.320

NO.	DATE	BY	REVISION DESCRIPTION





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Vert: 1" = 4'

SHEET 15  
FILE NO.: 25320-T Groins

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SCALE:

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DRAWN:

KMG

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SEC.

TWP.

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ACAD NO.

25320-T Groins.dwg

REF. NO.

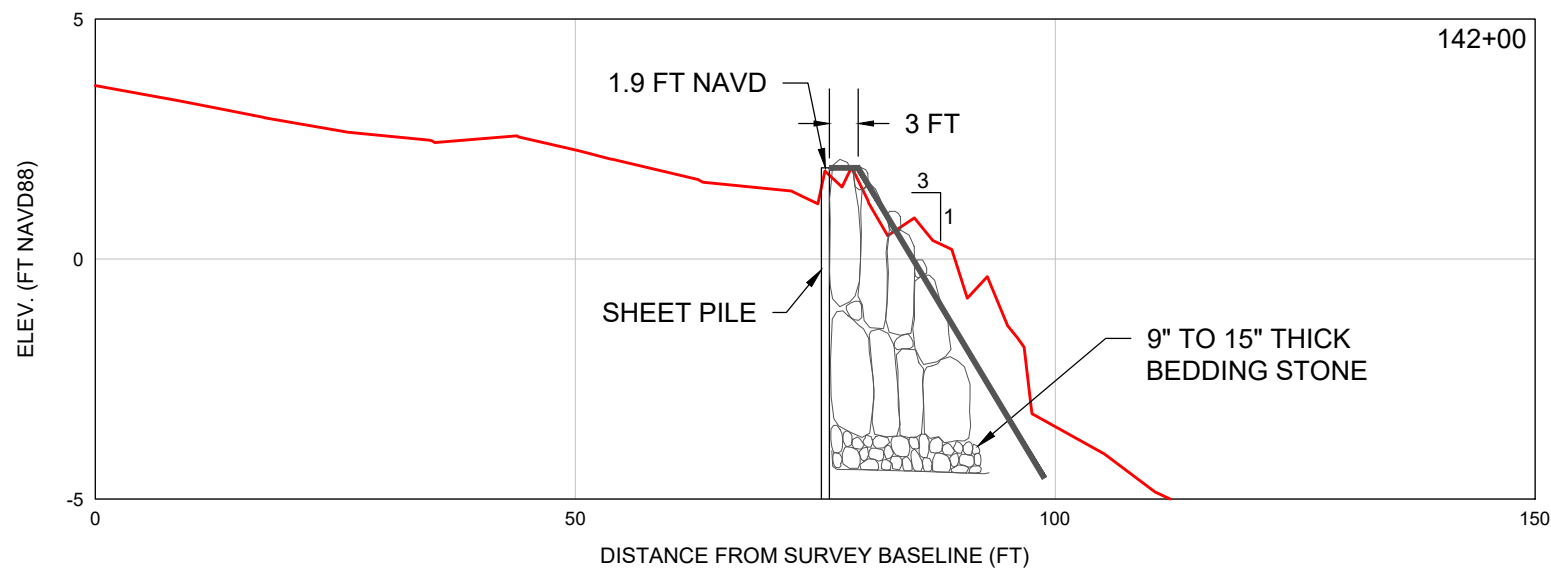
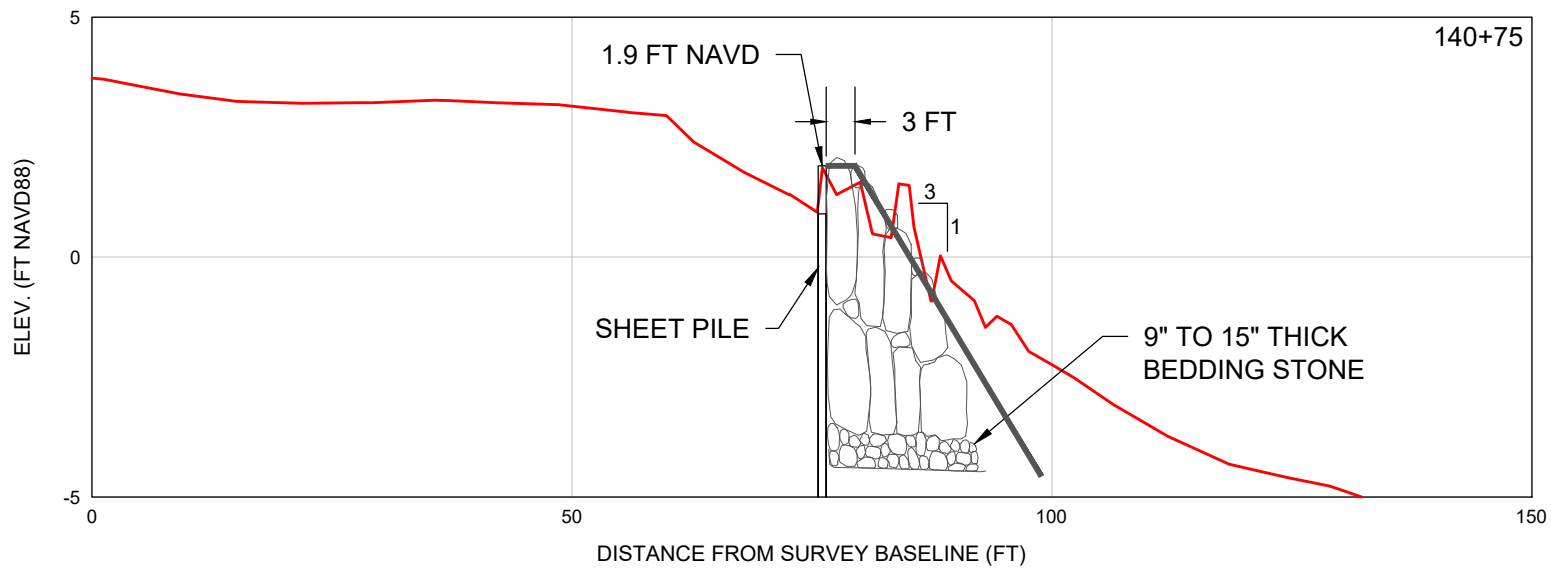
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REVISION DESCRIPTION



# LEGEND

— = T GROIN SURVEY 9/16/2025

SCALE: Horiz: 1" = 20'  
Vert: 1" = 4'

SHEET 16  
FILE NO.: 25320-T Groins

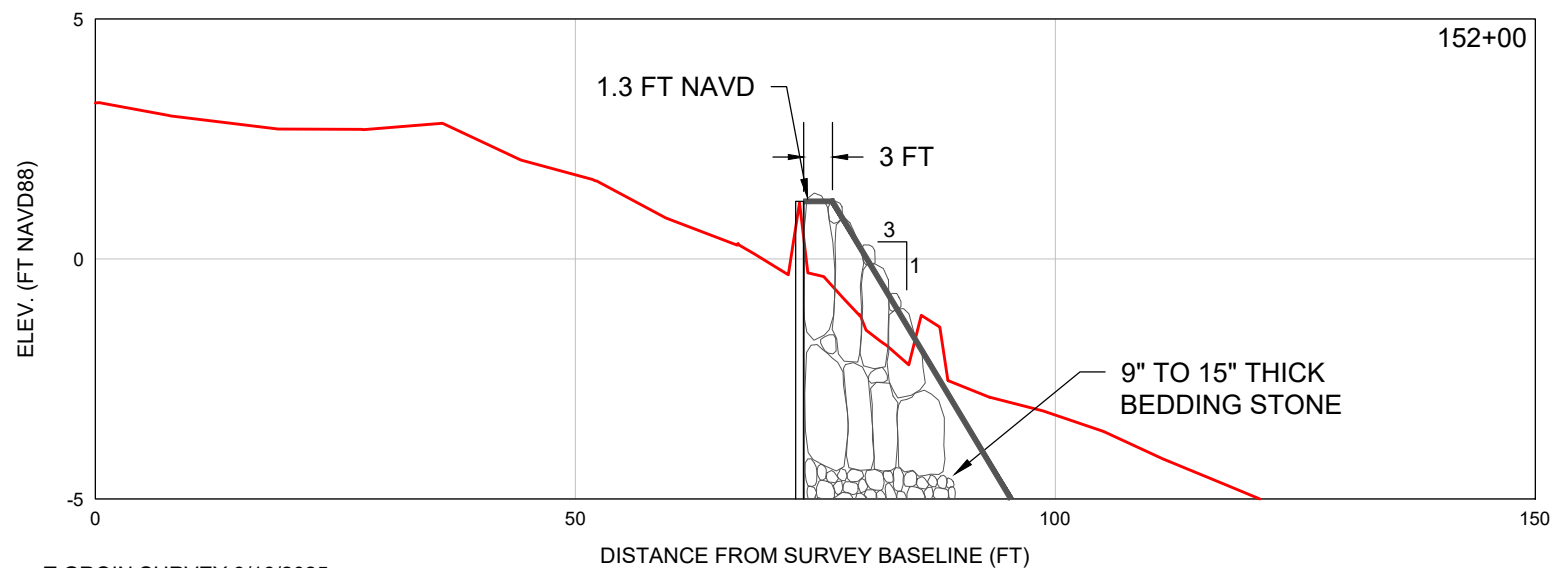
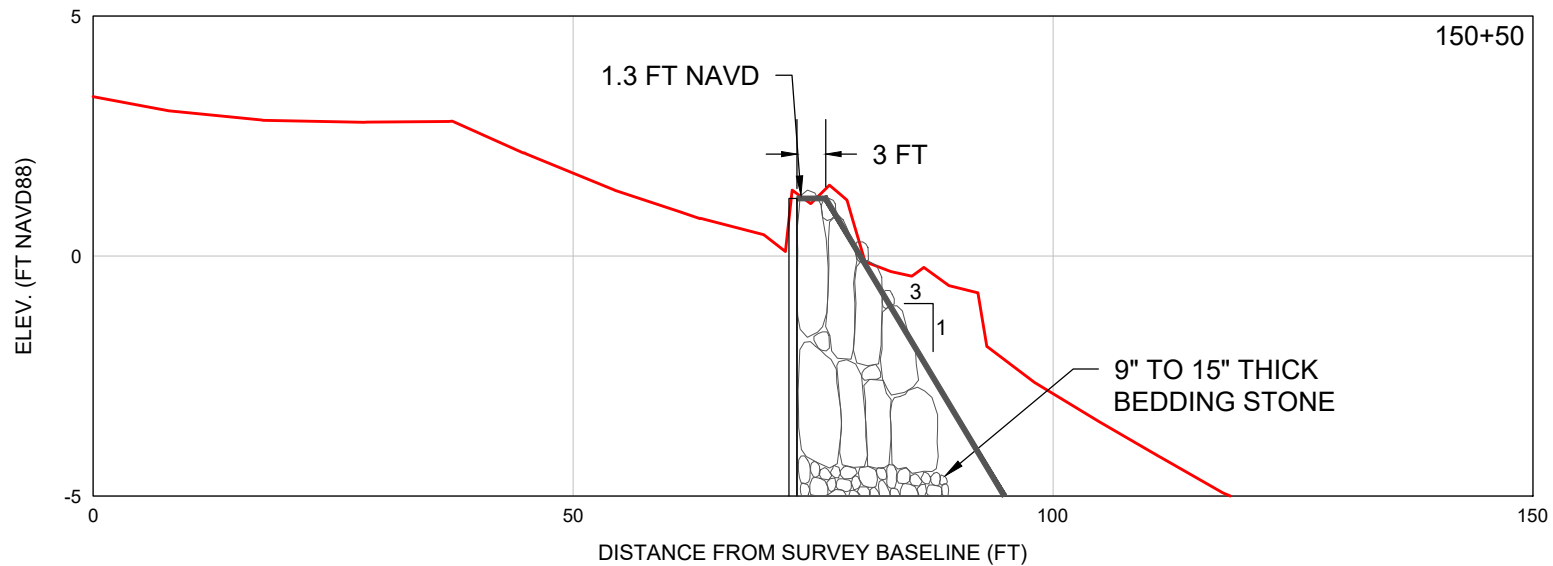
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TITLE: T-GROIN 14

DATE:	10/7/2025	SCALE:	AS SHOWN
DRAWN:	KMG	F.B.	
CHECKED:	MTP	PG.	
SEC.	TWP.	RNG.	
ACAD NO.	25320-T Groins.dwg		
REF. NO.	25.320	NO.	DATE
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# LEGEND

— = T GROIN SURVEY 9/16/2025

SCALE: Horiz: 1" = 20'  
Vert: 1" = 4'

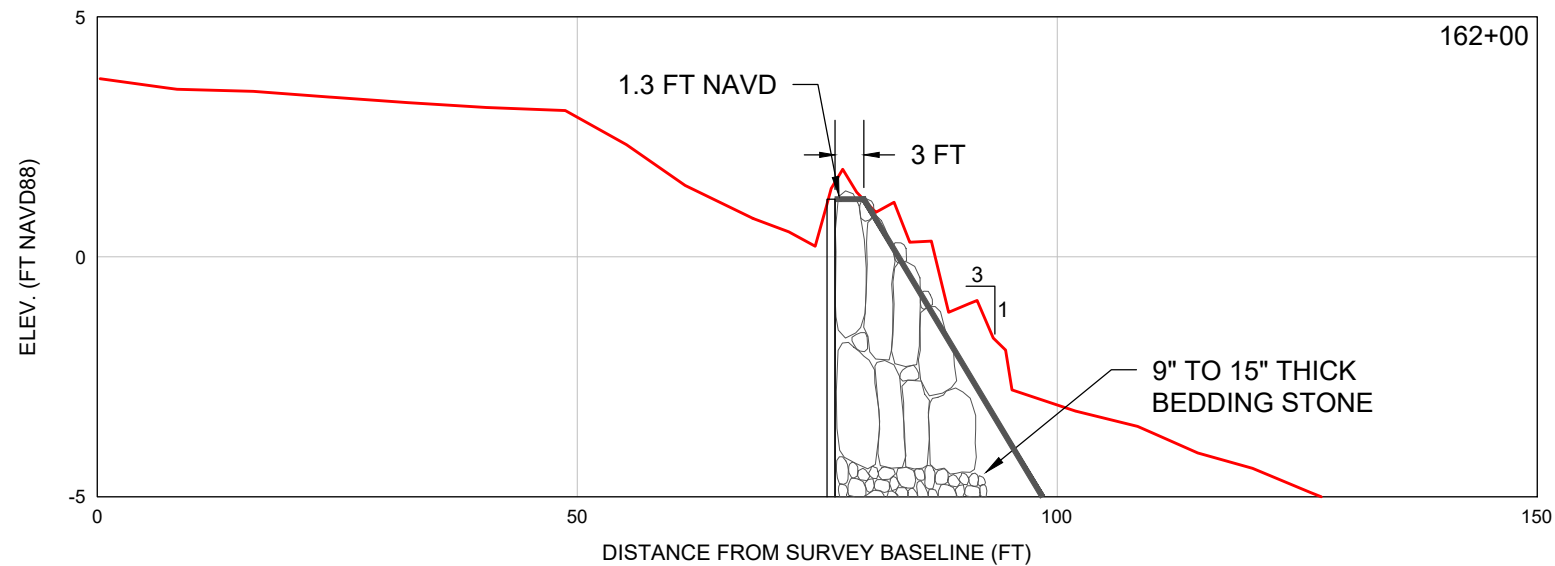
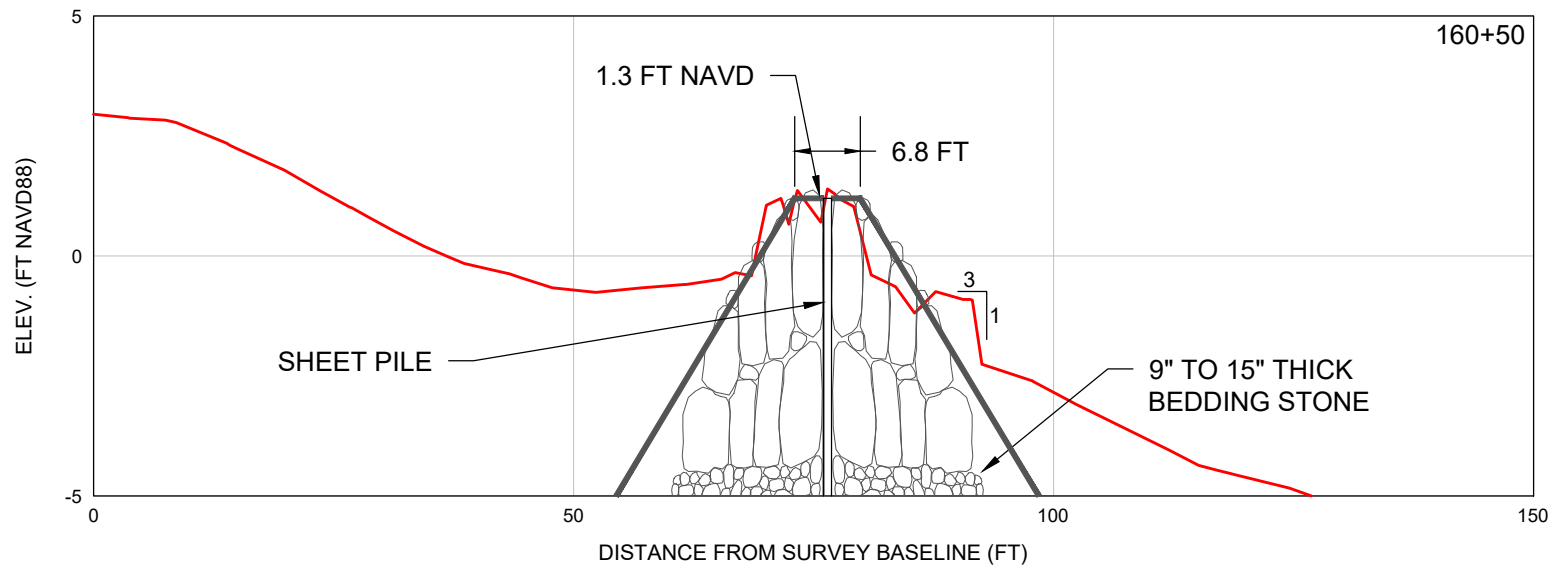
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TITLE: T-GROIN 15

DATE:	10/7/2025	SCALE:	AS SHOWN
DRAWN:	KMG	F.B.	
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SEC.	TWP.	RNG.	
ACAD NO.	25320-T Groins.dwg		
REF. NO.	25.320	NO.	DATE
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SCALE: Horiz: 1" = 20'  
Vert: 1" = 4'

SHEET 18  
FILE NO.: 25320 T Groins

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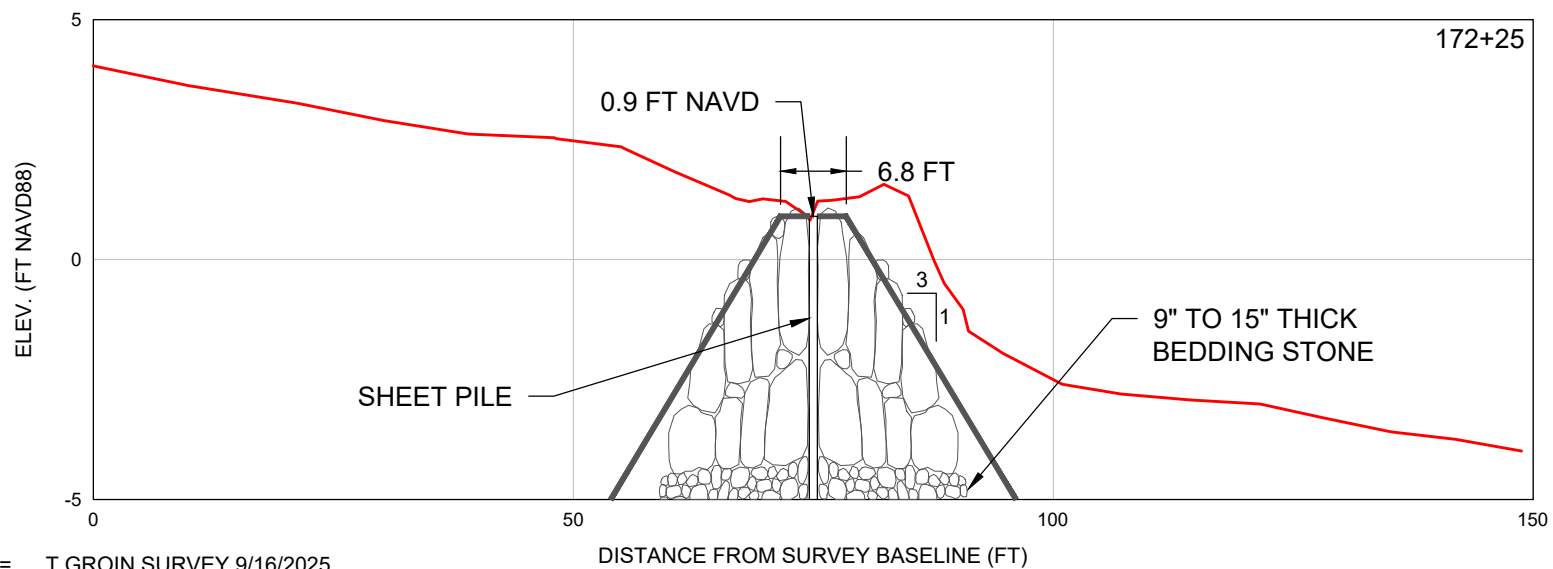
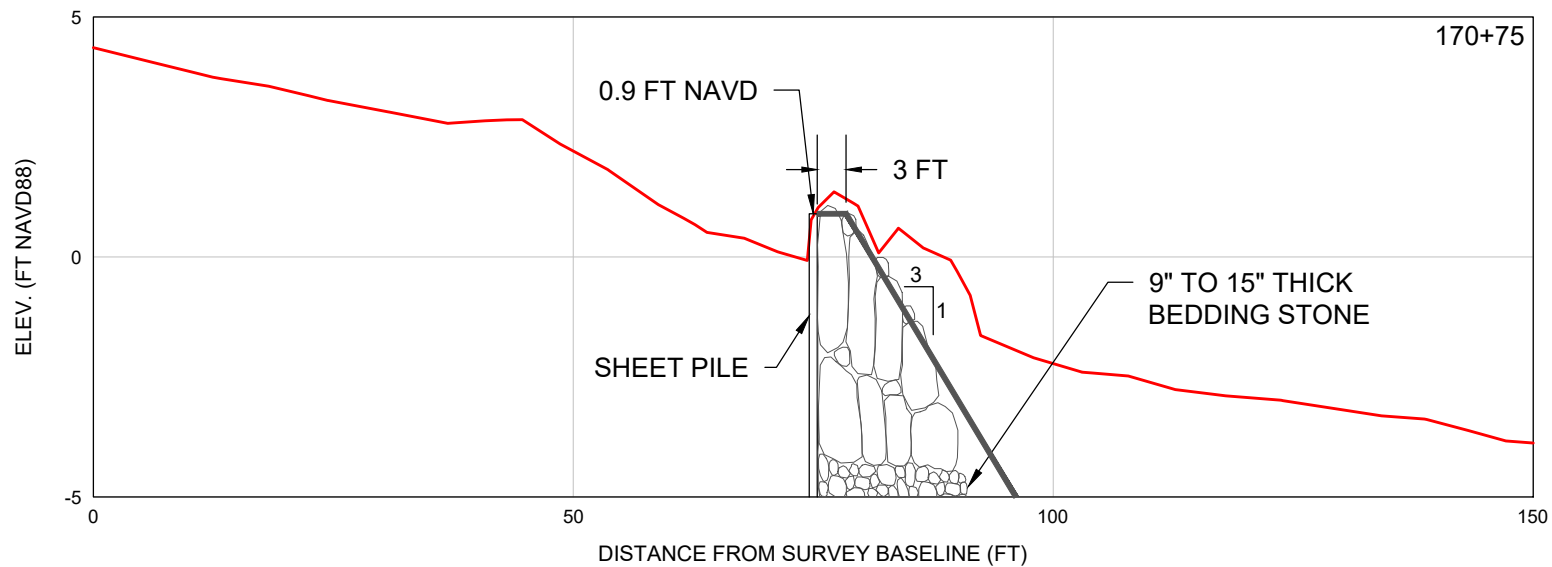
CLIENT: CITY OF MARCO ISLAND  
TITLE: T-GROIN 16

DATE: 10/7/2025  
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SEC. TWP. RNG.  
ACAD NO. 25320-T Groins.dwg  
REF. NO. 25.320

SCALE: AS SHOWN  
F.B.  
PG.

NO.	DATE	BY	REVISION DESCRIPTION





# LEGEND

— = T GROIN SURVEY 9/16/2025

SCALE: Horiz: 1" = 20'  
Vert: 1" = 4'

SHEET 19  
FILE NO.: 25320-T Groins

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T-GROIN 17

DATE:

10/7/2025

SCALE:

AS SHOWN

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MTP

SEC.

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25320-T Groins.dwg

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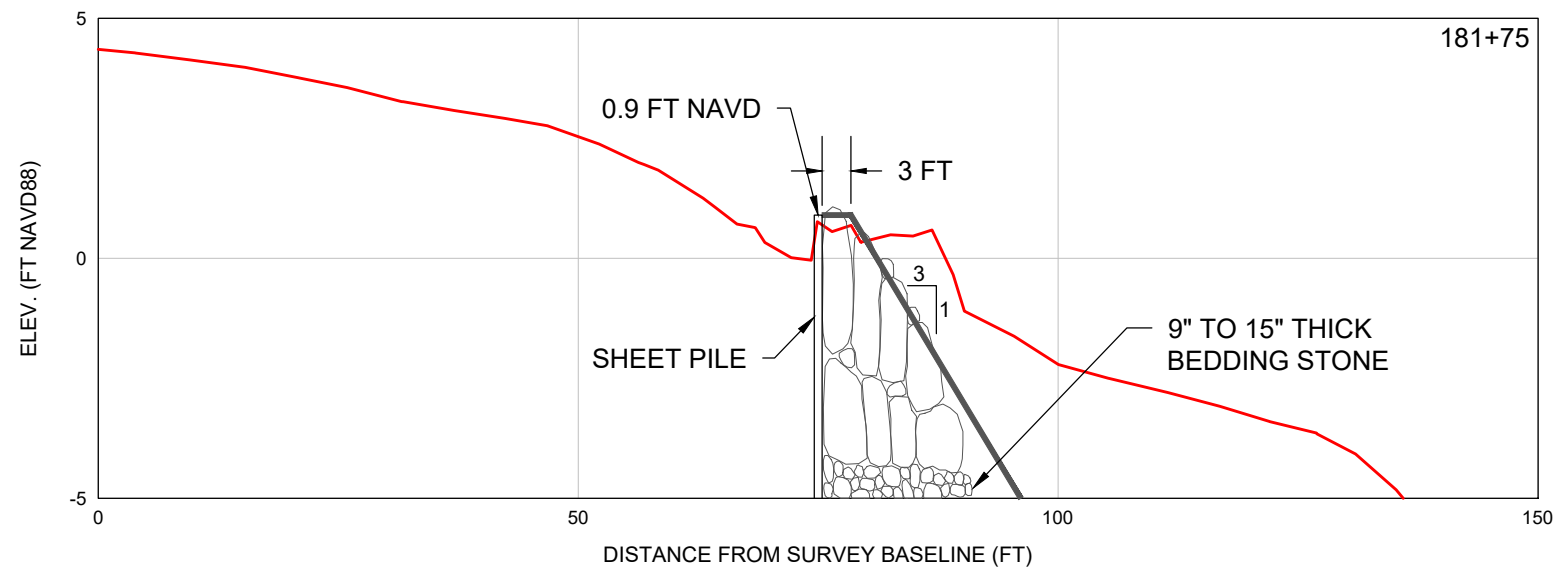
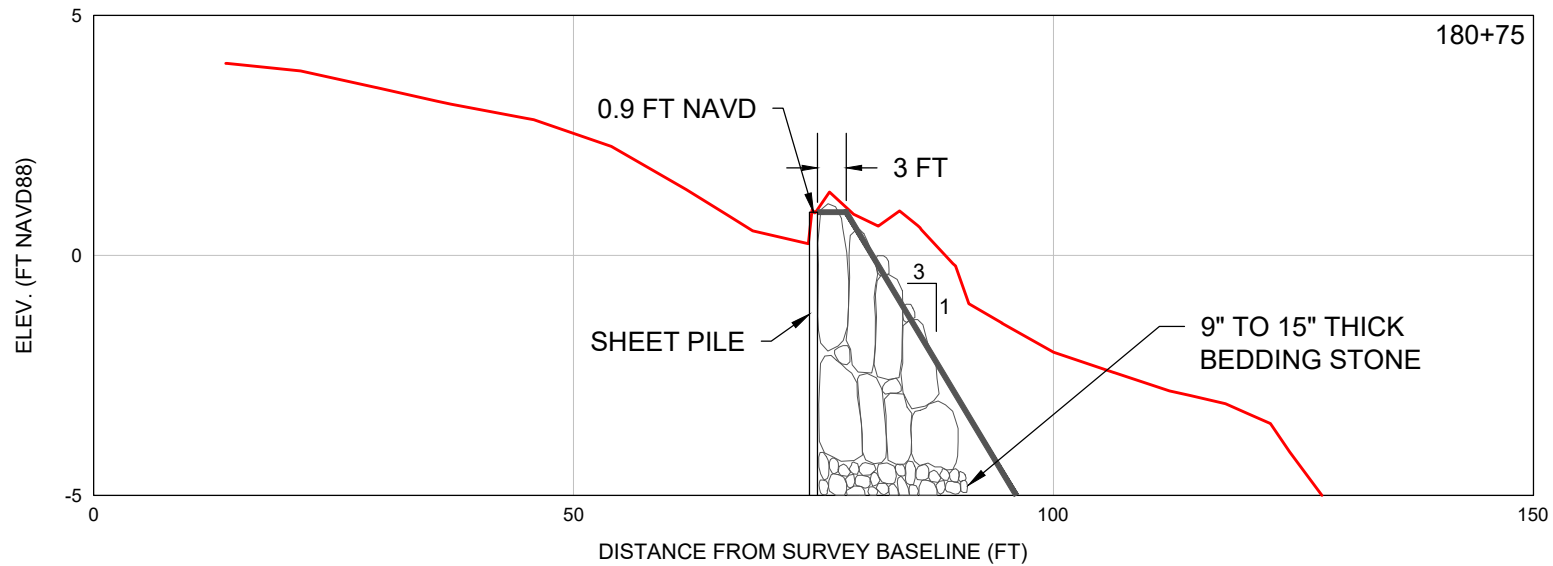
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REVISION DESCRIPTION



# LEGEND

— = T GROIN SURVEY 9/16/2025

SCALE: Horiz: 1" = 20'  
Vert: 1" = 4'

SHEET 20  
FILE NO.: 25320-T Groins

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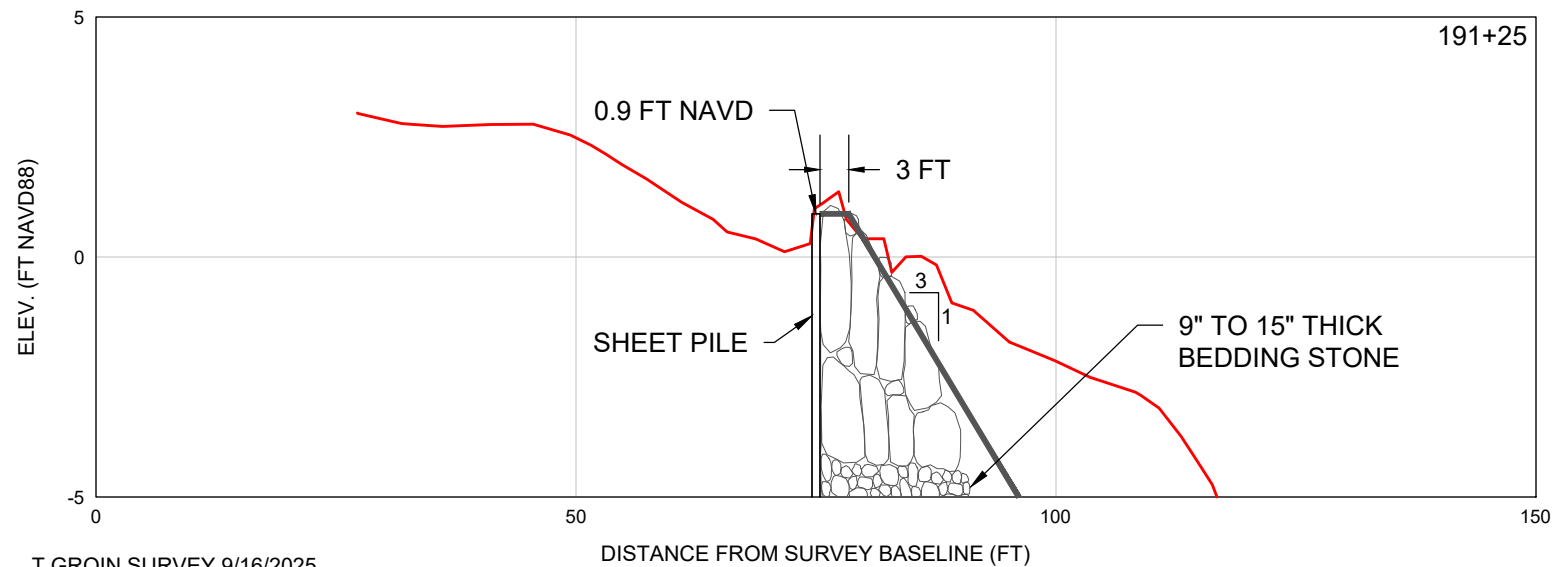
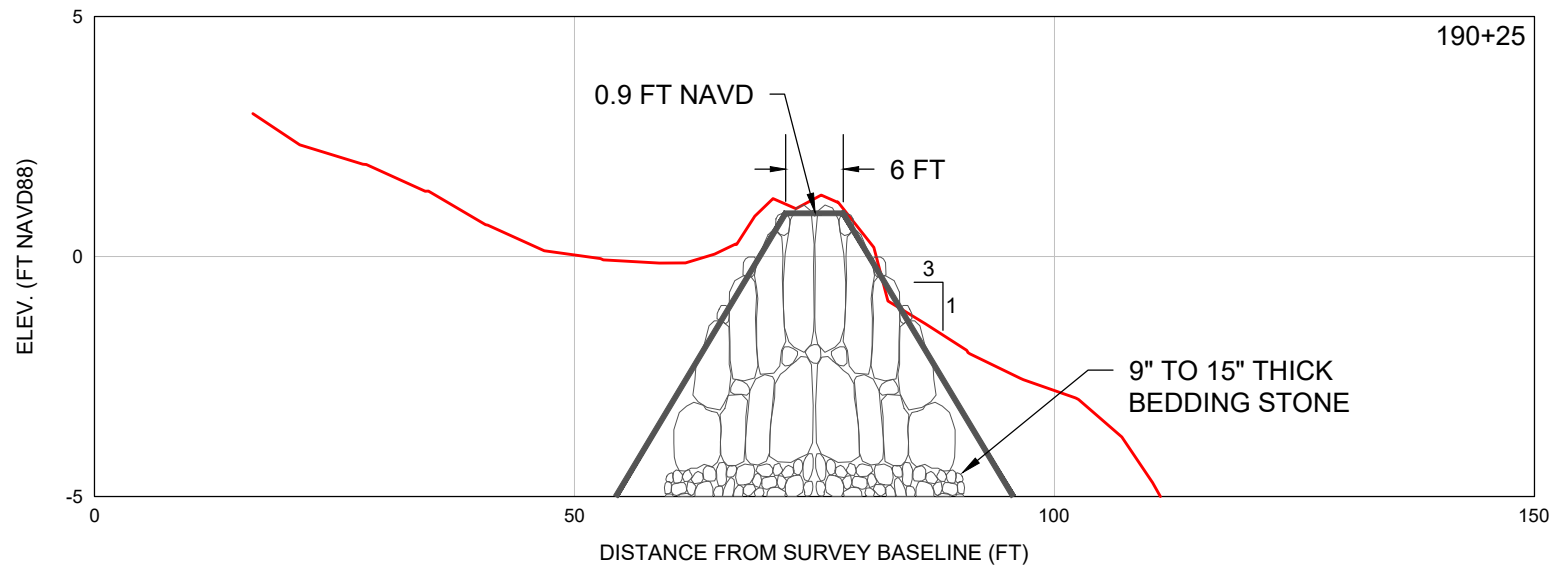
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# LEGEND

— = T GROIN SURVEY 9/16/2025

SCALE: Horiz: 1" = 20'  
Vert: 1" = 4'

SHEET 21  
FILE NO.: 25320-T Groins

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