


APPLICATION FOR INDIVIDUAL SECTION 401 WATER QUALITY CERTIFICATION Vermont Water Pollution Control Permit Regulation 10 VSA. 1258(6) Section 13.11 (b)		
For DEC Staff Use Only Date of Receipt: _____ Permit number: _____		
A. Pre-application Meeting: Have you had your meeting yet? The Department of Environmental Conservation strongly encourages applicants to schedule and attend a pre-application meeting with affected programs prior to submitting an application.		
<input type="checkbox"/> Yes, the meeting was held on _____ with DEC staff _____ If you need to schedule a meeting, please call or email Matthew Probasco at 802-490-8013 Matthew.Probasco@vermont.gov .		
B. Applicant Contact Information		
1. Name: _____		
2. Mailing Address: _____		
3. Town: _____	4. State: _____	5. Zip: _____
6. Phone: _____	7. Email: _____	
C. Representative: Consultant, engineer, or other representative that is responsible for filling out this application, if other than the applicant.		
1. Name: _____		
2. Mailing Address: _____		
3. Town: _____	4. State: _____	5. Zip: _____
6. Phone: _____	7. Email: _____	
D. Landowner: If the applicant is not the landowner, please provide a list of all landowners owning property that is part of the project site		
1. Name: _____		
2. Mailing Address: _____		
3. Town: _____	4. State: _____	5. Zip: _____
6. Phone: _____	7. Email: _____	
E. 1. Resource Proposed for Alteration: <input type="checkbox"/> Wetlands <input type="checkbox"/> Stream / Rivers <input type="checkbox"/> Lake / Pond / Reservoir Name of Resource(s) (Please use consistent ID#s throughout the application for identification of unnamed resources.) _____ _____ _____	E. 2. Type(s) of Proposed Alteration(s): <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input type="checkbox"/> Stream / River Crossing <input type="checkbox"/> Intake / Outfall Structure <input type="checkbox"/> Wetland Fill / Excavation <input type="checkbox"/> Launch Ramp <input type="checkbox"/> Impoundment <input type="checkbox"/> Other: _____ </div> <div style="width: 50%;"> <input type="checkbox"/> Utility Line or Linear Transportation Project <input type="checkbox"/> Stream or Wetland Restoration <input type="checkbox"/> Dredging <input type="checkbox"/> Bank Stabilization </div> </div>	

F. Project Details		
1. Project/Site Name:		
2. Address:	Please follow this link to the ANR Atlas Map	
3. Town/County:	4. Longitude:	5. Latitude:
6. Compass Directions & Road(s): Compass direction of the project in relation to the road(s) or nearest intersection. Name the road(s) that the project is located on		
7. Geographic Features: Identify any distinguishing geographic features near project location site		
8. Project Description Summary: Give a short narrative summary describing what the project is		
9. Project Description Details: Give a detailed narrative description of the project, including phasing and a list of specific project components		
10. Project Purpose:		
11. Project acres: _____	12. Site slope percent: (Please provide the maximum slope percent. For linear projects, please provide the minimum and maximum slope percentage across the project) _____ %	13. Total disturbed area associated with the project: _____
14. Physical description of project area:		
15. Soil K-Factor(s):	16. Hydrologic Soil Group(s)	

17. Receiving Waters: Identify all surface waters within the major basins (including streams/rivers, wetlands, and lakes) that drain from the project, beginning with waters within the proposed project area and progressing downstream. If the waterbody does not have a formal name, a descriptive name should be provided (e.g. unnamed tributary of the Mad River). (There are 17 major watershed basins defined by VTDEC in: http://www.vtwaterquality.org/mapp/htm/mp_assessment.htm)

18. Watershed Area Summary from Project Area to Receiving Waters

Watershed(s)	Watershed Area (acres)	Disturbed Area (acres)	% Area Disturbed

G. Cumulative Impacts: For help identifying environmental features regarding your property use the VTANR Natural Resources Atlas: <http://www.anr.state.vt.us/dec/maps.htm>.

1. Impervious surface: _____ surface % of property _____ sq. ft

2. Land Use: Describe current and prior uses of the project property, including activities such as logging and agriculture or other uses that may have impacted water quality.

3. Land Cover: Percent and type of change in land cover associated with the project relative to natural cover

If the Agency finds that additional information on the current condition of the receiving water(s) beyond what is available is needed to adequately assess potential impacts from the proposed activity, the applicant will be required to supply that information.

H. Resource Descriptions:

1. Wetland Resources

a. Type of wetland(s): Describe the wetland(s) in the project area including the total number of wetlands in the area, the square footage of each wetland, the number of Class II and III wetlands (according to the Vermont Wetland Rules). If more than two wetlands will be affected by the project, fill out Wetland Resource Table 2, Appendix II

b. Wetland Pre-Project Cumulative Impacts: Describe any known pre-project cumulative impacts to wetlands from land use, agriculture, forestry, development, etc.

c. Wetlands Impacted: Describe the proposed impacts to the wetlands and buffer area (include impacts from fill, clearing, temporary trenching, etc.)

d. Wetland Impact Table: Fill out the Wetland Impact Table, Appendix III

- e. Converted Wetlands:** List the square footage of wetlands converted from one type of wetland to another. Example would be conversion of forested wetland to shrub wetland for power line right of way clearing. Submit table if needed as an appendix.

2. Stream/River Resources:

- a. Streams/Rivers Impacted:** Describe the perennial streams impacted by the project.

- b. Stream/River Impact table:** Fill out the following table with perennial streams impacted by the project, Appendix IV

c. Summary of Physical Impacts to Streams/Rivers

Proposed Stream Area Impacts

Project Component	Permanent (s.f.)	Permanent (acres)	Temporary (s.f.)	Temporary (acres)	Total (s.f.)	Total (acres)

- d. Stream/Rivers Pre-project Cumulative Impacts:** Describe any known pre-project cumulative impacts to streams and rivers from land use and development, etc.

- e. Impacts to the Geomorphic Condition and Geomorphic Sensitivity of the Stream:** Describe using phase I & phase II stream geomorphic stream assessment protocols. Geomorphic condition means the degree of departure, if any, from the dimensions, pattern, and profile associated with the naturally stable channel that results from the unique set of natural stream processes or dynamic equilibrium conditions of a stream or river segment. Geomorphic sensitivity means the potential of a river, given its inherent characteristics and present geomorphic conditions, to be subject to a high rate of fluvial erosion and other river channel adjustments, including erosion, deposit of sediment, and flooding.

3. Physical, Chemical, & Biological Conditions.

- a. Physical Water Conditions:** Summarize the physical conditions of the waters the project impacts or discharges into, including, temperature regime, conductivity, pH, turbidity, suspended sediment, and substrate type. Document source of data, geo-referenced to sampling location. If data are from the Bio-monitoring Sites Layer or the DEC Watershed Data Portal on the VTANR Atlas <http://www.anr.state.vt.us/dec/maps.htm>, please reference specific station identification numbers. Data are also available at www.vtwaterquality.org/wqd_mgtplan/waterq_data.htm.

b. Chemical Water Conditions: Summarize the chemical conditions of the waters the project impacts or discharges into, including, as available, total phosphorus and nitrogen, biochemical & chemical oxygen demand, hardness, metals, *E. coli*, and other data relevant to evaluation of the chemical condition of waters. If data are from the Bio-monitoring Sites Layer or the DEC Watershed Data Portal on the VTANR Atlas <http://www.anr.state.vt.us/dec/maps.htm>, please reference specific station identification numbers. Data are also available at www.vtwaterquality.org/wqd_mgtplan/waterq_data.htm.

c. Biological Water Conditions: Summarize the biological water conditions of the waters the project impacts or discharges into. If data are available, summarize biological condition in relation to DEC biological assessment endpoints as described by http://www.vtwaterquality.org/bass/htm/bs_biomon.htm. Document the occurrence or absence of aquatic rare, threatened, or endangered plant or animal species. If data are from the DEC Watershed Data Portal on the VTANR Atlas <http://www.anr.state.vt.us/dec/maps.htm>, please reference specific station identification numbers. Follow-up with the Fish & Wildlife Department's Natural Heritage Inventory (802-371-7333) if any such species are present.

4. Fish & Wildlife Resources

a. Fisheries Resource(s): Provide a description of the existing fish resources within the waters that the project impacts or discharges into.

Wildlife: For help identifying wildlife habitat, natural communities, and rare, threatened, or endangered species use the VTANR Natural Resources Atlas: <http://www.anr.state.vt.us/dec/maps.htm>

b. Habitat: Provide an assessment of wildlife habitat within the project area. This must include a description of the methods employed to identify, map, and assess the habitats. Include a map that depicts all the wildlife habitat resources of the area (e.g., deer wintering habitat, riparian habitat, floodplain forest natural communities, wetland types).

c. Natural Communities: Provide an assessment of significant natural communities within the project area. This must include a description of the methods employed to identify, map and assess the communities. Include a map that depicts the natural communities.

d. Rare, Threatened, and Endangered Species: Provide a description of the anticipated and other possible impacts of the proposed project on the foregoing wildlife resources and how those will be avoided or minimized.

e. Wildlife Affects & Minimization: Provide a description of the anticipated and other possible impacts of the proposed project on the foregoing wildlife resources and how those will be avoided or minimized.

I. Additional Permits and Supporting Documents: Supporting Documents (Appendix I). Please list any additional Supporting Documents and attach to application labeled Appendix I. This should include, but not be limited to Memorandum of Understanding (MOU)'s with the Vermont Agency of Natural Resources (if applicable), applicable state and federal permits and permit applications, federal 404 permit application including alternatives analysis and mitigation package, site maps and plans, vegetation management plans, easement information, etc. Complete on an attached sheet if more room is needed. In the brief description column include page numbers for each appendix for quick reference. **Note, this section needs to be updated as supporting documents are updated.

Appendix	Document Title	Preparing Agent	Date of Last Revision	Brief Description
Appendix IA				
Appendix IB				
Appendix IC				
Appendix ID				
Appendix IE				
Appendix IF				
Appendix IG				
Appendix IH				

J. Fee:

Pursuant to 3 V.S.A. § 2822(j)(30), use the following formula to calculate the certification fee: 1% of project cost with a minimum of \$200.00 and a maximum of \$ 20,000.00.

Project Cost: \$ _____

Permit Fee: \$ _____

☐ Exempt**K. Signature** (Original Signature Required):

I certify under penalty of law that this document and all attachments were prepared at my request or under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person who manages the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I recognize that by signing this application, I am giving consent for the Commissioner of the Department, or a duly authorized representative, at reasonable times and upon presentation of credentials, to enter upon and inspect the subject property to verify information in and process the Section 401 application.

Signature: _____ Date: _____

Print Name: _____

Signor Contact Phone: _____ Signor Contact email: _____

Submit this form and application fee, payable to:

State of Vermont

Vermont Department of Environmental Conservation

Watershed Management Division

1 National Life Drive, Main 2

Montpelier, VT 05620-3522

Direct all correspondence or questions to 401 Permitting at: Matthew.Probasco@vermont.gov.

For additional information visit: www.watershedmanagement.vt.gov

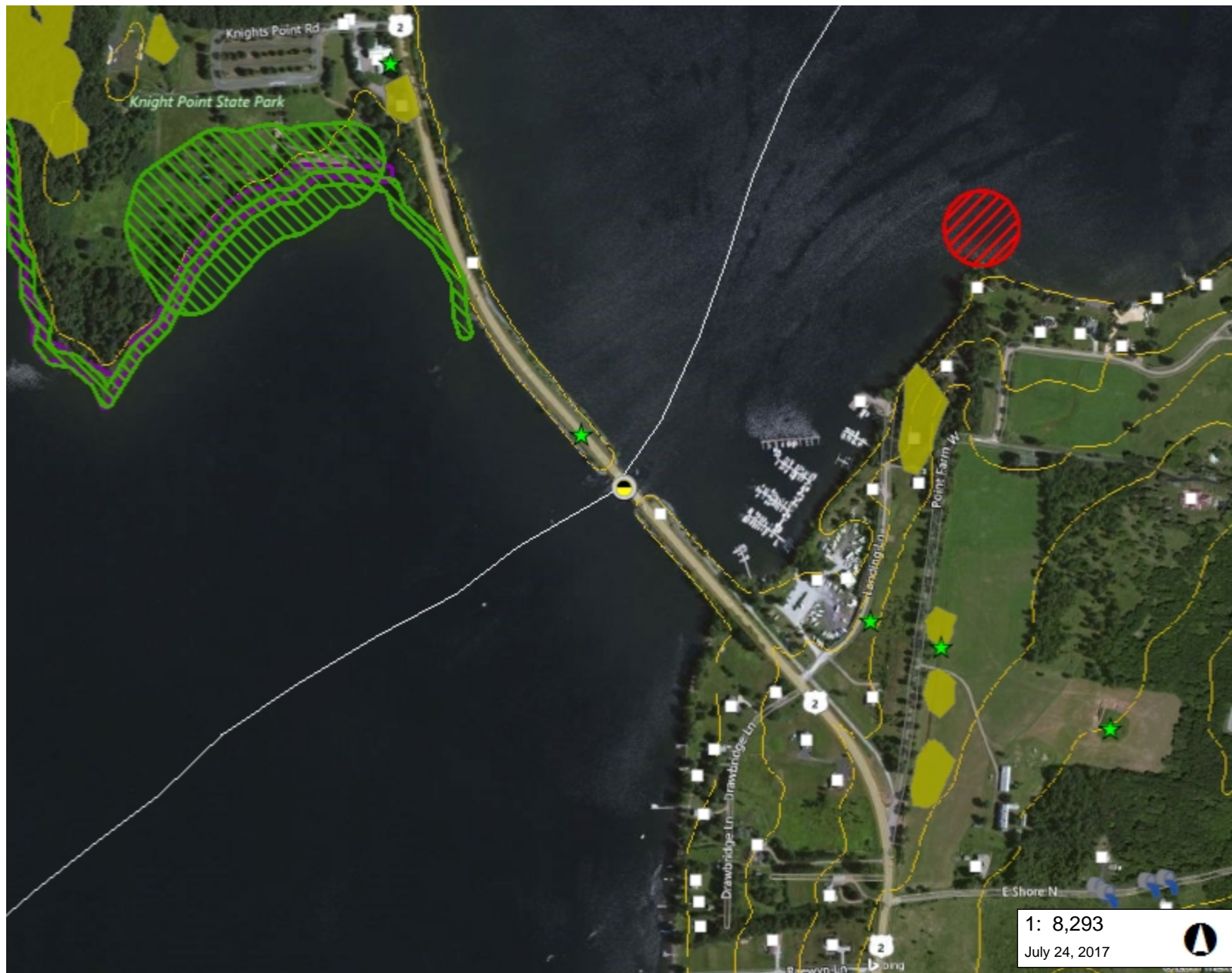
Attachments Continued

Appendix	Document Title	Preparing Agent	Date of Last Revision	Brief Description
Appendix IH	Underwater Noise Attenuation	Tappan Zee Constructors, LLC	6/4/2014	Pages 79-158
Appendix II	Below MWL Impacts	John Parrelli of CHA	9/12/2017	Pages 159-164
Appendix IJ	Construction Dates	Jeff Ramsey	12/14/2016	Page 165
Appendix IK	Stormwater NOI Low Risk	Jeff Ramsey	9/27/2017	Pages 166-168
Appendix IL	Appendix A Risk Evaluation	Jeff Ramsey	9/27/2017	Pages 169-174
Appendix I	USCG Individual Permit Regulation	Pete Davis, HDR Inc.	9/12/2017	Pages 175-203



LEGEND

- ★ Wetland Projects
- Wetland - VSWI
 - Class 1 Wetland
 - Class 2 Wetland
 - Buffer
- Rare Threatened Endangered
 - Threatened or Endangered
 - Rare
- Significant Natural Community
- Buildings (E911)
- VTRANS State and Town Long
- VTRANS State Short Structure
- Town Bridge
- Town Culvert
- Town Boundary



1: 8,293

July 24, 2017



421.0 0 210.00 421.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere

© Vermont Agency of Natural Resources

1" = 691 Ft. 1cm = 83 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

DISCLAIMER: This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. ANR and the State of Vermont make no representations of any kind, including but not limited to, the warranties of merchantability, or fitness for a particular use, nor are any such warranties to be implied with respect to the data on this map.

NOTES

Map created using ANR's Natural Resources Atlas



LEGEND

☐ Town Boundary



1: 33,173

July 26, 2017



1,685.0 0 842.00 1,685.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere

© Vermont Agency of Natural Resources

1" = 2764 Ft. 1cm = 332 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

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NOTES

Map created using ANR's Natural Resources Atlas



106 East Allen, Suite 506
Winooski, VT 05404
Tel: 802-497-3653

November 14th, 2017

Angela Repella
U.S. Army Corp of Engineers
New England District, Regulatory Division
Vermont Project Office
8 Carmichael Street, Suite 205
Essex Junction, Vermont 05452

**Re: North Hero- Grand Isle Drawbridge BHF-028-1 (26)
NAE-2016-00933 Section 404 Individual Permit Application**

Ms. Repella:

In response to your request for additional information dated October 23, 2017, please find attached:

- Q. 1- A revised set of OHW plans showing impacts related to the 98' elevation (NGVD 1929)
- Q. 2- Revised impacts related to the 98' elevation
- Q. 5- Stones being Removed and Reset have been quantified in a separate category with a unique hatch.
- Q. 3- The piers of the Temporary Approach Bridge have been revised to only show the impact related to the installation of the pier itself.
- Q. 6- The impacts associated with the Bascule Bridge piers at STA 518+75, 519+25, and 519+80 were taken from a similar (but not exact) temporary bridge used on a different project. The design of these piers will not be done until after the Contract has been awarded to Cianbro by VTrans, anticipated by summer of 2018.
- Q. 8- The plans have been revised to show the trench and cable within the impacts. It has been decided that concrete mattresses will not be utilized on the project.

Feel free to contact me with any questions regarding this submission, 802-233-6215.

Sincerely,

A handwritten signature in black ink, appearing to be 'Emmalee'.

EIV Technical Services
Emmalee Cherington, EI, CPESC
Environmental/ Civil Engineer

U.S. ARMY CORPS OF ENGINEERS
APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT
33 CFR 325. The proponent agency is CECW-CO-R.

Form Approved -
OMB No. 0710-0003
Expires: 30-SEPTEMBER-2015

Public reporting for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of the collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE
--------------------	----------------------	------------------	------------------------------

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME First - Glenn Middle - Last - Gingras Company - Vermont Agency of Transportation E-mail Address - glenn.gingras@vermont.gov		8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required) First - Emmalee Middle - T Last - Cherington Company - EIV Technical Services E-mail Address - echerington@eivtech.com	
6. APPLICANT'S ADDRESS: Address- 1 National Life Drive City - Montpelier State - VT Zip - 05633 Country -		9. AGENT'S ADDRESS: Address- 55 Leroy Road, Suite 15 City - Williston State - VT Zip - 05495 Country -	
7. APPLICANT'S PHONE NOS. w/AREA CODE a. Residence b. Business c. Fax 802-279-0583		10. AGENTS PHONE NOS. w/AREA CODE a. Residence b. Business c. Fax 802-497-3653 802-497-3656	

STATEMENT OF AUTHORIZATION

11. I hereby authorize, Emmalee Cherington to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

Glenn Gingras
SIGNATURE OF APPLICANT

9/1/2017
DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions) North Hero-Grand Isle Draw Bridge BHF-028-1(26)			
13. NAME OF WATERBODY, IF KNOWN (if applicable) Lake Champlain		14. PROJECT STREET ADDRESS (if applicable) Address 438 US Route 2	
15. LOCATION OF PROJECT Latitude: +N 44.76609 Longitude: +W 73.28988		City - Grand Isle State- VT Zip- 05458	
16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions) State Tax Parcel ID Municipality Section - Township - Range -			

17. DIRECTIONS TO THE SITE

Grand Isle BHF 028-1(26) is the drawbridge that carries U.S. Route 2 over Lake Champlain beginning at a point in North Hero approximately 0.227 miles west of the North Hero/ Grande Isle town line continuing easterly on U.S. Route 2 in Grande Isle for approximately 0.303 miles.

18. Nature of Activity (Description of project, include all features)

The project involves the replacement of Bridge 8, a double leaf Bascule bridge that provides the only vehicular connection between North Hero and Grande Isle, VT. The bridge will be replaced with a twin leaf Bascule bridge. The proposed bridge will be on new foundations along the same alignment. A similar aesthetic will be maintained. It will also be necessary to install temporary bridge to allow vehicular travel during the construction anticipated to last four seasons.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

The purpose of the project is to promote safety by replacing the existing deteriorated drawbridge on U.S. Route 2 over Lake Champlain. The need for the project is due to the poor condition of the existing drawbridge and the need to provide a safe, efficient roadway for the traveling public.

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

21,511 SF- Temporary Impacts below OHW

7748.0 SF- Permanent Impacts below OHW

6808.0 SF- Remove and Reset Impacts below OHW

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards
-------------------------------	-------------------------------	-------------------------------

See Attached

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres 0.823 acres

or

Linear Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)

The design rebuilds the bridge in the current location, limiting the permanent impacts to the surroundings,

24. Is Any Portion of the Work Already Complete? ☐ Yes ☒ No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list)

a. Address- See attached Abutters Sheet

City - State - Zip -

b. Address-

City - State - Zip -

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-

City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
VT ANR	Lakes and Ponds		9/21/2017		
USCG	Rivers/Harbor Act S.9		10/03/2017		
ANR	Water Quality Certification		10/05/2017		
ACOE	Section 408 Review		9/05/2017		

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

Glenn Gingras
SIGNATURE OF APPLICANT

9/1/2017
DATE

[Signature]
SIGNATURE OF AGENT

9/05/2017
DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.

North hero Grand Isle Bridge BHF 028-1(26)

404 ACOE Permit Application

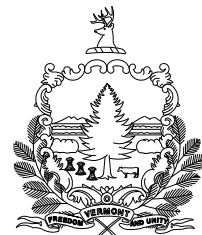
Q. 21- Types of Materials Being Discharged and the Amount of Each Type in Cubic Yards

Revised quantities dated 11/28/2017

The volumes below the OHW for the temporary and permanent impacts:

- Temporary bridge approach Earth Borrow quantity = 700 cy
- Temporary bridge approach Type IV Stone quantity = 955 cy
- Temporary bulkhead volume = 940 cy
- Temporary Bridge Steel Piles= 19.8 cy (assumes a 30" pipe pile. Note the foundation design is not finalized)
- Armored Stone Remove and Reset = 680 cy
- Earth Borrow for Cofferdam excavation = 1,300 cy (temporary impact)
- Concrete= 4,700 cy (permanent impact)
- Utility Trench Volume= 70 cy
- Temporary Crane Pad volume = 155 cy

STATE OF VERMONT
AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT
BRIDGE PROJECT

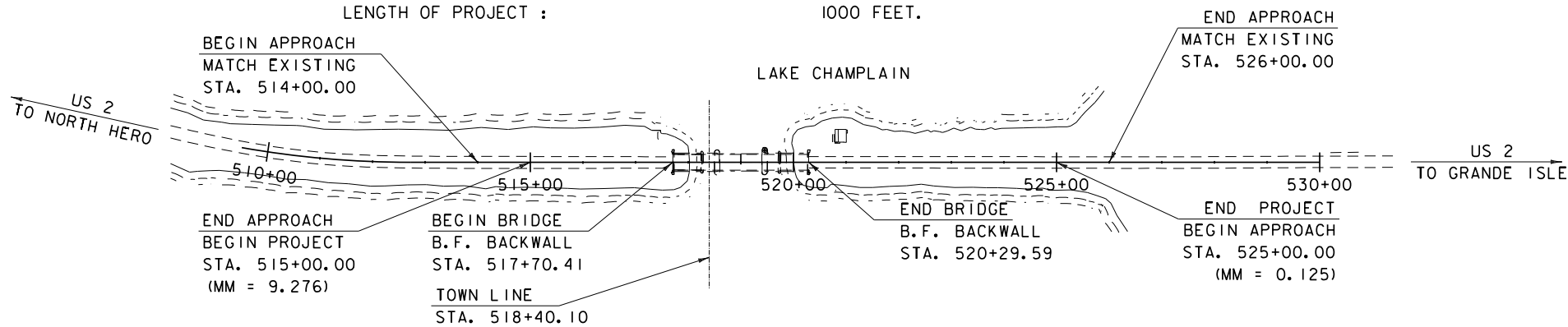
TOWN OF NORTH HERO - GRAND ISLE
COUNTY OF GRAND ISLE

ROUTE NO : US ROUTE 2 (MINOR ARTERIAL) BRIDGE NO : 8

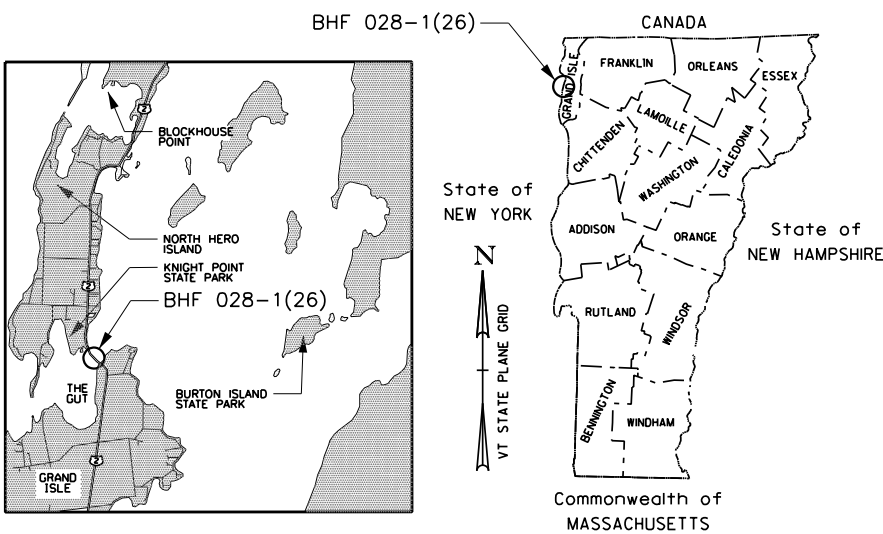
PROJECT LOCATION : BEGINS AT A POINT IN NORTH HERO 0.064 MI WEST OF THE NORTH HERO/GRANDE ISLE TOWN LINE
(STA. 518+40.10) AND CONTINUES EASTERLY ON US 2 IN GRANDE ISLE FOR 0.125 MI.

PROJECT DESCRIPTION : REPLACEMENT OF EXISTING BASCULE BRIDGE, AND ASSOCIATED ROADWAY
IMPROVEMENTS

LENGTH OF STRUCTURE : 259 FEET.
LENGTH OF ROADWAY : 741 FEET.
LENGTH OF PROJECT : 1000 FEET.



SCALE 1" = 150' - 0"
150 0 150'



THESE PLANS ARE SUBJECT TO SUCH ENGINEERING
CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY
ADMINISTRATION OR THE DIRECTOR OF PROGRAM
DEVELOPMENT.
CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE
WITH THESE PLANS AND THE STANDARD SPECIFICATIONS
FOR CONSTRUCTION DATED 2011, AS APPROVED BY THE
FEDERAL HIGHWAY ADMINISTRATION ON JULY 20, 2011
FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT
REVISIONS AND SUCH REVISED SPECIFICATIONS AND
SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE
PLANS.

QUALITY ASSURANCE PROGRAM : LEVEL I	
SURVEYED BY : VT SURVEY AND ENG. , INC.	
SURVEYED DATE : JUNE 17, 2014	
DATUM	
VERTICAL	NAVD88 (GEOID12A)
HORIZONTAL	NAD 83 (2011)

SEMI-FINAL PLANS

DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATOR	
APPROVED _____	DATE _____
DIRECTOR OF PROGRAM DEVELOPMENT	
APPROVED _____	DATE _____
PROJECT MANAGER : T. SUMNER	
PROJECT NAME : NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER : BHF 028-1(26)	
SHEET 1 OF 340 SHEETS	



REV2 DATE: 8/4/2017

PLAN SHEETS

1	TITLE SHEET	185 - 187	PIER 1 DOOR AND FINISH PLANS
2	INDEX OF SHEETS	188 - 191	PIER 2 DOOR AND FINISH PLANS
3	PRELIMINARY INFORMATION SHEET	192	DOOR SCHEDULE
4	BRIDGE TYPICAL SECTIONS	193	ROOM FINISH SCHEDULE
5	ROADWAY TYPICAL SECTIONS	194	BRIDGE RAIL LAYOUT
6	TEMPORARY BRIDGE TYPICAL SECTIONS	195 - 199	BRIDGE RAIL DETAILS
7 - 10	QUANTITY SHEETS	200	MECHANICAL GENERAL NOTES
11 - 12	GENERAL NOTES	201	MECHANICAL PLAN AND ELEVATION
13	SURVEY TIE SHEET	202	HYDRAULIC SYSTEM LAYOUT
14	CONVENTIONAL SYMBOLOGY LEGEND SHEET	203	HYDRAULIC CYLINDER ATTACHMENT
15 - 22	ROADWAY LAYOUT SHEETS	204	HYDRAULIC CYLINDER ASSEMBLY
23 - 25	PROFILE SHEETS	205	HYDRAULIC POWER UNIT
26 - 27	TRAFFIC MANAGEMENT PLAN SHEETS	206	HYDRAULIC SCHEMATIC
28 - 32	TRAFFIC CONTROL PLAN SHEETS	207	HYDRAULIC SCHEMATIC DETAILS
33	WATER LINE AND SEWER LAYOUT	208	TRUNNION ASSEMBLY
34 - 35	TRAFFIC SIGN SUMMARY SHEETS	209 - 210	TRUNNION DETAILS
36 - 37	TRAFFIC SIGNAL PLANS	211	SPAN LOCK ASSEMBLY
38 - 39	TRAFFIC SIGNAL NOTES	212	SPAN LOCK DETAILS 1
40	BARRIER GATE FOUNDATION DETAILS	212A-212C	SPAN LOCK DETAILS 2-4
41	WARNING GATE FOUNDATION DETAILS	213	TRUNNION INSTRUMENTATION
42	TENDER HOUSE STAIR CONSTRUCTION	213A	TAIL LOCK ASSEMBLY
43	BORING INFORMATION SHEET	213B-213C	TAIL LOCK DETAILS
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354 TOTAL SHEETS

PROJECT NAME:	NORTH HERO GRAND ISLE BRIDGE		
PROJECT NUMBER:	BHF 028-1(26)		
FILE NAME:	z12b142index.xls	PLOT DATE:	8/4/2025
PROJECT LEADER:	T. FRENCH	DRAWN BY:	P. LEFEBVRE
DESIGNED BY:	P. LEFEBVRE	CHECKED BY:	M. MOZER
INDEX OF SHEETS		SHEET	2 OF 340

INDEX OF SHEETS

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TRAFFIC DATA

YEAR	ADT	DHV	% D	% T	ADTT	
2018	3000	460	55	2.6	150	20 year ESAL for flexible pavement from 2018 to 2038 : 1065000
2028	3200	490	55	3.4	210	40 year ESAL for flexible pavement from 2018 to 2058 : 0
						Design Speed : 50 mph

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: July 2016

DRAINAGE AREA : -

CHARACTER OF TERRAIN : -

STREAM CHARACTERISTICS : -

NATURE OF STREAMBED : -

PEAK FLOW DATA - ANNUAL EXCEEDANCE PROBABILITY (AEP)

43% =	-	2% =	-
10% =	-	1% =	-
4% =	-	0.2% =	-

DATE OF FLOOD OF RECORD : May 6, 2011

ESTIMATED DISCHARGE : -

WATER SURFACE ELEV. : 103.27' @ Burlington USGS Gage

NATURAL STREAM VELOCITY : -

ICE CONDITIONS : -

DEBRIS : -

DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? -

IS ORDINARY RISE RAPID? -

IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? -

IF YES, DESCRIBE : -

WATERSHED STORAGE : 0%

HEADWATERS : -

UNIFORM : -

IMMEDIATELY ABOVE SITE : -

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Twin Leaf Bascule Bridge

YEAR BUILT: 1953

CLEAR SPAN(NORMAL TO STREAM): 80.3'

VERTICAL CLEARANCE ABOVE STREAMBED: 33.3'

WATERWAY OF FULL OPENING ~4980'

DISPOSITION OF STRUCTURE: Remove and Replace

TYPE OF MATERIAL UNDER SUBSTRUCTURE See boring logs

WATER SURFACE ELEVATIONS AT.

43% AEP =	-	VELOCITY =	-
10% AEP =	-	"	-
4% AEP =	-	"	-
2% AEP =	-	"	-
1% AEP =	101.5'	"	-

LONG TERM STREAMBED CHANGES. -

IS THE ROADWAY OVERTOPPED BELOW 1% AEP:

FREQUENCY: -

RELIEF ELEVATION: -

DISCHARGE OVER ROAD @ 1% AEP: -

UPSTREAM STRUCTURE

TOWN: -

DISTANCE: -

HIGHWAY #: -

STRUCTURE #: -

CLEAR SPAN: -

CLEAR HEIGHT: -

YEAR BUILT: -

FULL WATERWAY: -

STRUCTURE TYPE: -

DOWNSTREAM STRUCTURE

TOWN: -

DISTANCE: -

HIGHWAY #: -

STRUCTURE #: -

CLEAR SPAN: -

CLEAR HEIGHT: -

YEAR BUILT: -

FULL WATERWAY: -

STRUCTURE TYPE: -

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H 20	HL 93	3S2	5 AXLE	3A STR	4A STR	5A SEM
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY	2.24	1.31					
POSTING							
OPERATING	2.91	1.71	2.35	1.59	1.63	1.5	2.02
COMMENTS:	APPROACH SPAN EXTENSION GIRDER CONTROLS SERVICE II LIMIT STATE						

AS BUILT "REBAR" DETAIL

LEVEL I	LEVEL II	LEVEL III
TYPE	TYPE	TYPE
GRADE	GRADE	GRADE

PROPOSED STRUCTURE

STRUCTURE TYPE: TWIN LEAF BASCULE BRIDGE

CLEAR SPAN(NORMAL TO STREAM): 81.0'

VERTICAL CLEARANCE ABOVE STREAMBED: 30.4'

WATERWAY OF FULL OPENING ~ 4100 sq ft

WATER SURFACE ELEVATIONS AT.

43% AEP =	-	VELOCITY =	-
10% AEP =	-	"	-
4% AEP =	-	"	-
2% AEP =	-	"	-
1% AEP =	101.5'	"	-

IS THE ROADWAY OVERTOPPED BELOW 1% AEP: No

FREQUENCY Above 1% AEP

RELIEF ELEVATION: ~ 118'

DISCHARGE OVER ROAD @ 1% AEP: None

BRIDGE LOW CHORD ELEVATION: 112.4'

FREEBOARD @ 1% AEP = 10.9'

SCOUR:

REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW -

DEPTH OR ELEVATION: -

ORDINARY LOW WATER: -

ORDINARY HIGH WATER: 97.6'

MEAN WATER LEVEL: 95.1'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: Single Leaf Bascule Bridge

CLEAR SPAN (NORMAL TO STREAM): 40.0'

VERTICAL CLEARANCE ABOVE STREAMBED: 10' (low chord to OHW)

WATERWAY AREA OF FULL OPENING:

ADDITIONAL INFORMATION

Mean Lake Level at Rouses Point = 94.88' based on "The State Discharge Relationship of Lake Champlain - Richelieu River"

** = Taken from Grand Isle FIS

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TWO-WAY TRAFFIC ON A TEMPORARY BRIDGE

2. INSTALL AND MAINTAIN TRAFFIC SIGNALS

3. SIDEWALKS ARE NOT NECESSARY

4. THE APPROACHES FOR THE TEMPORARY BRIDGE SHALL BE PAVED.

DESIGN VALUES

1. DESIGN LIVE LOAD	HL-93
2. FUTURE PAVEMENT	d _o : 0.0 INCH
3. ABUTMENT BEARING TO BEARING LENGTH (SIX SPANS) (48.00 - 26.50 - 53.10 - 53.10 - 26.50 - 48.00) FT	L: 255.2 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ: - - -
5. PRESTRESSING STRAND	f _y : - - -
6. PRESTRESSED CONCRETE STRENGTH	f' _{ci} : - - -
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f' _{cr} : - - -
8. CONCRETE, HIGH PERFORMANCE CLASS LW	f' _{ci} : 4.0 KSI
9. CONCRETE, HIGH PERFORMANCE CLASS A	f' _{ci} : 4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B	f' _{ci} : 3.5 KSI
11. CONCRETE, CLASS C	f' _{ci} : 3.0 KSI
12. REINFORCING STEEL	f _y : 60 KSI
13. STRUCTURAL STEEL AASHTO M270	f _y : 50 KSI
14. NOMINAL BEARING RESISTANCE OF ROCK	q _{nc} : 180.0 KSF
15. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: 0.45
16. MICROPILE GEOTECHNICAL RESISTANCE FACTOR (TIP)	φ: 0.50
17. MICROPILE GEOTECHNICAL RESISTANCE FACTOR (SIDE)	φ: 0.55
18. MICROPILE STRUCTURAL RES. FACTOR (CASED, COMPRESSION)	φ: 0.75
19. LATERAL PILE DEFLECTION	Δ: TBD
20. BASIC WIND SPEED	v _{bs} : 100 MPH
21. MINIMUM GROUND SNOW LOAD	p _g : - - -
22. SEISMIC DATA	PGA: 0.135g
	S _s : 0.259g
	S _t : 0.061g

23

24

25

26

PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE

PROJECT NUMBER: BHF 028-1(26)

FILE NAME: z:\2b142pi.xls

PLOT DATE: 8/4/2017

PROJECT LEADER: T. FRENCH

DRAWN BY: P. LEFEBVRE

DESIGNED BY: P. LEFEBVRE

CHECKED BY: M. MOZER

PRELIMINARY INFORMATION SHEET

SHEET 3 OF 340

FILE NAME = V:\Projects\ANY\K3\28173\CADD\MSTN\2b142\Consultants\z12b142leg.dgn
DATE/TIME = 8/4/2017
USER = 3724

GENERAL INFORMATION

SYMBOLGY LEGEND NOTE

THE SYMBOLGY ON THIS SHEET IS INTENDED TO COVER STANDARD CONVENTIONAL SYMBOLGY. THE SYMBOLGY IS USED FOR EXISTING & PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROJECT ANNOTATION, AS NOTED ON PROJECT PLAN SHEETS. THIS LEGEND SHEET COVERS THE BASICS. SYMBOLGY ON PLANS MAY VARY, PLAN ANNOTATIONS AND NOTES SHOULD BE USED TO CLARIFY AS NEEDED.

R.O.W. ABBREVIATIONS (CODES) & SYMBOLS

POINT	CODE	DESCRIPTION
	CH	CHANNEL EASEMENT
	CONST	CONSTRUCTION EASEMENT
	CUL	CULVERT EASEMENT
	D&C	DISCONNECT & CONNECT
	DIT	DITCH EASEMENT
	DR	DRAINAGE EASEMENT
	DRIVE	DRIVEWAY EASEMENT
	EC	EROSION CONTROL
	HWY	HIGHWAY EASEMENT
	I&M	INSTALL & MAINTAIN EASEMENT
	LAND	LANDSCAPE EASEMENT
	R&RES	REMOVE & RESET
	R&REP	REMOVE & REPLACE
	SR	SLOPE RIGHT
	UE	UTILITY EASEMENT
	(P)	PERMANENT EASEMENT
	(T)	TEMPORARY EASEMENT
■	BNDNS	BOUND SET
▣	BNDNS	BOUND TO BE SET
●	IPNS	IRON PIN SET
⊙	IPNS	IRON PIN TO BE SET
⊠	CALC	EXISTING ROW POINT
○	PROW	PROPOSED ROW POINT
[LENGTH]		LENGTH CARRIED ON NEXT SHEET

COMMON TOPOGRAPHIC POINT SYMBOLS

POINT	CODE	DESCRIPTION
⊠	APL	BOUND APPARENT LOCATION
◦	BM	BENCHMARK
▣	BND	BOUND
▣	CB	CATCH BASIN
⊕	COMB	COMBINATION POLE
▣	DITHR	DROP INLET THROATED DNC
⊕	EL	ELECTRIC POWER POLE
◦	FPOLE	FLAGPOLE
○	GASFIL	GAS FILLER
○	GP	GUIDE POST
×	GSO	GAS SHUT OFF
◦	GUY	GUY POLE
◦	GUYW	GUY WIRE
×	GV	GATE VALUE
⊗	H	TREE HARDWOOD
△	HCTRL	CONTROL HORIZONTAL
△	HVCTRL	CONTROL HORIZ. & VERTICAL
◇	HYD	HYDRANT
◦	IP	IRON PIN
◦	IPIPE	IRON PIPE
⊕	LI	LIGHT - STREET OR YARD
⊕	MB	MAILBOX
○	MH	MANHOLE (MH)
▣	MM	MILE MARKER
◦	PM	PARKING METER
▣	PMK	PROJECT MARKER
◦	POST	POST STONE/WOOD
⊕	RRSIG	RAILROAD SIGNAL
⊕	RRSL	RAILROAD SWITCH LEVER
⊕	S	TREE SOFTWOOD
⊕	SAT	SATELLITE DISH
⊕	SHRUB	SHRUB
⊕	SIGN	SIGN
⊕	STUMP	STUMP
⊕	TEL	TELEPHONE POLE
◦	TIE	TIE
⊕	TSIGN	SIGN W/DOUBLE POST
⊕	VCTRL	CONTROL VERTICAL
◦	WELL	WELL
×	WSO	WATER SHUT OFF

THESE ARE COMMON VAOT SURVEY POINT SYMBOLS FOR EXISTING FEATURES, ALSO USED FOR PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROPOSED ANNOTATION.

PROPOSED GEOMETRY CODES

CODE	DESCRIPTION
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
CC	CENTER OF CURVE
PT	POINT OF TANGENCY
PCC	POINT OF COMPOUND CURVE
PRC	POINT OF REVERSE CURVE
POB	POINT OF BEGINNING
POE	POINT OF ENDING
STA	STATION PREFIX
AH	AHEAD STATION SUFFIX
BK	BACK STATION SUFFIX
D	CURVE DEGREE OF (100FT)
R	CURVE RADUIS OF
T	CURVE TANGENT LENGTH
L	CURVE LENGTH OF
E	CURVE EXTERNAL DISTANCE

UTILITY SYMBOLGY

UNDERGROUND UTILITIES

— UGU —	UTILITY (GENERIC-UNKNOWN)
— UT —	TELEPHONE
— UE —	ELECTRIC
— UC —	CABLE (TV)
— UEC —	ELECTRIC+CABLE
— UET —	ELECTRIC+TELEPHONE
— UCT —	CABLE+TELEPHONE
— UECT —	ELECTRIC+CABLE+TELEP.
— G —	GAS LINE
— W —	WATER LINE
— S —	SANITARY SEWER (SEPTIC)

ABOVE GROUND UTILITIES (AERIAL)

— AGU —	UTILITY (GENERIC-UNKNOWN)
— T —	TELEPHONE
— E —	ELECTRIC
— C —	CABLE (TV)
— EC —	ELECTRIC+CABLE
— ET —	ELECTRIC+TELEPHONE
— AER E&T —	ELECTRIC+TELEPHONE
— CT —	CABLE+TELEPHONE
— ECT —	ELECTRIC+CABLE+TELEP.
—	UTILITY POLE GUY WIRE

PROJECT CONSTRUCTION SYMBOLGY

PROJECT DESIGN & LAYOUT SYMBOLGY

— -- — CZ — -- —	CLEAR ZONE
— — — — —	PLAN LAYOUT MATCHLINE

PROJECT CONSTRUCTION FEATURES

△ — — — — — △	TOP OF CUT SLOPE
○ — — — — — ○	TOE OF FILL SLOPE
⊗ ⊗ ⊗ ⊗ ⊗ ⊗	STONE FILL
— — — — —	BOTTOM OF DITCH
— — — — —	CULVERT PROPOSED
— — — — —	STRUCTURE SUBSURFACE
PDF — — — — — PDF	PROJECT DEMARCATION FENCE
BF — — — — — BF	BARRIER FENCE
XXXXXXXXXXXXXXXXXXXX	TREE PROTECTION ZONE (TPZ)
///	STRIPING LINE REMOVAL
~~~~~	SHEET PILES

CONVENTIONAL BOUNDARY SYMBOLGY

BOUNDARY LINES

— — — — —	TOWN BOUNDARY LINE
— — — — —	COUNTY BOUNDARY LINE
— — — — —	STATE BOUNDARY LINE
— — — — —	PROPOSED STATE R.O.W. (LIMITED ACCESS)
— — — — —	PROPOSED STATE R.O.W.
— — — — —	STATE ROW (LIMITED ACCESS)
— — — — —	STATE ROW
— — — — —	TOWN ROW
— — — — —	PERMANENT EASEMENT LINE (P)
— — — — —	TEMPORARY EASEMENT LINE (T)
— — — — —	SURVEY LINE
— — — — —	PROPERTY LINE (P/L)
— — — — —	SLOPE RIGHTS
6f — — — — — 6f	6F PROPERTY BOUNDARY
4f — — — — — 4f	4F PROPERTY BOUNDARY
HAZ — — — — — HAZ	HAZARDOUS WASTE

EPSC LAYOUT PLAN SYMBOLGY

EPSC MEASURES

ONNOONNOONNO	FILTER CURTAIN
— — — — —	SILT FENCE
— — — — —	SILT FENCE WOVEN WIRE
— — — — —	CHECK DAM
— — — — —	DISTURBED AREAS REQUIRING RE-VEGETATION
— — — — —	EROSION MATTING

ENVIRONMENTAL RESOURCES

— — — — —	WETLAND BOUNDARY
— — — — —	RIPARIAN BUFFER ZONE
— — — — —	WETLAND BUFFER ZONE
— — — — —	SOIL TYPE BOUNDARY
— — — — —	THREATENED & ENDANGERED SPECIES
HAZ — — — — —	HAZARDOUS WASTE AREA
AG — — — — —	AGRICULTURAL LAND
HABITAT — — — — —	FISH & WILDLIFE HABITAT
— — — — —	FLOOD PLAIN
— — — — —	ORDINARY HIGH WATER (OHW)
— — — — —	STORM WATER
— — — — —	USDA FOREST SERVICE LANDS
— — — — —	WILDLIFE HABITAT SUIT/CONN

ARCHEOLOGICAL & HISTORIC

— — — — —	ARCHEOLOGICAL BOUNDARY
— — — — —	HISTORIC DISTRICT BOUNDARY
— — — — —	HISTORIC AREA
⊕	HISTORIC STRUCTURE

CONVENTIONAL TOPOGRAPHIC SYMBOLGY

EXISTING FEATURES

— — — — —	ROAD EDGE PAVEMENT
— — — — —	ROAD EDGE GRAVEL
— — — — —	DRIVEWAY EDGE
— — — — —	DITCH
— — — — —	FOUNDATION
— — — — —	FENCE (EXISTING)
— — — — —	FENCE WOOD POST
— — — — —	FENCE STEEL POST
— — — — —	GARDEN
— — — — —	ROAD GUARDRAIL
— — — — —	RAILROAD TRACKS
— — — — —	CULVERT (EXISTING)
— — — — —	STONE WALL
— — — — —	WALL
— — — — —	WOOD LINE
— — — — —	BRUSH LINE
— — — — —	HEDGE
— — — — —	BODY OF WATER EDGE
— — — — —	LEDGE EXPOSED

PROJECT NAME:	NORTH HERO GRAND ISLE BRIDGE
PROJECT NUMBER:	BHF 028-1(26)
FILE NAME:	z12b142leg.dgn
PROJECT LEADER:	D. GOZALKOWSKI
DESIGNED BY:	J. PARRELLI
CONVENTIONAL SYMBOLGY LEGEND SHEET	
PLOT DATE:	8/4/2017
DRAWN BY:	R. BROWN
CHECKED BY:	J. SHIELDS
SHEET	14 OF 340





EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REPLACEMENT OF BRIDGE 8, A DOUBLE LEAF BASCULE BRIDGE THAT PROVIDES THE ONLY VEHICULAR CONNECTION BETWEEN NORTH HERO AND GRAND ISLE, VT. THE BRIDGE WILL BE REPLACED WITH A TWIN LEAF BASCULE BRIDGE. THE BRIDGE WILL BE ON NEW FOUNDATIONS ALONG THE SAME ALIGNMENT. A SIMILAR AESTHETIC WILL BE MAINTAINED. BRIDGE 8 IS LOCATED BETWEEN THE TOWNS OF NORTH HERO AND GRAND ISLE, ALONG US ROUTE 2, AND CROSSES OVER LAKE CHAMPLAIN.

NOTE: AREA OF DISTURBANCE INCLUDES LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, AS WELL AS WASTE, BORROW AND STAGING AREAS, AND OTHER EARTH DISTURBING ACTIVITIES WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS AS SHOWN ON THE ATTACHED EPSC PLAN.

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 2.95 ACRES. IMPACTS BELOW THE MWL ARE APPROXIMATELY 0.71 ACRE (0.18 ACRE PERM. & 0.53 ACRE TEMP.) IMPACTS BELOW THE OHW ARE APPROXIMATELY 0.83 ACRE (0.18 ACRE PERM. & 0.65 ACRE TEMP.)

IT IS ANTICIPATED THAT THIS PROJECT WILL LAST FOUR CONSTRUCTION SEASONS.

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE AREA IS A SADDLE THAT IS MOSTLY OPEN AREAS AND BANK WITH SOME WOODED AREAS. US ROUTE 2, LANDING LANE, DRAWBRIDGE LANE, AND TWO PAVED DRIVeways ARE WITHIN THE PROJECT SITE. THERE IS A RESIDENCE ON THE SOUTH SIDE OF THE PROJECT.

1.2.2 DRAINAGE, WATERWAYS, BODIES OF WATER, AND PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES

LAKE CHAMPLAIN IS THE ONLY WATER SOURCE ON THE PROJECT SITE.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF DECIDUOUS AND CONIFEROUS TREES, AS WELL AS SOME ADDITIONAL MINOR GROWTH. UPON PROJECT COMPLETION, AREAS OF THE CAUSEWAY WILL BE ARMORED WITH STONE FILL AS SPECIFIED ON THE PLANS. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

1.2.4 SOILS

THE SOIL IN THE PROJECT AREA IS MOSTLY FILL PLACED FOR THE CONSTRUCTION OF THE EXISTING BRIDGE. THE NORTHERNMOST AREA CONTAINS COVINGTON SILTY CLAY LOAM, K=0.49. THE SOUTHERN AREA CONTAINS AMENIA SILT LOAM, K=0.37 AND BENSON ROCKY LOAM, K=0.32.

NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING:  
0.0-0.23 = LOW EROSION POTENTIAL  
0.24-0.36 = MODERATE EROSION POTENTIAL  
0.37 AND HIGHER = HIGH EROSION POTENTIAL

1.2.5 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: YES - THE PROJECT AREA IS AN EXCELLENT WILDLIFE HABITAT. NUMEROUS SPECIES COULD OCCUR WITHIN THE PROJECT AREA INCLUDE INVERTEBRATES, FISH, BOTTOM DWELLING ORGANISMS, WATERFOWL, BIRDS OF PREY, MIGRATORY BIRDS, MAMMALS, REPTILES, AND AMPHIBIANS. HISTORICAL OR ARCHEOLOGICAL AREAS: YES  
PRIME AGRICULTURAL LAND: NO  
THREATENED AND ENDANGERED SPECIES: YES - GIANT FLOATER (PYGANODON GRANDIS) WAS THE ONLY SPECIES FOUND BY A SURVEY TRAGETING FIVE SPECIES OF FRESHWATER MUSSEL. IT HAS BEEN RECOMMENDED THAT A RESAMPLE BE TAKEN CLOSER TO CONSTRUCTION AND THAT ALL MUSSELS FOUND BE RELOCATED TO ANOTHER SUITABLE AREA BEFORE JULY 2018.  
WATER RESOURCE: LAKE CHAMPLAIN  
WETLANDS: NO - NO IMPACTS ARE ANTICIPATED TO THE WETLANDS, WHICH ARE LOCATED WITHIN THE NORTHWESTERN QUADRANT OF THE CAUSEWAY, DUE TO THE LIMITED SCOPE OF THE PROJECT.

1.3 RISK EVALUATION

THIS PROJECT FALLS UNDER THE JURISDICTION OF CONSTRUCTION GENERAL PERMIT 3-9020 FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES FOR LOW RISK PROJECTS. ANY MODIFICATIONS TO THE PROJECT THAT INCREASE THE RISK TO ENVIRONMENTAL RESOURCES SHALL BE EVALUATED IN ACCORDANCE WITH THE PERMIT REQUIREMENTS. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL PERMITTING.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE PRINCIPLES OUTLINED IN THIS NARRATIVE CONSIST OF APPLYING MEASURES THROUGHOUT CONSTRUCTION OF THE PROJECT IN ORDER TO MINIMIZE SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORMWATER CONTROLS AND OTHER POLLUTION PREVENTION PRACTICES. THEY HAVE BEEN PROPOSED BY THE DESIGNER AS A BASIS FOR PROTECTING RESOURCES AND WILL NEED TO BE BUILT UPON BASED ON THE SPECIFIC MEANS AND METHODS OF THE CONTRACTOR. REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR SPECIFIC GUIDANCE AND CONSTRUCTION DETAILING.

ALL MEASURES SHALL BE REGULARLY MAINTAINED AND SHALL BE CHECKED FOR SEDIMENT BUILD-UP. SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED SITE WHERE IT WILL NOT BE SUBJECT TO EROSION.

1.4.1 MARK SITE BOUNDARIES

SITE BOUNDARIES AND AREAS CONSTRUCTION EQUIPMENT CAN ACCESS SHALL BE DELINEATED. PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES. BECAUSE THIS PROJECT FALLS UNDER THE CGP 3-9020, BARRIER FENCE SHALL BE USED INSTEAD OF PROJECT DEMARCATION FENCE WITHIN 100 FEET OF A WATER RESOURCE (STREAM, BROOK, LAKE, POND, WETLAND, ETC.

1.4.2 LIMIT DISTURBANCE AREA

PREVENTING INITIAL SOIL EROSION BY MINIMIZING THE EXPOSED AREA IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. EARTH DISTURBANCE CAN BE MINIMIZED THROUGH CONSTRUCTION PHASING BY ONLY OPENING UP EARTH AS NECESSARY. THIS CAN LIMIT THE AREA THAT WILL BE DISTURBED AND EXPOSED TO EROSION. EMPLOY TEMPORARY CONSTRUCTION STABILIZATION PRACTICES IN INCREMENTAL STAGES AS PHASES CHANGE. FOR PROJECTS WHICH FALL UNDER THE CONSTRUCTION GENERAL PERMIT 3-9020, ONLY THE ACREAGE LISTED ON THE PERMIT AUTHORIZATION MAY BE EXPOSED AT ANY GIVEN TIME.

MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS OR OTHER SENSITIVE AREAS IS A CRUCIAL EROSION AND SEDIMENT CONTROL MEASURE THAT SHOULD BE ESTABLISHED WHEREVER POSSIBLE.

1.4.3 SITE ENTRANCE/EXIT STABILIZATION

TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS SHALL BE MINIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTOR’S PROGRESS SCHEDULE.

STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AS PROPOSED ON THE EPSC PLAN AND ANYWHERE EQUIPMENT WILL BE GOING FROM AREAS OF EXPOSED SOILS TO PAVED SURFACES.

1.4.4 INSTALL SEDIMENT BARRIERS

SEDIMENT BARRIERS SHALL BE UTILIZED TO INTERCEPT RUNOFF AND ALLOW SUSPENDED SEDIMENT TO SETTLE OUT. THEY SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK.

SILT FENCE WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN. BECAUSE THIS PROJECT FALLS UNDER THE CONSTRUCTION GENERAL PERMIT 3-9020, WOVEN WIRE REINFORCED SILT FENCE SHALL BE USED INSTEAD OF SILT FENCE WITHIN 100 FEET UPSLOPE OF RECEIVING WATERS.

FILTER CURTAINS WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN AND DETAIL. THE INITIAL INSTALLATION OF THE CURTAIN, FOR EARTH EXCAVATION AND BRIDGE CONSTRUCTION, SHALL CONSIST OF A DOUBLE ROW. THE SECOND INSTALLATION, FOR THE COFFERDAM REMOVAL, SHALL CONSIST OF A SINGLE ROW. EACH ROW SHALL BE PAID BY THE SQUARE FOOT UNDER ITEM 649.61 GEOTEXTILE FOR FILTER CURTAIN.

1.4.5 DIVERT UPLAND RUNOFF

DIVERSIONARY MEASURES SHALL BE USED TO INTERCEPT RUNOFF FROM ABOVE THE CONSTRUCTION AND DIRECT IT AROUND THE DISTURBED AREA SO THAT CLEAN WATER DOES NOT BECOME MUDDIED WHILE TRAVELING OVER EXPOSED SOILS ON THE CONSTRUCTION SITE.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

THIS PROJECT IS NOT EXPECTED TO PRODUCE ANY CHANNELIZED RUNOFF.

1.4.7 CONSTRUCT PERMANENT CONTROLS

THIS PROJECT DOES NOT REQUIRE ANY PERMANENT STORMWATER TREATMENT DEVICES.

1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY STABILIZATION IN PLACE WITHIN 48 HOURS OF DISTURBANCE OR IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT 3-9020 AUTHORIZATION.

SURFACE ROUGHENING OF ALL EXPOSED SLOPES, COMBINED WITH TEMPORARY MULCHING, SHALL BE UTILIZED ON A REGULAR BASIS. BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3.

THE FORECAST OF RAINFALL EVENTS SHALL TRIGGER IMMEDIATE PROTECTION OF EXPOSED SOILS.

1.4.9 WINTER STABILIZATION

IF CONSTRUCTION ACTIVITIES INVOLVING EARTH DISTURBANCE CONTINUE PAST OCTOBER 15 OR BEGIN BEFORE APRIL 15, THE FOLLOWING MUST BE INCORPORATED INTO THE EPSC PLAN:

- 1. ENLARGED ACCESS POINTS, STABILIZE TO PROVIDE FOR SNOW STOCKPILING.
- 2. LIMITS OF DISTURBANCE MOVED OR REPLACED TO REFLECT BOUNDARY OF WINTER WORK.
- 3. A SNOW MANAGEMENT PLAN INCLUDING ADEQUATE STORAGE AND CONTROL OF SNOWMELT, REQUIRING CLEARED SNOW TO BE STORED DOWN GRADIENT OF ALL AREA OF DISTURBANCE AND PROHIBITING STORAGE OF SNOW IN STORMWATER TREATMENT STRUCTURES.
- 4. A MINIMUM 25 FOOT BUFFER SHALL BE MAINTAINED FROM PERIMETER CONTROLS SUCH AS SILT FENCE TO ALLOW FOR SNOW CLEARING AND MAINTENANCE.
- 5. IN AREAS OF DISTURBANCE WITHIN 100 FEET OF A RECEIVING WATER, SILT FENCE SHALL BE REINFORCED OR ELSE REPLACED WITH PERIMETER DIKES, SWALES, OR OTHER PRACTICES RESISTANT TO THE FORCES OF SNOW LOADS.
- 6. DRAINAGE STRUCTURES SHALL BE KEPT OPEN AND FREE OF SNOW AND ICE DAMS.
- 7. THE CONTRACTOR SHALL INSTALL SILT FENCE AND OTHER PRACTICES REQUIRING EARTH DISTURBANCE AHEAD OF GROUND FREEZING.
- 8. WHERE MULCH IS THE SELECTED STABILIZATION MEASURE, USE DOUBLE THE STANDARD RATE OF MULCH.
- 9. THE REQUIREMENT FOR NETTING OR OTHER APPROACH TO ANCHOR MULCH TO PREVENT REMOVAL BY WIND.
- 10. TO ENSURE COVER OF DISTURBED SOIL IN ADVANCE OF A MELT EVENT, AREAS OF DISTURBED SOIL MUST BE STABILIZED AT THE END OF EACH WORK DAY, WITH THE FOLLOWING EXCEPTIONS:
  - a. IF NO PRECIPITATION WITHIN 24 HOURS IS FORECAST AND WORK WILL RESUME IN THE SAME DISTURBED AREA WITHIN 24 HOURS, DAILY STABILIZATION IS NOT NECESSARY.
  - b. DISTURBED AREAS THAT COLLECT AND RETAIN RUNOFF, SUCH AS HOUSE FOUNDATIONS OR OPEN UTILITY TRENCHES.
- 11. REMOVE SNOW OR ICE TO LESS THAN 1 INCH THICKNESS PRIOR TO STABILIZATION.

1.4.10 STABILIZE SOIL AT FINAL GRADE

EXPOSED SOIL MUST BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

SEED, MULCH, FERTILIZER AND LIME SHALL BE USED TO ESTABLISH PERMANENT VEGETATION. FOR SLOPES STEEPER THAN 1:3, BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED INSTEAD OF MULCH.

1.4.11 DE-WATERING ACTIVITIES

DISCHARGE FROM DEWATERING ACTIVITIES THAT FLOWS OFF OF THE CONSTRUCTION SITE MUST NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF THE VERMONT WATER QUALITY STANDARDS.

TREATMENT OF DEWATERING COFFERDAM IS ANTICIPATED. FILTER BAGS SHALL BE USED FOR TREATMENT OF DISCHARGE DURING DEWATERING OPERATIONS. LOCATIONS FOR TREATMENT HAVE BEEN PROPOSED AND ARE SHOWN ON THE PLANS.

1.4.12 INSPECT YOUR SITE

INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS OR CONSTRUCTION GENERAL PERMIT AUTHORIZATION STIPULATIONS.

1.5 SEQUENCE AND STAGING

THIS SECTION WILL BE DEVELOPED BY THE CONTRACTOR USING THE GUIDANCE OUTLINED IN THE VTRANS EPSC PLAN CONTRACTOR CHECKLIST.

1.5.1 CONSTRUCTION SEQUENCE

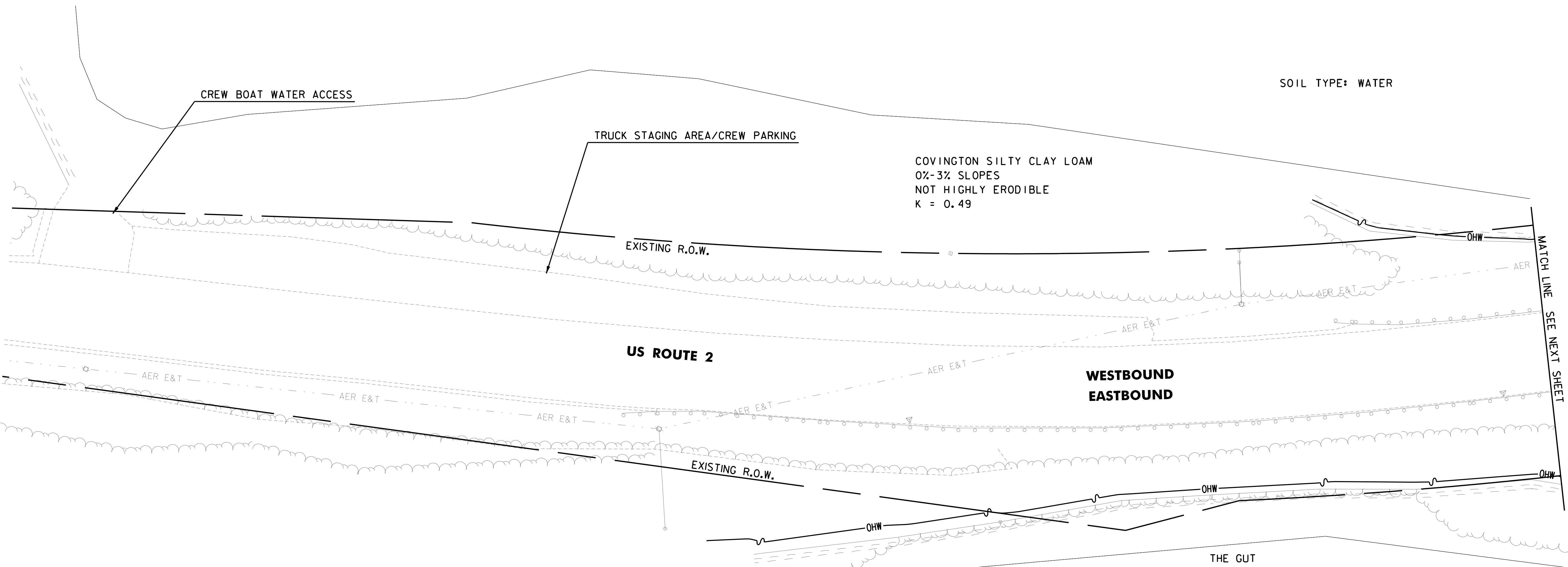
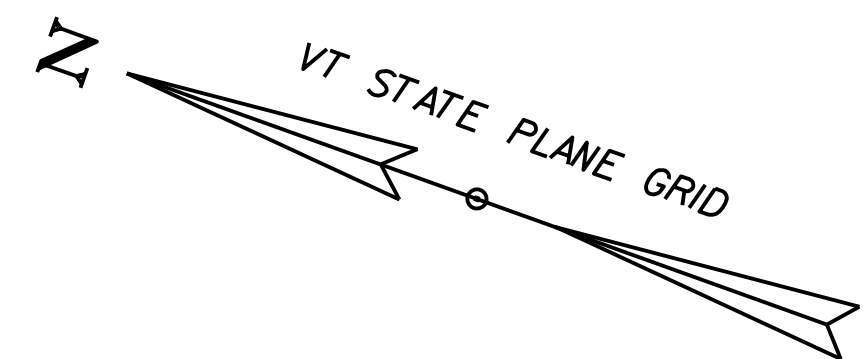
1.5.2 OFF-SITE ACTIVITIES

IN ADDITION TO THE CONTRACTOR CHECKLIST ANY ACTIVITIES OUTSIDE THE CONSTRUCTION LIMITS SHALL FOLLOW SPECIFICATION 105.25- 105.29 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

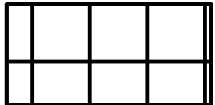

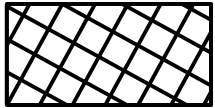
1.5.3 UPDATES

PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-1(26)	
FILE NAME: z12b142erogn.dgn	PLOT DATE: 9/28/2017
PROJECT LEADER: D. GOZALKOWSKI	DRAWN BY:R. BROWN
DESIGNED BY: J. PARRELLI	CHECKED BY: J. SHIELDS
EPSC NARRATIVE SHEET	SHEET 312 OF 340





LEGEND

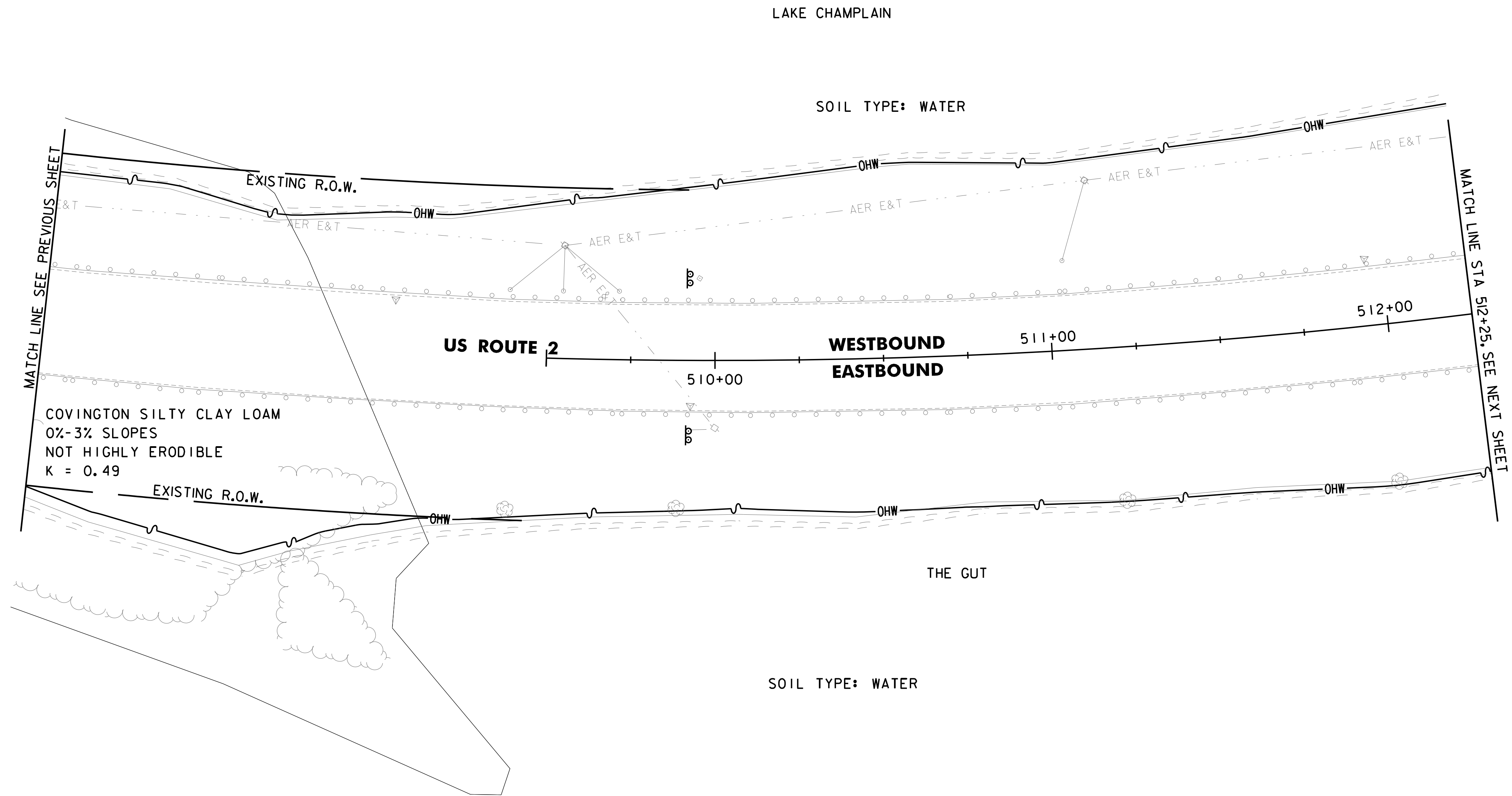
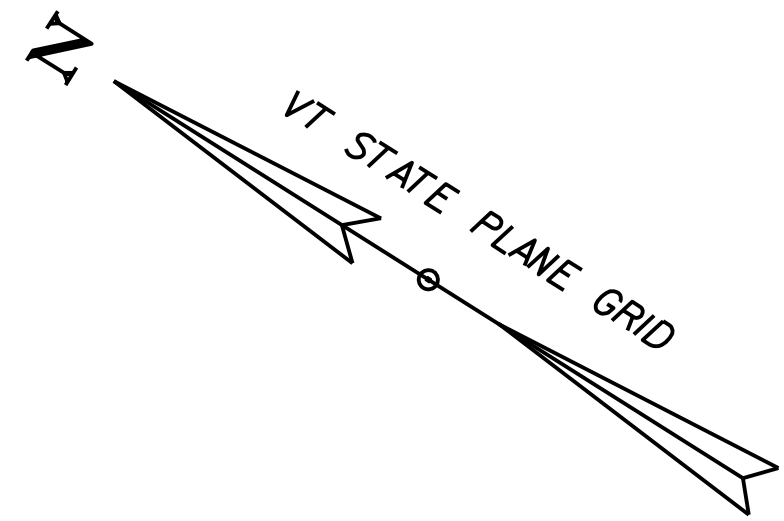
- OHW ———— ORDINARY HIGH WATER (OHW) = 98.0
-  REMOVE & RESET ARMORED STONE IMPACTS BELOW OHW = 0.00 SF (0.000 ACRES) (THIS SHEET)  
REMOVE & RESET ARMORED STONE IMPACTS BELOW OHW = 6808.00 SF (0.156 ACRES) (TOTAL)
-  TEMPORARY IMPACTS BELOW OHW = 0.00 SF (0.000 ACRES) (THIS SHEET)  
TEMPORARY IMPACTS BELOW OHW = 21,511.00 SF (0.494 ACRES) (TOTAL)
-  PERMANENT IMPACTS BELOW OHW = 0.00 SF (0.000 ACRES) (THIS SHEET)  
PERMANENT IMPACTS BELOW OHW = 7,748.00 SF (0.178 ACRES) (TOTAL)

SCALE 1" = 20' - 0"  
20 0 20



PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-1(26)	
FILE NAME: z12b142env.ohw.dgn	PLOT DATE: 11/22/2017
PROJECT LEADER: D. GOZALKOWSKI	DRAWN BY: R. BROWN
DESIGNED BY: J. PARRELLI	CHECKED BY: J. SHIELDS
IMPACTS BELOW OHW SHEET 1	SHEET 1 OF 24





### LEGEND

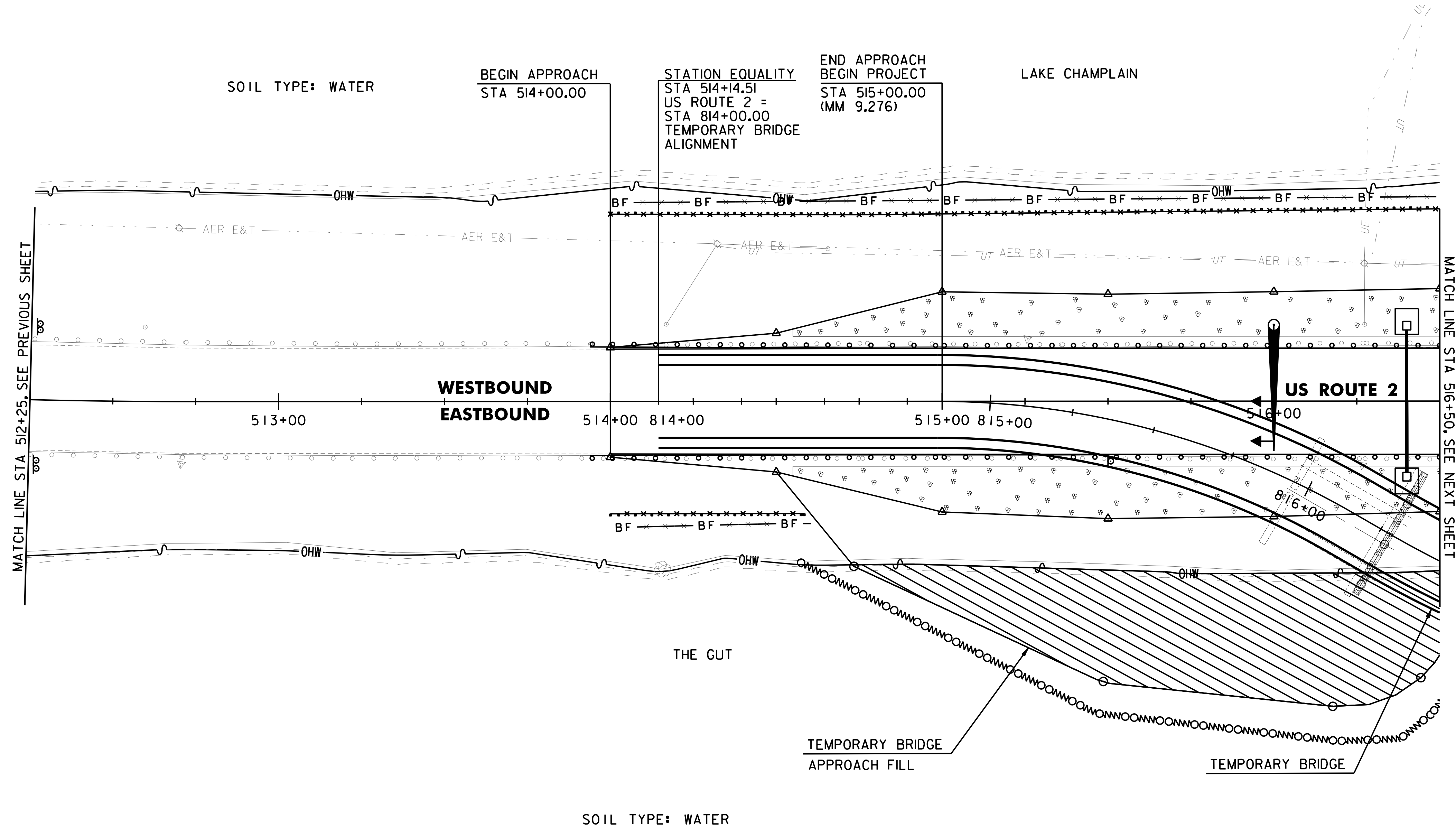
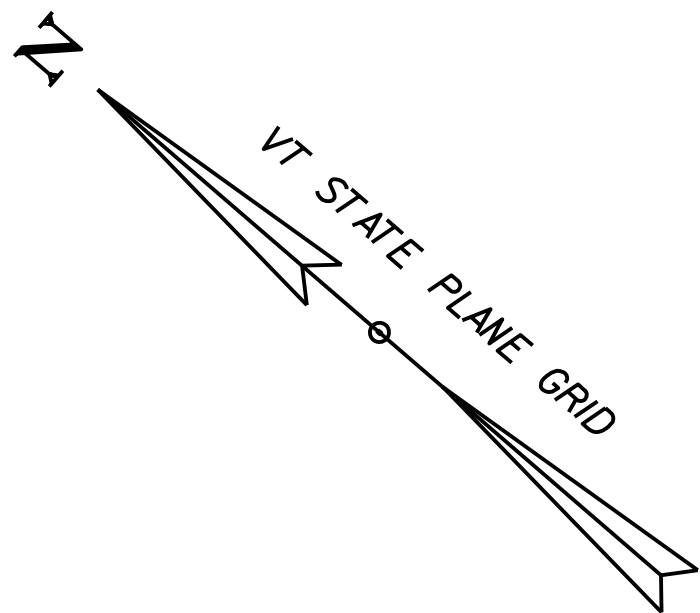
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PROJECT NUMBER: BHF 028-1(26)	DRAWN BY: R. BROWN
FILE NAME: z12b142env_ohw.dgn	CHECKED BY: J. SHIELDS
PROJECT LEADER: D. GOZALKOWSKI	SHEET 2 OF 24
DESIGNED BY: J. PARRELLI	
IMPACTS BELOW OHW SHEET 2	



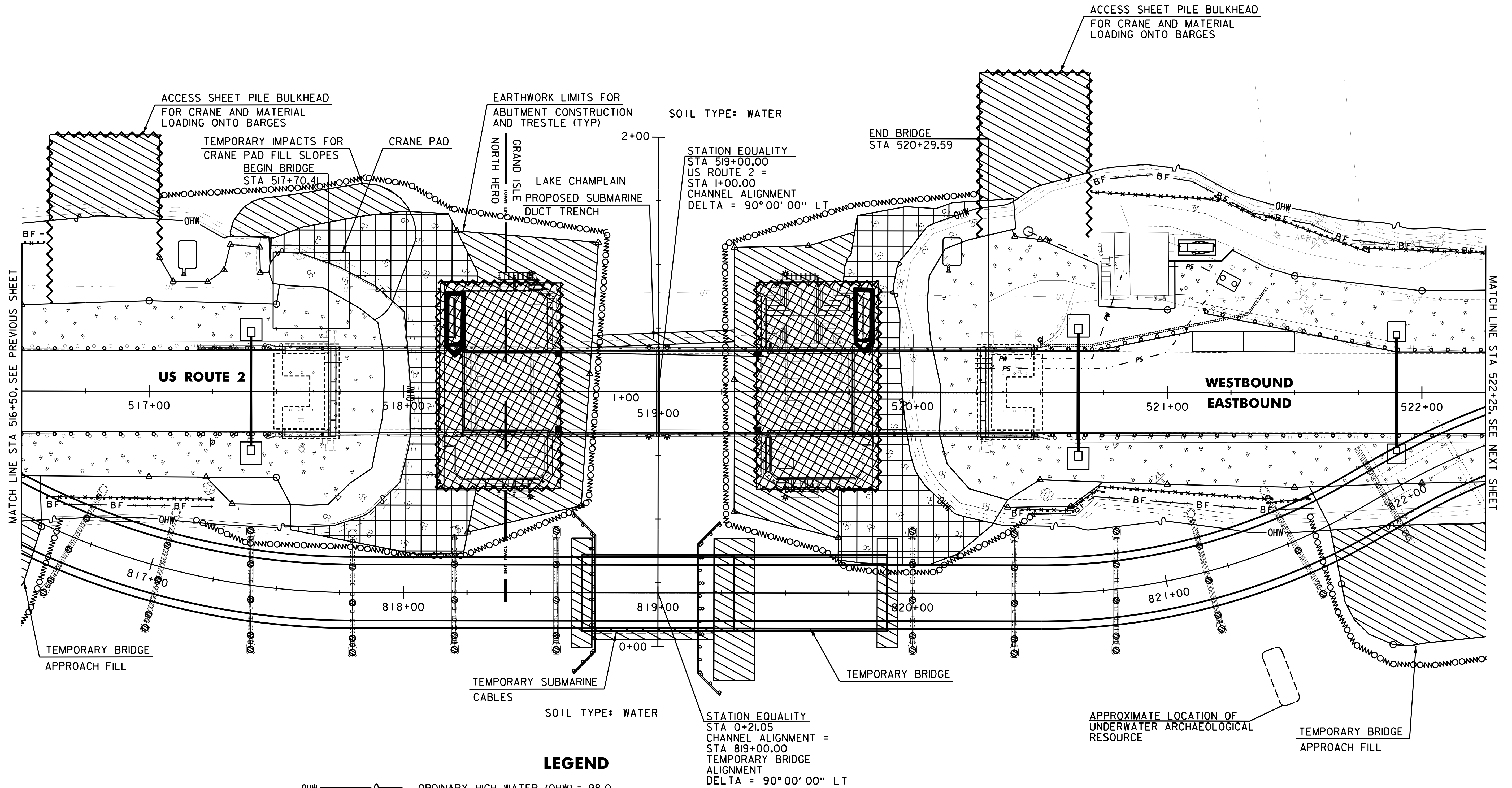
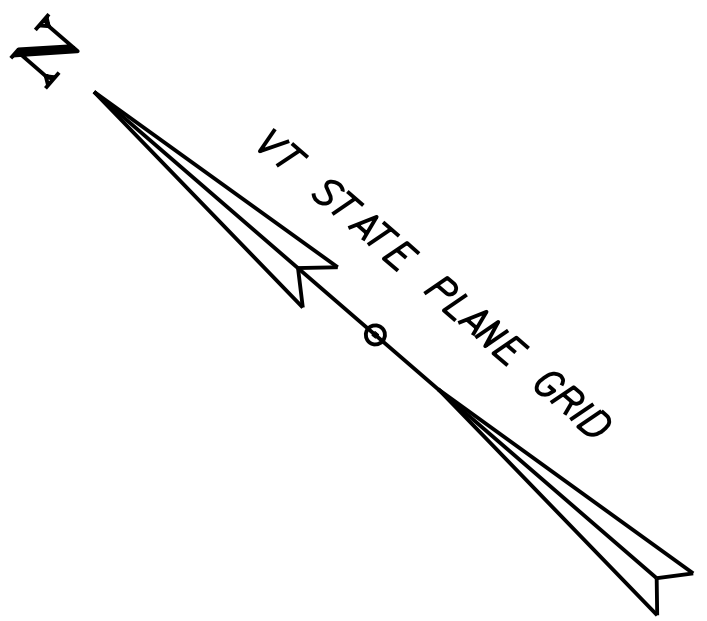
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SCALE 1" = 20' - 0"  
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PROJECT NUMBER:	BHF 028-1(26)
FILE NAME:	z12b142env_ohw.dgn
PROJECT LEADER:	D. GOZALKOWSKI
DESIGNED BY:	J. PARRELLI
IMPACTS BELOW OHW SHEET 3	
PLOT DATE:	11/22/2017
DRAWN BY:	R. BROWN
CHECKED BY:	J. SHIELDS
SHEET 3	OF 24



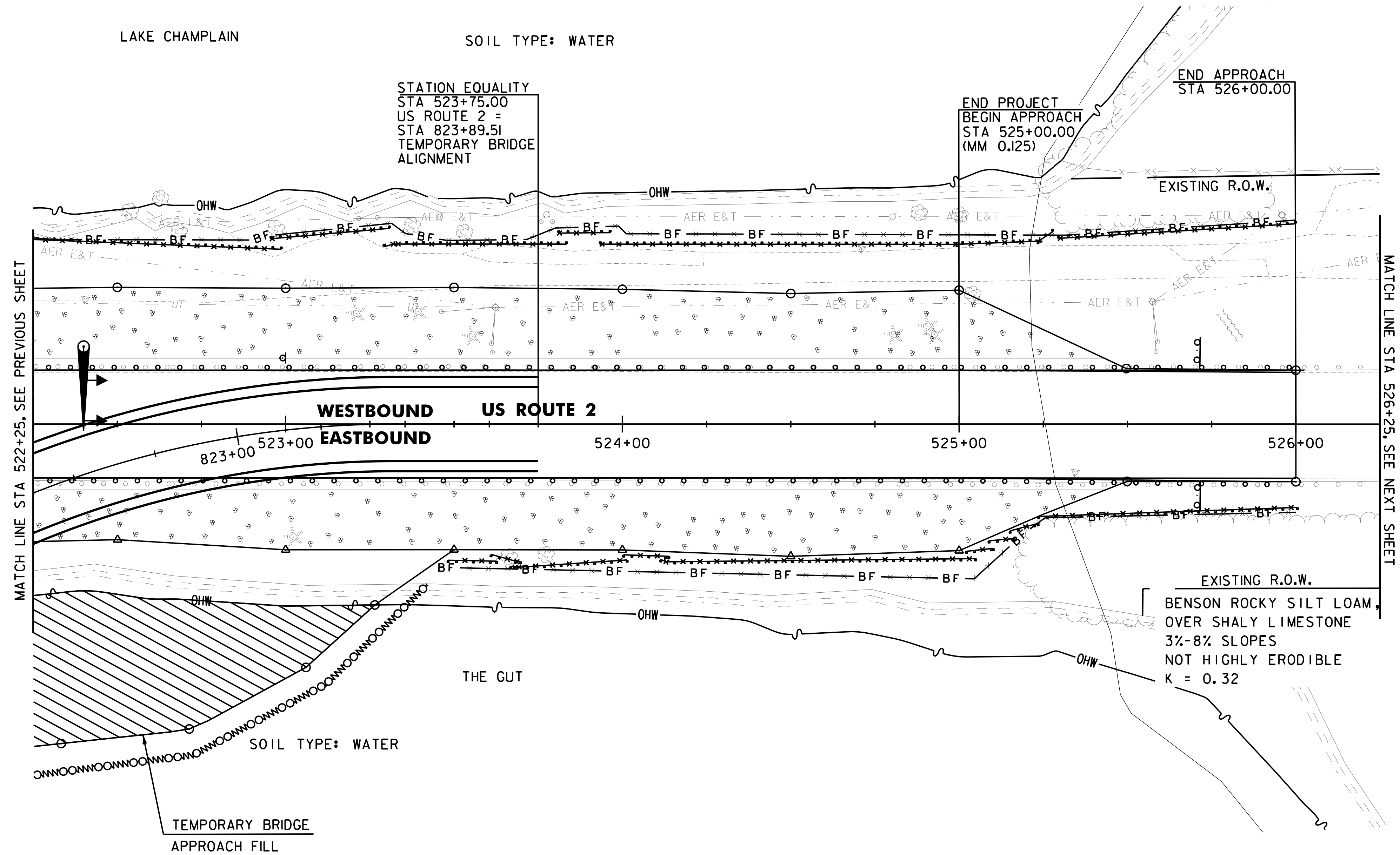
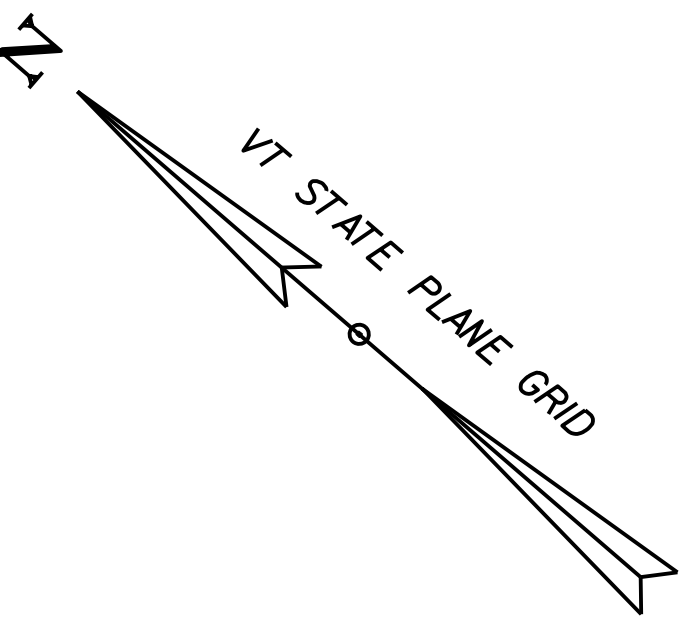
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SCALE 1" = 20' - 0"  
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FILE NAME: z12b142env_ohw.dgn	PLOT DATE: 11/22/2017
PROJECT LEADER: D. GOZALKOWSKI	DRAWN BY: R. BROWN
DESIGNED BY: J. PARRELLI	CHECKED BY: J. SHIELDS
IMPACTS BELOW OHW SHEET 4	SHEET 4 OF 24



**LEGEND**

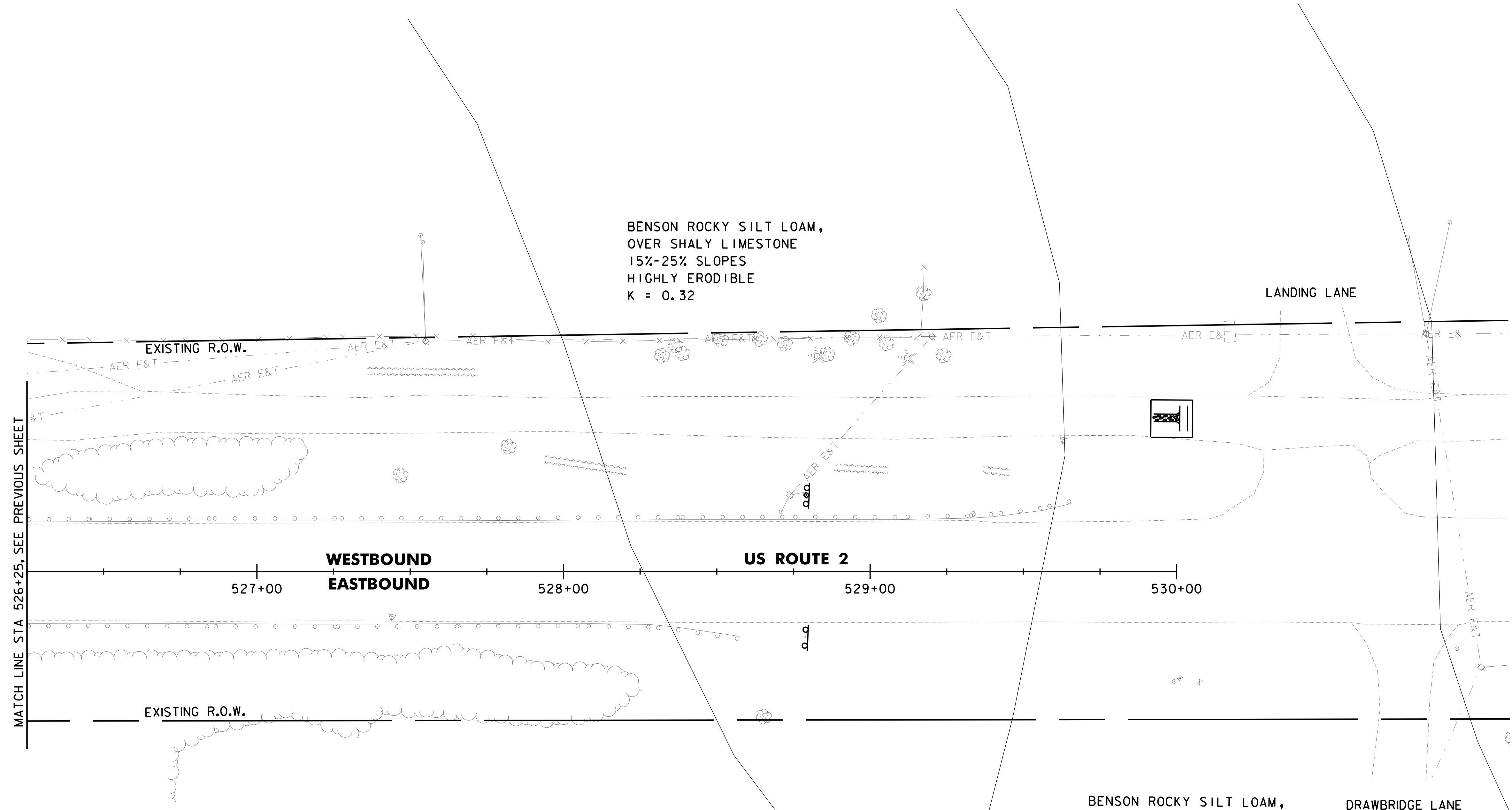
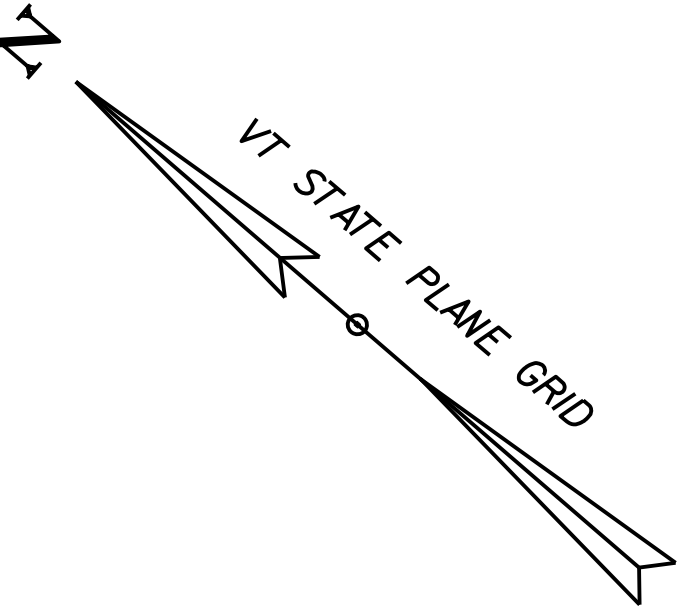
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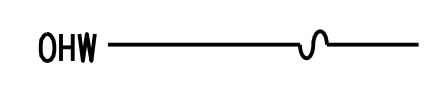
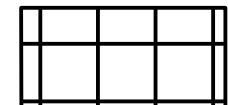




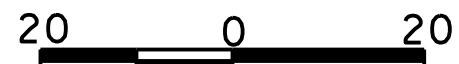
PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-1(26)	
FILE NAME: z12b142env.ohw.dgn	PLOT DATE: 11/22/2017
PROJECT LEADER: D. GOZALKOWSKI	DRAWN BY: R. BROWN
DESIGNED BY: J. PARRELLI	CHECKED BY: J. SHIELDS
IMPACTS BELOW OHW SHEET 5	SHEET 5 OF 24





**LEGEND**

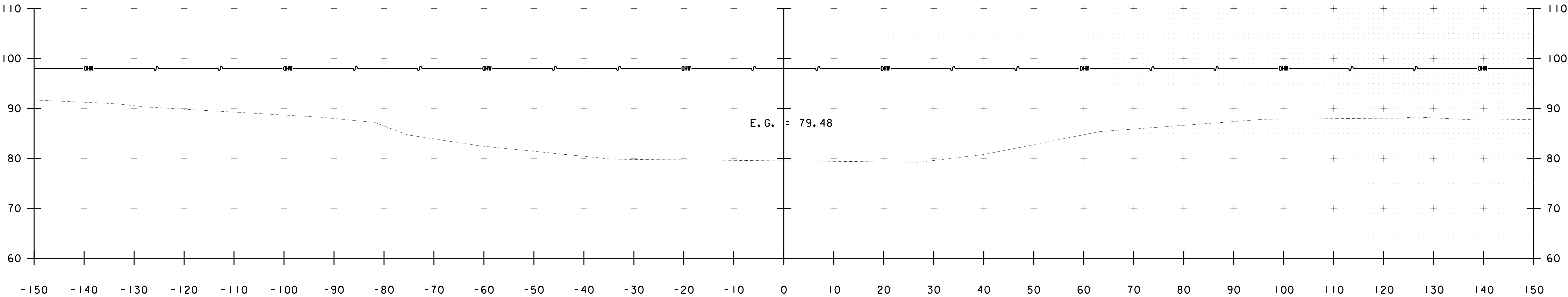
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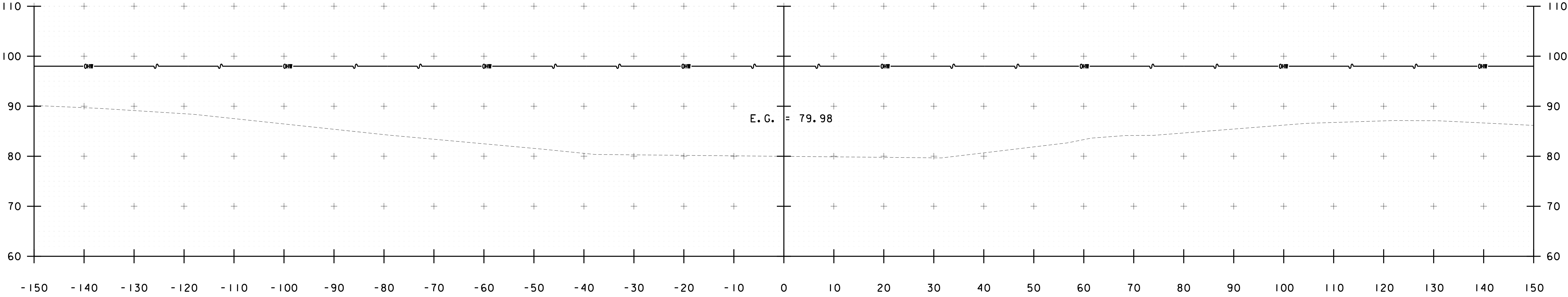


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PROJECT LEADER: D. GOZALKOWSKI	DRAWN BY: R. BROWN
DESIGNED BY: J. PARRELLI	CHECKED BY: J. SHIELDS
IMPACTS BELOW OHW SHEET 6	SHEET 6 OF 24

FILE NAME: N:\Projects\NANY\K3\28173\CADD\12b142\Consultants\z12b142env.ohw.dgn  
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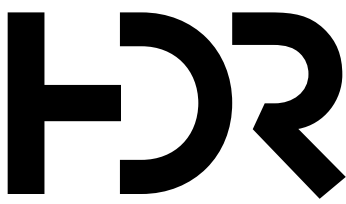


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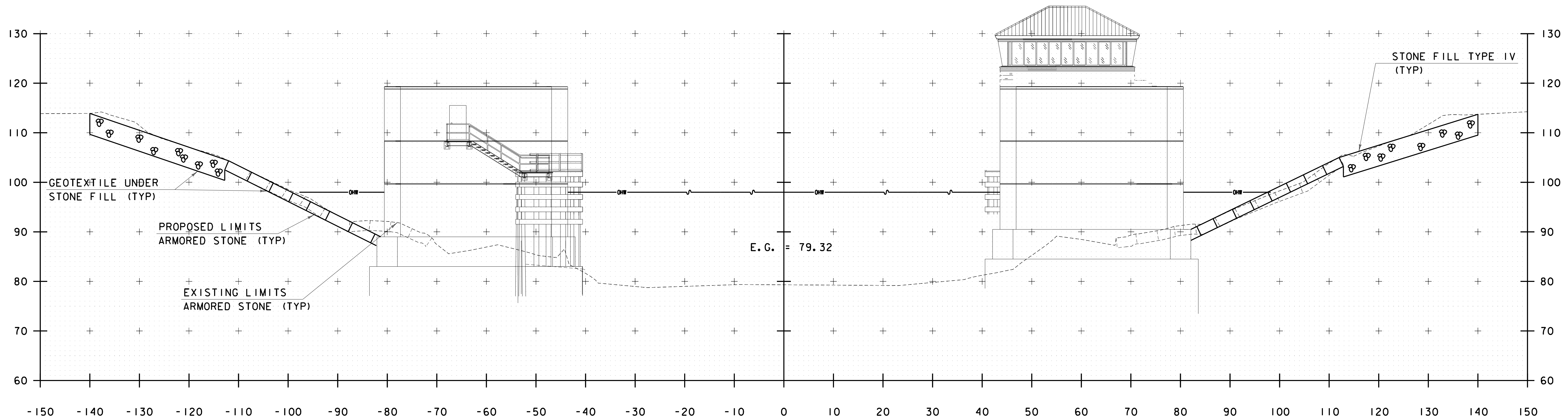
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LEGEND

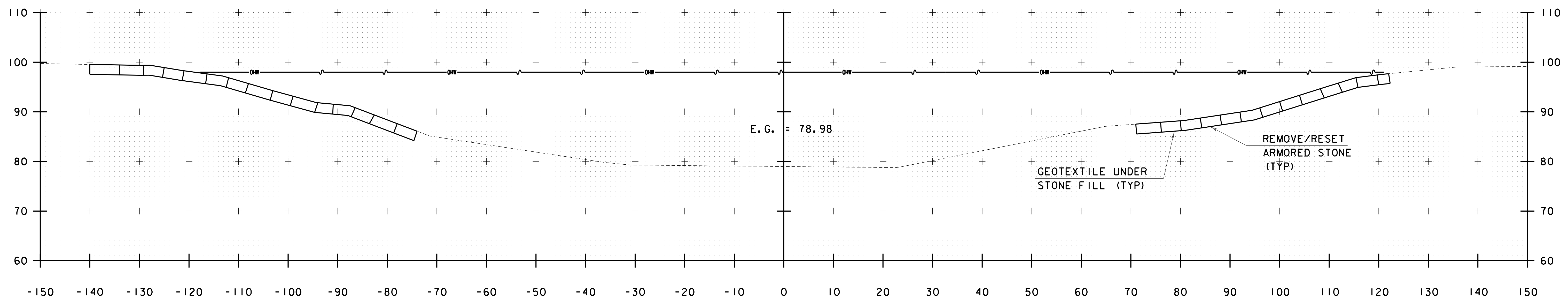
— OHW — ORDINARY HIGH WATER (OHW) = 98.0



PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-I(26)	
FILE NAME: z12bl42xcchanl.dgn	PLOT DATE: 8/30/2017
PROJECT LEADER: T. FRENCH	DRAWN BY: P. LEFEBVRE
DESIGNED BY:	CHECKED BY: M. MOZER
CHANNEL CROSS SECTIONS I	SHEET 7 OF 24



0+75



0+50

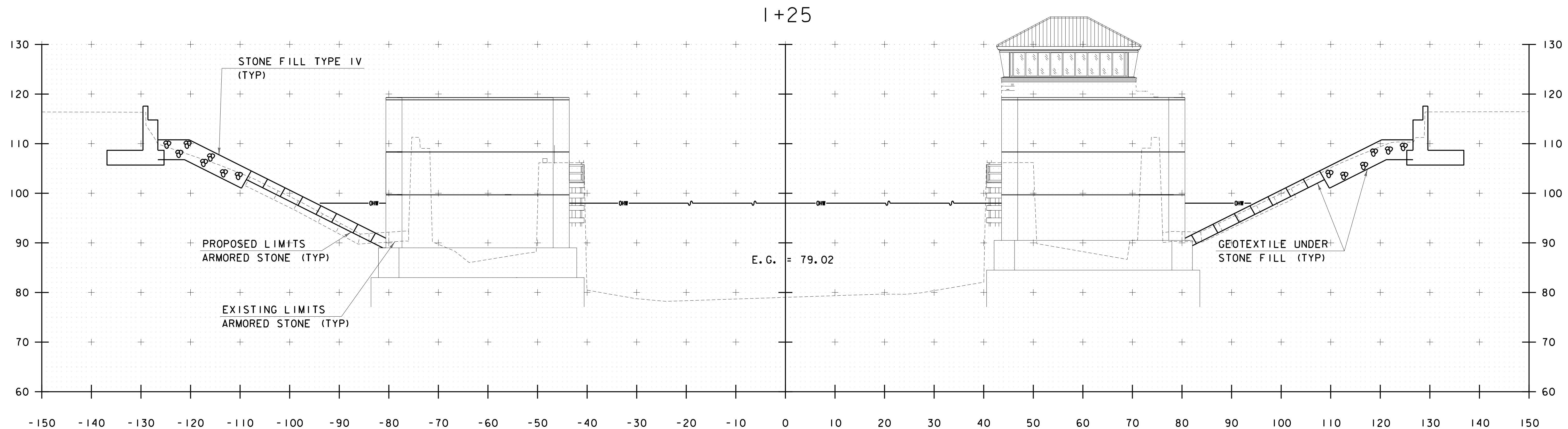
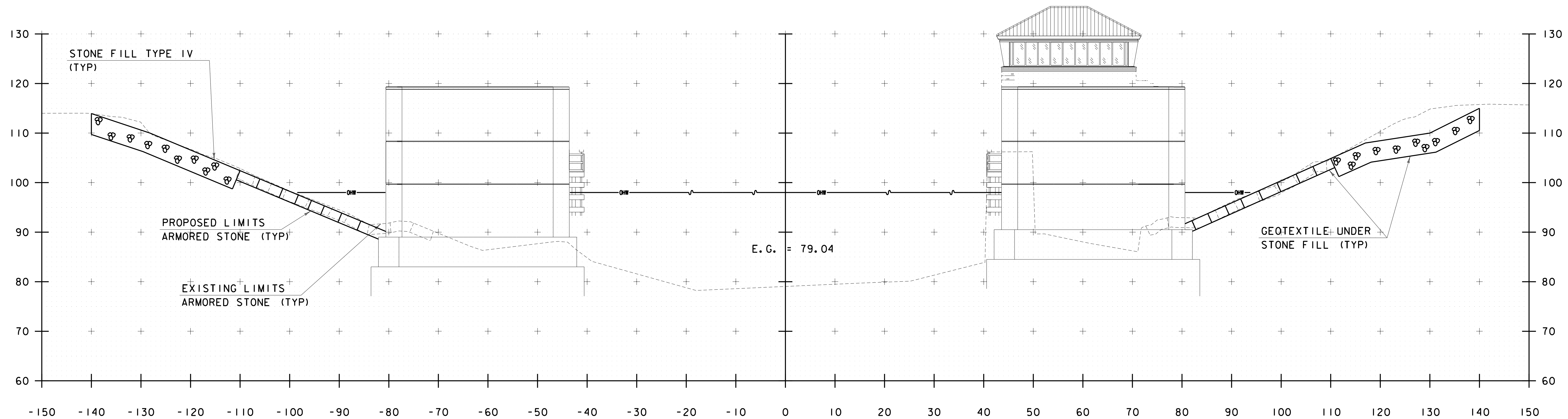
SCALE 1" = 10' - 0"

LEGEND

— OHW — ORDINARY HIGH WATER (OHW) = 98.0



PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-1(26)	
FILE NAME: z12bl42xcchan2.dgn	PLOT DATE: 8/30/2017
PROJECT LEADER: T. FRENCH	DRAWN BY: P. LEFEBVRE
DESIGNED BY:	CHECKED BY: M. MOZER
CHANNEL CROSS SECTIONS 2	SHEET 8 OF 24



SCALE 1" = 10'-0"

10 0 10

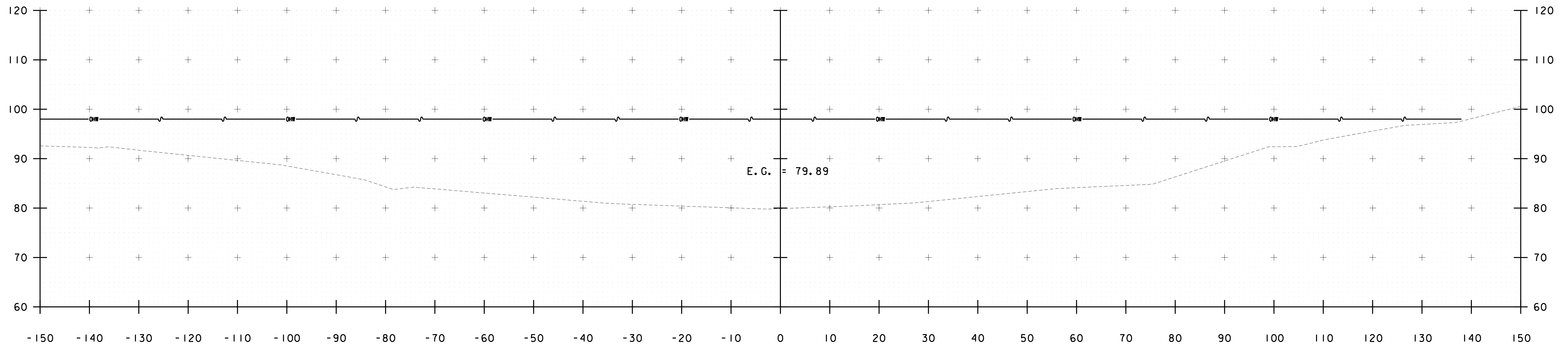
### LEGEND

— OHW — ORDINARY HIGH WATER (OHW) = 98.0

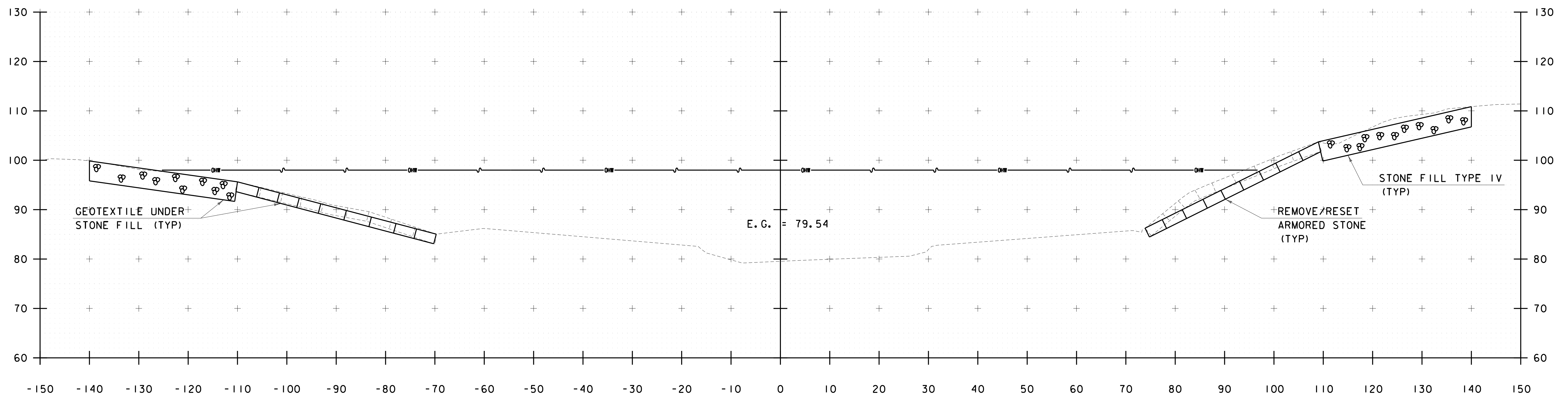


PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-I(26)	
FILE NAME: z12bl42xcchan3.dgn	PLOT DATE: 8/30/2017
PROJECT LEADER: T. FRENCH	DRAWN BY: P. LEFEBVRE
DESIGNED BY:	CHECKED BY: M. MOZER
CHANNEL CROSS SECTIONS 3	SHEET 9 OF 24





I+75



I+50

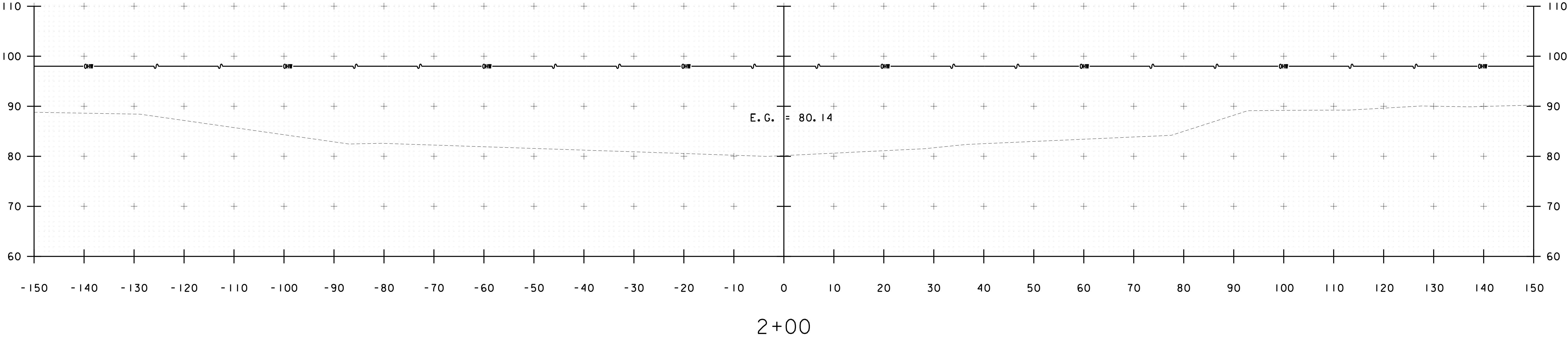
SCALE 1" = 10' - 0"  
10 0 10

### LEGEND

— OHW — ORDINARY HIGH WATER (OHW) = 98.0



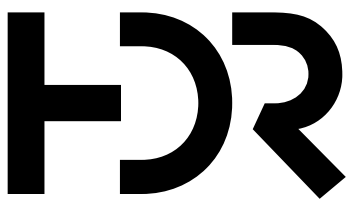
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PROJECT NUMBER: BHF 028-I(26)	
FILE NAME: z12bl42xcchan4.dgn	PLOT DATE: 8/30/2017
PROJECT LEADER: T. FRENCH	DRAWN BY: P. LEFEBVRE
DESIGNED BY:	CHECKED BY: M. MOZER
CHANNEL CROSS SECTIONS 4	SHEET 10 OF 24



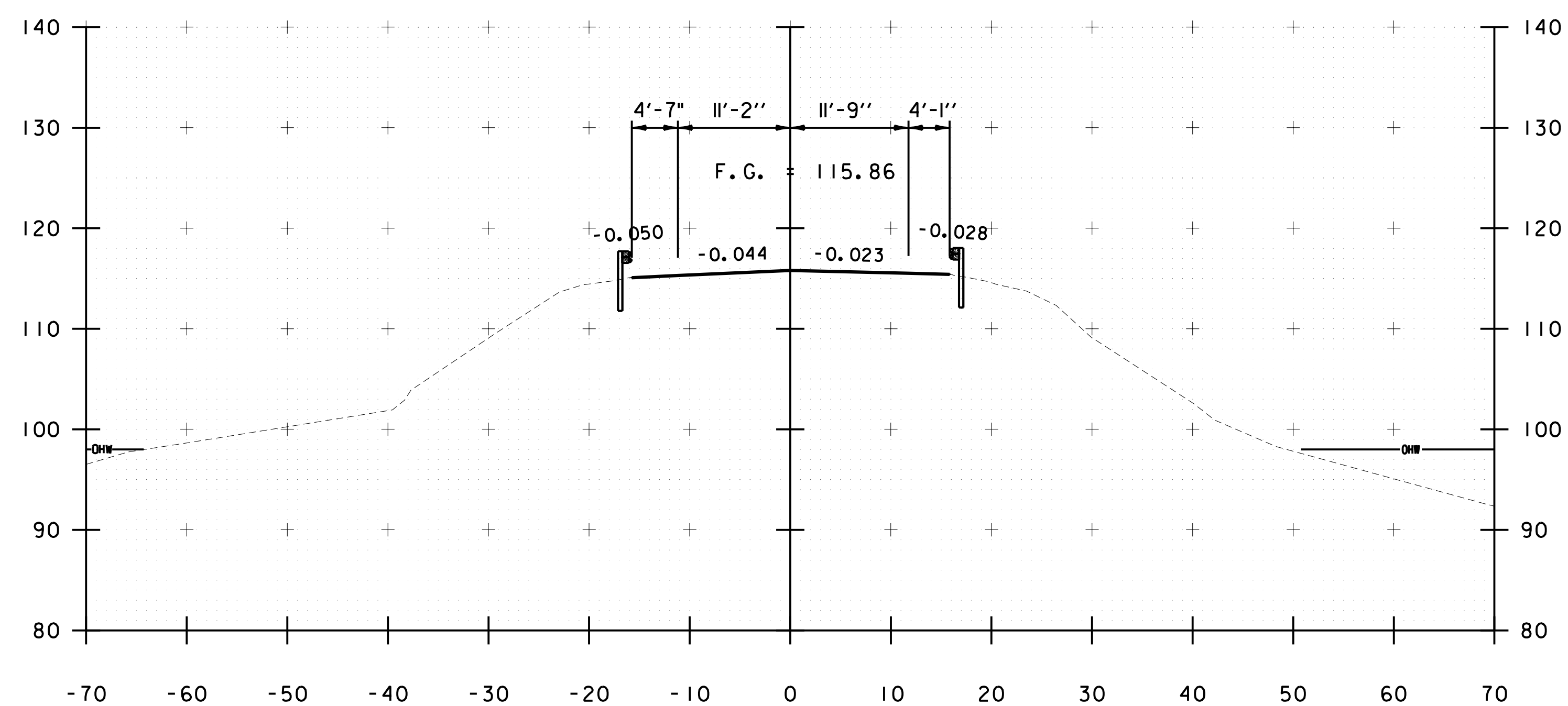
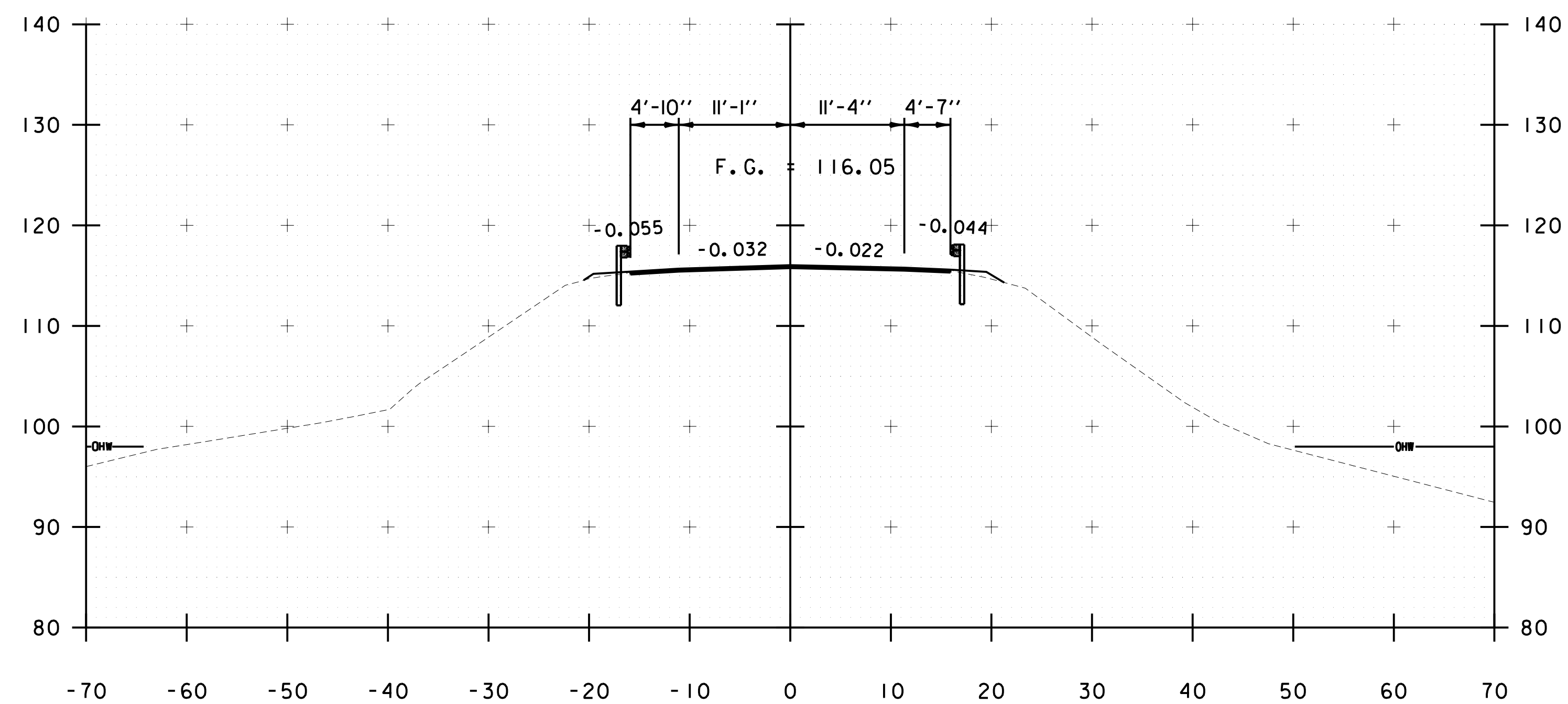
SCALE 1" = 10' - 0"

LEGEND

— OHW — ORDINARY HIGH WATER (OHW) = 98.0



PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-1(26)	
FILE NAME: z12bl42xcchan5.dgn	PLOT DATE: 8/30/2017
PROJECT LEADER: T. FRENCH	DRAWN BY: P. LEFEBVRE
DESIGNED BY:	CHECKED BY: M. MOZER
CHANNEL CROSS SECTIONS 5	SHEET II OF 24



BEGIN APPROACH STA 514+00.00

STA. 514+00 TO STA. 514+50

PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE  
PROJECT NUMBER: BHF 028-1(26)

FILE NAME: z12bl42xc.dgn  
PROJECT LEADER: D. GOZALKOWSKI  
DESIGNED BY: J. PARRELLI  
CROSS SECTION SHEET I

PLOT DATE: 11/22/2017  
DRAWN BY: R. BROWN  
CHECKED BY: J. SHIELDS  
SHEET 12 OF 24

**CHIA**

## LEGEND

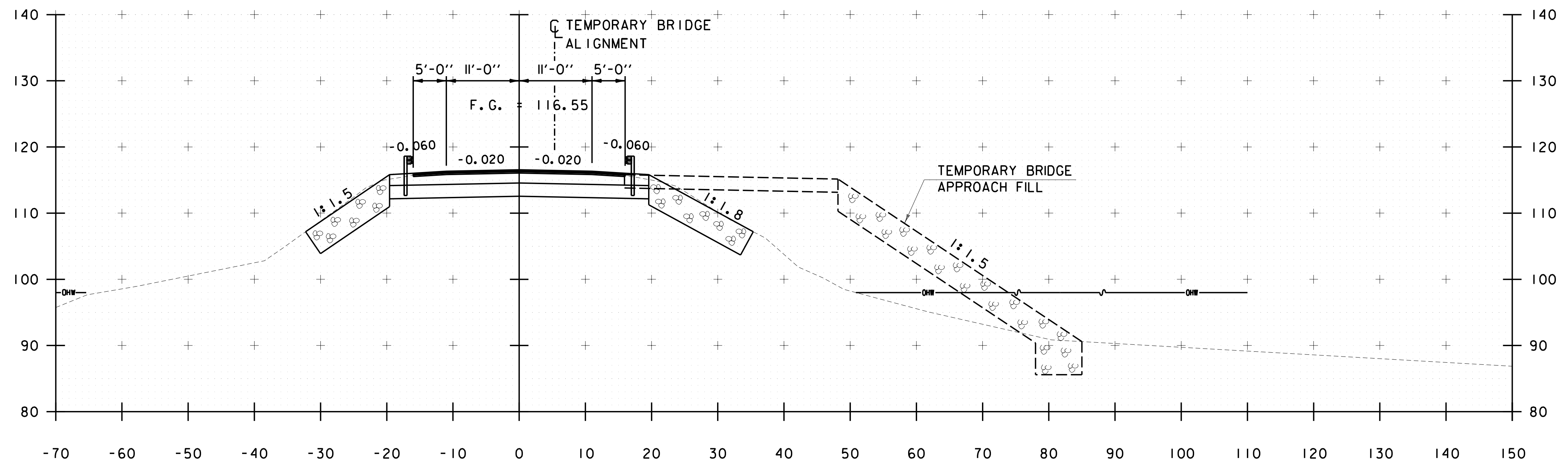
— OHW — ~ ORDINARY HIGH WATER (OHW) = 98.0

0 10 20

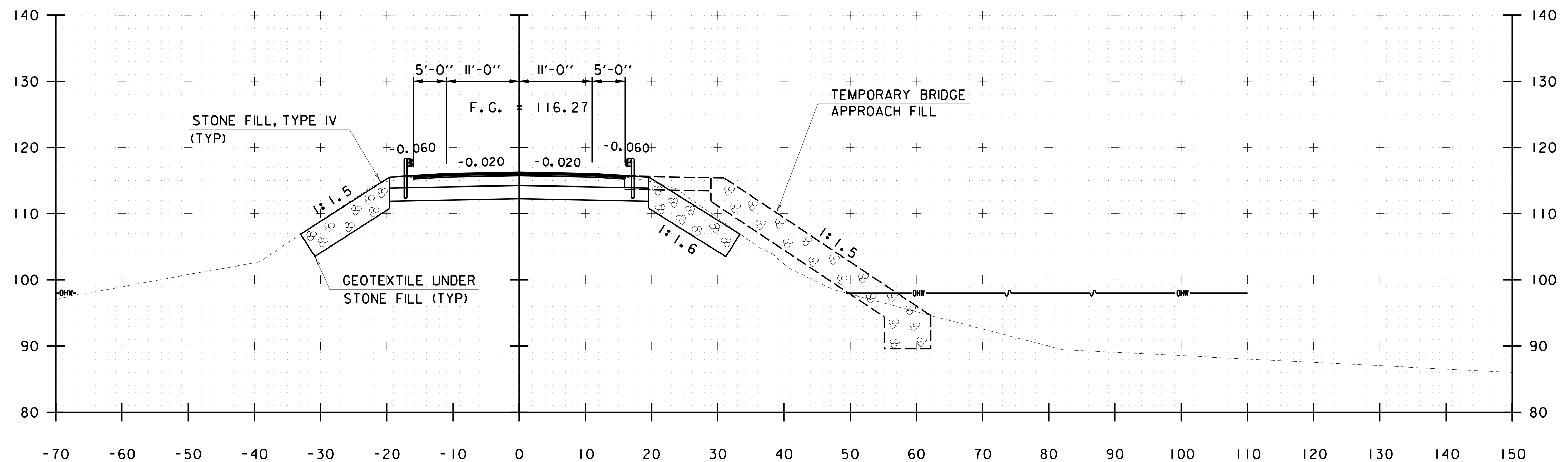
SCALE IN FEET

FILE NAME = V:\Projects\ANY\K3\28173\CADD\MSTN\12b142\Consultants\z12b142xc.dgn  
DATE/TIME = 11/22/2017  
USER = 3724

FILE NAME = N:\Projects\ANY\K3\28173\CADD\MSTN\2b\42\Consultants\2b\42xc.dgn  
DATE/TIME = 11/22/2017  
USER = 3724



515+50



515+00

BEGIN PROJECT STA 515+00.00

0 10 20  
SCALE IN FEET

### LEGEND

— OHW — ORDINARY HIGH WATER (OHW) = 98.0

STA. 515+00 TO STA. 515+50

CHA

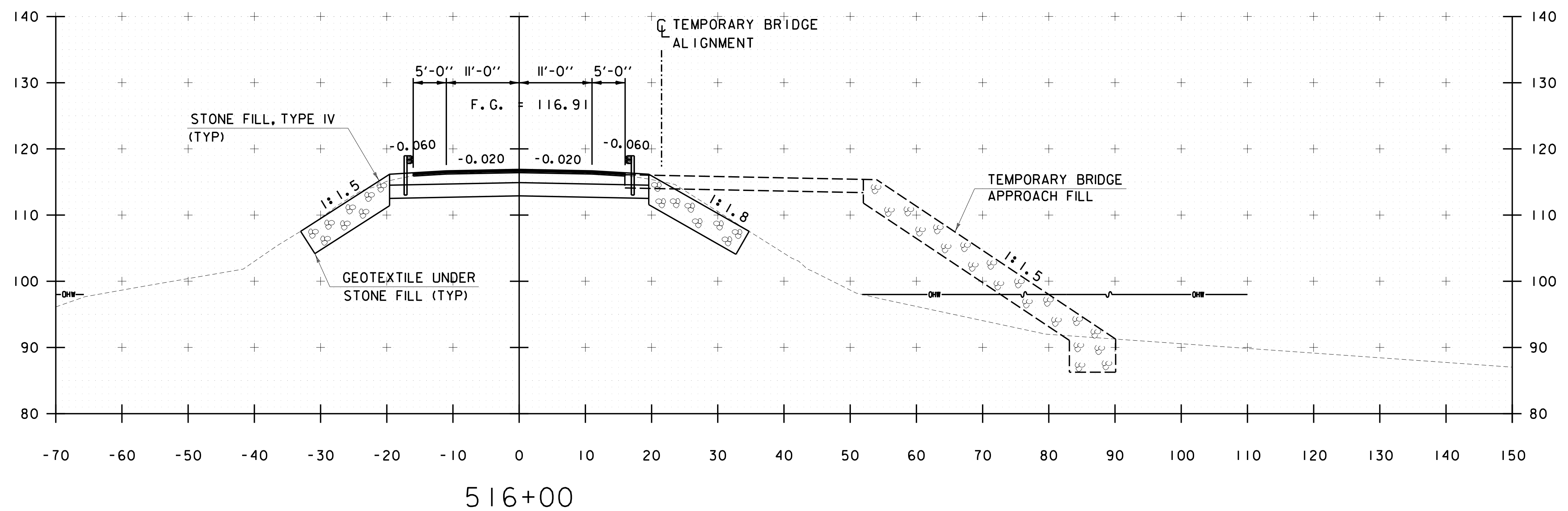
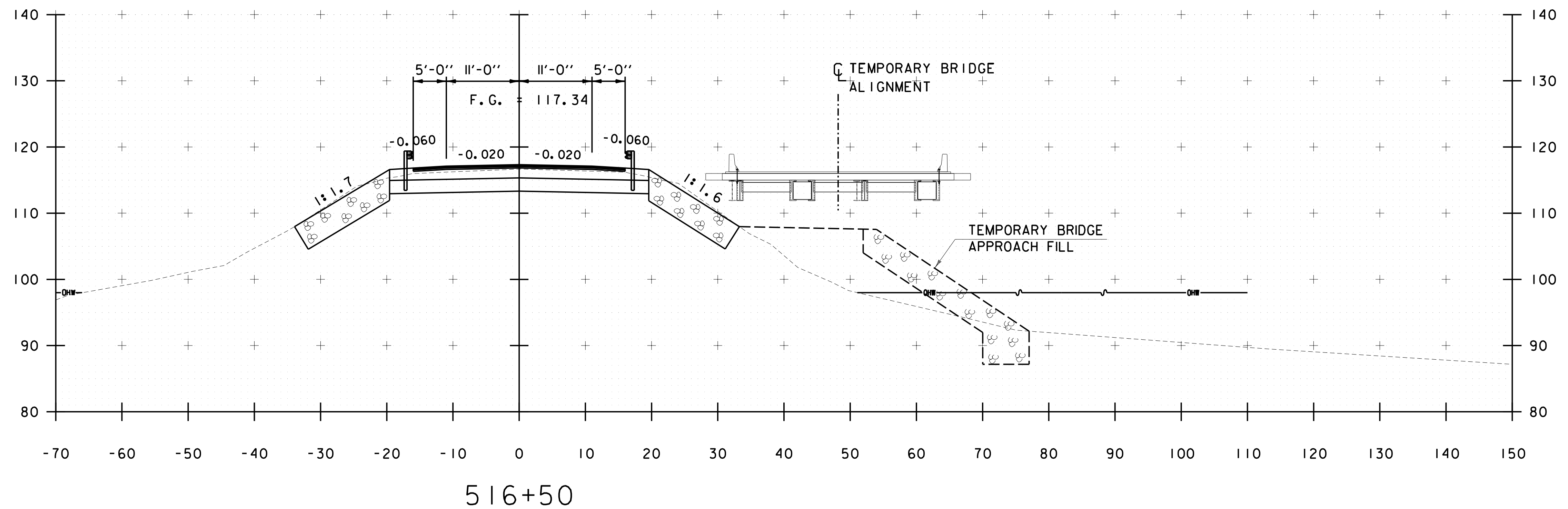
PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	PLLOT DATE: 11/22/2017
PROJECT NUMBER: BHF 028-1(26)	DRAWN BY: R. BROWN
FILE NAME: z12b142xc.dgn	CHECKED BY: J. SHIELDS
PROJECT LEADER: D. GOZALKOWSKI	SHEET 13 OF 24
DESIGNED BY: J. PARRELLI	
CROSS SECTION SHEET 2	

FILE NAME: N:\Projects\ANY\K3\28173\CADD\MSTN\26142\Consultants\212b142xc.dgn  
DATE/TIME: 11/22/2017  
USER: 3724

0 10 20  
SCALE IN FEET

### LEGEND

— OHW — ORDINARY HIGH WATER (OHW) = 98.0



STA. 516+00 TO STA. 516+50

CHA

PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	PLLOT DATE: 11/22/2017
PROJECT NUMBER: BHF 028-1(26)	DRAWN BY: R. BROWN
FILE NAME: z12b142xc.dgn	CHECKED BY: J. SHIELDS
PROJECT LEADER: D. GOZALKOWSKI	SHEET 14 OF 24
DESIGNED BY: J. PARRELLI	
CROSS SECTION SHEET 3	

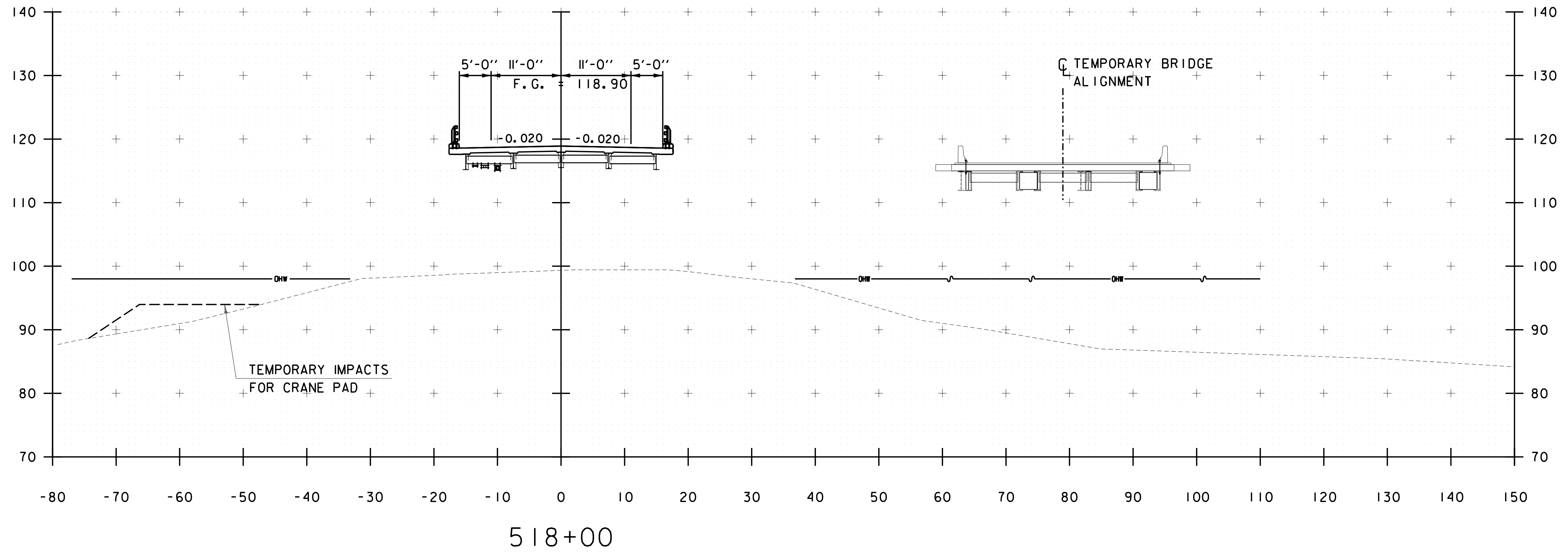


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DATE/TIME: 11/22/2017  
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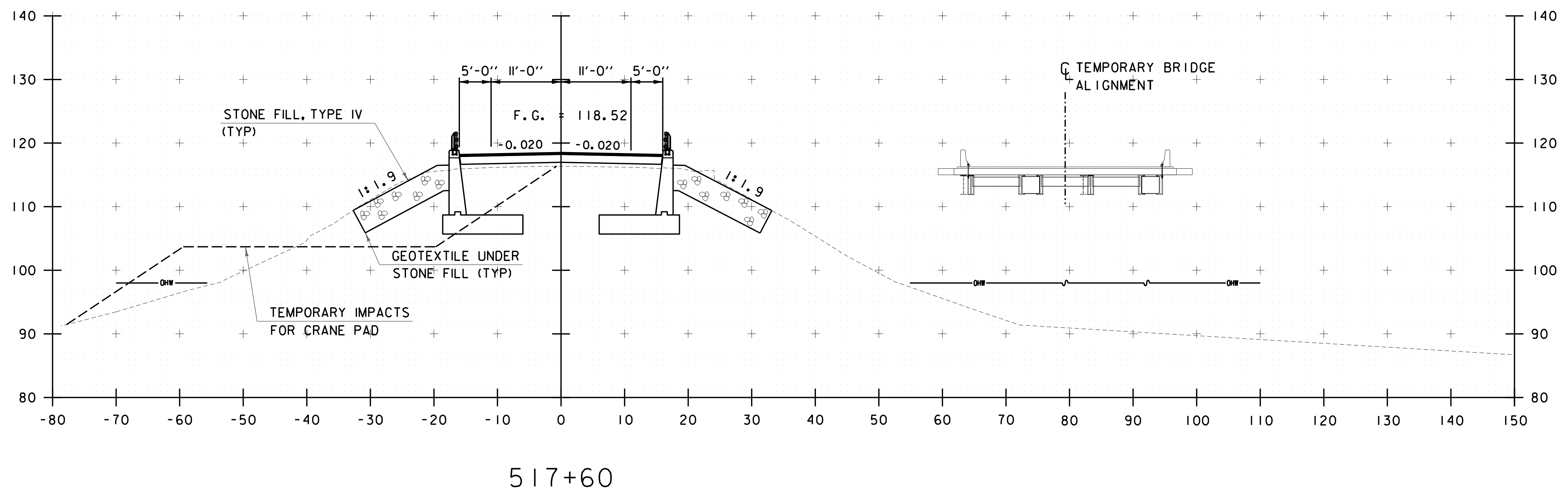
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SCALE IN FEET

### LEGEND

— OHW — ORDINARY HIGH WATER (OHW) = 98.0



BEGIN BRIDGE STA 517+70.41



PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	PLLOT DATE: 11/22/2017
PROJECT NUMBER: BHF 028-1(26)	DRAWN BY: R. BROWN
FILE NAME: z12b142xc.dgn	CHECKED BY: J. SHIELDS
PROJECT LEADER: D. GOZALKOWSKI	SHEET 16 OF 24
DESIGNED BY: J. PARRELLI	
CROSS SECTION SHEET 5	

STA. 517+60 TO STA. 518+00

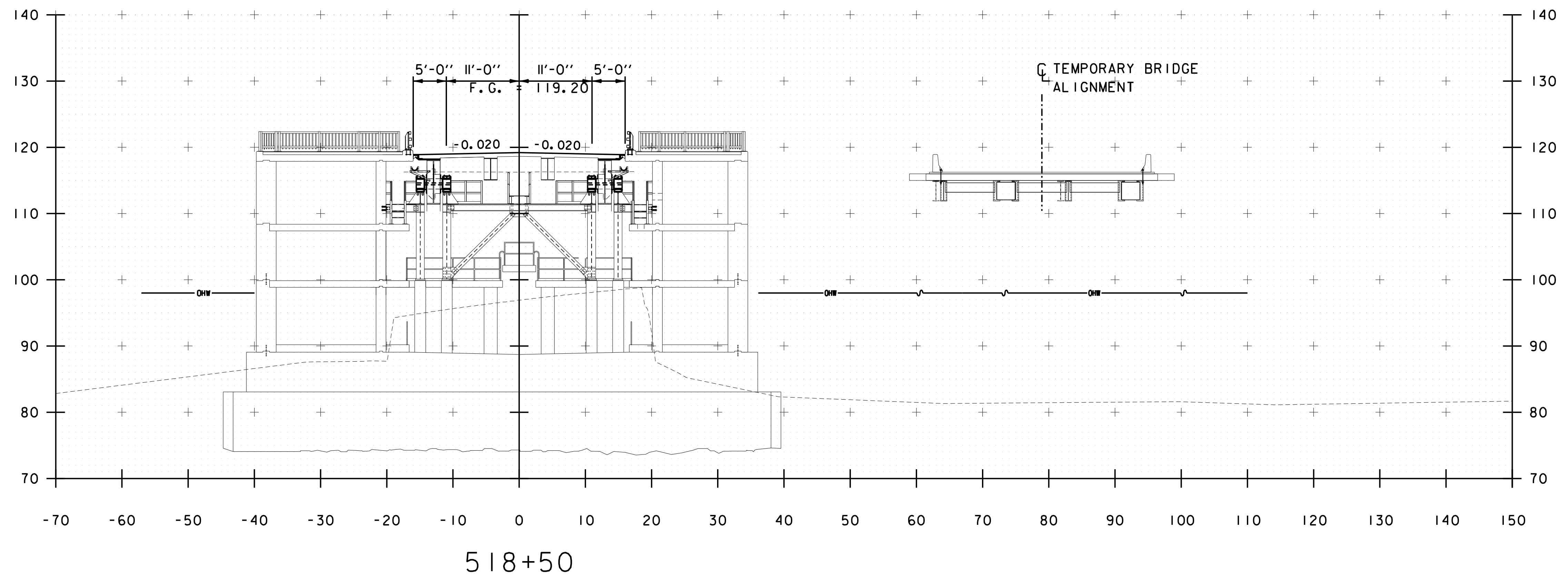
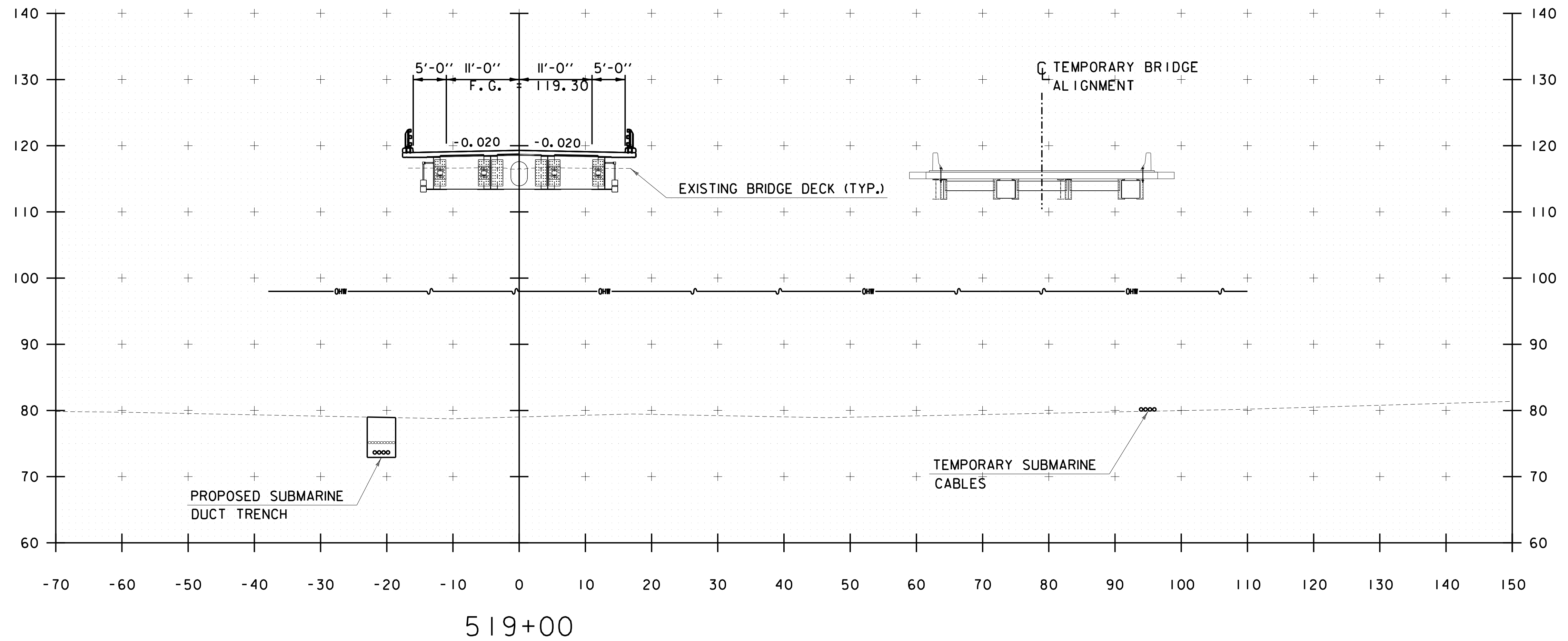
CHA

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DATE/TIME = 11/22/2017  
USER = 3724

0 10 20  
SCALE IN FEET

### LEGEND

— OHW — ORDINARY HIGH WATER (OHW) = 98.0



STA. 518+50 TO STA. 519+00

CHA

PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-1(26)	
FILE NAME: 12b142xc.dgn	PLOT DATE: 11/22/2017
PROJECT LEADER: D. GOZALKOWSKI	DRAWN BY: R. BROWN
DESIGNED BY: J. PARRELLI	CHECKED BY: J. SHIELDS
CROSS SECTION SHEET 6	SHEET 17 OF 24

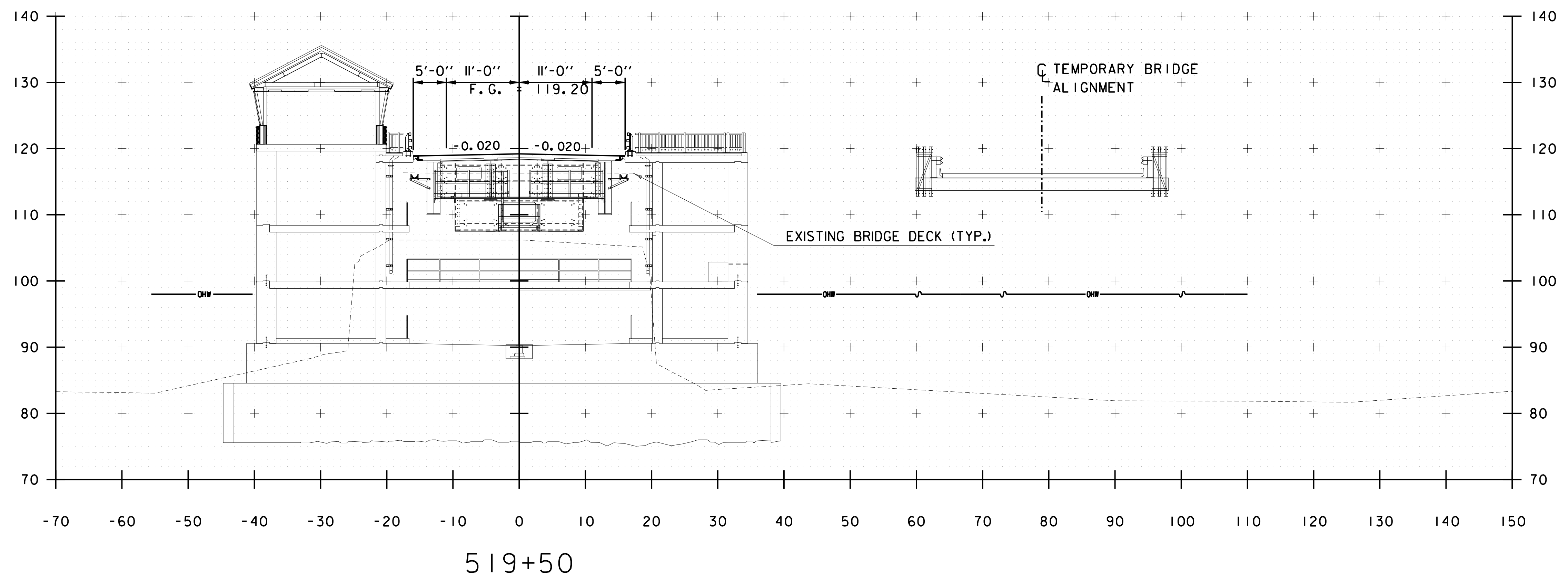
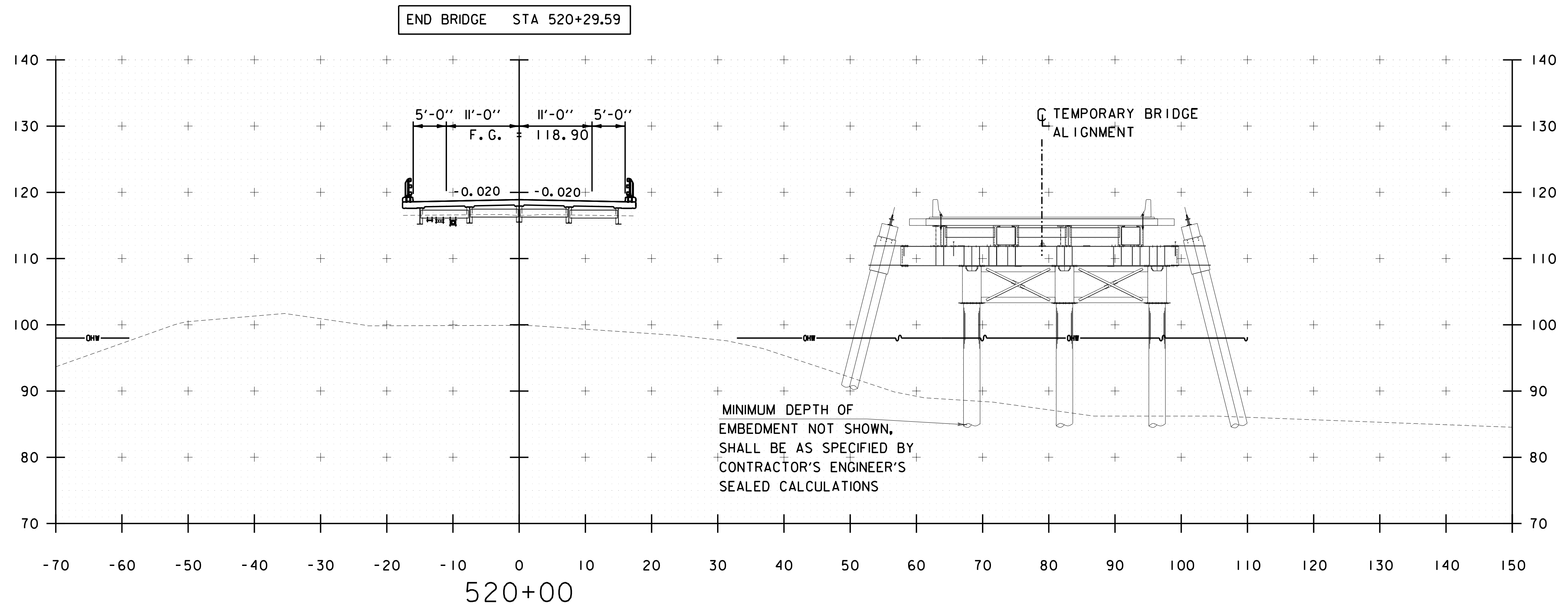


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DATE/TIME: 11/22/2017  
USER: J3724

0 10 20  
SCALE IN FEET

### LEGEND

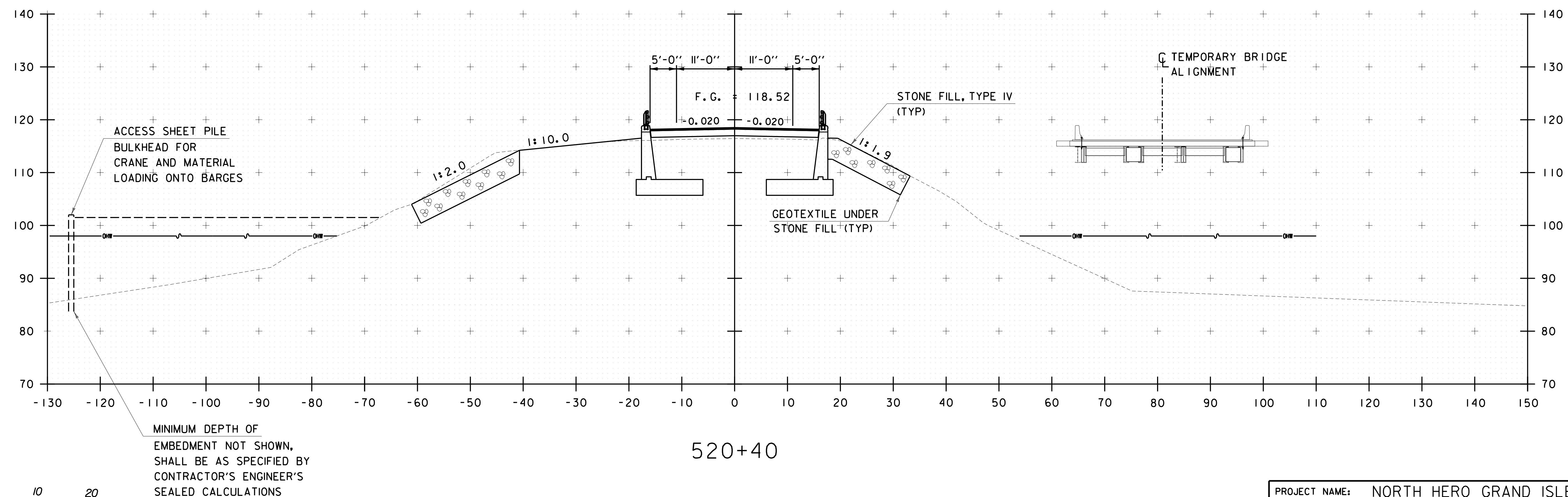
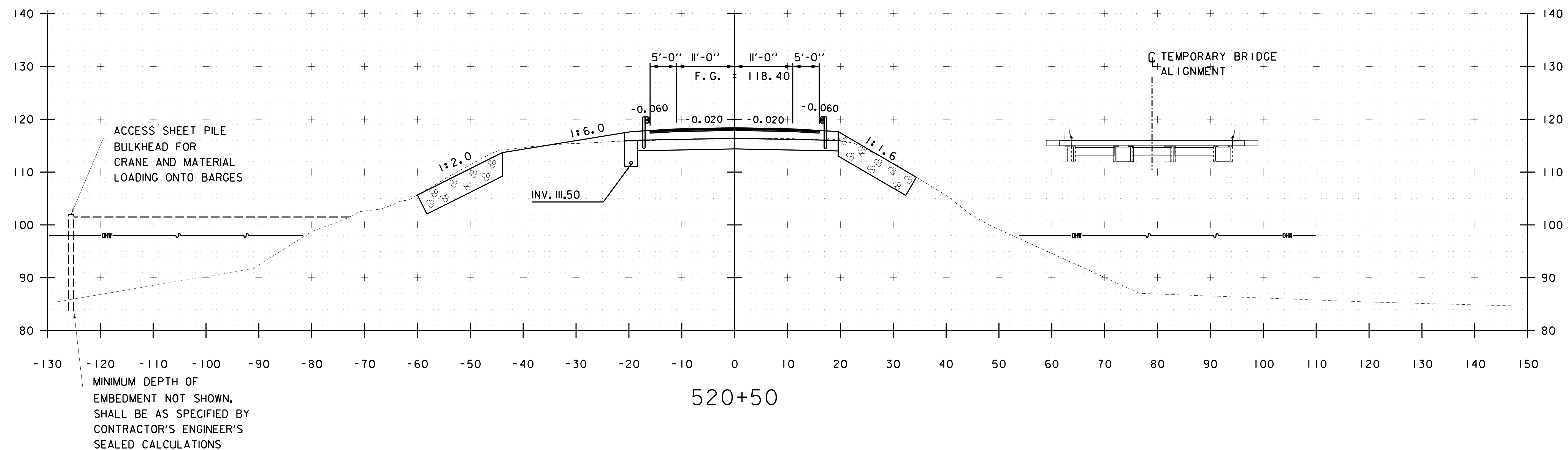
— OHW — ORDINARY HIGH WATER (OHW) = 98.0



STA. 519+50 TO STA. 520+00

CHA

PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	PLLOT DATE: 11/22/2017
PROJECT NUMBER: BHF 028-1(26)	DRAWN BY: R. BROWN
FILE NAME: z12b142xc.dgn	CHECKED BY: J. SHIELDS
PROJECT LEADER: D. GOZALKOWSKI	SHEET 18 OF 24
DESIGNED BY: J. PARRELLI	
CROSS SECTION SHEET 7	



FILE NAME = V:\Projects\ANY\K3\28173\CADD\MSTN\12b142\Consultants\z12b142xc.dgn  
DATE/TIME = 11/22/2017  
USER = 3724

## LEGEND

— OHW — ~ ORDINARY HIGH WATER (OHW) = 98.0

STA. 520+40 TO STA. 520+50

**CHIA**

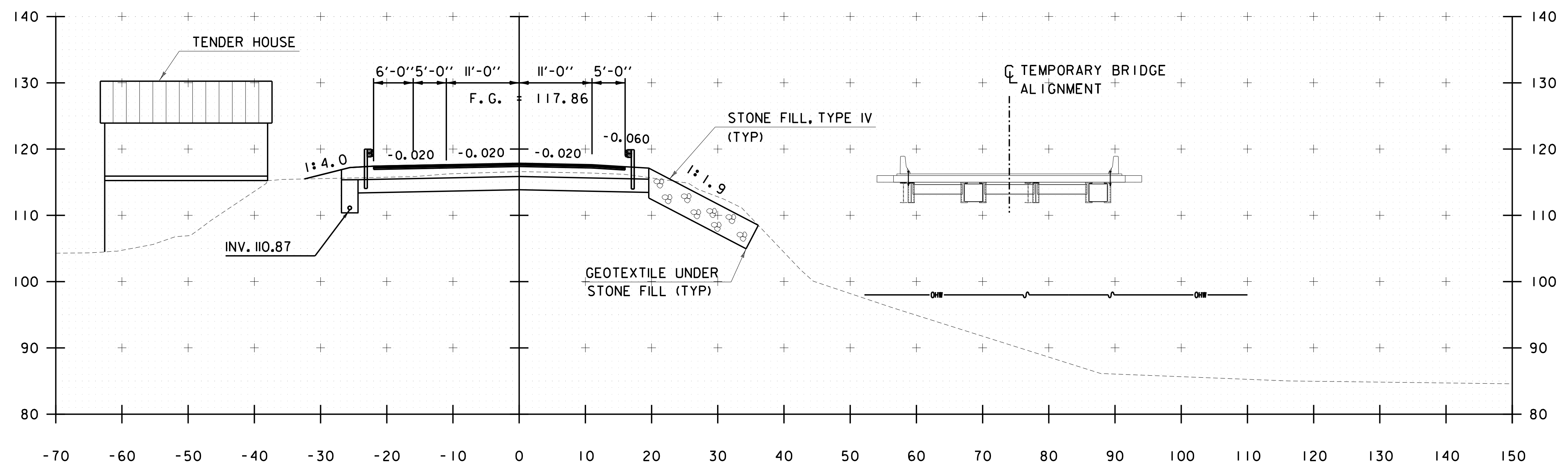
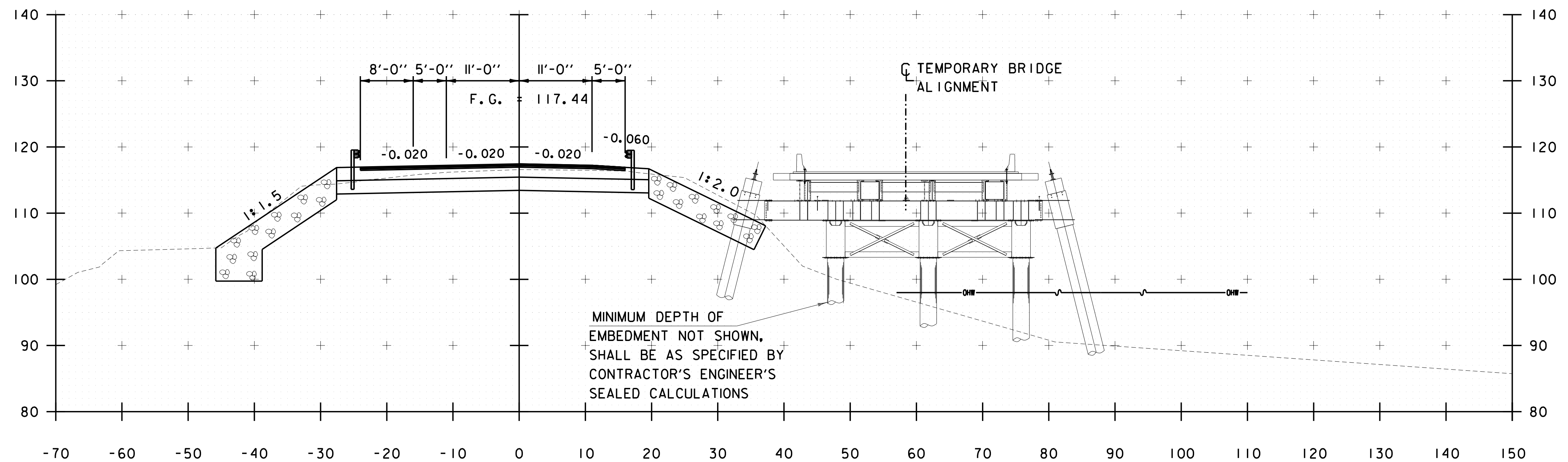
PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-1(26)	
FILE NAME: z12b142xc.dgn	PLOT DATE: 11/22/2017
PROJECT LEADER: D. GOZALKOWSKI	DRAWN BY: R. BROWN
DESIGNED BY: J. PARRELLI	CHECKED BY: J. SHIELDS
CROSS SECTION SHEET 8	SHEET 19 OF 24

FILE NAME: N:\Projects\NANY\K3\28173\CADD\MSTN\28142\Consultants\28142xc.dgn  
DATE/TIME: 11/22/2017  
USER: J. PARRELLI

0 10 20  
SCALE IN FEET

### LEGEND

— OHW — ORDINARY HIGH WATER (OHW) = 98.0

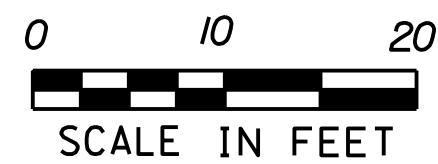


STA. 521+00 TO STA. 521+50

CHA

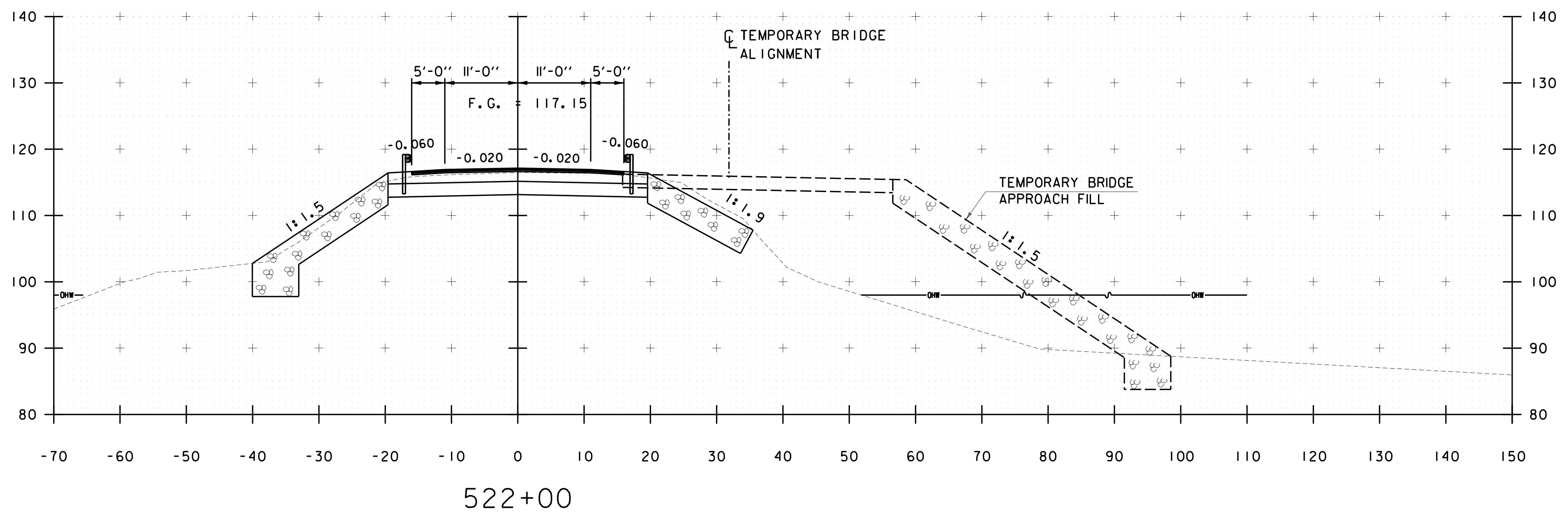
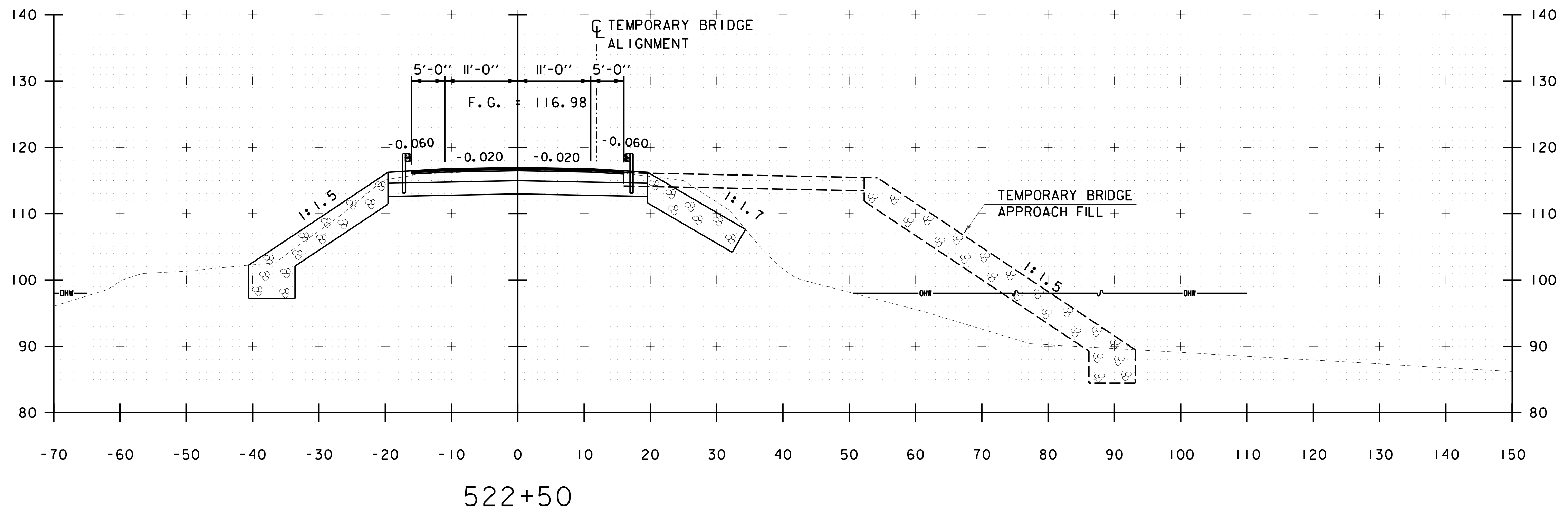
PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	PLLOT DATE: 11/22/2017
PROJECT NUMBER: BHF 028-1(26)	DRAWN BY: R. BROWN
FILE NAME: z12b142xc.dgn	CHECKED BY: J. SHIELDS
PROJECT LEADER: D. GOZALKOWSKI	SHEET 20 OF 24
DESIGNED BY: J. PARRELLI	
CROSS SECTION SHEET 9	

FILE NAME: N:\Projects\NANY\K3\28173\CADD\12b142\Consultants\12b142xc.dgn  
DATE/TIME: 11/22/2017  
USER: 3724



LEGEND

— OHW — ORDINARY HIGH WATER (OHW) = 98.0



STA. 522+00 TO STA. 522+50

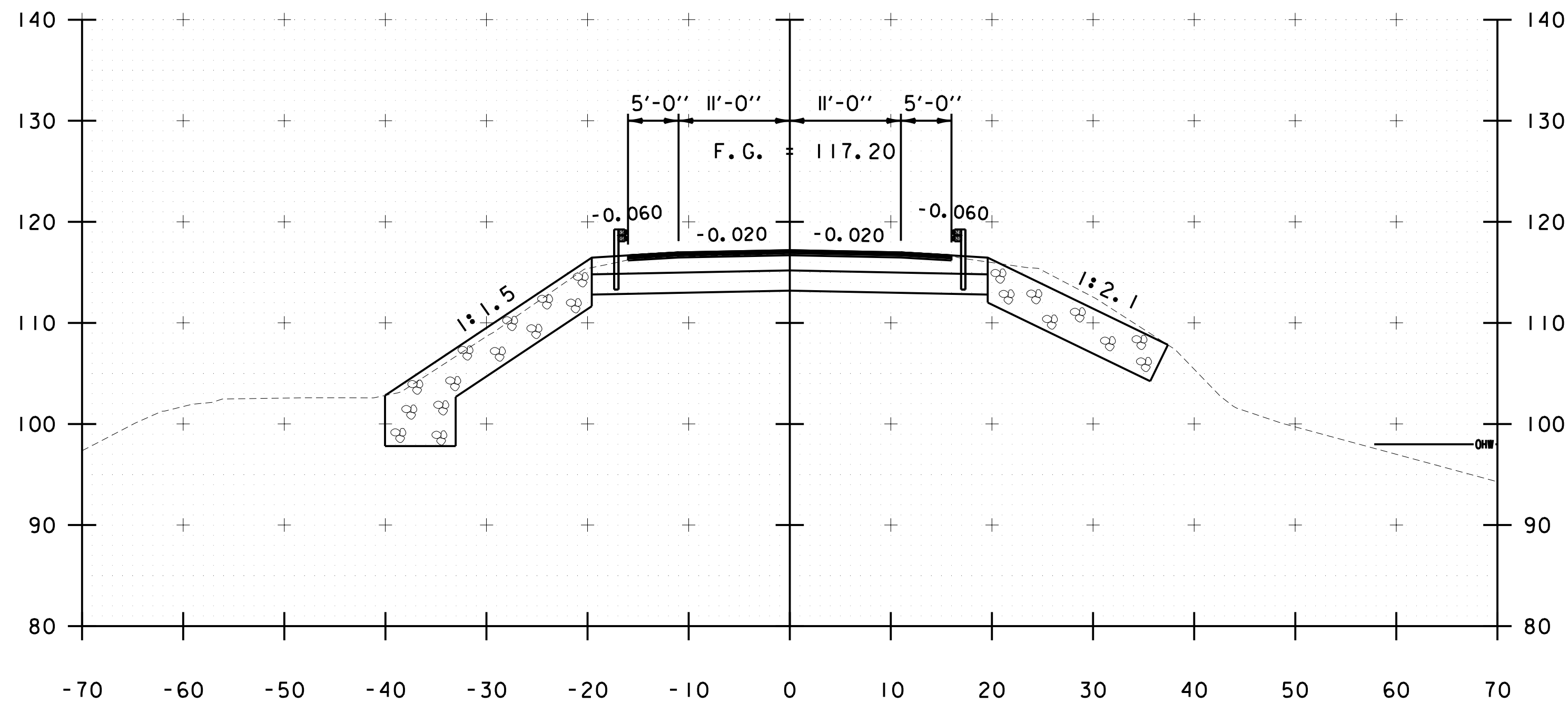


PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-1(26)	
FILE NAME: z12b142xc.dgn	PLOT DATE: 11/22/2017
PROJECT LEADER: D. GOZALKOWSKI	DRAWN BY: R. BROWN
DESIGNED BY: J. PARRELLI	CHECKED BY: J. SHIELDS
CROSS SECTION SHEET 10	SHEET 21 OF 24

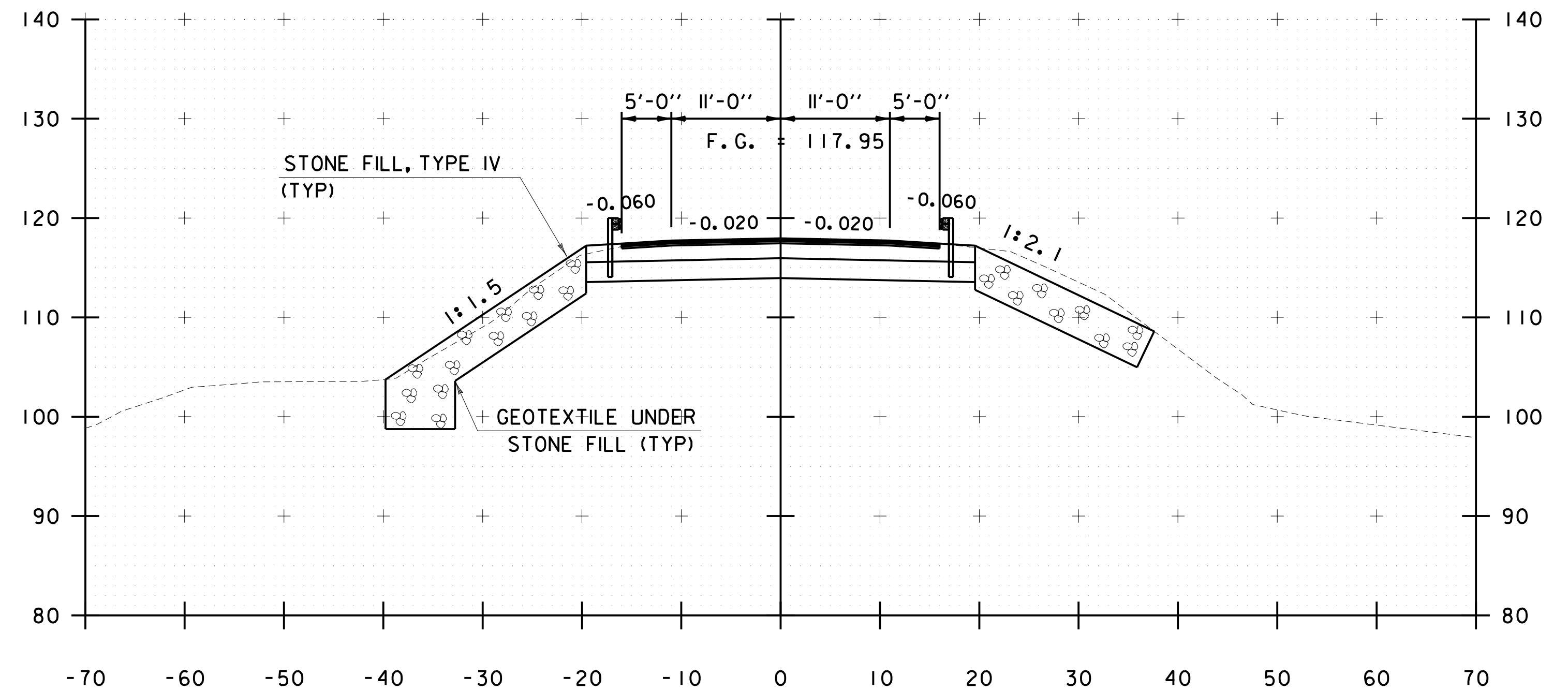




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USER = 3724

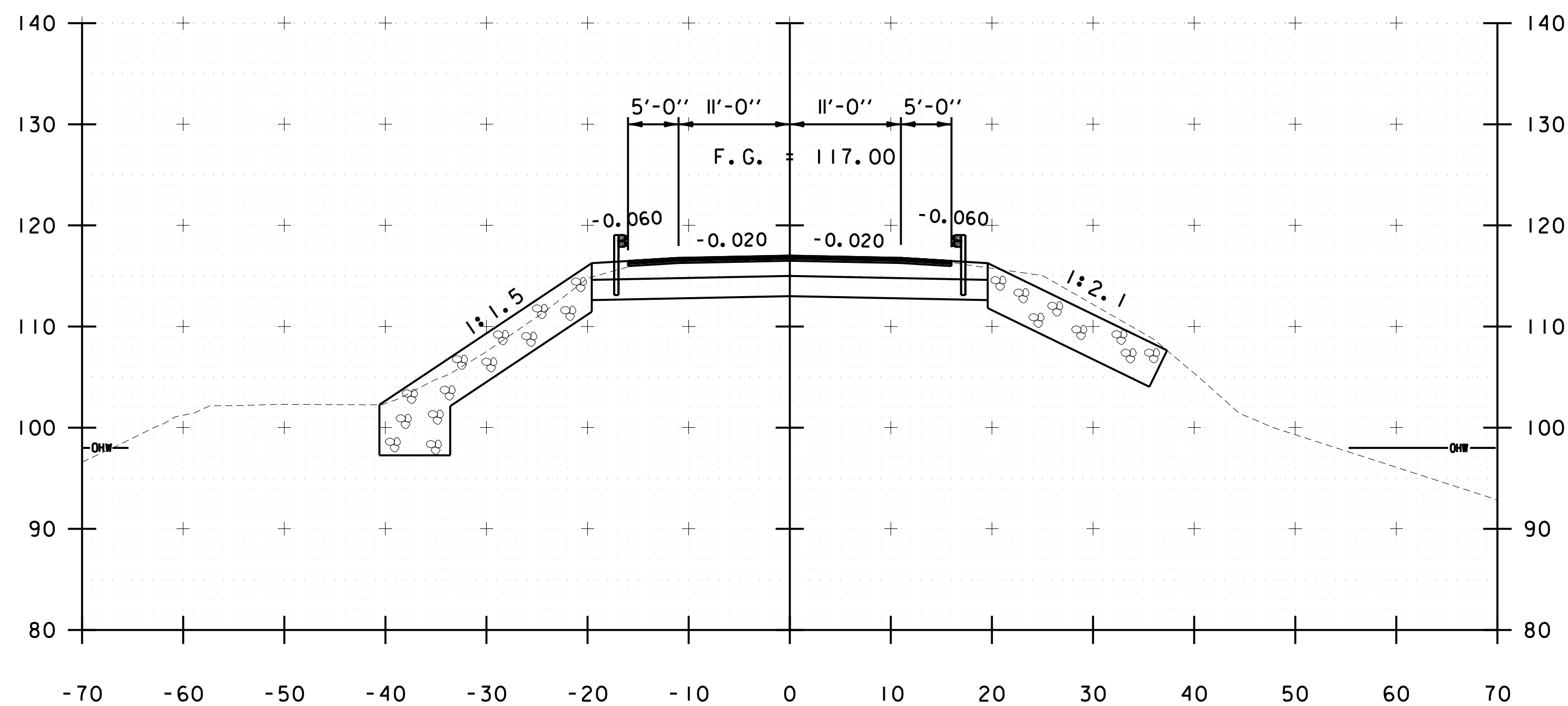


524+00

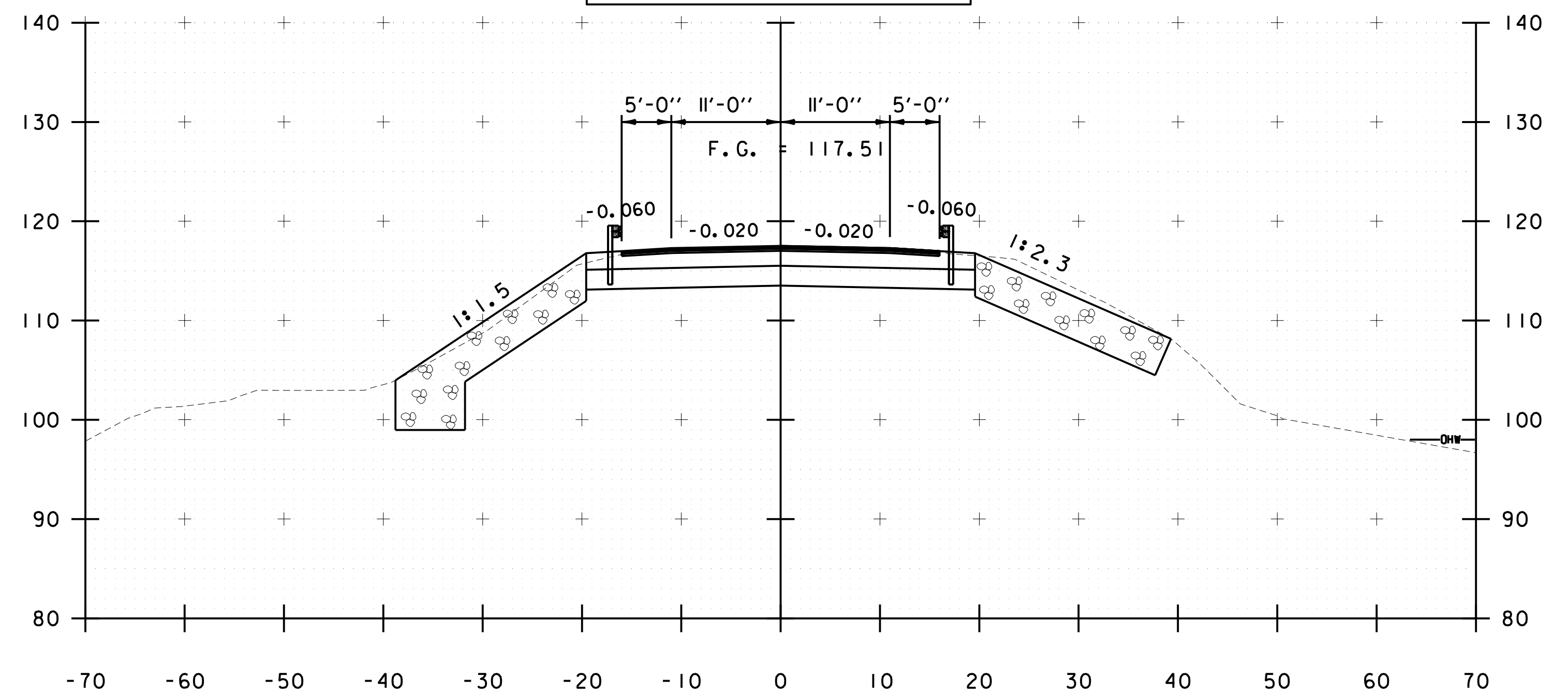


525+00

END PROJECT STA 525+00.00



523+50



524+50

0 10 20  
SCALE IN FEET

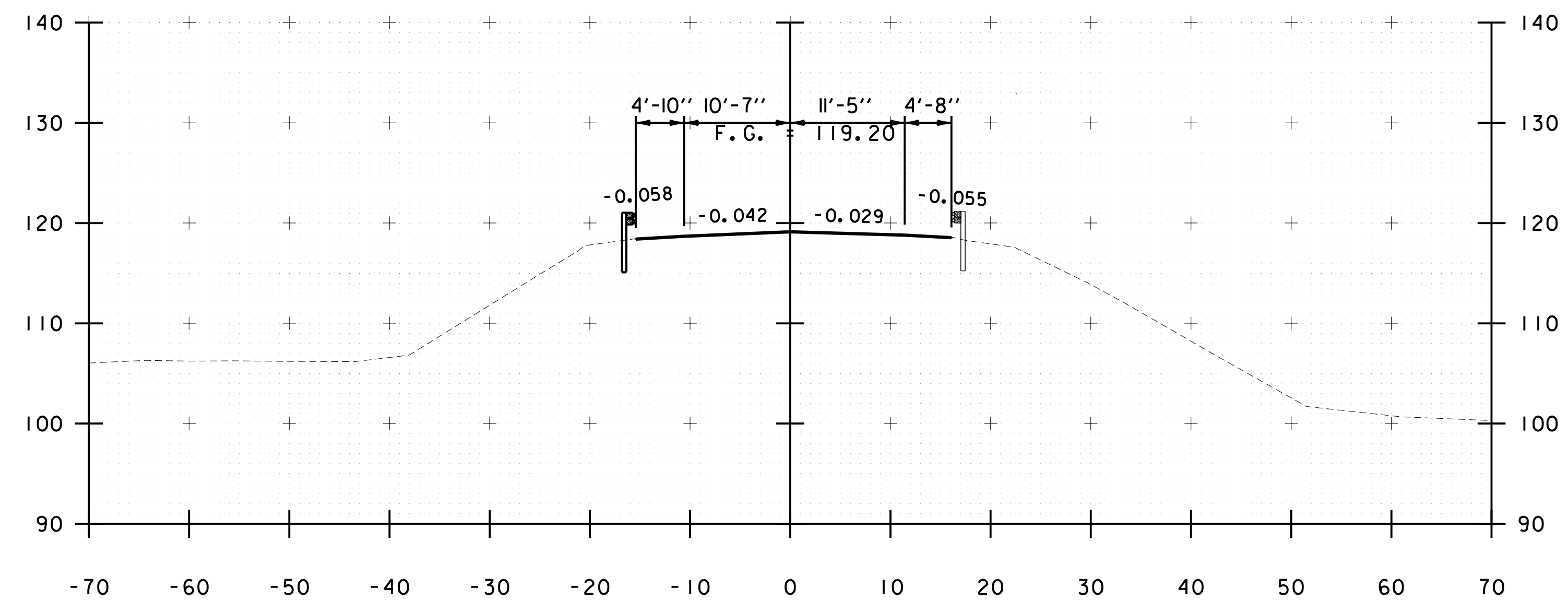
LEGEND

— OHW — ORDINARY HIGH WATER (OHW) = 98.0

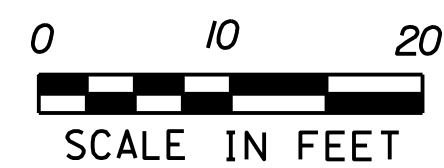
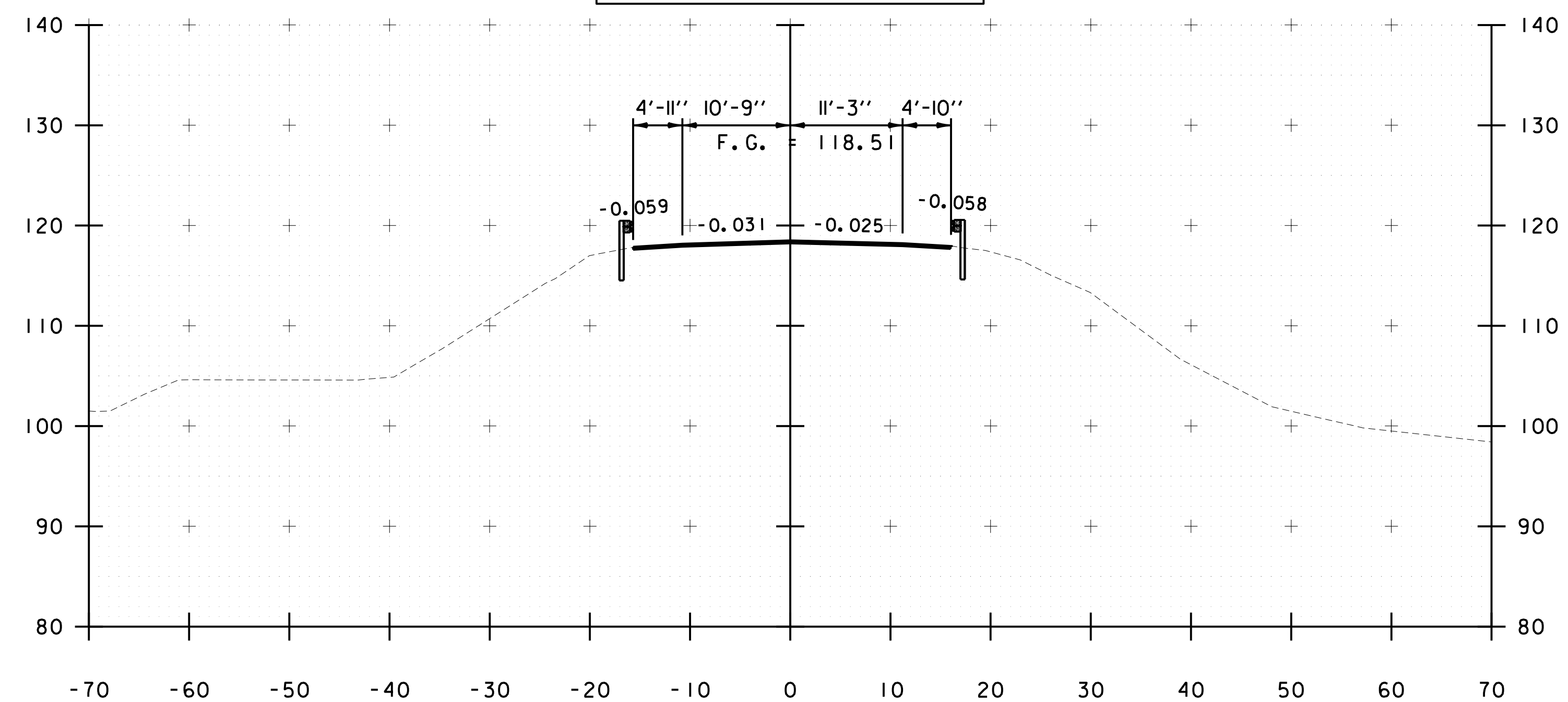
STA. 523+50 TO STA. 525+00

CHA

PROJECT NAME:	NORTH HERO GRAND ISLE BRIDGE
PROJECT NUMBER:	BHF 028-1(26)
FILE NAME:	z12b142xc.dgn
PROJECT LEADER:	D. GOZALKOWSKI
DESIGNED BY:	J. PARRELLI
CROSS SECTION SHEET	I2
PLOT DATE:	11/22/2017
DRAWN BY:	R. BROWN
CHECKED BY:	J. SHIELDS
SHEET	23 OF 24



END APPROACH STA 526+00.00
----------------------------



## LEGEND

—————OHW—————  ORDINARY HIGH WATER (OHW) = 98.0

STA. 525+50 TO STA. 526+00



PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE  
PROJECT NUMBER: BHF 028-1(26)

FILE NAME: z12bl42xc.dgn  
PROJECT LEADER: D. GOZALKOWSKI  
DESIGNED BY: J. PARRELLI  
CROSS SECTION SHEET 13

PLOT DATE: 11/22/2017  
DRAWN BY: R. BROWN  
CHECKED BY: J. SHIELDS  
SHEET 24 OF 24

FILE NAME = V:\Projects\AN\K3\28173\CADD\MSTN\12b142\Consultants\z12b142xc.dgn  
DATE/TIME = 11/22/2017  
USER = 3724



FILE NAME = N:\p-projects\ANY\K3\28173\CADD\MSTN\2b142\CadDrawings\2b142erodet.dgn  
DATE/TIME = 8/4/2017  
USER = 3724

VAOT LOW GROW/FINE FESCUE MIX						
LBS/AC			NAME	LATIN NAME	GERM	PURITY
WEIGHT	BROADCAST	HYDROSEED				
38%	57	95	CREeping RED FESCUE	FESTUCA RUBRA VAR. RUBRA	90%	98%
29%	43.5	72.5	HARD FESCUE	FESTUCA LONGIFOLIA	85%	95%
15%	22.5	37.5	CHEWINGS FESCUE	FESTUCA RUBRA VAR. COMMUTATA	87%	95%
15%	22.5	37.5	ANNUAL RYEGRASS	LOLIUM MULTIFLORUM	90%	95%
3%	4.5	7.5	INERTS			
100%	150	250				

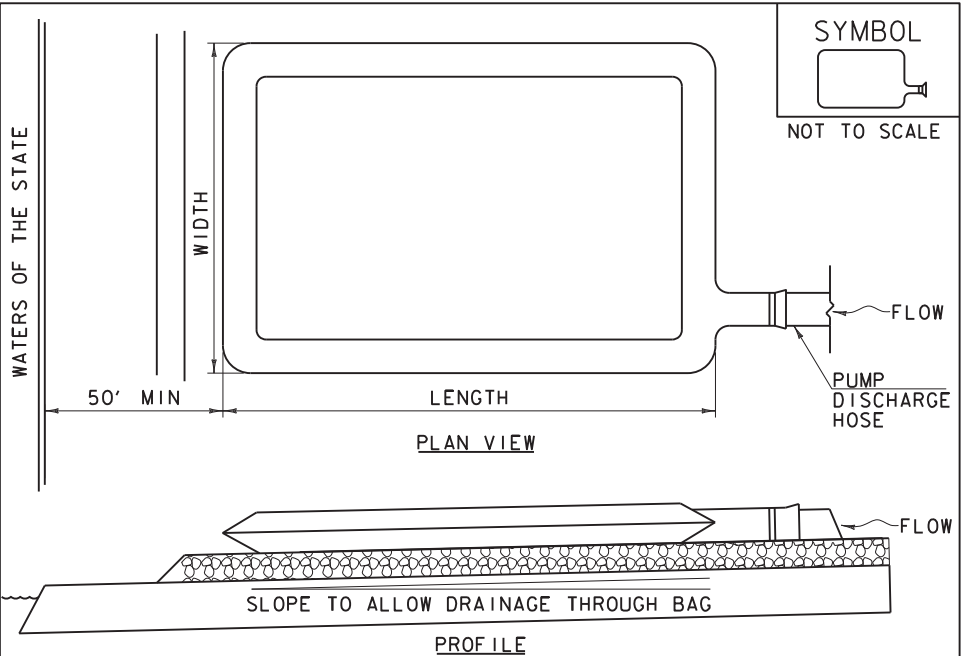
VAOT RURAL AREA MIX						
LBS/AC			NAME	LATIN NAME	GERM	PURITY
WEIGHT	BROADCAST	HYDROSEED				
37.5%	22.5	45	CREeping RED FESCUE	FESTUCA RUBRA VAR. RUBRA	85%	98%
37.5%	22.5	45	TALL FESCUE	FESTUCA ARUNDINACEA	90%	95%
5.0%	3	6	RED TOP	AGROSTIS GIGANTEA	90%	95%
15.0%	9	18	WHITE FIELD CLOVER	TRIFOLIUM REPENS	85%	98%
5.0%	3	6	ANNUAL RYE GRASS	LOLIUM MULTIFLORUM	85%	95%
100%	60	120				

GENERAL AMENDMENT GUIDANCE		
FERTILIZER	LIME	
10/20/10	AG LIME	PELLITIZED
500 LBS/AC	2 TONS/AC	1 TONS/AC

CONSTRUCTION GUIDANCE

1. SEED MIX: THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER ON WHICH SEED MIX TO USE.
2. SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.
3. ALL SEED MIXTURES: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
4. FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER.
5. HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, ACHIEVE 90% GROUND COVER OR AS DIRECTED BY THE ENGINEER.
6. HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED PROPOSED FOR USE WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED.
7. TURF ESTABLISHMENT: PLACING SEED, FERTILIZER, LIME AND MULCH PRIOR TO SEPTEMBER 15 AND AFTER APRIL 15 CAN BETTER ENSURE A VIGOROUS GROWTH OF GRASS.

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES	TURF ESTABLISHMENT
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 651 FOR SEED (PAY ITEM 651J5)	REVISIONS
	JANUARY 12, 2015    WHF



CONSTRUCTION SPECIFICATIONS

1. THE PRIMARY PURPOSE OF FILTER BAG IS TO RETAIN SILT, SAND, AND FINES DURING DEWATERING OPERATIONS.
2. FILTER BAGS SHALL BE INSTALLED ON A VEGETATED SLOPE GRADED TO ALLOW INCOMING WATER TO FLOW THROUGH THE BAG.
3. FILTER BAGS MAY ALSO BE PLACED ON COARSE AGGREGATE, STONE, OR HAYBALES TO INCREASE FILTRATION EFFICIENCY.
4. FILTER BAGS SHALL BE LOCATED A MINIMUM OF 50' FROM WATERS OF THE STATE UNLESS OTHERWISE APPROVED BY THE ENGINEER.
5. THE NECK OF THE FILTER BAG SHALL BE STRAPPED TIGHTLY TO THE DISCHARGE HOSE.
6. A FILTER BAG IS FULL WHEN IT NO LONGER CAN EFFICIENTLY FILTER SEDIMENT OR ALLOW WATER TO PASS AT A REASONABLE RATE.
7. FILTER BAG SHALL BE DISPOSED OF AS APPROVED IN THE EPSC PLAN OR AS DIRECTED BY THE ENGINEER.

FILTER BAG

NOTES:  
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR FILTER BAG (PAY ITEM 653.45) AND AS SPECIFIED IN THE CONTRACT.

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF

PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE

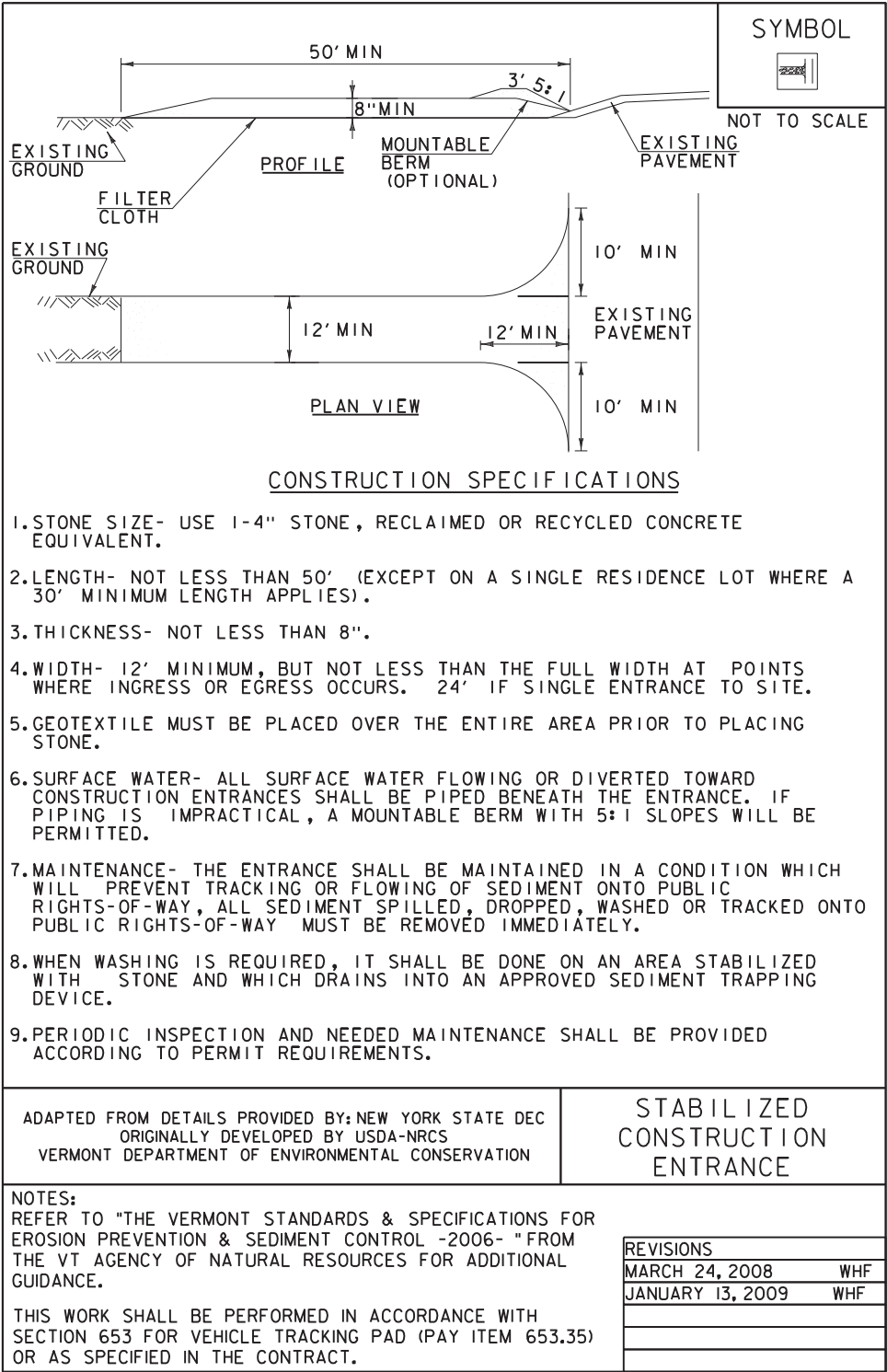
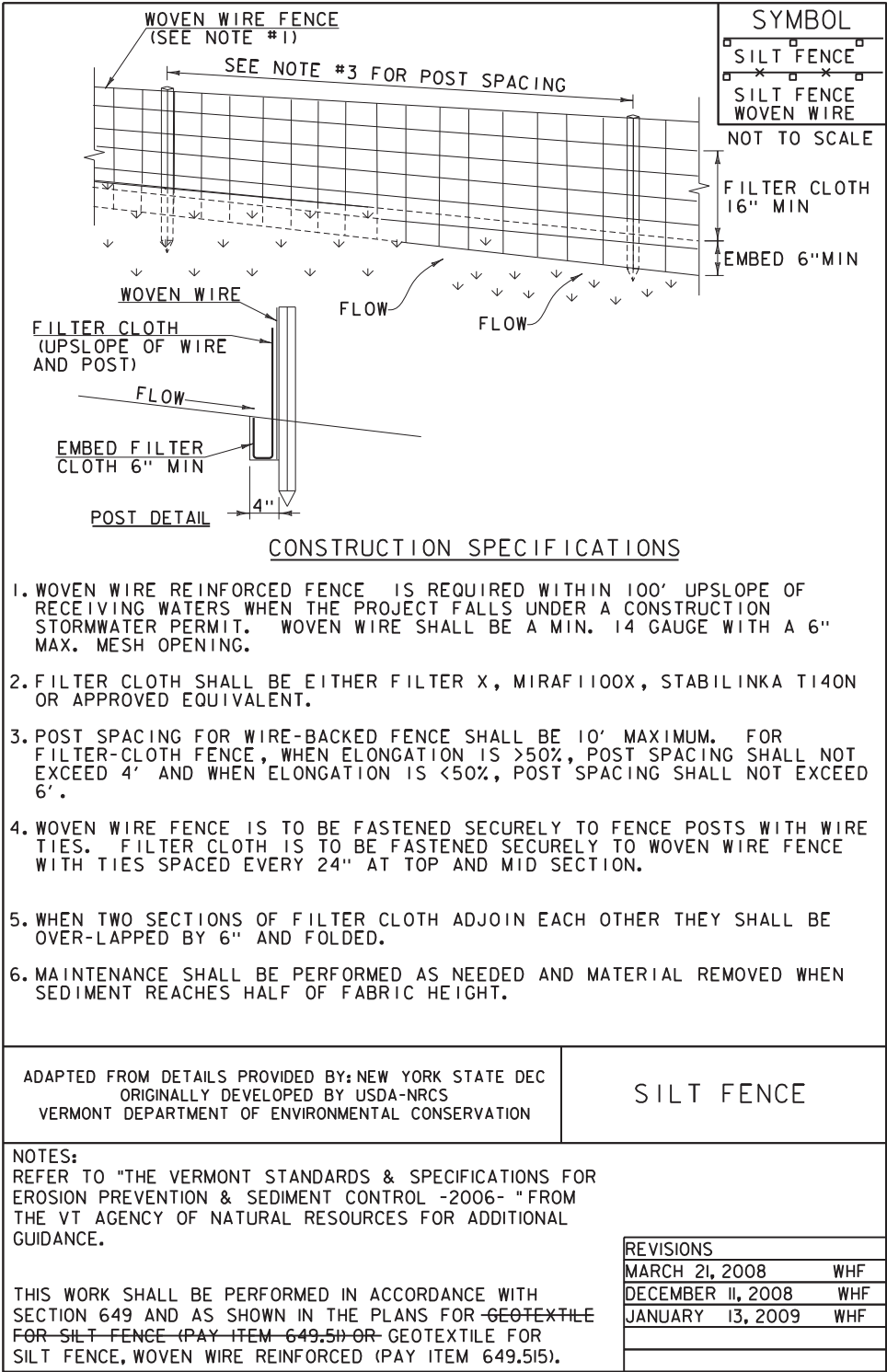
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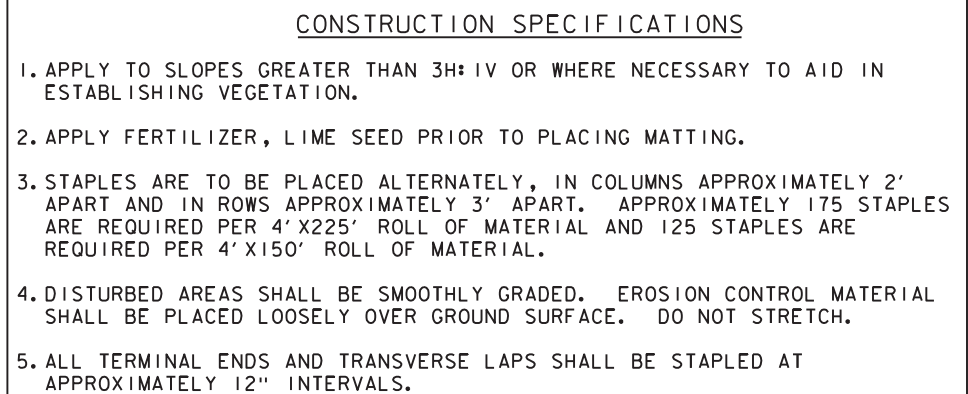
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PROJECT LEADER: D. GOZALKOWSKI  
DESIGNED BY: J. PARRELLI  
EPSC DETAIL SHEET 1

PLOT DATE: 8/4/2017  
DRAWN BY: R. BROWN  
CHECKED BY: J. SHIELDS  
SHEET 337 OF 340



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ROLLED EROSION  
CONTROL PRODUCT  
(RECP) SIDE SLOPE

NOTES:  
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR  
EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM  
THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL  
GUIDANCE.  
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION  
653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION  
MATTING (PAY ITEM 653.20) OR PERMANENT EROSION MATTING  
(PAY ITEM 653.20).

REVISIONS	
APRIL 16, 2007	JMF
JANUARY 13, 2009	WHF



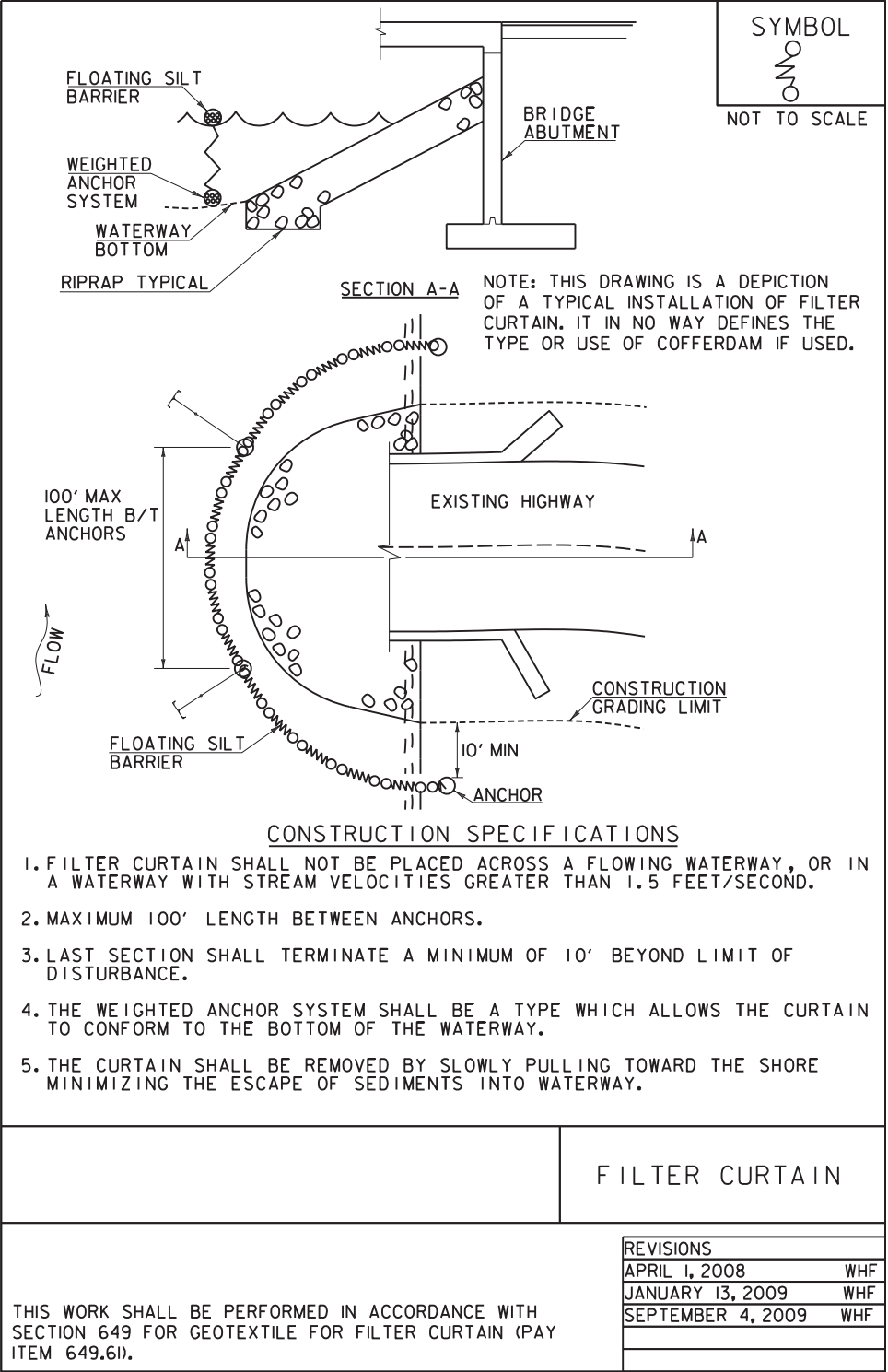
## SURFACE ROUGHENING

NOTES:  
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR  
EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM  
THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL  
GUIDANCE.

REVISIONS	
APRIL 1, 2008	WHF
JANUARY 13, 2009	WHF

THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT

FILE NAME = N:\Projects\ANY\K3\28173\CADD\12b142\MSTN\12b142\Consultants\12b142erodet.dgn  
DATE/TIME = 8/4/2017  
USER = 3724





North Hero Grand Isle Drawbridge  
Abbutter

Hubert W and Eleanor F. McCormick  
630 Hinesburg Rd  
South Burlington, Vermont 05403

Whiteman Charitable Remainder Unitrust  
c/o Joseph Bauer, Esq.  
PO Box 33  
North Hero, Vermont 05474

Clark Marine Properties, LLC  
412 US Route 2  
Grand Isle, Vermont 05458

Michael H. and Ann M. Talbot  
417 US Route 2  
Grand Isle, Vermont 05458

K. Surprenant  
2 Landing Lane  
Grand Isle, Vermont 05458

Carol Miller  
415 US Route 2  
Grand Isle, Vermont 05458

Heather Giard  
33 Knight Point Road  
North Hero, VT 05474

Knight Point State Park  
44 Knight Point Road  
North Hero, VT 05474

Elizabeth M. Lyons  
44 Knight Point Road Unit #1  
North Hero, VT 05474



## LEGEND

- Parcels (where available)
- Town Boundary



1: 3,139

October 30, 2017



159.0 0 80.00 159.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere

© Vermont Agency of Natural Resources

1" = 262 Ft. 1cm = 31 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

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## NOTES

Grand Isle Abutting Parcels



## LEGEND

- Parcels (where available)
- Town Boundary

Blackwell Family Real Estate Trust  
c/o Barry & Bruce Blackwell Trustees  
(587 & 641 US Route 2)  
372 East Foster St  
Melrose, MA 02176

Daniel & Cynthis Viens  
(487 US Route 2)  
167 South Bedlam Rd  
Mansfield, CT 06250

Knight Point State Park  
(31 Knight Point Road)  
1 National Life Drive, Davis 2  
Montpelier, VT 05633-5001

*Knight Point State Park*

1: 8,293

November 2, 2017



421.0 0 210.00 421.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere

© Vermont Agency of Natural Resources

1" = 691 Ft. 1cm = 83 Meters

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## NOTES

North Hero Parcels



55 Leroy Road, Suite 15  
Williston, VT 05495  
Tel: 802-497-3653 Fax: 802-497-3656

September 5th, 2017

Thomas Creamer  
US Army Engineer District, New York  
Jacob K. Javits Federal Office Building  
26 Federal Plaza, Room 2109, New York, NY 10278-0090

**Re: North Hero- Grand Isle Drawbridge BHF-028-1 (26)  
Section 408 Review**

Mr. Creamer:

EIV Technical Services is assisting the Vermont Agency of Transportation (VTrans) with environmental permitting for the above mentioned project located between the towns of North Hero and Grand Isle (Bridge No. 8), spanning Lake Champlain, Vermont. The existing structure is a double leaf bascule drawbridge originally constructed in 1951 and is the only working highway drawbridge in the State of Vermont. Bridge No. 8 provides the only vehicular connection between North Hero and Grand Isle and the only unrestricted height passage for marine traffic traveling into the "Gut" on Lake Champlain.

Based upon an engineering scoping study, which included extensive public outreach, it has been determined that the bridge should be replaced. Closing the bridge and thereby shutting down this section of Route 2 to traffic would create a detour of approximately 70 miles in one direction. Moreover the drawbridge is essential to navigation as it is the only access point for large boats to reach what is called the inland sea, the waterway which reaches to St. Albans and other parts of Franklin County and Milton. Numerous concerns and deficiencies regarding the bridge support the purpose of the proposed construction, including: an increase demand from both vehicular and marine vessel traffic, structural, mechanical and electrical system deficiencies found within the existing structure, maintenance costs, as well as pedestrian and bicycle access concerns.

Construction will consist of the replacement of the existing bridge along with associated roadway improvements and incidental items. The existing twin leaf bascule bridge provides an 80+ feet navigation channel between Lake Champlain and the "Gut". The new bridge will provide an 80+ foot wide navigation channel with 10 feet of clearance in the closed position (ordinary high water) and unlimited vertical clearance when open. Therefore it will not adversely affect / alter or make "useless" the 1888 ADOPTED 10-foot deep channel which has never needed maintenance dredging. Due to the excessive detour length, it has been determined that a temporary Bridge will be constructed during construction of the new bridge. The temporary bridge (single leaf bascule) will provide two lanes of vehicular traffic and will have a 40 foot wide navigation channel. In the closed position the under clearance will be 10 feet (ordinary high water). In the open position, there will be unlimited vertical clearance. The construction phase of the project is expected to commence in 2018 and be completed in 2022.



This restriction prompts a Section 408 review as the channel is determined to be part of the Federal Navigation Program. The project is also subject to USCG 1st District Bridge Administration Office individual permit regulation.

In summary, a Section 408 review is being requested for impacts to waters of the United States at Bridge 8 along US Route 2 in North Hero-Grand Isle.

Feel free to contact me with any questions regarding this submission, 802-497-3653.

Sincerely,

A handwritten signature in blue ink, consisting of a stylized 'E' followed by a cursive 'C' and a long horizontal flourish.

**EIV Technical Services**  
Emmalee Cherington, EI, CPESC  
*Civil/ Environmental Engineer*  
Enclosures



## Agency of Natural Resources

1 National Life Drive, Davis 2  
Montpelier, VT 05620-3702  
802-828-1294

### Application for Endangered & Threatened Species Taking Permit

Statutory Authority: 10 VSA §5408

#### Application Fee

*\$50 for permits issued for scientific and education purposes, for enhancing the propagation of a species and for special purposes consistent with the federal Endangered Species Act.*

*\$250 for each listed animal/plant taken up to \$25,000. If the ANR Secretary determines that it is in the best interest of the species, ANR and the applicant may agree to mitigation in lieu of a monetary fee.*

1. **Permittee/Applicant Name:** Glenn Gingras

**Institution** (if applicable): VT Agency of Transportation

**Principal Officer (CEO) of Institution:** _____

**Physical Address/Town/St/Zip:** One National Life Drive, Davis Bldg/ Montpelier, VT/  
05633-5001

**Telephone:** 802-279-0583

**E-Mail:** glenn.gingras@vermont.gov

2. **Name(s) & affiliation of subpermittee(s)**

Ethan Nedeau, Biodrawiversity LLC.

Field technicians: Corbin Brody and Matthew Smith

3. **Which species, and how many of each, will be collected or impacted?**

Common Name	Scientific Name	# of individuals to be collected/impacted	% of population to be collected/impacted
Giant Floater	Pyganodon grandis	<10	?

4. **Purposes for which you are applying for a takings permit** (*must meet one of the following*):

☒ Scientific Purposes

☐ Educational Purposes

☐ Enhance the Propagation of a Species

☐ Special purposes consistent with the federal Endangered Species Act

☐ Economic Hardship

☐ Zoological Exhibition

This permit is being submitted for the relocation of Giant Floater from an area of Lake Champlain that would be affected by the Grand Isle-North Hero bridge replacement project.

**5. Detailed Explanation of Proposed Activities**

Prior to any in-water disturbance associated with bridge replacement, state-listed mussels will be collected, photographed, and relocated a safe distance away from the project area (see attached). Thresholds for follow-up monitoring are not expected to be reached.

**6. Is survey data available to indicate the size and/or extent of the impacted population for each species listed in section 3? No ___, Yes ___X__.**

Prior to the commencement of your proposed activities a survey may be required to determine the extent and number of individuals of T&E species populations at your proposed location. Said survey requires authorization from the Agency of Natural Resources (ANR) and shall be completed by an expert with experience/ qualifications acceptable to ANR.

See attached report for the initial survey conducted in 2015.

**7. Provide a detailed explanation for the basis of the taking/impact.**

For instance, if the basis is Economic Hardship explain the nature of hardship and the benefit that will result if the permit is issued. If the basis is Scientific Purposes, demonstrate how the benefits of the proposed activities outweigh the impact(s) to the individuals and the populations. Provide supporting documentation if applicable.

The Grand Isle-North Hero Bridge will be replaced. A survey conducted in July 2015 found a single Giant Floater within the area of the lake bottom that may be affected by construction. The current (August 2017) construction plan includes a broader in-water footprint than was surveyed for mussels in 2015, but existing data are sufficient for developing a mussel relocation plan. Giant Floater (and other uncommon species that may be found) will be collected and moved out of harms way prior to construction.

**8. What is the time frame of proposed activities: Spring-early summer 2018****9. What are the qualifications & experience of person(s) conducting the proposed activities?**

Ethan Nedeau will lead the relocation effort with his two field technicians. Ethan has led similar mussel relocation projects throughout Lake Champlain and its tributaries, for all of Vermont's state-listed species.

**10. Which methods and equipment will you use?**

If you seek authorization to translocate/transplant specimens of Threatened & Endangered Species, attach a translocation/transplanting plan identifying how specimens will be found and moved, where to and how you propose to monitor the effectiveness of the translocation/transplanting.

See attached relocation plan. Thresholds for tagging and follow-up monitoring are not expected to be met for this project. Biologists will collect mussels via SCUBA diving, and will use standard practices to reduce mussel stress/mortality during the relocation process. The relocation site recommended in the 2015 report will be used.

**11. Where do you plan to collect, work and/or implement proposed activities?**

Be as specific as possible and identify the town(s) and county. If field-based activities are proposed, attach a detailed map of project site(s).

Lake Champlain, near the existing Grand Isle-North Hero bridge and the temporary structure that will be built alongside it.

**12. What are the possible impacts of the proposed activities on species?**

Include details about the numbers of plants and/or animals that will be taken/impacted.

The bridge replacement will occur in phases, including construction of a temporary bridge alongside the existing bridge, removal of existing structures, construction of a new bridge, and removal of the temporary bridge. This will result in a fairly broad in-water construction footprint. The 2015 survey found just one Giant Floater in the survey area, and this result is similar to results of other mussel surveys conducted in this area of Lake Champlain in recent years. Thus, although the in-water impacts are significant, the numbers of state-listed mussels occupying this area is considered to be very small (<10).

**13. What is your plan for conservation or mitigation of species impacted?**

All individuals of state-listed mussel species will be collected and moved out of harms way prior to construction. No follow-up monitoring or other conservation/mitigation is proposed.

**14. Final disposition of the specimens you collect (if any)?**

n/a

**15. Impacts to Migratory Birds:** Federal authorization is required for activities which might take birds (alive or dead, feathers, eggs and even nests). Federal migratory bird permits are issued by the US Fish & Wildlife Service Migratory Bird Office: 413-253-8643, <http://www.fws.gov/migratorybirds/mbpermits.htm>My proposed project will impact migratory birds, feathers, eggs or nests: ☒ No, ☐ Yes?

If yes: My migratory bird permit # is _____, it is valid until _____

(please include a copy with your application)

I don't have a migratory bird permit but will apply for one ☐ Yes.**16. Required attachments**☐ **Permit fee:** Make checks payable to: "VFWD T&E Permit Fund 20345"

\$50 for permits for scientific and education purposes, for enhancing the propagation of a species and for special purposes consistent with the federal Endangered Species Act.

\$250 for each listed animal/plant taken up to \$25,000. If the ANR Secretary determines that it is in the best interest of the species, ANR and the applicant may agree to mitigation in lieu of a monetary fee.

☒ **Map/Site Plan:** For field-based activities attach a map, of appropriate scale, identifying the location where field based activities will occur.☒ **Scientific Research:** Include a research proposal/description with any T&E permit application for the purpose of scientific research.☒ **Translocation/Transplanting Plan:** If you seek authorization to translocate/transplant listed species, attach a plan identifying how specimens will be found and moved, where to and how you propose to monitor the effectiveness of the translocation/transplantation.☐ **Importation:** For permits authorizing the importation of live specimens of threatened or endangered species a Veterinary Health Inspection report is required certifying the disease free-status of the specimens to be imported.**3. Certification by signature:** I hereby affirm, under penalty of perjury, that the information, as well as any exhibits, documentations, and maps, are truthful to the best of my knowledge, that I am not delinquent in any obligation to pay child support or that I am in good standing with respect to any unpaid judgment issued by the judicial bureau or district court for fines and penalties for a civil violation or criminal offense. I also understand that false statements made on this application are punishable pursuant to 10 V.S.A. 4267 of Vermont state law.Signature: Glenn Gingras Date: 9/1/17

Mail signed application to: "Permit Specialist" Vermont Fish & Wildlife Department, 1 National Life Drive, Davis 2, Montpelier, VT 05620-3702, or email the signed document to [jon.kart@state.vt.us](mailto:jon.kart@state.vt.us). While a signed application is needed for final approval of a permit, please send an electronic version of the completed application as well.

Endangered and threatened species taking permits are issued under the authority of 10 VSA §5408. Permits are issued for the purposes of taking (including collecting, disturbing or possessing) individuals (or parts of) of species listed as Endangered or Threatened by the state of Vermont. Collection on lands posted according to 10 VSA §5201 or 13 VSA §3705 is unlawful without landowner permission.



**REPORT**

**Freshwater Mussel Survey in Lake Champlain for the  
Grand Isle-North Hero Bridge Replacement Project**

*prepared for*

**HDR, Inc. and EIV Technical Services**

*prepared by*



**Biodrawiversity LLC**

206 Pratt Corner Road, Leverett, MA 01054

July 2015



The Grand Isle-North Hero drawbridge.

## INTRODUCTION

Biodrawversity conducted a freshwater mussel survey in Lake Champlain for environmental planning associated with the replacement of the Grand Isle-North Hero drawbridge (Route 2). Target species included Giant Floater (*Pyganodon grandis*), Pocketbook (*Lampsilis ovata*), Pink Heelsplitter (*Potamilus alatus*), Fragile Papershell (*Leptodea fragilis*), and Black Sandshell (*Ligumia recta*). Of these, the Giant Floater was more likely to occur in the project area. The primary objectives of the proposed study were:

- Determine if state-listed mussels occur in the project area, which includes the footprint of the bridge plus a 30-meter buffer (Figure 1).
- If state-listed mussels were found, collect information on population size and the quality and quantity of habitat to determine possible effects of proposed construction on these species.
- Based on survey results, recommend steps to avoid or minimize “take” during construction.

## METHODS

- A collection permit was obtained from Vermont Fish and Wildlife.
- The survey was conducted on June 24, 2015 when water levels, water temperature, and water clarity were conducive for finding mussels with visual searches.
- The mussel survey was conducted in all areas under

the bridge, and included a 30-meter buffer on both sides of the bridge.

- Biologists used SCUBA gear to search for freshwater mussels at the sediment surface (visually) and for sub-surface adults and juveniles. Biologists completed sub-surface surveys by excavating and sieving sediment from within 30 1.0m² quadrats; this method proved ineffective in much of the area due to poor substrate for burrowing.
- Biologists evaluated habitat on the east side of the bridge, toward Ladds Landing and approximately 100 meters southeast from the project area, which could serve as a relocation site. One Giant Floater was found in this area in 2013.
- Biologists recorded the shell length, shell condition, microhabitat (depth, substrate), and location of each state-listed mussel that was encountered.

## RESULTS

**Mussels:** Of the target species, only one Giant Floater was found. It was 89.0 mm in length, exhibited light shell erosion, and was found at a depth of 14 feet in silty-gravel. Other species found included Eastern Elliptio (100s), Eastern Lampmussel (100s), and Eastern Floater (<10). Zebra mussel densities were high, although extensive deposits of shells were more prevalent than live mussels. No rare mussels were found in quadrats, either at the surface or buried.



Figure 1. Survey area in Lake Champlain near the Grand Isle-North Hero Bridge.

Habitat: Water depth was approximately 17 feet in the main channel, and near 24 feet at the deepest point. Depth was shallower (<8 ft) toward the edges, especially between the banks and the piers. Water velocity was moderate; it was fast enough to keep the bottom in the main channel but not fast enough to impede SCUBA divers. Substrate was mostly gravel and cobble, with few boulders. Edges were primarily large riprap. There were extensive deposits of

zebra mussel shells covering much of the bottom. Hard-packed clay was prevalent under the bridge on the west side, and there were old wooden pilings laying haphazardly on the bottom on the east side. In areas with slower water velocities, submerged aquatic vegetation was moderately dense and there was more silt. Limiting factors for Giant Floater included the prevalence of coarse rocky substrates and the hard-packed clay, as well as high densities of zebra mussels.



Giant Floater (*Pyganodon grandis*)

#### RECOMMENDATION

One Giant Floater was found in this area and returned to its original location. Based on this occurrence, and the time that will elapse before construction begins (possibly 1-2 years), a survey/relocation is recommended within a few weeks prior to construction. The survey should focus on the area of direct impact plus a 10-meter buffer, and any state-listed mussels should be relocated using Vermont Fish and Wildlife's standard protocols. Based on the results of this survey, it is not likely that enough mussels will be collected to warrant tagging and follow-up monitoring. There is ample habitat nearby to place Giant Floater; we recommend an area between the bridge and Ladds Landing, in a depth of 12-16 ft where substrate is primarily silt.





## LEGEND

☐ Town Boundary



1: 33,173

July 26, 2017



## NOTES

Map created using ANR's Natural Resources Atlas

1,685.0 0 842.00 1,685.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere

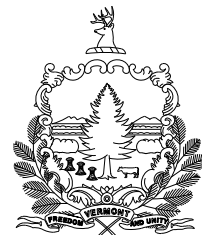
© Vermont Agency of Natural Resources

1" = 2764 Ft. 1cm = 332 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

**DISCLAIMER:** This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. ANR and the State of Vermont make no representations of any kind, including but not limited to, the warranties of merchantability, or fitness for a particular use, nor are any such warranties to be implied with respect to the data on this map.

STATE OF VERMONT  
AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT  
BRIDGE PROJECT

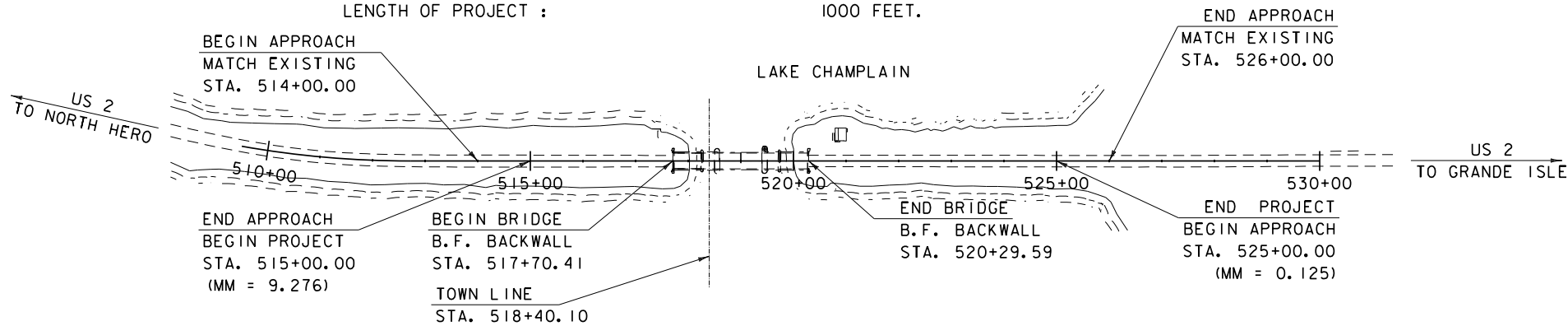
TOWN OF NORTH HERO - GRAND ISLE  
COUNTY OF GRAND ISLE

ROUTE NO : US ROUTE 2 (MINOR ARTERIAL) BRIDGE NO : 8

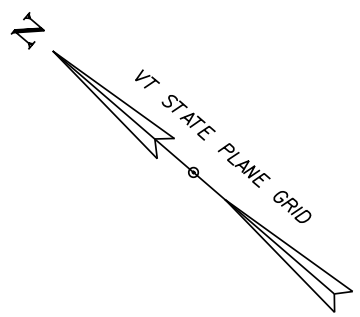
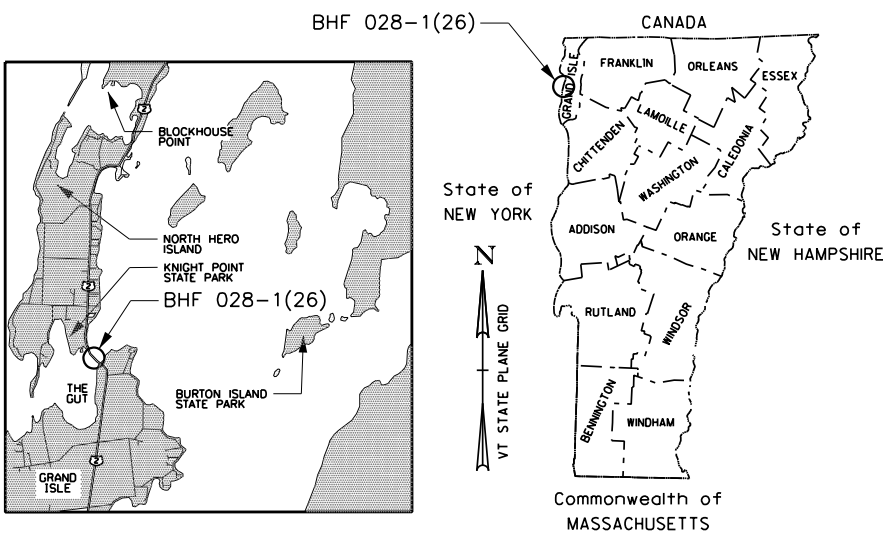
PROJECT LOCATION : BEGINS AT A POINT IN NORTH HERO 0.064 MI WEST OF THE NORTH HERO/GRANDE ISLE TOWN LINE  
(STA. 518+40.10) AND CONTINUES EASTERLY ON US 2 IN GRANDE ISLE FOR 0.125 MI.

PROJECT DESCRIPTION : REPLACEMENT OF EXISTING BASCULE BRIDGE, AND ASSOCIATED ROADWAY  
IMPROVEMENTS

LENGTH OF STRUCTURE : 259 FEET.  
LENGTH OF ROADWAY : 741 FEET.  
LENGTH OF PROJECT : 1000 FEET.



SCALE 1" = 150' - 0"  
150 0 150'

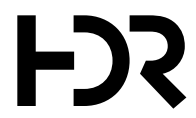


THESE PLANS ARE SUBJECT TO SUCH ENGINEERING  
CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY  
ADMINISTRATION OR THE DIRECTOR OF PROGRAM  
DEVELOPMENT.  
CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE  
WITH THESE PLANS AND THE STANDARD SPECIFICATIONS  
FOR CONSTRUCTION DATED 2011, AS APPROVED BY THE  
FEDERAL HIGHWAY ADMINISTRATION ON JULY 20, 2011  
FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT  
REVISIONS AND SUCH REVISED SPECIFICATIONS AND  
SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE  
PLANS.

QUALITY ASSURANCE PROGRAM : LEVEL I	
SURVEYED BY : VT SURVEY AND ENG. , INC.	
SURVEYED DATE : JUNE 17, 2014	
DATUM	
VERTICAL	NAVD88 (GEOID12A)
HORIZONTAL	NAD 83 (2011)

SEMI-FINAL PLANS

DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATOR	
APPROVED _____	DATE _____
DIRECTOR OF PROGRAM DEVELOPMENT	
APPROVED _____	DATE _____
PROJECT MANAGER : T. SUMNER	
PROJECT NAME : NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER : BHF 028-1(26)	
SHEET 1 OF 340 SHEETS	





PLAN SHEETS

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5	ROADWAY TYPICAL SECTIONS	194	BRIDGE RAIL LAYOUT
6	TEMPORARY BRIDGE TYPICAL SECTIONS	195 - 199	BRIDGE RAIL DETAILS
7 - 10	QUANTITY SHEETS	200	MECHANICAL GENERAL NOTES
11 - 12	GENERAL NOTES	201	MECHANICAL PLAN AND ELEVATION
13	SURVEY TIE SHEET	202	HYDRAULIC SYSTEM LAYOUT
14	CONVENTIONAL SYMBOLOGY LEGEND SHEET	203	HYDRAULIC CYLINDER ATTACHMENT
15 - 22	ROADWAY LAYOUT SHEETS	204	HYDRAULIC CYLINDER ASSEMBLY
23 - 25	PROFILE SHEETS	205	HYDRAULIC POWER UNIT
26 - 27	TRAFFIC MANAGEMENT PLAN SHEETS	206	HYDRAULIC SCHEMATIC
28 - 32	TRAFFIC CONTROL PLAN SHEETS	207	HYDRAULIC SCHEMATIC DETAILS
33	WATER LINE AND SEWER LAYOUT	208	TRUNNION ASSEMBLY
34 - 35	TRAFFIC SIGN SUMMARY SHEETS	209 - 210	TRUNNION DETAILS
36 - 37	TRAFFIC SIGNAL PLANS	211	SPAN LOCK ASSEMBLY
38 - 39	TRAFFIC SIGNAL NOTES	212	SPAN LOCK DETAILS 1
40	BARRIER GATE FOUNDATION DETAILS	212A-212C	SPAN LOCK DETAILS 2-4
41	WARNING GATE FOUNDATION DETAILS	213	TRUNNION INSTRUMENTATION
42	TENDER HOUSE STAIR CONSTRUCTION	213A	TAIL LOCK ASSEMBLY
43	BORING INFORMATION SHEET	213B-213C	TAIL LOCK DETAILS
44 - 53	BORING LOG SHEETS	214	ELECTRICAL GENERAL NOTES
54	BRIDGE PLAN AND ELEVATION	215	ELECTRICAL LEGEND AND ABBREVIATIONS
55	APPROACH SPAN DECK DETAILS	216	ELECTRICAL PLAN AND ELEVATION
56	APPROACH SPAN FRAMING PLAN	217	ELECTRICAL SITE PLAN
57	APPROACH SPAN GIRDER DETAILS	218 - 219	ONE LINE DIAGRAMS
58	APPROACH BEARING DETAILS	220 - 239	CONTROL SCHEMATICS
59 - 60	ABUTMENT DETAILS	240	GENERATOR INTERCONNECTION DIAGRAM
61	ABUTMENT BACKWALL DETAILS	241	INSTRUMENTATION WIRING DIAGRAM
62	WINGWALL DETAILS	242	LIMIT SWITCH DEVELOPMENT 1
63	ABUTMENT FOUNDATION DETAILS	242A	LIMIT SWITCH DEVELOPMENT 2
64	BASCULE SPAN DECK PLAN	243	PANELBOARD SCHEDULES
65 - 67	BASCULE SPAN DECK DETAILS	244	CONTROL DESK DETAILS
68	BASCULE SPAN HAUNCH TABLE	245	CONTROL DESK LAYOUT
69 - 70	JOINT DETAILS	246	MOTOR CONTROL CENTER LAYOUT
71	BASCULE SPAN FRAMING PLAN	247 - 248	PIER 1 LAYOUTS
72 - 73	BASCULE SPAN TRANSVERSE SECTIONS	249 - 251	CONTROL HOUSE LAYOUTS
73A	BASCULE SPAN TRANSVERSE SECTION 3	252	EXISTING TENDER HOUSE BASEMENT LAYOUT
74	BASCULE SPAN LONGITUDINAL SECTION	253	PROPOSED TENDER HOUSE BASEMENT LAYOUT
75 - 78	BASCULE SPAN GIRDER DETAILS	254 - 256	PIER 1 LIGHTING AND RECEPTACLE LAYOUTS
79 - 80	BASCULE SPAN CAMBER DIAGRAMS	257 - 260	PIER 2 LIGHTING AND RECEPTACLE LAYOUTS
81 - 84	BASCULE SPAN DIAPHRAGMS	261	TENDER HOUSE BASEMENT LIGHTING AND RECEPTACLE
85	BASCULE SPAN DIAPHRAGM DETAILS	262	DROOP CABLE AND CABINET DETAILS
86	UPPER COUNTERWEIGHT BRACING PLAN	263	SUBMARINE CABLE AND CABINET DETAILS
87	MIDDLE COUNTERWEIGHT BRACING PLAN	264	WARNING GATE DETAILS
88	LOWER COUNTERWEIGHT PLAN	265	BARRIER GATE DETAILS
89	COUNTERWEIGHT ELEVATION	266	NAVIGATION LIGHT DETAILS
90 - 91	COUNTERWEIGHT FLOORBEAM	267	HEAT TRACE DETAILS
92 - 93	COUNTERWEIGHT CROSS SECTIONS	268	ELECTRIC UTILITY DETAILS
94	BRIDGE BALANCE TABLE	269	GROUNDING BLOCK DIAGRAM
95	LATERAL BRACING PLAN	270	GROUNDING DETAILS
96 - 97	LATERAL BRACING DETAILS	271	CCTV BLOCK DIAGRAM
98 - 100	TRUNNION SUPPORT DETAILS	272	CCTV PLAN
101	MAINTENANCE WALKWAY PLAN	273 - 274	CONDUIT BLOCK DIAGRAMS
102 - 105	MAINTENANCE WALKWAY DETAILS	275	ROADWAY CONDUIT ROUTING PLAN
106 - 107	PIER 1 - ELEVATIONS	276 - 277	CONDUIT AND CABLE SCHEDULES
108 - 111	PIER 1 - PLAN VIEWS	278	HANDHOLE AND MISC. CABINET MOUNTING DETAILS
112	PIER 1 - FOOTING REINFORCEMENT PLAN	279	HVAC CONTROL HOUSE
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PROJECT NAME:	NORTH HERO GRAND ISLE BRIDGE		
PROJECT NUMBER:	BHF 028-1(26)		
FILE NAME:	z12b142index.xls	PLOT DATE:	8/4/2025
PROJECT LEADER:	T. FRENCH	DRAWN BY:	P. LEFEBVRE
DESIGNED BY:	P. LEFEBVRE	CHECKED BY:	M. MOZER
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TRAFFIC DATA

YEAR	ADT	DIV	% D	% T	ADTT	20 year ESAL for flexible pavement from 2018 to 2038 : 1065000
2018	3000	460	55	2.6	150	40 year ESAL for flexible pavement from 2018 to 2058 : 0
2028	3200	490	55	3.4	210	Design Speed : 50 mph

FINAL HYDRAULIC REPORT

HYDROLOGIC DATA

Date: July 2016

DRAINAGE AREA : -

CHARACTER OF TERRAIN : -

STREAM CHARACTERISTICS : -

NATURE OF STREAMBED : -

PEAK FLOW DATA - ANNUAL EXCEEDANCE PROBABILITY (AEP)

43% =	-	2% =	-
10% =	-	1% =	-
4% =	-	0.2% =	-

DATE OF FLOOD OF RECORD : May 6, 2011

ESTIMATED DISCHARGE : -

WATER SURFACE ELEV : 103.27' @ Burlington USGS Gage

NATURAL STREAM VELOCITY : -

ICE CONDITIONS : -

DEBRIS : -

DOES THE STREAM REACH MAXIMUM HIGHWATER ELEV. RAPIDLY? -

IS ORDINARY RISE RAPID? -

IS STAGE AFFECTED BY UPSTREAM OR DOWNSTREAM CONDITIONS? -

IF YES, DESCRIBE : -

WATERSHED STORAGE : 0%

HEADWATERS : -

UNIFORM : -

IMMEDIATELY ABOVE SITE : -

EXISTING STRUCTURE INFORMATION

STRUCTURE TYPE: Twin Leaf Bascule Bridge

YEAR BUILT: 1953

CLEAR SPAN(NORMAL TO STREAM): 80.3'

VERTICAL CLEARANCE ABOVE STREAMBED: 33.3'

WATERWAY OF FULL OPENING ~4980'

DISPOSITION OF STRUCTURE: Remove and Replace

TYPE OF MATERIAL UNDER SUBSTRUCTURE See boring logs

WATER SURFACE ELEVATIONS AT.

43% AEP =	-	VELOCITY =	-
10% AEP =	-	"	-
4% AEP =	-	"	-
2% AEP =	-	"	-
1% AEP =	101.5'	"	-

LONG TERM STREAMBED CHANGES. -

IS THE ROADWAY OVERTOPPED BELOW 1% AEP:

FREQUENCY: -

RELIEF ELEVATION: -

DISCHARGE OVER ROAD @ 1% AEP: -

UPSTREAM STRUCTURE

TOWN: -	DISTANCE: -
HIGHWAY #: -	STRUCTURE #: -
CLEAR SPAN: -	CLEAR HEIGHT: -
YEAR BUILT: -	FULL WATERWAY: -
STRUCTURE TYPE: -	

DOWNSTREAM STRUCTURE

TOWN: -	DISTANCE: -
HIGHWAY #: -	STRUCTURE #: -
CLEAR SPAN: -	CLEAR HEIGHT: -
YEAR BUILT: -	FULL WATERWAY: -
STRUCTURE TYPE: -	

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H 20	HL 93	3S2	5 AXLE	3A STR	4A STR	5A SEM
TONNAGE	20	36	36	66	30	34.5	38
INVENTORY	2.24	1.31					
POSTING							
OPERATING	2.91	1.71	2.35	1.59	1.63	1.5	2.02
COMMENTS:	APPROACH SPAN EXTENSION GIRDER CONTROLS SERVICE II LIMIT STATE						

AS BUILT "REBAR" DETAIL

LEVEL I	LEVEL II	LEVEL III
TYPE	TYPE	TYPE
GRADE	GRADE	GRADE

PROPOSED STRUCTURE

STRUCTURE TYPE: TWIN LEAF BASCULE BRIDGE

CLEAR SPAN(NORMAL TO STREAM): 81.0'

VERTICAL CLEARANCE ABOVE STREAMBED: 30.4'

WATERWAY OF FULL OPENING ~ 4100 sq ft

WATER SURFACE ELEVATIONS AT.

43% AEP =	-	VELOCITY =	-
10% AEP =	-	"	-
4% AEP =	-	"	-
2% AEP =	-	"	-
1% AEP =	101.5'	"	-

IS THE ROADWAY OVERTOPPED BELOW 1% AEP: No

FREQUENCY Above 1% AEP

RELIEF ELEVATION: ~ 118'

DISCHARGE OVER ROAD @ 1% AEP: None

BRIDGE LOW CHORD ELEVATION: 112.4'

FREEBOARD @ 1% AEP = 10.9'

SCOUR: -

REQUIRED CHANNEL PROTECTION: Stone Fill, Type IV

PERMIT INFORMATION

AVERAGE DAILY FLOW -

DEPTH OR ELEVATION: -

ORDINARY LOW WATER: -

ORDINARY HIGH WATER: 97.6'

MEAN WATER LEVEL: 95.1'

TEMPORARY BRIDGE REQUIREMENTS

STRUCTURE TYPE: Single Leaf Bascule Bridge

CLEAR SPAN (NORMAL TO STREAM): 40.0'

VERTICAL CLEARANCE ABOVE STREAMBED: 10' (low chord to OHW)

WATERWAY AREA OF FULL OPENING: -

ADDITIONAL INFORMATION

Mean Lake Level at Rouses Point = 94.88' based on "The State Discharge Relationship of Lake Champlain - Richelieu River"

** = Taken from Grand Isle FIS

TRAFFIC MAINTENANCE NOTES

1. MAINTAIN TWO-WAY TRAFFIC ON A TEMPORARY BRIDGE

2. INSTALL AND MAINTAIN TRAFFIC SIGNALS

3. SIDEWALKS ARE NOT NECESSARY

4. THE APPROACHES FOR THE TEMPORARY BRIDGE SHALL BE PAVED.

DESIGN VALUES

1. DESIGN LIVE LOAD	HL-93
2. FUTURE PAVEMENT	d _o : 0.0 INCH
3. ABUTMENT BEARING TO BEARING LENGTH (SIX SPANS) ( 48.00 - 26.50 - 53.10 - 53.10 - 26.50 - 48.00 ) FT	L: 255.2 FT
4. MIN. MID-SPAN POS. CAMBER @ RELEASE (PRESTRESSED UNITS)	Δ: - - -
5. PRESTRESSING STRAND	f _y : - - -
6. PRESTRESSED CONCRETE STRENGTH	f' _{ci} : - - -
7. PRESTRESSED CONCRETE RELEASE STRENGTH	f' _{cr} : - - -
8. CONCRETE, HIGH PERFORMANCE CLASS LW	f' _{ci} : 4.0 KSI
9. CONCRETE, HIGH PERFORMANCE CLASS A	f' _{ci} : 4.0 KSI
10. CONCRETE, HIGH PERFORMANCE CLASS B	f' _{ci} : 3.5 KSI
11. CONCRETE, CLASS C	f' _{ci} : 3.0 KSI
12. REINFORCING STEEL	f _y : 60 KSI
13. STRUCTURAL STEEL AASHTO M270	f _y : 50 KSI
14. NOMINAL BEARING RESISTANCE OF ROCK	q _{nc} : 180.0 KSF
15. ROCK BEARING RESISTANCE FACTOR (REFER TO AASHTO LRFD)	φ: 0.45
16. MICROPILE GEOTECHNICAL RESISTANCE FACTOR (TIP)	φ: 0.50
17. MICROPILE GEOTECHNICAL RESISTANCE FACTOR (SIDE)	φ: 0.55
18. MICROPILE STRUCTURAL RES. FACTOR (CASED, COMPRESSION)	φ: 0.75
19. LATERAL PILE DEFLECTION	Δ: TBD
20. BASIC WIND SPEED	v _{bs} : 100 MPH
21. MINIMUM GROUND SNOW LOAD	p _g : - - -
22. SEISMIC DATA PGA 0.135g	S _s : 0.259g
	S _t : 0.061g

23

24

25

26

PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE

PROJECT NUMBER: BHF 028-1(26)

FILE NAME: z:\2b142pi.xls

PLOT DATE: 8/4/2017

PROJECT LEADER: T. FRENCH

DRAWN BY: P. LEFEBVRE

DESIGNED BY: P. LEFEBVRE

CHECKED BY: M. MOZER

PRELIMINARY INFORMATION SHEET

SHEET 3 OF 340



EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REPLACEMENT OF BRIDGE 8, A DOUBLE LEAF BASCULE BRIDGE THAT PROVIDES THE ONLY VEHICULAR CONNECTION BETWEEN NORTH HERO AND GRAND ISLE, VT. THE BRIDGE WILL BE REPLACED WITH A TWIN LEAF BASCULE BRIDGE. THE BRIDGE WILL BE ON NEW FOUNDATIONS ALONG THE SAME ALIGNMENT. A SIMILAR AESTHETIC WILL BE MAINTAINED. BRIDGE 8 IS LOCATED BETWEEN THE TOWNS OF NORTH HERO AND GRAND ISLE, ALONG US ROUTE 2, AND CROSSES OVER LAKE CHAMPLAIN.

NOTE: AREA OF DISTURBANCE INCLUDES LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, AS WELL AS WASTE, BORROW AND STAGING AREAS, AND OTHER EARTH DISTURBING ACTIVITIES WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS AS SHOWN ON THE ATTACHED EPSC PLAN.

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 2.95 ACRES. IMPACTS BELOW THE MWL ARE APPROXIMATELY 0.71 ACRE (0.18 ACRE PERM. & 0.53 ACRE TEMP.) IMPACTS BELOW THE OHW ARE APPROXIMATELY 0.83 ACRE (0.18 ACRE PERM. & 0.65 ACRE TEMP.)

IT IS ANTICIPATED THAT THIS PROJECT WILL LAST FOUR CONSTRUCTION SEASONS.

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE AREA IS A SADDLE THAT IS MOSTLY OPEN AREAS AND BANK WITH SOME WOODED AREAS. US ROUTE 2, LANDING LANE, DRAWBRIDGE LANE, AND TWO PAVED DRIVeways ARE WITHIN THE PROJECT SITE. THERE IS A RESIDENCE ON THE SOUTH SIDE OF THE PROJECT.

1.2.2 DRAINAGE, WATERWAYS, BODIES OF WATER, AND PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES

LAKE CHAMPLAIN IS THE ONLY WATER SOURCE ON THE PROJECT SITE.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF DECIDUOUS AND CONIFEROUS TREES, AS WELL AS SOME ADDITIONAL MINOR GROWTH. UPON PROJECT COMPLETION, AREAS OF THE CAUSEWAY WILL BE ARMORED WITH STONE FILL AS SPECIFIED ON THE PLANS. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

1.2.4 SOILS

THE SOIL IN THE PROJECT AREA IS MOSTLY FILL PLACED FOR THE CONSTRUCTION OF THE EXISTING BRIDGE. THE NORTHERNMOST AREA CONTAINS COVINGTON SILTY CLAY LOAM, K=0.49. THE SOUTHERN AREA CONTAINS AMENIA SILT LOAM, K=0.37 AND BENSON ROCKY LOAM, K=0.32.

NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING:  
0.0-0.23 = LOW EROSION POTENTIAL  
0.24-0.36 = MODERATE EROSION POTENTIAL  
0.37 AND HIGHER = HIGH EROSION POTENTIAL

1.2.5 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: YES - THE PROJECT AREA IS AN EXCELLENT WILDLIFE HABITAT. NUMEROUS SPECIES COULD OCCUR WITHIN THE PROJECT AREA INCLUDE INVERTEBRATES, FISH, BOTTOM DWELLING ORGANISMS, WATERFOWL, BIRDS OF PREY, MIGRATORY BIRDS, MAMMALS, REPTILES, AND AMPHIBIANS. HISTORICAL OR ARCHEOLOGICAL AREAS: YES  
PRIME AGRICULTURAL LAND: NO  
THREATENED AND ENDANGERED SPECIES: YES - GIANT FLOATER (PYGANODON GRANDIS) WAS THE ONLY SPECIES FOUND BY A SURVEY TRAGETING FIVE SPECIES OF FRESHWATER MUSSEL. IT HAS BEEN RECOMMENDED THAT A RESAMPLE BE TAKEN CLOSER TO CONSTRUCTION AND THAT ALL MUSSELS FOUND BE RELOCATED TO ANOTHER SUITABLE AREA BEFORE JULY 2018.  
WATER RESOURCE: LAKE CHAMPLAIN  
WETLANDS: NO - NO IMPACTS ARE ANTICIPATED TO THE WETLANDS, WHICH ARE LOCATED WITHIN THE NORTHWESTERN QUADRANT OF THE CAUSEWAY, DUE TO THE LIMITED SCOPE OF THE PROJECT.

1.3 RISK EVALUATION

THIS PROJECT FALLS UNDER THE JURISDICTION OF CONSTRUCTION GENERAL PERMIT 3-9020 FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES FOR LOW RISK PROJECTS. ANY MODIFICATIONS TO THE PROJECT THAT INCREASE THE RISK TO ENVIRONMENTAL RESOURCES SHALL BE EVALUATED IN ACCORDANCE WITH THE PERMIT REQUIREMENTS. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL PERMITTING.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE PRINCIPLES OUTLINED IN THIS NARRATIVE CONSIST OF APPLYING MEASURES THROUGHOUT CONSTRUCTION OF THE PROJECT IN ORDER TO MINIMIZE SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORMWATER CONTROLS AND OTHER POLLUTION PREVENTION PRACTICES. THEY HAVE BEEN PROPOSED BY THE DESIGNER AS A BASIS FOR PROTECTING RESOURCES AND WILL NEED TO BE BUILT UPON BASED ON THE SPECIFIC MEANS AND METHODS OF THE CONTRACTOR. REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR SPECIFIC GUIDANCE AND CONSTRUCTION DETAILING.

ALL MEASURES SHALL BE REGULARLY MAINTAINED AND SHALL BE CHECKED FOR SEDIMENT BUILD-UP. SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED SITE WHERE IT WILL NOT BE SUBJECT TO EROSION.

1.4.1 MARK SITE BOUNDARIES

SITE BOUNDARIES AND AREAS CONSTRUCTION EQUIPMENT CAN ACCESS SHALL BE DELINEATED. PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES. BECAUSE THIS PROJECT FALLS UNDER THE CGP 3-9020, BARRIER FENCE SHALL BE USED INSTEAD OF PROJECT DEMARCATION FENCE WITHIN 100 FEET OF A WATER RESOURCE (STREAM, BROOK, LAKE, POND, WETLAND, ETC.

1.4.2 LIMIT DISTURBANCE AREA

PREVENTING INITIAL SOIL EROSION BY MINIMIZING THE EXPOSED AREA IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. EARTH DISTURBANCE CAN BE MINIMIZED THROUGH CONSTRUCTION PHASING BY ONLY OPENING UP EARTH AS NECESSARY. THIS CAN LIMIT THE AREA THAT WILL BE DISTURBED AND EXPOSED TO EROSION. EMPLOY TEMPORARY CONSTRUCTION STABILIZATION PRACTICES IN INCREMENTAL STAGES AS PHASES CHANGE. FOR PROJECTS WHICH FALL UNDER THE CONSTRUCTION GENERAL PERMIT 3-9020, ONLY THE ACREAGE LISTED ON THE PERMIT AUTHORIZATION MAY BE EXPOSED AT ANY GIVEN TIME.

MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS OR OTHER SENSITIVE AREAS IS A CRUCIAL EROSION AND SEDIMENT CONTROL MEASURE THAT SHOULD BE ESTABLISHED WHEREVER POSSIBLE.

1.4.3 SITE ENTRANCE/EXIT STABILIZATION

TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS SHALL BE MINIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTOR’S PROGRESS SCHEDULE.

STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AS PROPOSED ON THE EPSC PLAN AND ANYWHERE EQUIPMENT WILL BE GOING FROM AREAS OF EXPOSED SOILS TO PAVED SURFACES.

1.4.4 INSTALL SEDIMENT BARRIERS

SEDIMENT BARRIERS SHALL BE UTILIZED TO INTERCEPT RUNOFF AND ALLOW SUSPENDED SEDIMENT TO SETTLE OUT. THEY SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK.

SILT FENCE WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN. BECAUSE THIS PROJECT FALLS UNDER THE CONSTRUCTION GENERAL PERMIT 3-9020, WOVEN WIRE REINFORCED SILT FENCE SHALL BE USED INSTEAD OF SILT FENCE WITHIN 100 FEET UPSLOPE OF RECEIVING WATERS.

FILTER CURTAINS WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN AND DETAIL. THE INITIAL INSTALLATION OF THE CURTAIN, FOR EARTH EXCAVATION AND BRIDGE CONSTRUCTION, SHALL CONSIST OF A DOUBLE ROW. THE SECOND INSTALLATION, FOR THE COFFERDAM REMOVAL, SHALL CONSIST OF A SINGLE ROW. EACH ROW SHALL BE PAID BY THE SQUARE FOOT UNDER ITEM 649.61 GEOTEXTILE FOR FILTER CURTAIN.

1.4.5 DIVERT UPLAND RUNOFF

DIVERSIONARY MEASURES SHALL BE USED TO INTERCEPT RUNOFF FROM ABOVE THE CONSTRUCTION AND DIRECT IT AROUND THE DISTURBED AREA SO THAT CLEAN WATER DOES NOT BECOME MUDDIED WHILE TRAVELING OVER EXPOSED SOILS ON THE CONSTRUCTION SITE.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

THIS PROJECT IS NOT EXPECTED TO PRODUCE ANY CHANNELIZED RUNOFF.

1.4.7 CONSTRUCT PERMANENT CONTROLS

THIS PROJECT DOES NOT REQUIRE ANY PERMANENT STORMWATER TREATMENT DEVICES.

1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY STABILIZATION IN PLACE WITHIN 48 HOURS OF DISTURBANCE OR IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT 3-9020 AUTHORIZATION.

SURFACE ROUGHENING OF ALL EXPOSED SLOPES, COMBINED WITH TEMPORARY MULCHING, SHALL BE UTILIZED ON A REGULAR BASIS. BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3.

THE FORECAST OF RAINFALL EVENTS SHALL TRIGGER IMMEDIATE PROTECTION OF EXPOSED SOILS.

1.4.9 WINTER STABILIZATION

IF CONSTRUCTION ACTIVITIES INVOLVING EARTH DISTURBANCE CONTINUE PAST OCTOBER 15 OR BEGIN BEFORE APRIL 15, THE FOLLOWING MUST BE INCORPORATED INTO THE EPSC PLAN:

- 1. ENLARGED ACCESS POINTS, STABILIZE TO PROVIDE FOR SNOW STOCKPILING.
- 2. LIMITS OF DISTURBANCE MOVED OR REPLACED TO REFLECT BOUNDARY OF WINTER WORK.
- 3. A SNOW MANAGEMENT PLAN INCLUDING ADEQUATE STORAGE AND CONTROL OF SNOWMELT, REQUIRING CLEARED SNOW TO BE STORED DOWN GRADIENT OF ALL AREA OF DISTURBANCE AND PROHIBITING STORAGE OF SNOW IN STORMWATER TREATMENT STRUCTURES.
- 4. A MINIMUM 25 FOOT BUFFER SHALL BE MAINTAINED FROM PERIMETER CONTROLS SUCH AS SILT FENCE TO ALLOW FOR SNOW CLEARING AND MAINTENANCE.
- 5. IN AREAS OF DISTURBANCE WITHIN 100 FEET OF A RECEIVING WATER, SILT FENCE SHALL BE REINFORCED OR ELSE REPLACED WITH PERIMETER DIKES, SWALES, OR OTHER PRACTICES RESISTANT TO THE FORCES OF SNOW LOADS.
- 6. DRAINAGE STRUCTURES SHALL BE KEPT OPEN AND FREE OF SNOW AND ICE DAMS.
- 7. THE CONTRACTOR SHALL INSTALL SILT FENCE AND OTHER PRACTICES REQUIRING EARTH DISTURBANCE AHEAD OF GROUND FREEZING.
- 8. WHERE MULCH IS THE SELECTED STABILIZATION MEASURE, USE DOUBLE THE STANDARD RATE OF MULCH.
- 9. THE REQUIREMENT FOR NETTING OR OTHER APPROACH TO ANCHOR MULCH TO PREVENT REMOVAL BY WIND.
- 10. TO ENSURE COVER OF DISTURBED SOIL IN ADVANCE OF A MELT EVENT, AREAS OF DISTURBED SOIL MUST BE STABILIZED AT THE END OF EACH WORK DAY, WITH THE FOLLOWING EXCEPTIONS:
  - a. IF NO PRECIPITATION WITHIN 24 HOURS IS FORECAST AND WORK WILL RESUME IN THE SAME DISTURBED AREA WITHIN 24 HOURS, DAILY STABILIZATION IS NOT NECESSARY.
  - b. DISTURBED AREAS THAT COLLECT AND RETAIN RUNOFF, SUCH AS HOUSE FOUNDATIONS OR OPEN UTILITY TRENCHES.
- 11. REMOVE SNOW OR ICE TO LESS THAN 1 INCH THICKNESS PRIOR TO STABILIZATION.

1.4.10 STABILIZE SOIL AT FINAL GRADE

EXPOSED SOIL MUST BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

SEED, MULCH, FERTILIZER AND LIME SHALL BE USED TO ESTABLISH PERMANENT VEGETATION. FOR SLOPES STEEPER THAN 1:3, BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED INSTEAD OF MULCH.

1.4.11 DE-WATERING ACTIVITIES

DISCHARGE FROM DEWATERING ACTIVITIES THAT FLOWS OFF OF THE CONSTRUCTION SITE MUST NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF THE VERMONT WATER QUALITY STANDARDS.

TREATMENT OF DEWATERING COFFERDAM IS ANTICIPATED. FILTER BAGS SHALL BE USED FOR TREATMENT OF DISCHARGE DURING DEWATERING OPERATIONS. LOCATIONS FOR TREATMENT HAVE BEEN PROPOSED AND ARE SHOWN ON THE PLANS.

1.4.12 INSPECT YOUR SITE

INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS OR CONSTRUCTION GENERAL PERMIT AUTHORIZATION STIPULATIONS.

1.5 SEQUENCE AND STAGING

THIS SECTION WILL BE DEVELOPED BY THE CONTRACTOR USING THE GUIDANCE OUTLINED IN THE VTRANS EPSC PLAN CONTRACTOR CHECKLIST.

1.5.1 CONSTRUCTION SEQUENCE

1.5.2 OFF-SITE ACTIVITIES

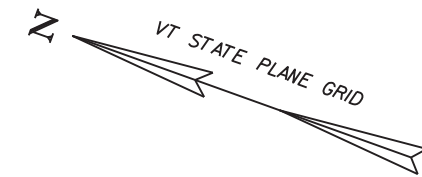
IN ADDITION TO THE CONTRACTOR CHECKLIST ANY ACTIVITIES OUTSIDE THE CONSTRUCTION LIMITS SHALL FOLLOW SPECIFICATION 105.25- 105.29 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

1.5.3 UPDATES

PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-1(26)	
FILE NAME: z12b142ern.dgn	PLOT DATE: 9/28/2017
PROJECT LEADER: D. GOZALKOWSKI	DRAWN BY:R. BROWN
DESIGNED BY: J. PARRELLI	CHECKED BY: J. SHIELDS
EPSC NARRATIVE SHEET	SHEET 312 OF 340



FILE NAME = V:\Projects\ANY\K3\28173\CADD\MSTN\2b\42\Consultants\z12b\42erobdr_ex.dgn  
DATE/TIME = 8/4/2017  
USER = 3724



SOIL TYPE: WATER

COVINGTON SILTY CLAY LOAM  
0%-3% SLOPES  
NOT HIGHLY ERODIBLE  
K = 0.49

EXISTING R.O.W.

US ROUTE 2

WESTBOUND  
EASTBOUND

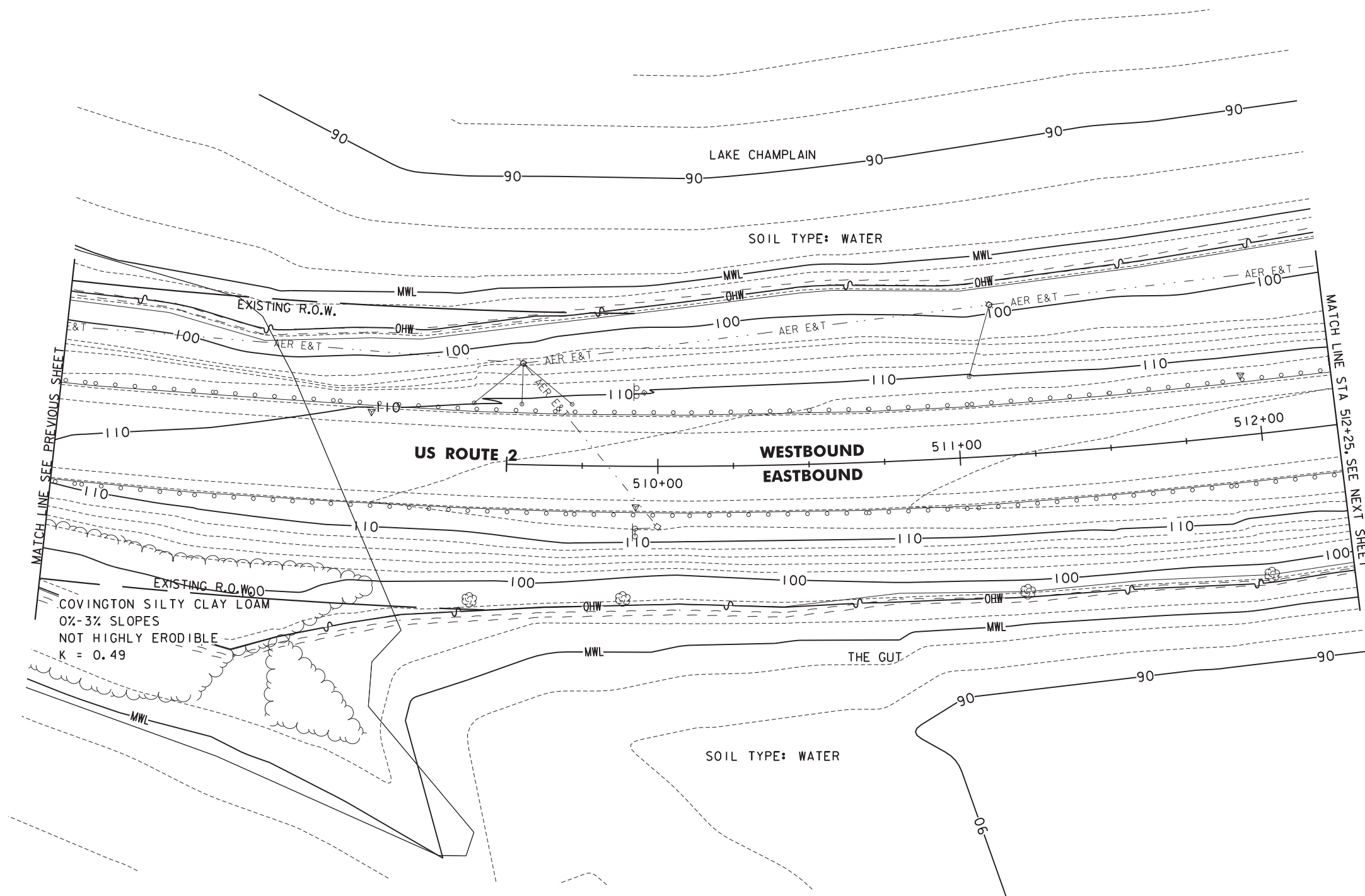
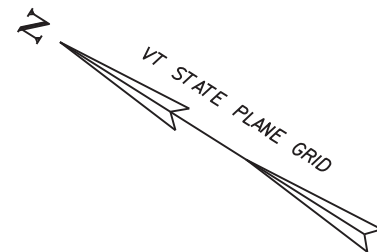
MATCH LINE SEE NEXT SHEET

SOIL TYPE: WATER

SCALE 1" = 20'-0"  
20 0 20



PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-1(26)	
FILE NAME: z12b\42erobdr_ex.dgn	PLOT DATE: 8/4/2017
PROJECT LEADER: D. GOZALKOWSKI	DRAWN BY: R. BROWN
DESIGNED BY: J. PARRELLI	CHECKED BY: J. SHIELDS
EPSC EXISTING SITE PLAN SHEET 1	SHEET 313 OF 340

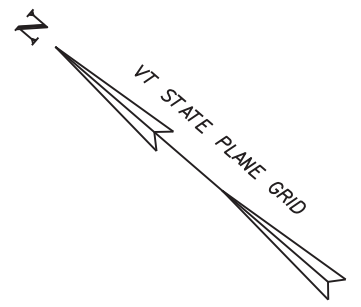
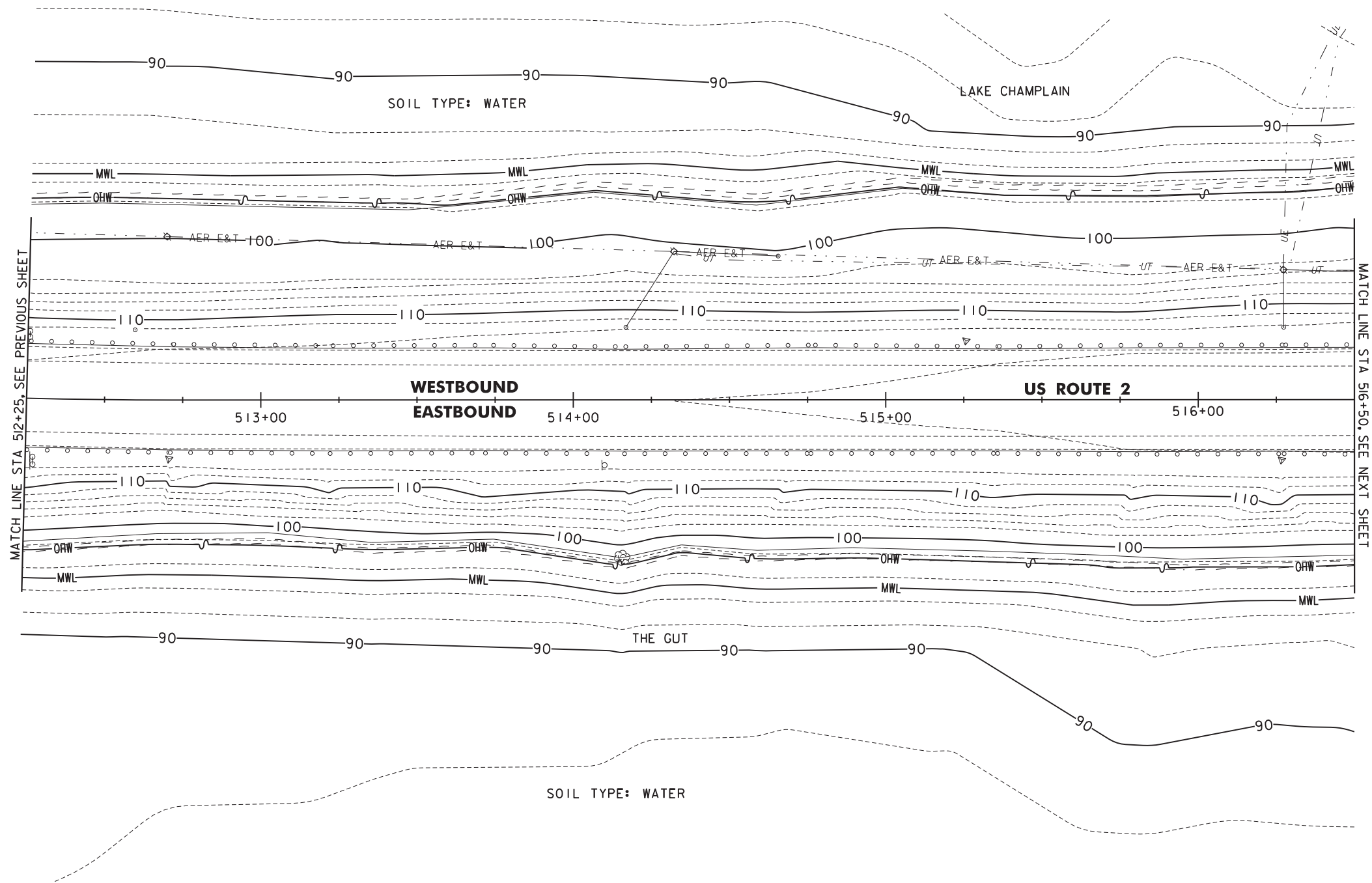


SCALE 1" = 20'-0"  
20 0 20



PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-1(26)	
FILE NAME: z12b142erobdr_ex.dgn	PLOT DATE: 8/4/2017
PROJECT LEADER: D. GOZALKOWSKI	DRAWN BY: R. BROWN
DESIGNED BY: J. PARRELLI	CHECKED BY: J. SHIELDS
EPSC EXISTING SITE PLAN SHEET 2	SHEET 314 OF 340





MATCH LINE STA 512+25, SEE PREVIOUS SHEET

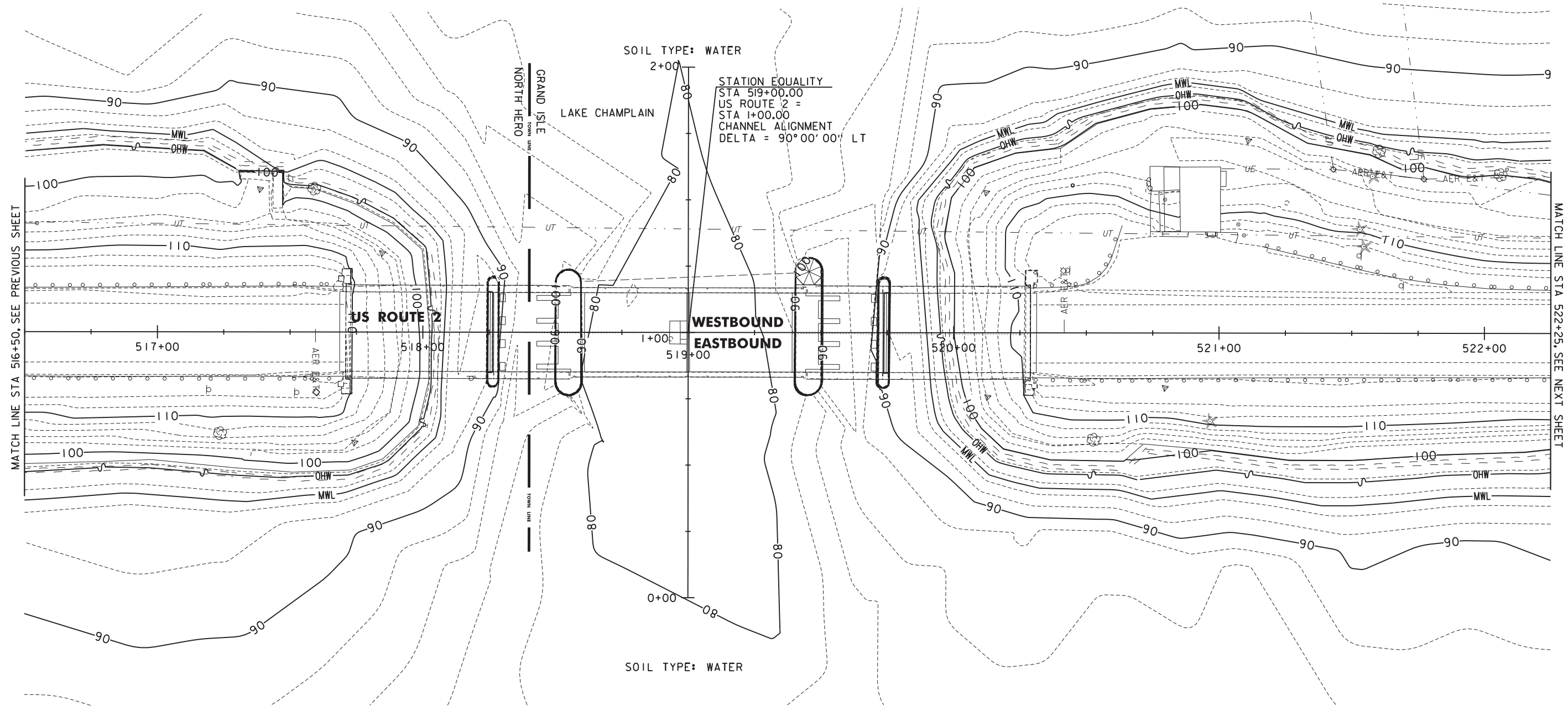
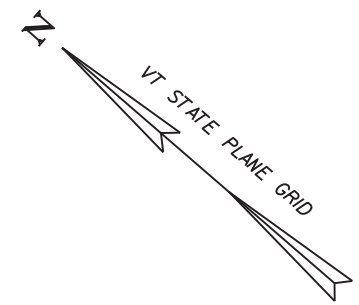
MATCH LINE STA 516+50, SEE NEXT SHEET

FILE NAME = \\p:\projects\ANY\K3\28173\CADD\MSTN\2b\42\Consultants\z12b\42erobdr_ex.dgn  
DATE/TIME = 8/4/2017  
USER = 3724

SCALE 1" = 20'-0"  
20 0 20



PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-1(26)	
FILE NAME: z12b\42erobdr_ex.dgn	PLOT DATE: 8/4/2017
PROJECT LEADER: D. GOZALKOWSKI	DRAWN BY: R. BROWN
DESIGNED BY: J. PARRELLI	CHECKED BY: J. SHIELDS
EPSC EXISTING SITE PLAN SHEET 3	SHEET 315 OF 340



SOIL TYPE: WATER

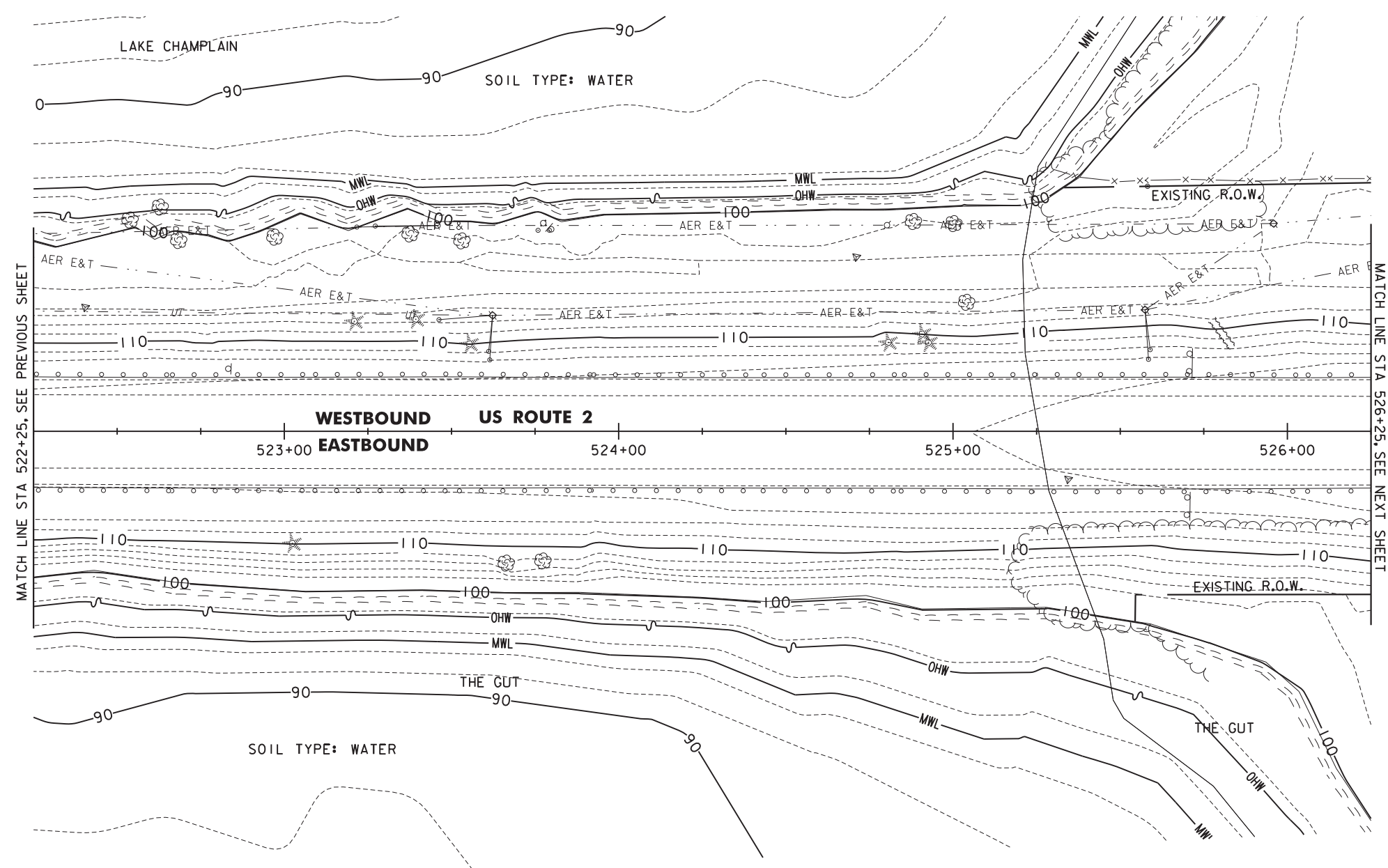
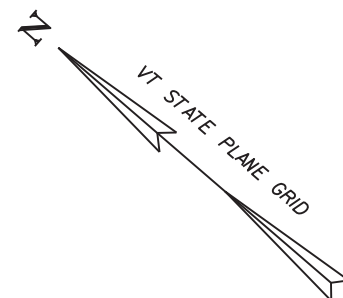
STATION EQUALITY  
STA 519+00.00  
US ROUTE 2 =  
STA 1+00.00  
CHANNEL ALIGNMENT  
DELTA = 90°00'00" LT

SOIL TYPE: WATER

SCALE 1" = 20' - 0"  
20 0 20



PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-1(26)	
FILE NAME: z12b142erobdr_ex.dgn	PLOT DATE: 8/4/2017
PROJECT LEADER: D. GOZALKOWSKI	DRAWN BY: R. BROWN
DESIGNED BY: J. PARRELLI	CHECKED BY: J. SHIELDS
EPSC EXISTING SITE PLAN SHEET 4	SHEET 316 OF 340



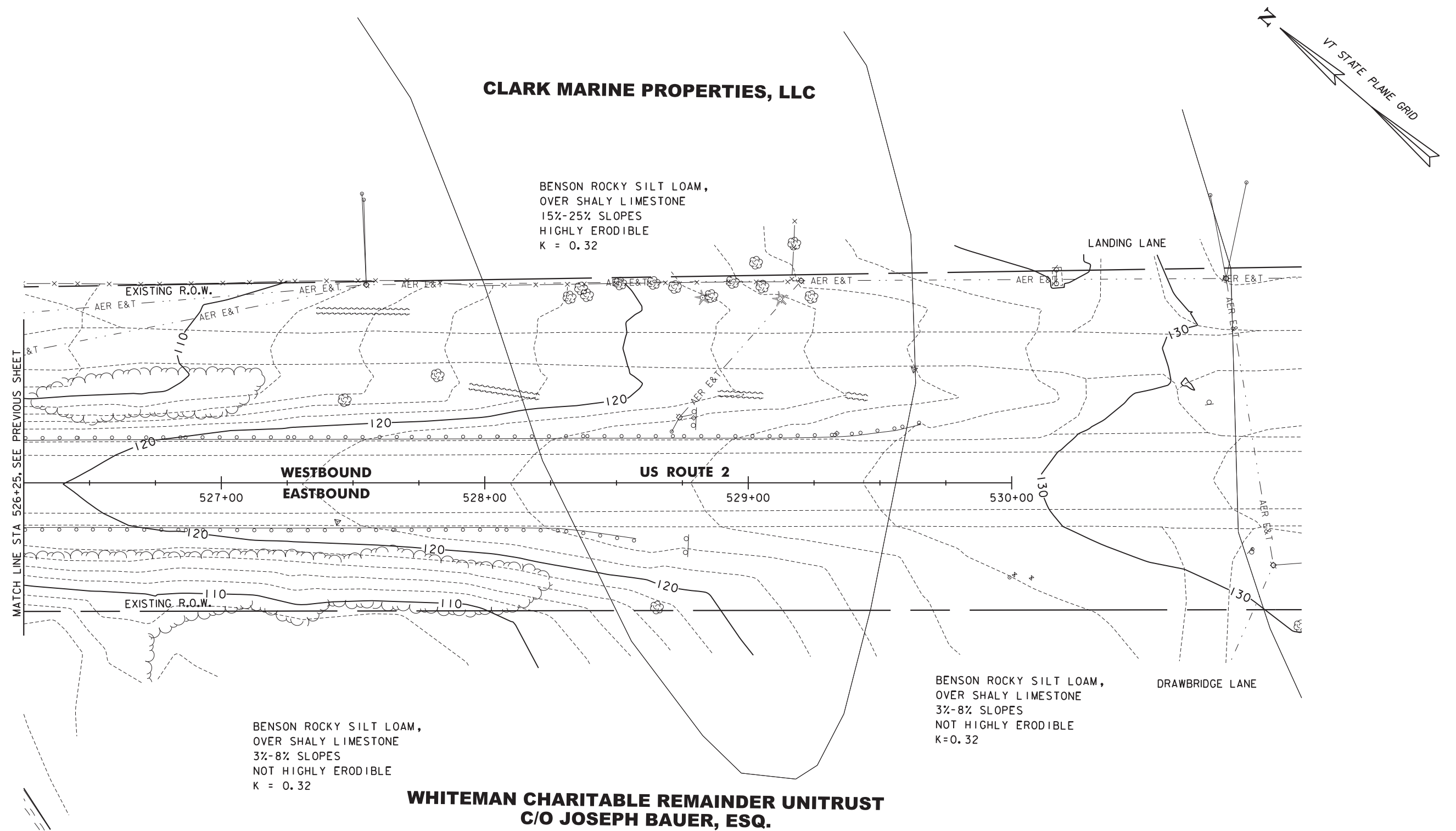
SCALE 1" = 20'-0"  
20 0 20



PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-1(26)	
FILE NAME: z12b142erobdr_ex.dgn	PLOT DATE: 8/4/2017
PROJECT LEADER: D. GOZALKOWSKI	DRAWN BY: R. BROWN
DESIGNED BY: J. PARRELLI	CHECKED BY: J. SHIELDS
EPSC EXISTING SITE PLAN SHEET 5	SHEET 317 OF 340

FILE NAME: \\p:\projects\ANY\K3\28173\CADD\MSTN\12b142\Consultants\z12b142erobdr_ex.dgn  
DATE/TIME: 8/4/2017  
USER: 3724

FILE NAME = \\p-projects\any\k3\28173\CADD\MSTN\2b142\Cad\28173\2b142erobdr_ex.dgn  
DATE/TIME = 8/4/2017  
USER = 3724

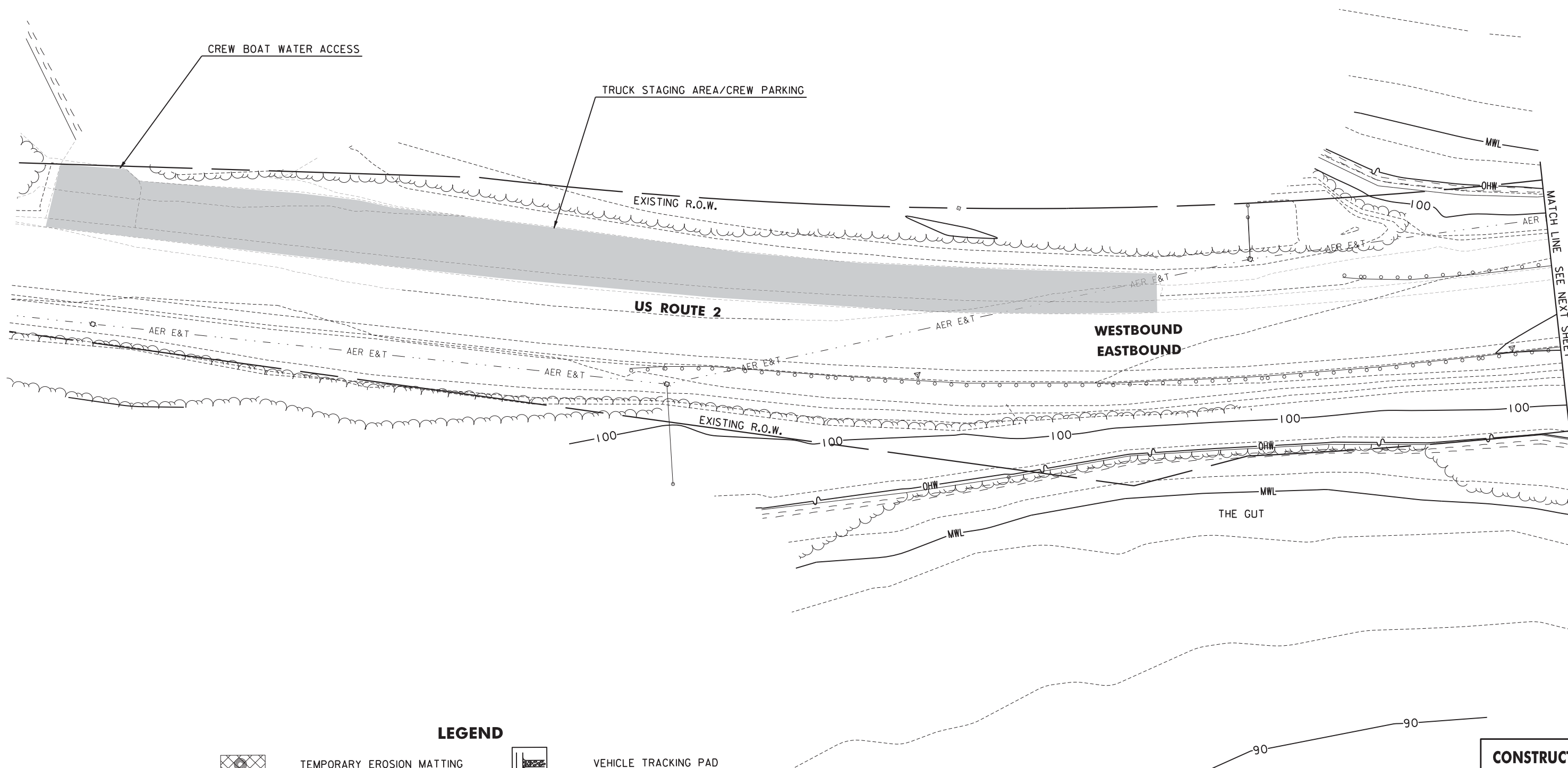
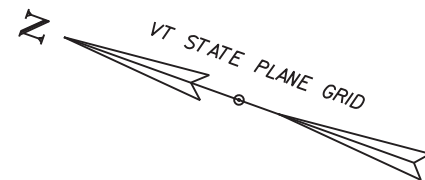


SCALE 1" = 20' - 0"









20 0 20

**CHA**

PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-1(26)	
FILE NAME: z12b142erobdr_ex.dgn	PLOT DATE: 8/4/2017
PROJECT LEADER: D. GOZALKOWSKI	DRAWN BY: R. BROWN
DESIGNED BY: J. PARRELLI	CHECKED BY: J. SHIELDS
EPSC EXISTING SITE PLAN SHEET 6	SHEET 318 OF 340



**LEGEND**

	TEMPORARY EROSION MATTING		VEHICLE TRACKING PAD
	WOVEN WIRE REINFORCED		DEWATERING OPERATION
	BARRIER FENCE		FILTER BAG
	GEOTEXTILE FOR FILTER CURTAIN		TEMPORARY DETOUR, CONSTRUCTION ACCESS, OR STAGING AREA

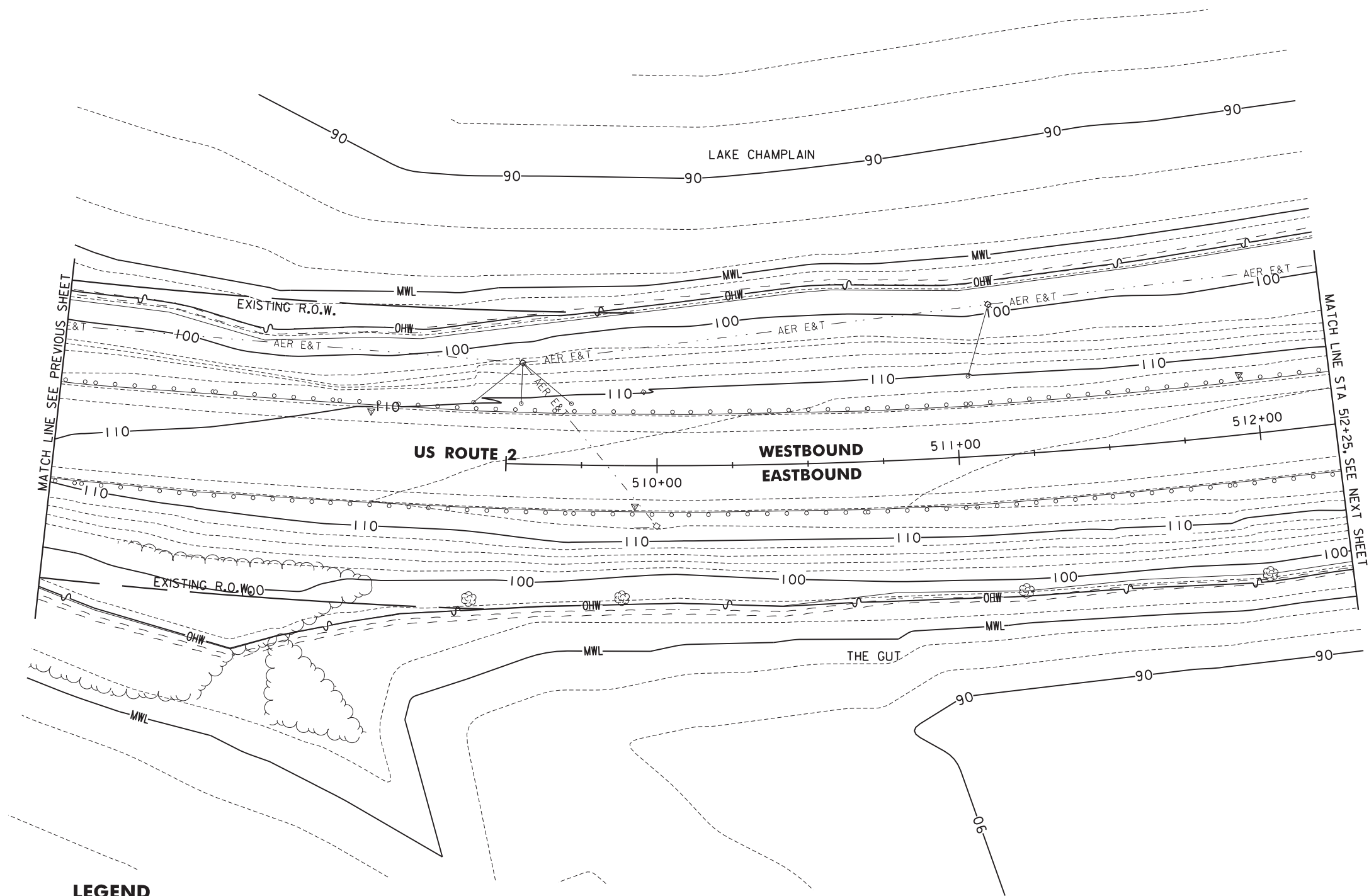
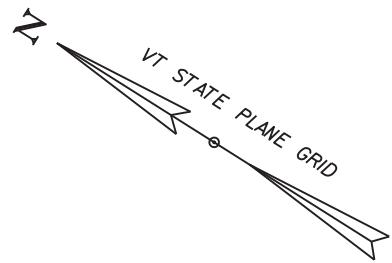
SCALE 1" = 20'-0"  
20 0 20











**CONSTRUCTION SEQUENCING PHASE 1**

PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	PLOT DATE: 8/4/2017
PROJECT NUMBER: BHF 028-1(26)	DRAWN BY: R. BROWN
FILE NAME: z12b142erobdr_con.dgn	CHECKED BY: J. SHIELDS
PROJECT LEADER: D. GOZALKOWSKI	SHEET 319 OF 340
DESIGNED BY: J. PARRELLI	
EPSC CONSTRUCTION PLAN SHEET 1	





**LEGEND**

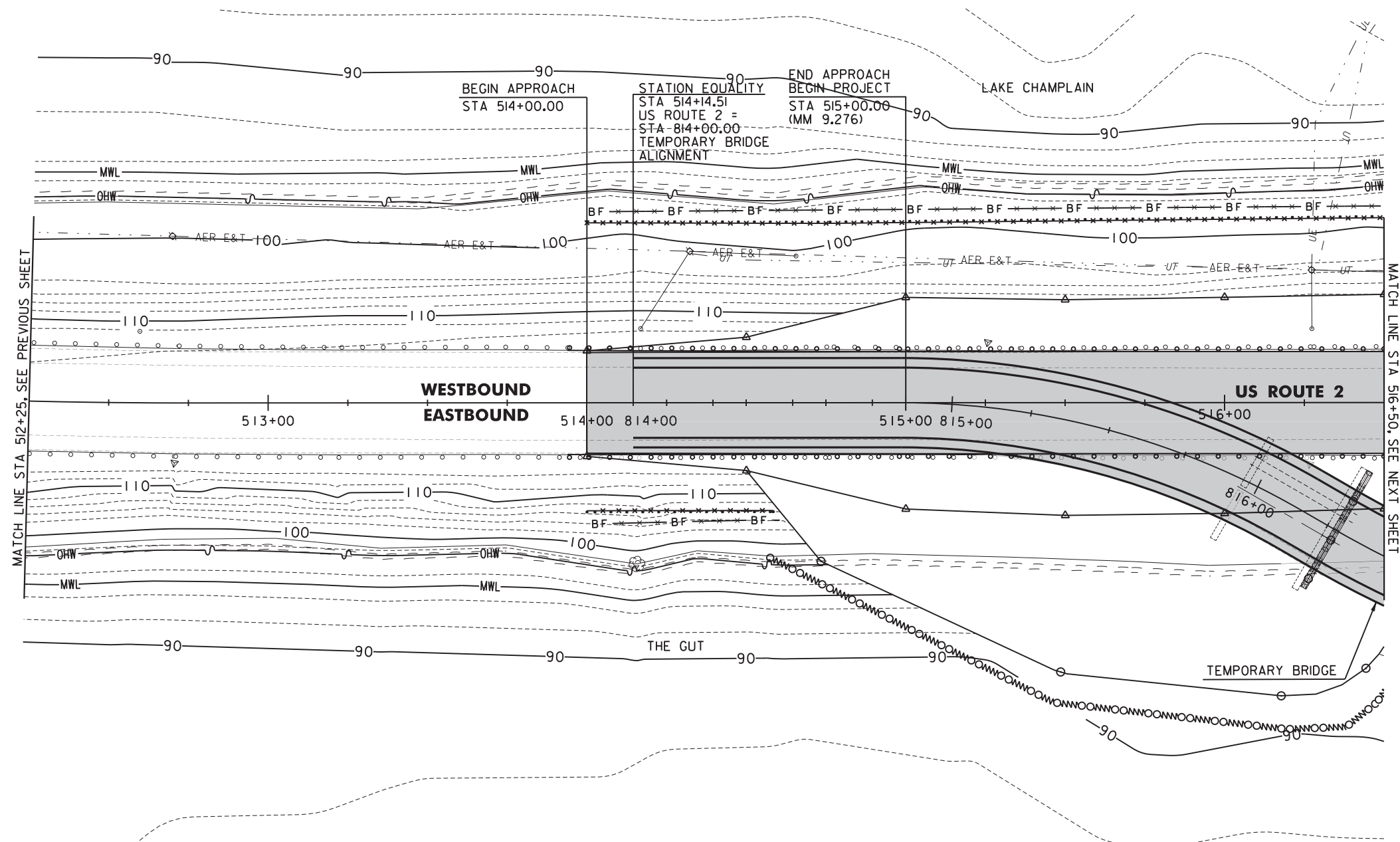
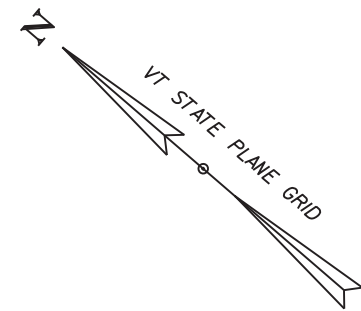
- |                                                                                     |                               |                                                                                     |                                                              |
|-------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------|
|  | TEMPORARY EROSION MATTING     |  | VEHICLE TRACKING PAD                                         |
|  | WOVEN WIRE REINFORCED         |  | DEWATERING OPERATION                                         |
|  | BARRIER FENCE                 |  | FILTER BAG                                                   |
|  | GEOTEXTILE FOR FILTER CURTAIN |  | TEMPORARY DETOUR,<br>CONSTRUCTION ACCESS,<br>OR STAGING AREA |

SCALE 1" = 20' - 0"  
20 0 20



**CONSTRUCTION  
SEQUENCING  
PHASE 1**

PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-1(26)	
FILE NAME: z12b142erobdr_con.dgn	PLOT DATE: 8/4/2017
PROJECT LEADER: D. GOZALKOWSKI	DRAWN BY: R. BROWN
DESIGNED BY: J. PARRELLI	CHECKED BY: J. SHIELDS
EPSC CONSTRUCTION PLAN SHEET 2	SHEET 320 OF 340



**LEGEND**

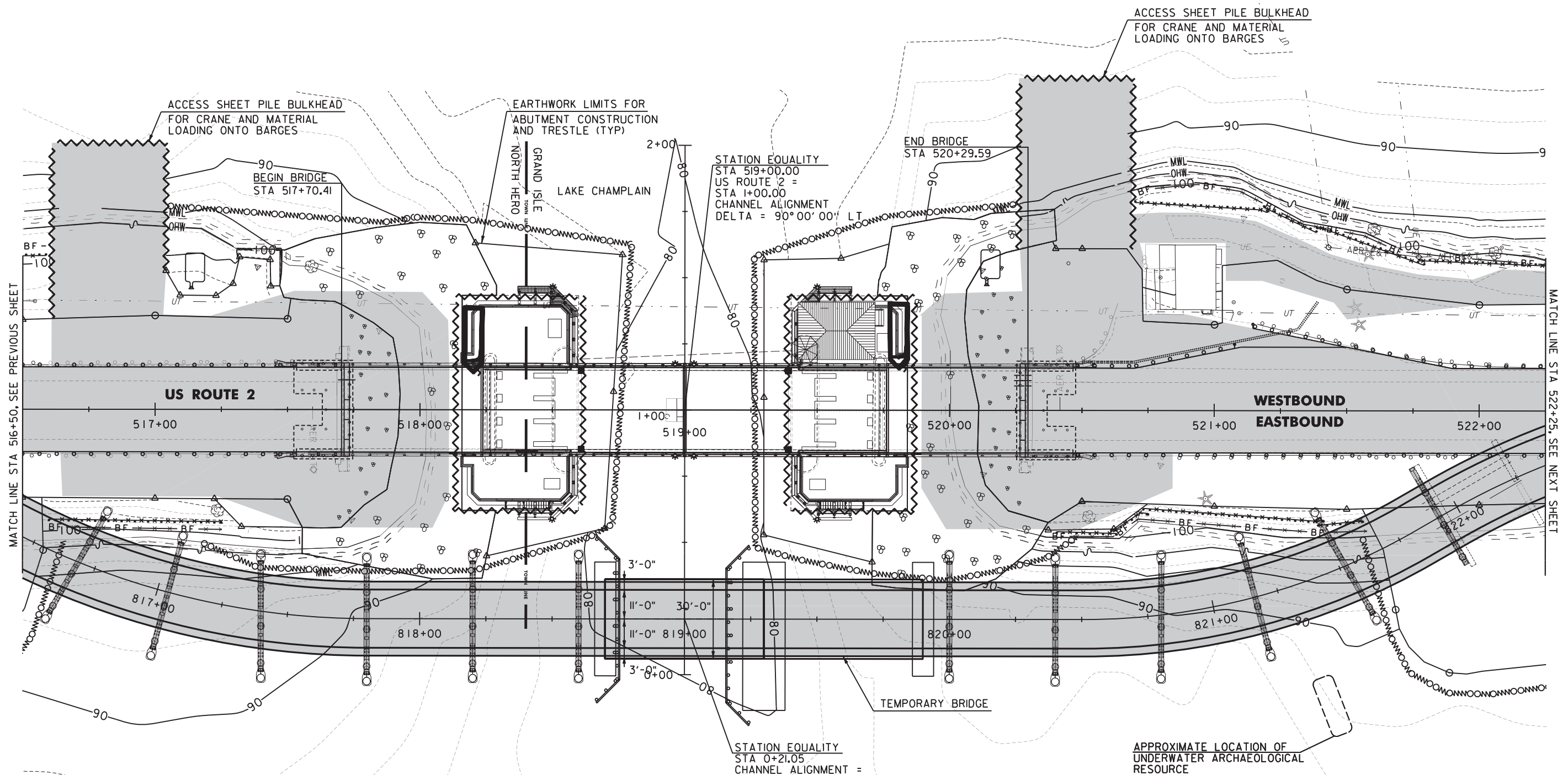
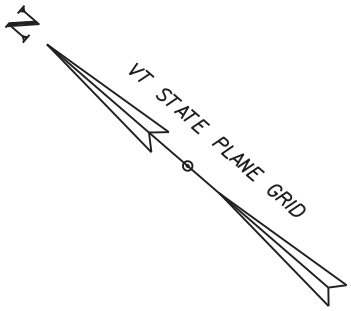
- |  |                               |  |                                                        |
|--|-------------------------------|--|--------------------------------------------------------|
|  | TEMPORARY EROSION MATTING     |  | VEHICLE TRACKING PAD                                   |
|  | WOVEN WIRE REINFORCED         |  | DEWATERING OPERATION                                   |
|  | BARRIER FENCE                 |  | FILTER BAG                                             |
|  | GEOTEXTILE FOR FILTER CURTAIN |  | TEMPORARY DETOUR, CONSTRUCTION ACCESS, OR STAGING AREA |

SCALE 1" = 20'-0"  
20 0 20



**CONSTRUCTION SEQUENCING PHASE 1**

PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-1(26)	
FILE NAME: z12b142erobdr_con.dgn	PLOT DATE: 8/4/2017
PROJECT LEADER: D. GOZALKOWSKI	DRAWN BY: R. BROWN
DESIGNED BY: J. PARRELLI	CHECKED BY: J. SHIELDS
EPSC CONSTRUCTION PLAN SHEET 3	SHEET 321 OF 340



**LEGEND**

- |  |                               |  |                                                        |
|--|-------------------------------|--|--------------------------------------------------------|
|  | TEMPORARY EROSION MATTING     |  | VEHICLE TRACKING PAD                                   |
|  | WOVEN WIRE REINFORCED         |  | DEWATERING OPERATION                                   |
|  | BARRIER FENCE                 |  | FILTER BAG                                             |
|  | GEOTEXTILE FOR FILTER CURTAIN |  | TEMPORARY DETOUR, CONSTRUCTION ACCESS, OR STAGING AREA |

STATION EQUALITY  
STA 0+21.05  
CHANNEL ALIGNMENT =  
STA 819+00.00  
TEMPORARY BRIDGE  
ALIGNMENT  
DELTA = 90° 00' 00" LT

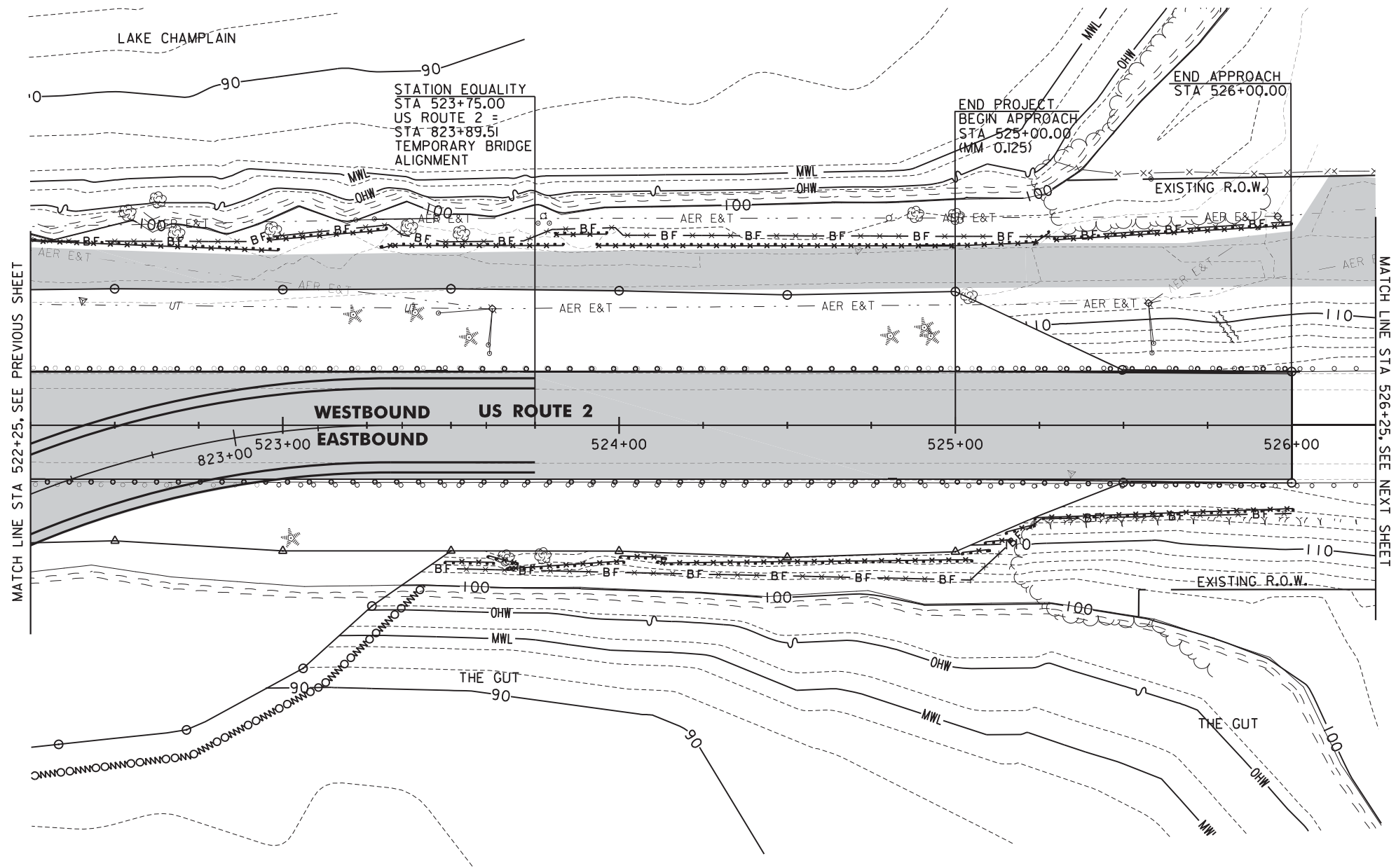
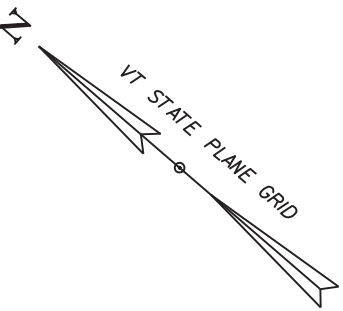
SCALE 1" = 20' - 0"  
20 0 20



**CONSTRUCTION SEQUENCING PHASE 1**

PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-1(26)	
FILE NAME: z12b142erobdr_con.dgn	PLOT DATE: 8/4/2017
PROJECT LEADER: D. GOZALKOWSKI	DRAWN BY: R. BROWN
DESIGNED BY: J. PARRELLI	CHECKED BY: J. SHIELDS
EPSC CONSTRUCTION PLAN SHEET 4	SHEET 322 OF 340

FILE NAME: \\p:\projects\ANY\K3\28173\CADD\MSTN\12b142\Consultants\z12b142erobdr_con.dgn  
DATE/TIME: 8/4/2017  
USER: 3724



**LEGEND**

- |  |                               |  |                                                        |
|--|-------------------------------|--|--------------------------------------------------------|
|  | TEMPORARY EROSION MATTING     |  | VEHICLE TRACKING PAD                                   |
|  | WOVEN WIRE REINFORCED         |  | DEWATERING OPERATION                                   |
|  | BARRIER FENCE                 |  | FILTER BAG                                             |
|  | GEOTEXTILE FOR FILTER CURTAIN |  | TEMPORARY DETOUR, CONSTRUCTION ACCESS, OR STAGING AREA |

SCALE 1" = 20' - 0"  
20 0 20

**CHA**

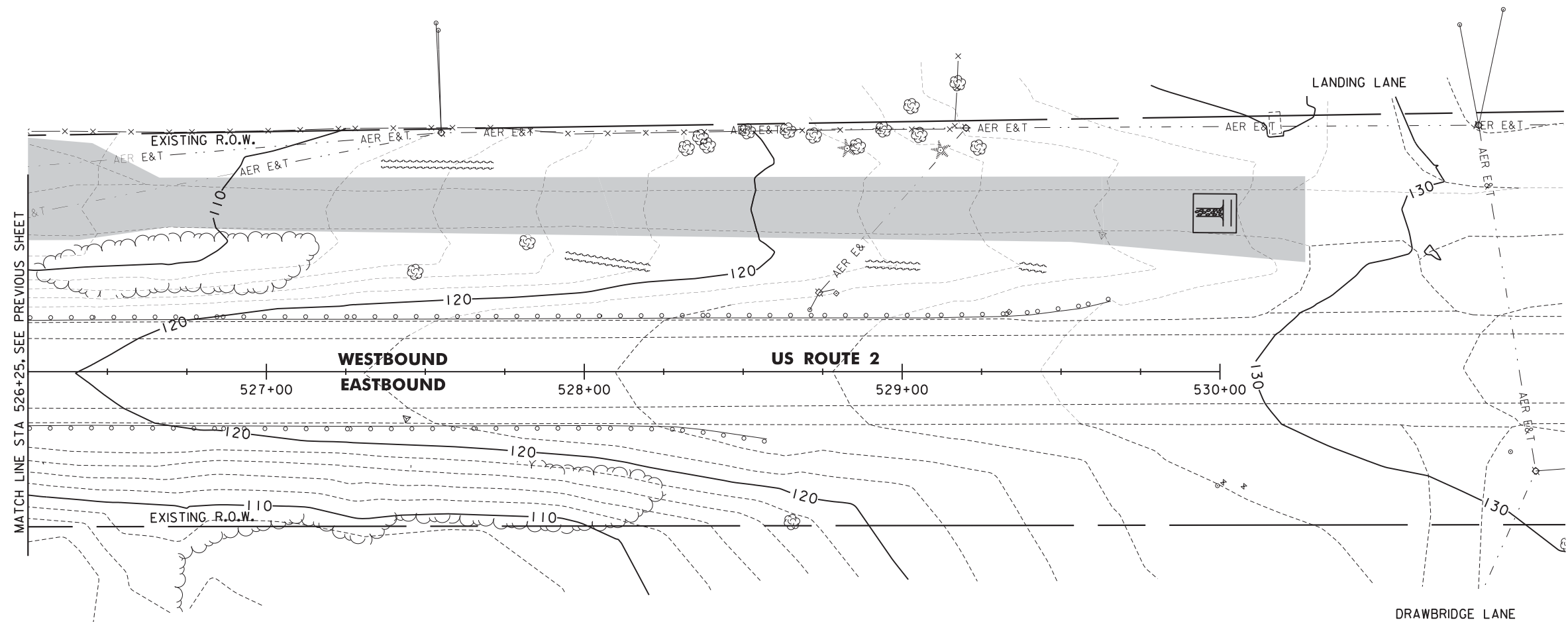
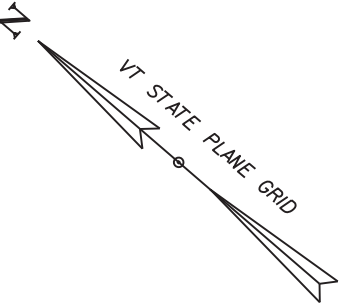
**CONSTRUCTION SEQUENCING PHASE 1**

PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE  
PROJECT NUMBER: BHF 028-1(26)

FILE NAME: z12b142erobdr_con.dgn  
PROJECT LEADER: D. GOZALKOWSKI  
DESIGNED BY: J. PARRELLI  
EPSC CONSTRUCTION PLAN SHEET 5

PLOT DATE: 8/4/2017  
DRAWN BY: R. BROWN  
CHECKED BY: J. SHIELDS  
SHEET 323 OF 340





MATCH LINE STA 526+25, SEE PREVIOUS SHEET

### LEGEND

- |  |                               |  |                                                              |
|--|-------------------------------|--|--------------------------------------------------------------|
|  | TEMPORARY EROSION MATTING     |  | VEHICLE TRACKING PAD                                         |
|  | WOVEN WIRE REINFORCED         |  | DEWATERING OPERATION                                         |
|  | BARRIER FENCE                 |  | FILTER BAG                                                   |
|  | GEOTEXTILE FOR FILTER CURTAIN |  | TEMPORARY DETOUR,<br>CONSTRUCTION ACCESS,<br>OR STAGING AREA |

SCALE 1" = 20' - 0"  
20 0 20

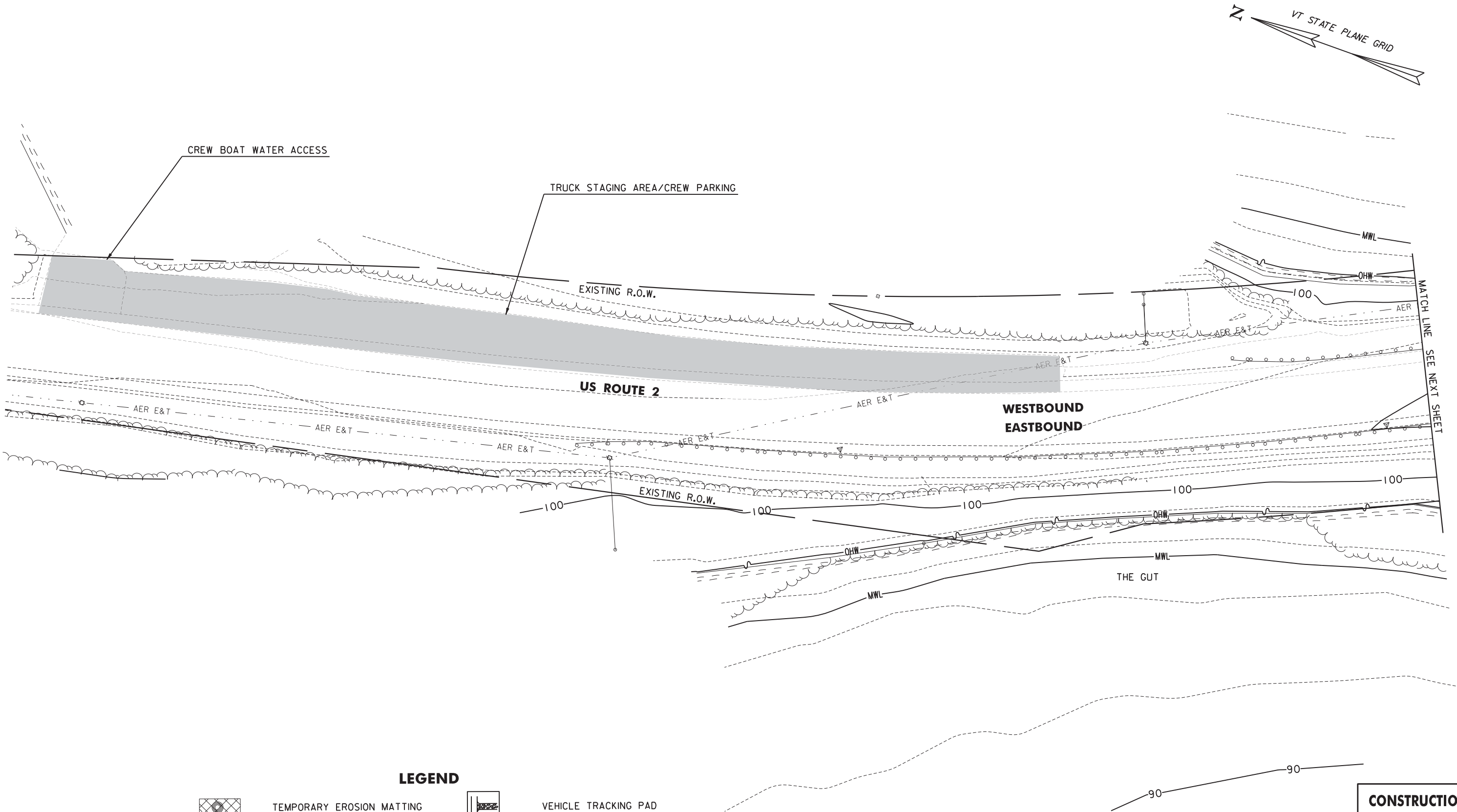
CHA

### CONSTRUCTION SEQUENCING PHASE 1









PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	PLOT DATE: 8/4/2017
PROJECT NUMBER: BHF 028-1(26)	DRAWN BY: R. BROWN
FILE NAME: z12b142erobdr_con.dgn	CHECKED BY: J. SHIELDS
PROJECT LEADER: D. GOZALKOWSKI	SHEET 324 OF 340
DESIGNED BY: J. PARRELLI	
EPSC CONSTRUCTION PLAN SHEET 6	



FILE NAME: \\p:\projects\ANY\K3\28173\CADD\MSTN\2b142\Consultants\z12b142erobdr_con2.dgn  
DATE/TIME: 8/4/2017  
USER: 3724



**LEGEND**

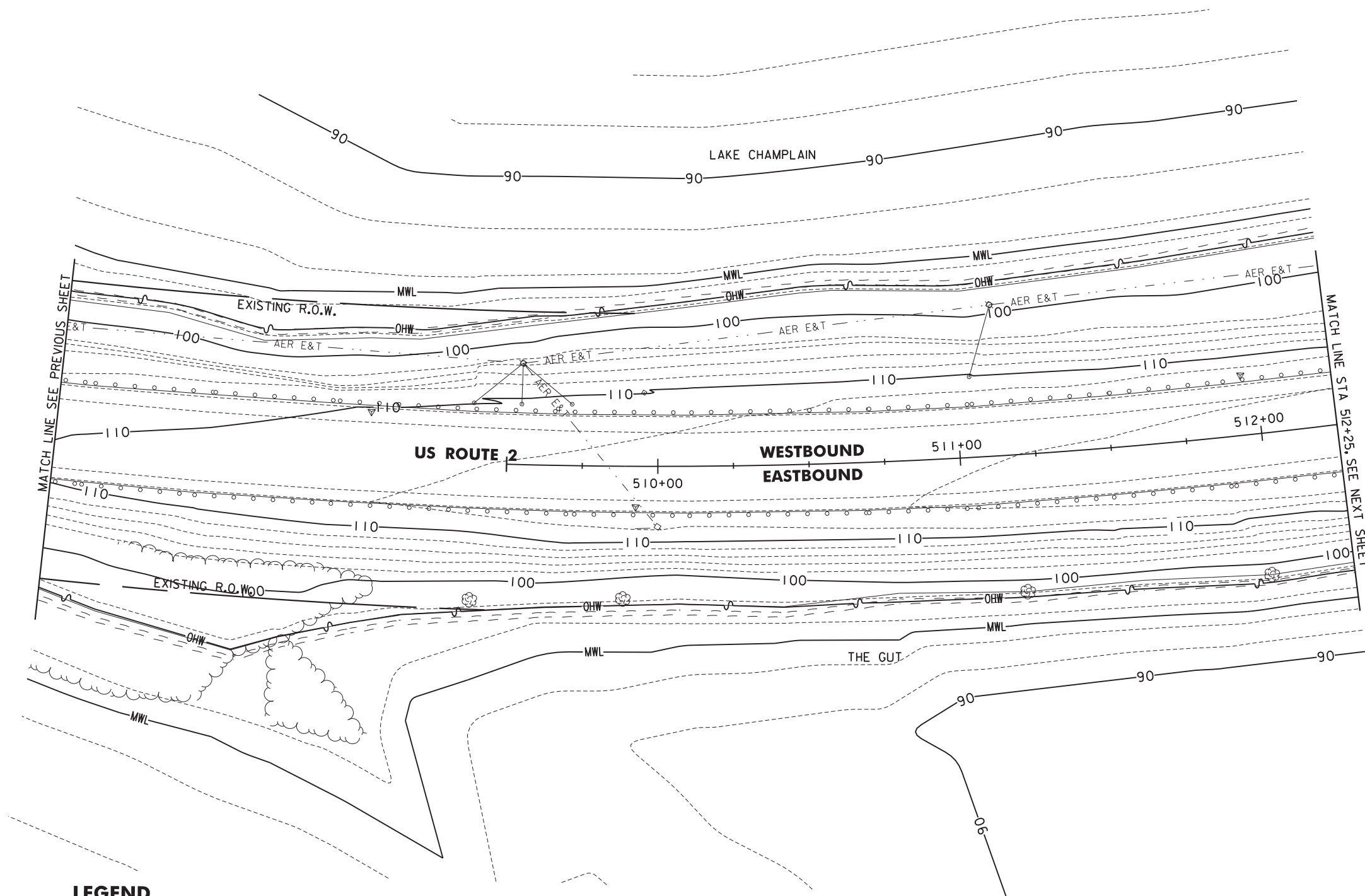
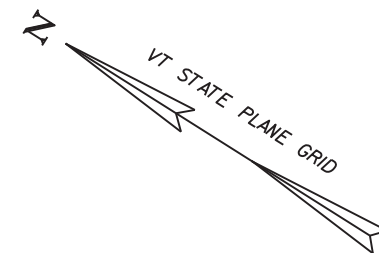
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|  | TEMPORARY EROSION MATTING     |  | VEHICLE TRACKING PAD                |
|  | WOVEN WIRE REINFORCED         |  | DEWATERING OPERATION                |
|  | BARRIER FENCE                 |  | FILTER BAG                          |
|  | GEOTEXTILE FOR FILTER CURTAIN |  | CONSTRUCTION ACCESS OR STAGING AREA |

SCALE 1" = 20'-0"  
20 0 20



**CONSTRUCTION SEQUENCING PHASE 2**

PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-1(26)	
FILE NAME: z12b142erobdr_con2.dgn	PLOT DATE: 8/4/2017
PROJECT LEADER: D. GOZALKOWSKI	DRAWN BY: R. BROWN
DESIGNED BY: J. PARRELLI	CHECKED BY: J. SHIELDS
EPSC CONSTRUCTION PLAN SHEET 7	SHEET 325 OF 340



**LEGEND**

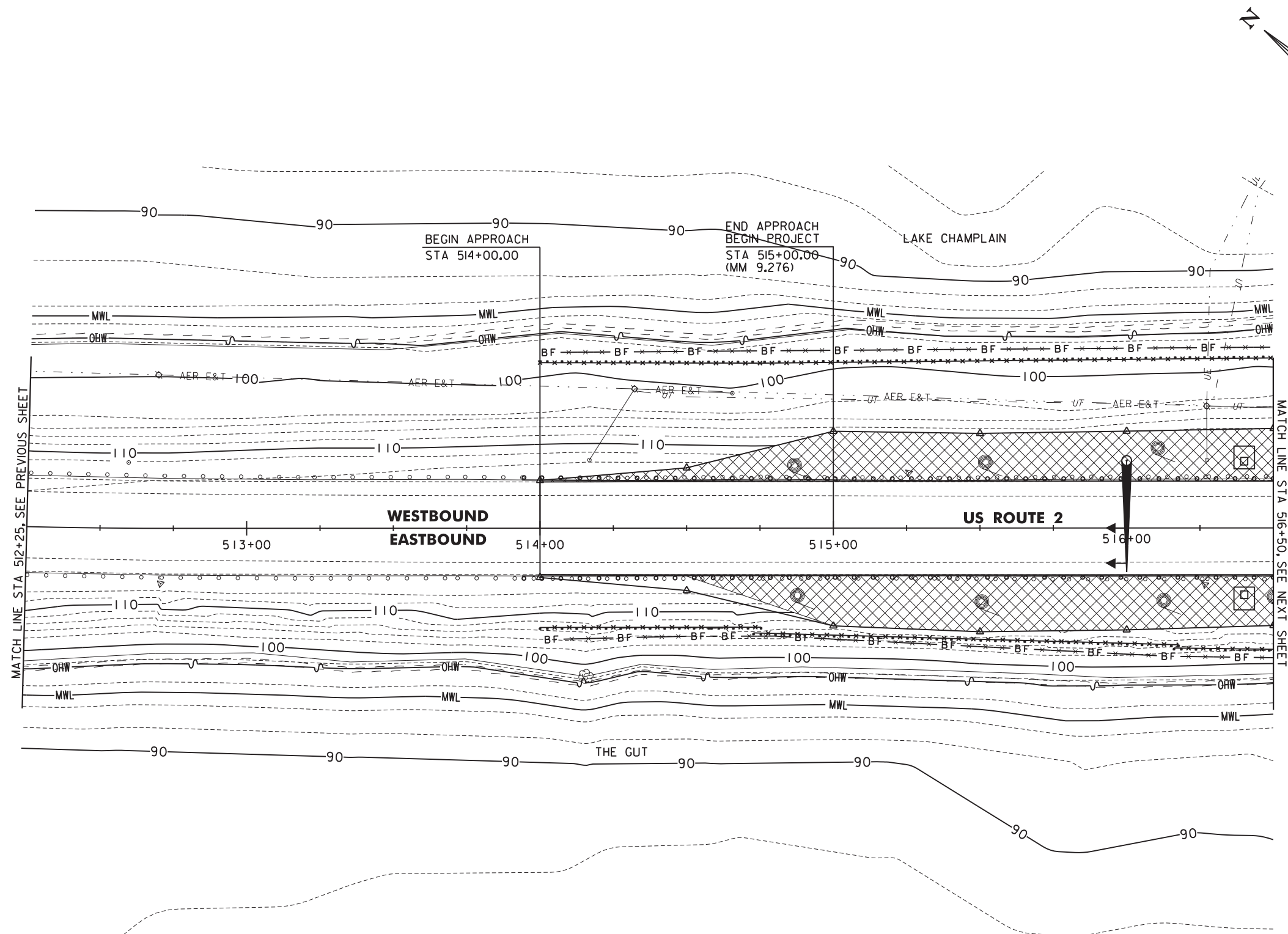
	TEMPORARY EROSION MATTING		VEHICLE TRACKING PAD
	WOVEN WIRE REINFORCED		DEWATERING OPERATION
	BARRIER FENCE		FILTER BAG
	GEOTEXTILE FOR FILTER CURTAIN		CONSTRUCTION ACCESS OR STAGING AREA

SCALE 1" = 20' - 0"  
20 0 20



**CONSTRUCTION SEQUENCING PHASE 2**

PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	PLOT DATE: 8/4/2017
PROJECT NUMBER: BHF 028-1(26)	DRAWN BY: R. BROWN
FILE NAME: z12b142erobdr_con2.dgn	CHECKED BY: J. SHIELDS
PROJECT LEADER: D. GOZALKOWSKI	SHEET 326 OF 340
DESIGNED BY: J. PARRELLI	
EPSC CONSTRUCTION PLAN SHEET 8	



LEGEND

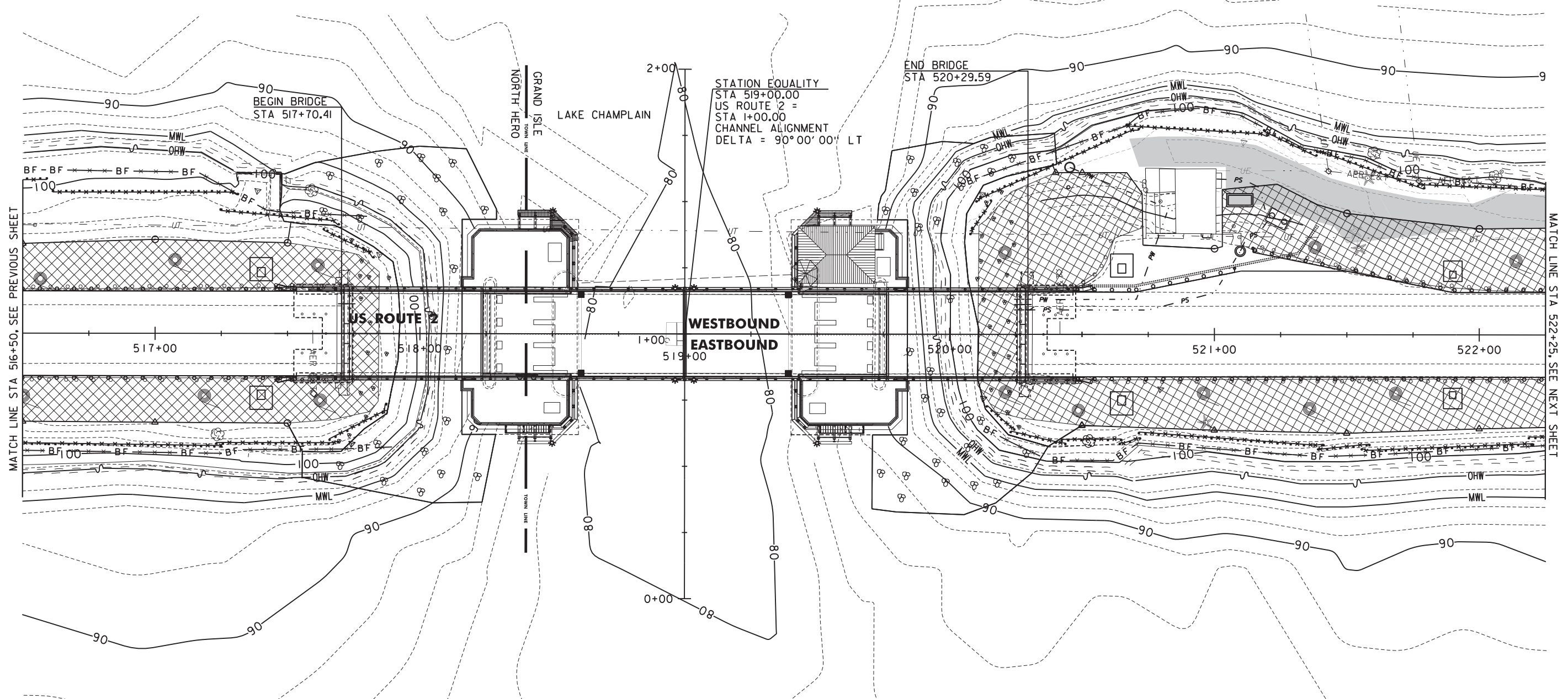
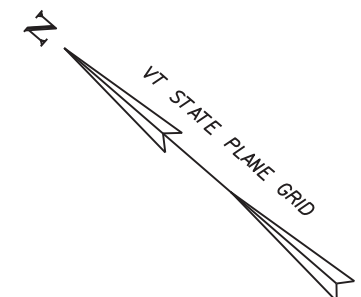
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|--|-------------------------------|--|-------------------------------------|
|  | TEMPORARY EROSION MATTING     |  | VEHICLE TRACKING PAD                |
|  | WOVEN WIRE REINFORCED         |  | DEWATERING OPERATION                |
|  | BARRIER FENCE                 |  | FILTER BAG                          |
|  | GEOTEXTILE FOR FILTER CURTAIN |  | CONSTRUCTION ACCESS OR STAGING AREA |

SCALE 1" = 20'-0"  
20 0 20



CONSTRUCTION SEQUENCING PHASE 2

PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-1(26)	
FILE NAME: z12b142erobdr_con2.dgn	PLOT DATE: 8/4/2017
PROJECT LEADER: D. GOZALKOWSKI	DRAWN BY: R. BROWN
DESIGNED BY: J. PARRELLI	CHECKED BY: J. SHIELDS
EPSC CONSTRUCTION PLAN SHEET 9	SHEET 327 OF 340



MATCH LINE STA 516+50, SEE PREVIOUS SHEET

MATCH LINE STA 522+25, SEE NEXT SHEET

**LEGEND**

- |  |                               |  |                                     |
|--|-------------------------------|--|-------------------------------------|
|  | TEMPORARY EROSION MATTING     |  | VEHICLE TRACKING PAD                |
|  | WOVEN WIRE REINFORCED         |  | DEWATERING OPERATION                |
|  | BARRIER FENCE                 |  | FILTER BAG                          |
|  | GEOTEXTILE FOR FILTER CURTAIN |  | CONSTRUCTION ACCESS OR STAGING AREA |

SCALE 1" = 20' - 0"  
20 0 20

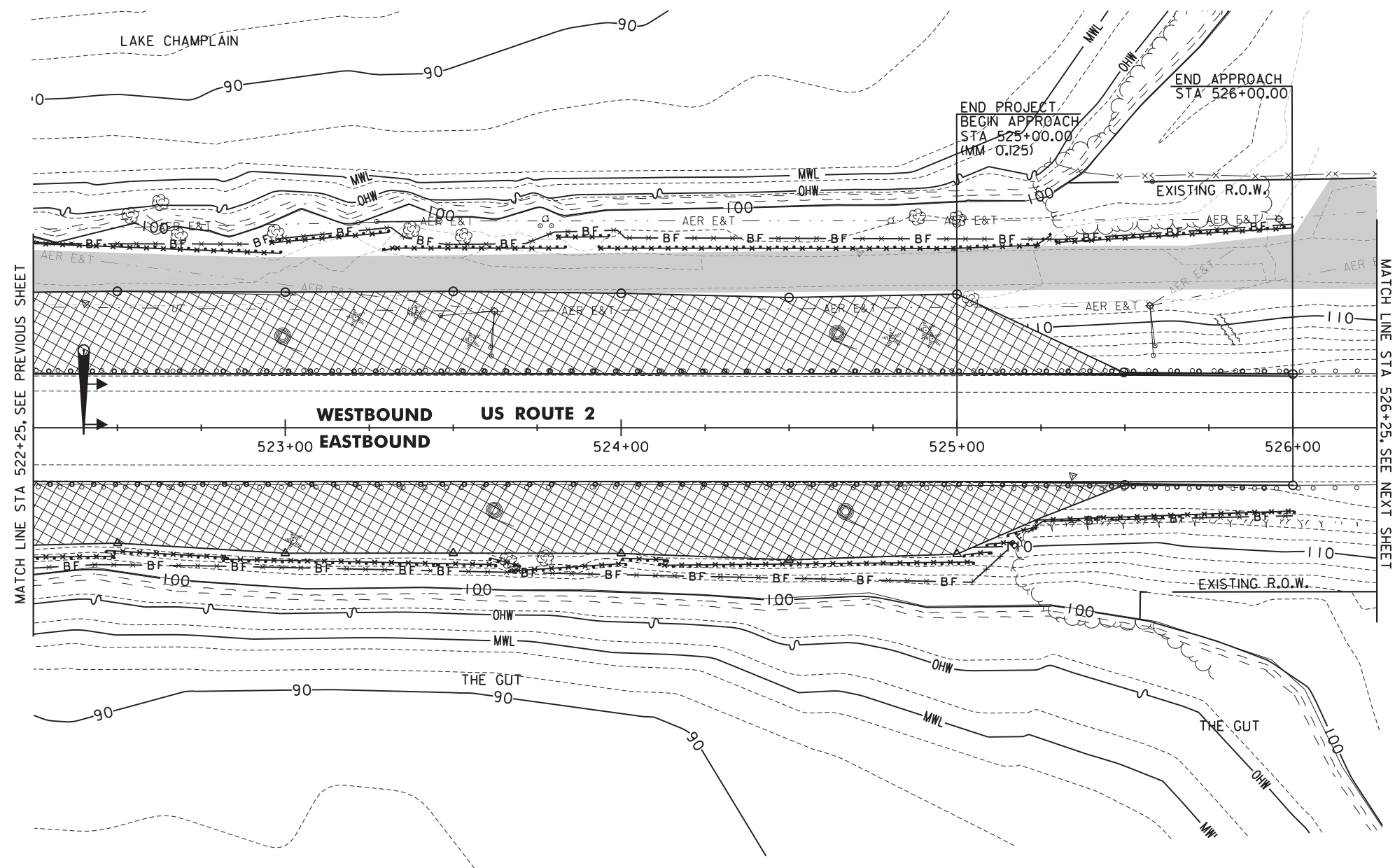
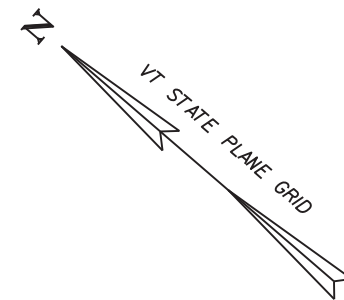


**CONSTRUCTION SEQUENCING PHASE 2**

PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-1(26)	
FILE NAME: z12b142erobdr_con2.dgn	PLOT DATE: 8/4/2017
PROJECT LEADER: D. GOZALKOWSKI	DRAWN BY: R. BROWN
DESIGNED BY: J. PARRELLI	CHECKED BY: J. SHIELDS
EPSC CONSTRUCTION PLAN SHEET 10	SHEET 328 OF 340

FILE NAME: \\p:\projects\ANY\K3\28173\CADD\MSTN\12b142\Consultants\z12b142erobdr_con2.dgn  
DATE/TIME: 8/4/2017  
USER: 3724





### LEGEND

	TEMPORARY EROSION MATTING		VEHICLE TRACKING PAD
	WOVEN WIRE REINFORCED		DEWATERING OPERATION
	BARRIER FENCE		FILTER BAG
	GEOTEXTILE FOR FILTER CURTAIN		CONSTRUCTION ACCESS OR STAGING AREA

SCALE 1" = 20'-0"  
20 0 20

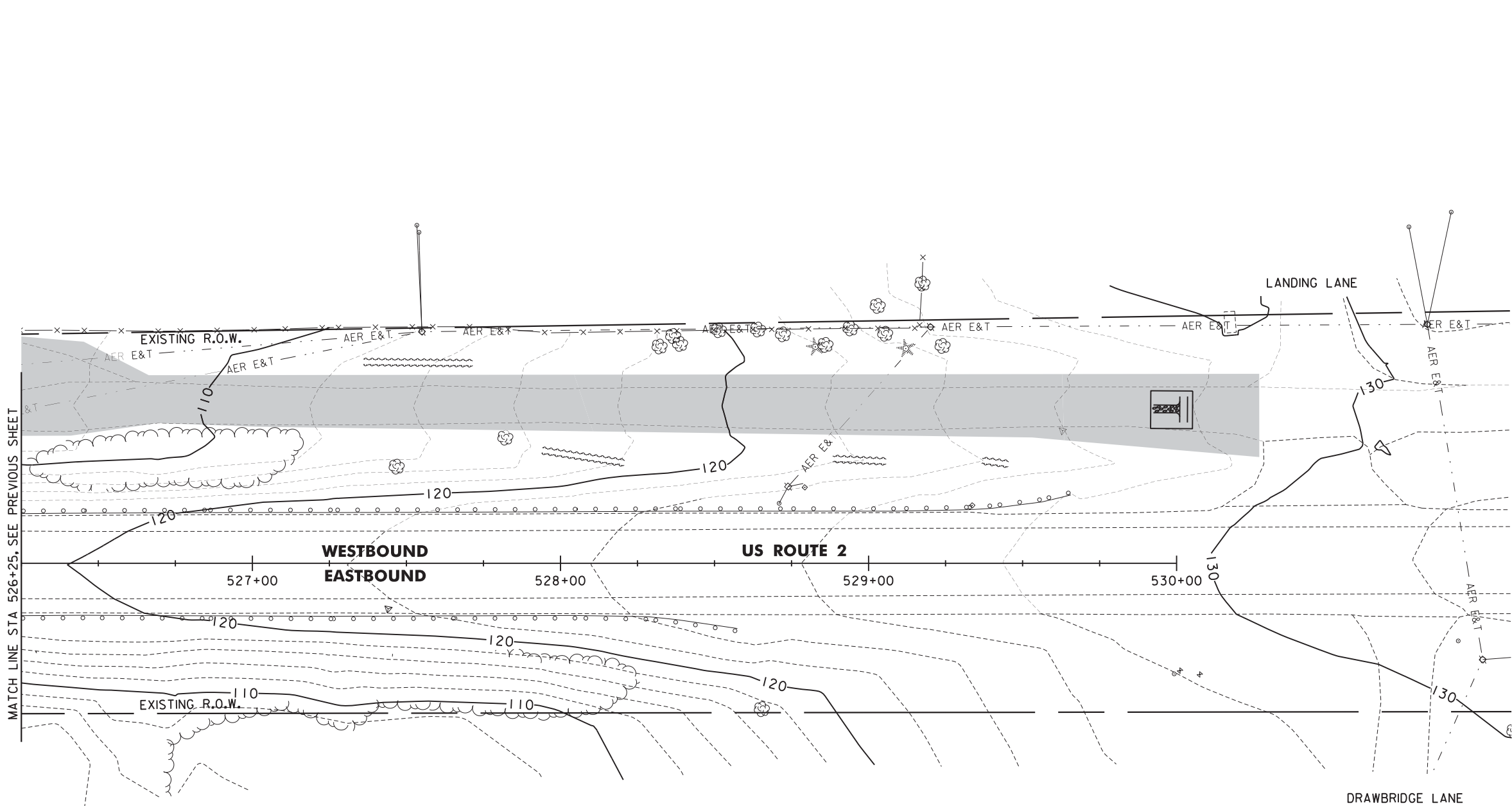


### CONSTRUCTION SEQUENCING PHASE 2

PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	PLOT DATE: 8/4/2017
PROJECT NUMBER: BHF 028-1(26)	DRAWN BY: R. BROWN
FILE NAME: z12b142erobdr_con2.dgn	CHECKED BY: J. SHIELDS
PROJECT LEADER: D. GOZALKOWSKI	SHEET 329 OF 340
DESIGNED BY: J. PARRELLI	
EPSC CONSTRUCTION PLAN SHEET II	



FILE NAME: \\p:\projects\ANY\K3\28173\CADD\MSTN\2b\42\Cconsultants\z12b\42erobdr_con2.dgn  
DATE/TIME: 8/4/2017  
USER: 3724



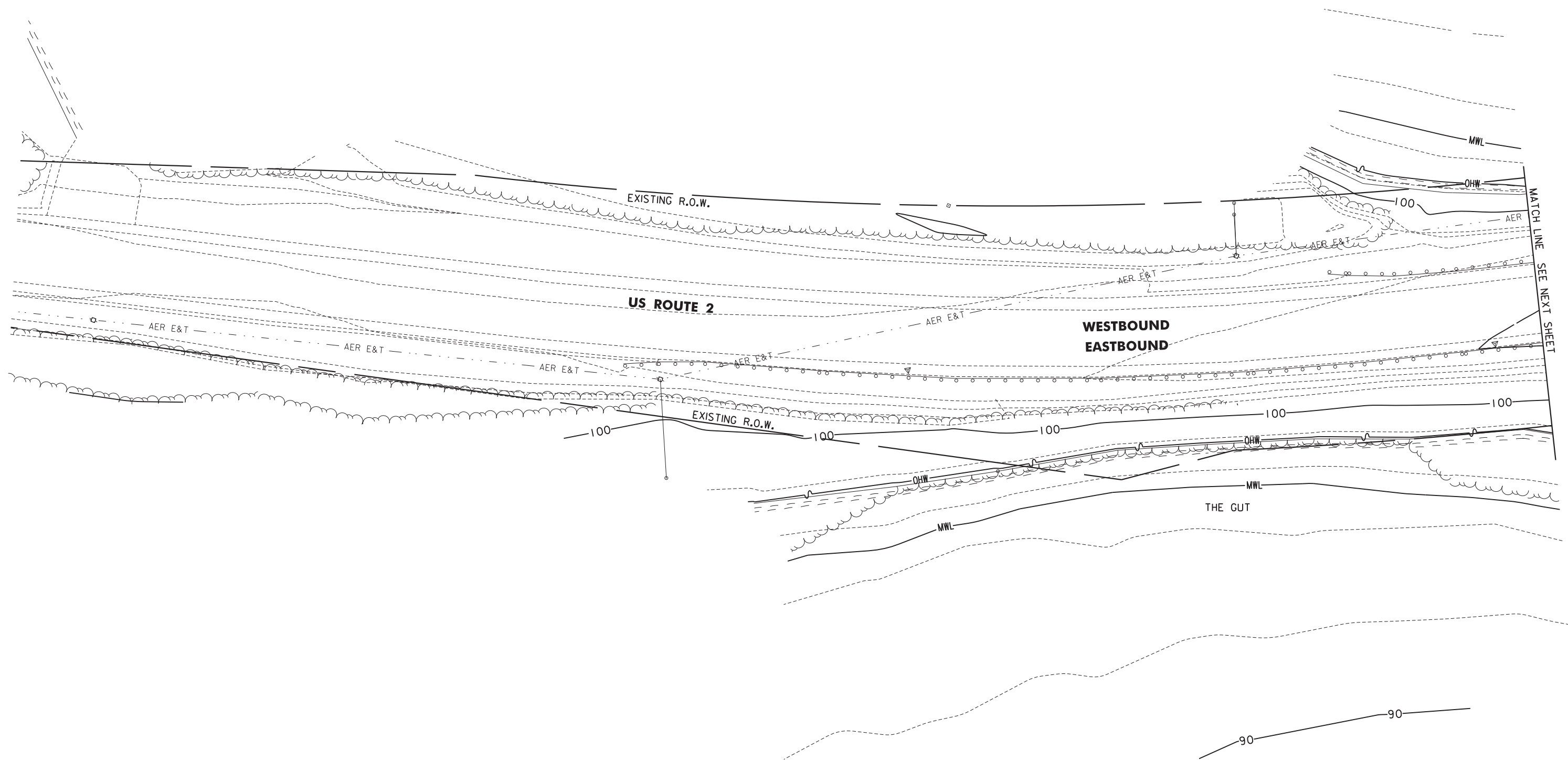
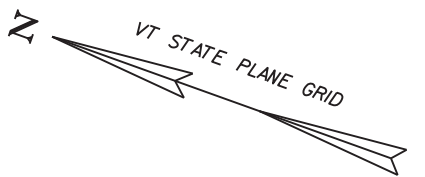
LEGEND			
	TEMPORARY EROSION MATTING		VEHICLE TRACKING PAD
	WOVEN WIRE REINFORCED		DEWATERING OPERATION
	BARRIER FENCE		FILTER BAG
	GEOTEXTILE FOR FILTER CURTAIN		CONSTRUCTION ACCESS OR STAGING AREA

SCALE 1" = 20' - 0"  
20 0 20

CHA

CONSTRUCTION  
SEQUENCING  
PHASE 2

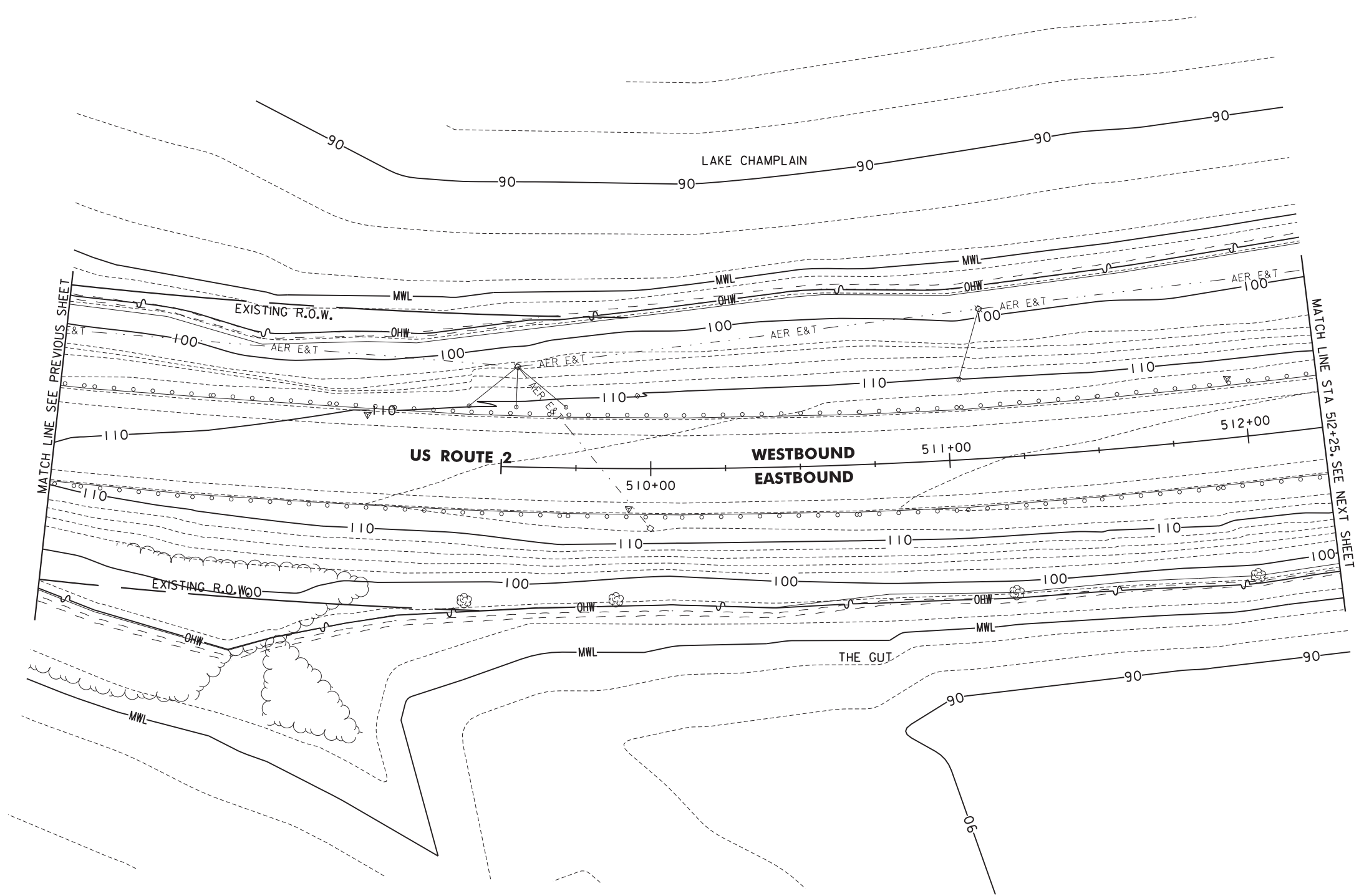
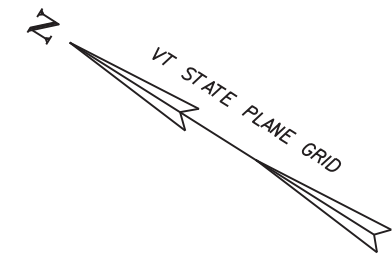
PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-1(26)	
FILE NAME: z12b142erobdr_con2.dgn	PLOT DATE: 8/4/2017
PROJECT LEADER: D. GOZALKOWSKI	DRAWN BY: R. BROWN
DESIGNED BY: J. PARRELLI	CHECKED BY: J. SHIELDS
EPSC CONSTRUCTION PLAN SHEET 12	SHEET 330 OF 340



SCALE 1" = 20'-0"  
20 0 20



PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-1(26)	
FILE NAME: z12b142erobdr_fin.dgn	PLOT DATE: 8/4/2017
PROJECT LEADER: D. GOZALKOWSKI	DRAWN BY: R. BROWN
DESIGNED BY: J. PARRELLI	CHECKED BY: J. SHIELDS
EPSC FINAL SITE PLAN SHEET 1	SHEET 331 OF 340



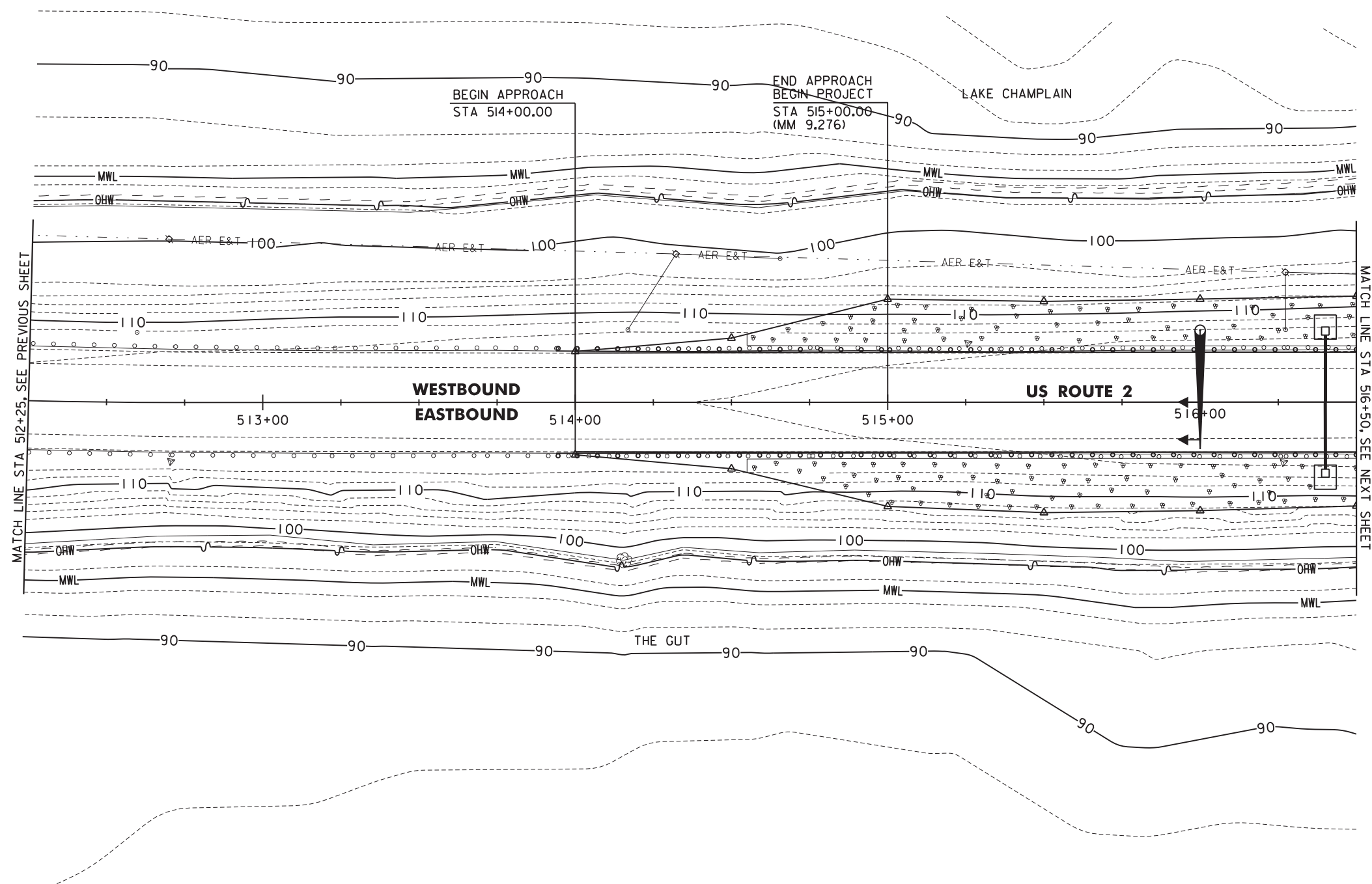
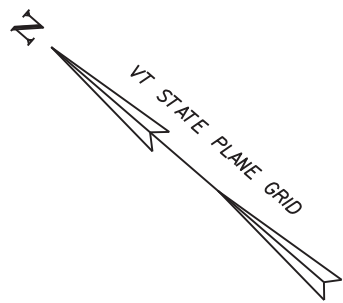
SCALE 1" = 20'-0"

20 0 20

**CHA**

PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-1(26)	
FILE NAME: z12b142erobdr_fin.dgn	PLOT DATE: 8/4/2017
PROJECT LEADER: D. GOZALKOWSKI	DRAWN BY: R. BROWN
DESIGNED BY: J. PARRELLI	CHECKED BY: J. SHIELDS
EPSC FINAL SITE PLAN SHEET 2	SHEET 332 OF 340

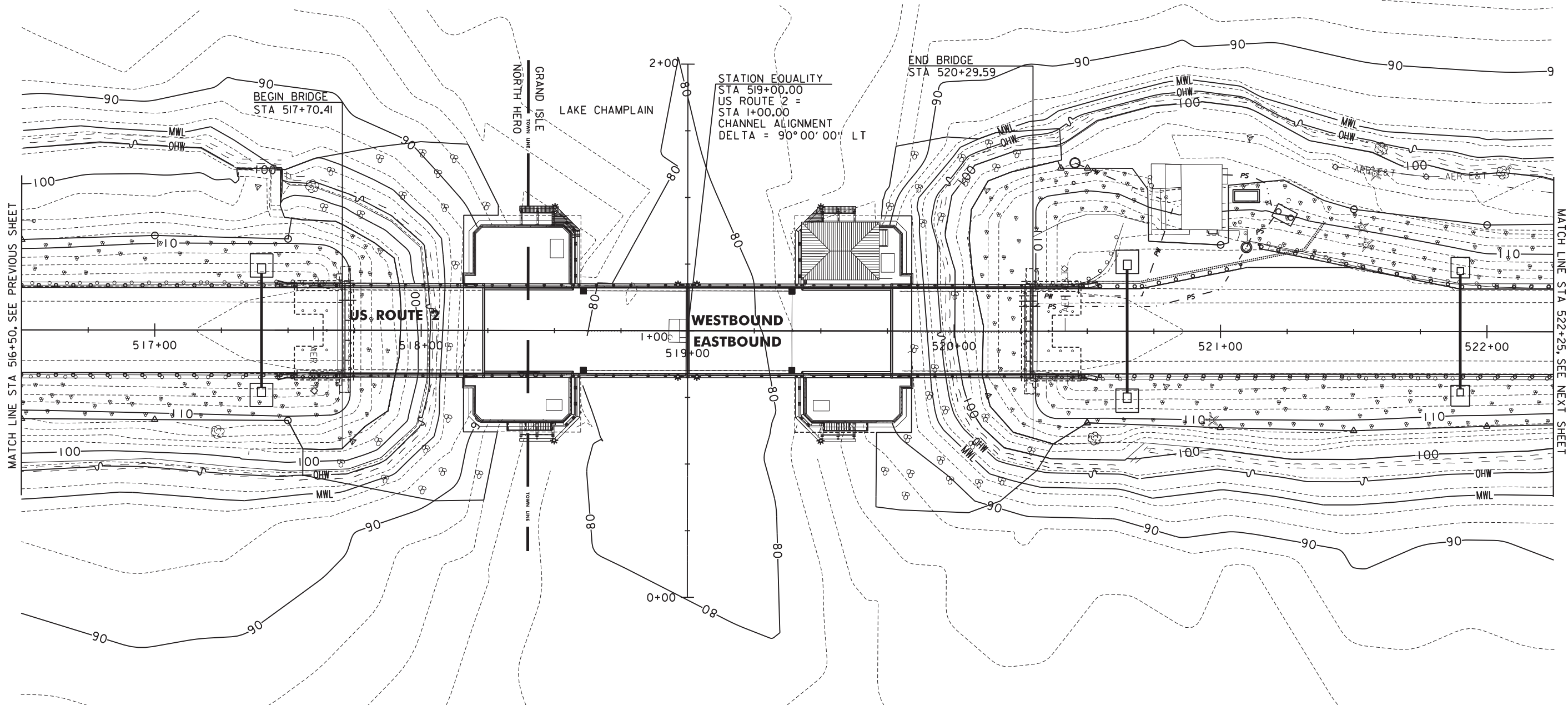
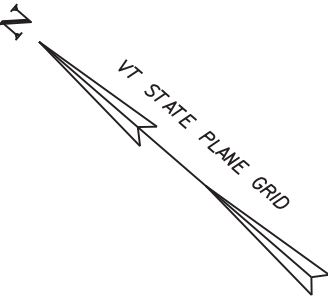
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DATE/TIME: 8/4/2017  
USER: 3724



SCALE 1" = 20' - 0"  
20 0 20



PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-1(26)	
FILE NAME: z12b142erobdr_fin.dgn	PLOT DATE: 8/4/2017
PROJECT LEADER: D. GOZALKOWSKI	DRAWN BY: R. BROWN
DESIGNED BY: J. PARRELLI	CHECKED BY: J. SHIELDS
EPSC FINAL SITE PLAN SHEET 3	SHEET 333 OF 340



STATION EQUALITY  
STA 519+00.00  
US ROUTE 2 =  
STA 1+00.00  
CHANNEL ALIGNMENT  
DELTA = 90°00'00" LT

MATCH LINE STA 516+50, SEE PREVIOUS SHEET

MATCH LINE STA 522+25, SEE NEXT SHEET

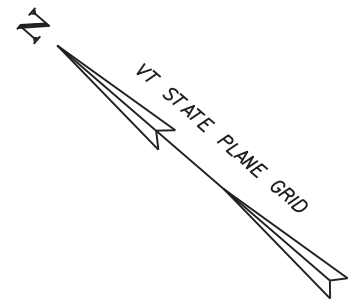
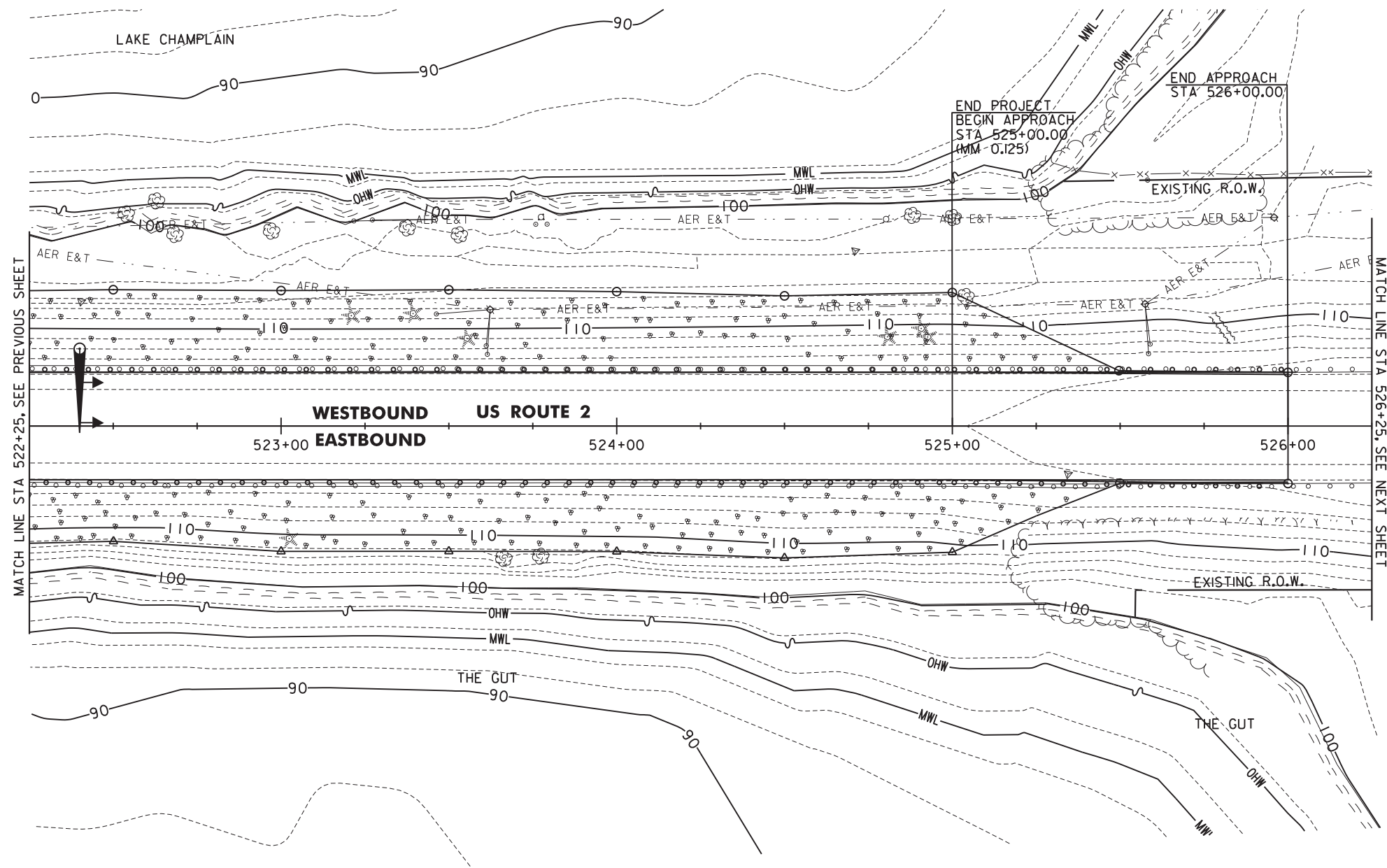
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PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-1(26)	
FILE NAME: z12b142erobdr_fin.dgn	PLOT DATE: 8/4/2017
PROJECT LEADER: D. GOZALKOWSKI	DRAWN BY: R. BROWN
DESIGNED BY: J. PARRELLI	CHECKED BY: J. SHIELDS
EPSC FINAL SITE PLAN SHEET 4	SHEET 334 OF 340

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DATE/TIME = 8/4/2017  
USER = 3724



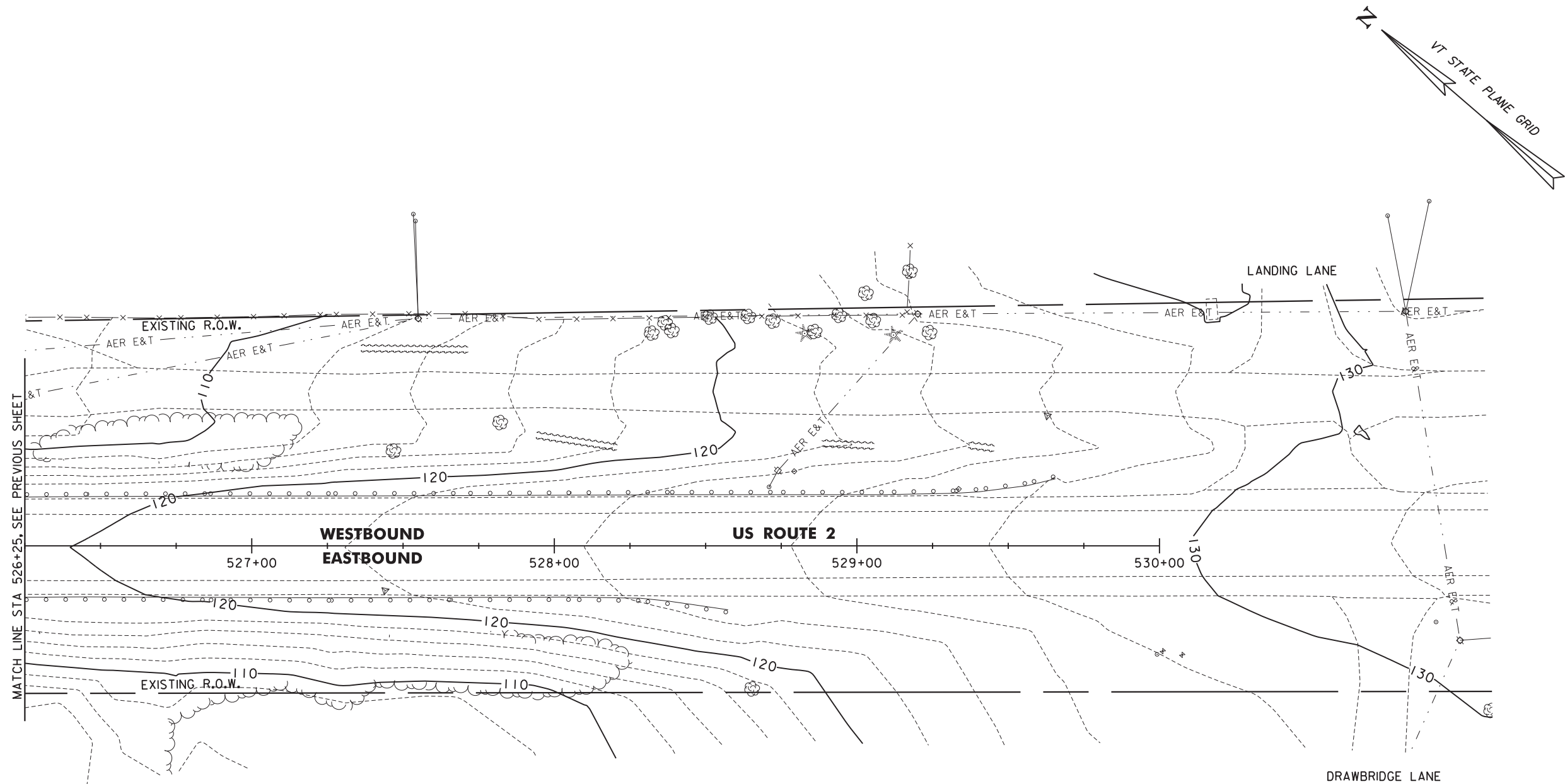


SCALE 1" = 20' - 0"



PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-1(26)	
FILE NAME: z12b142erobdr_fin.dgn	PLOT DATE: 8/4/2017
PROJECT LEADER: D. GOZALKOWSKI	DRAWN BY: R. BROWN
DESIGNED BY: J. PARRELLI	CHECKED BY: J. SHIELDS
EPSC FINAL SITE PLAN SHEET 5	SHEET 335 OF 340

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DATE/TIME = 8/4/2017  
USER = 3724



SCALE 1" = 20' - 0"  
20 0 20



PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE	
PROJECT NUMBER: BHF 028-1(26)	
FILE NAME: z12b\42erobdr_f1n.dgn	PLOT DATE: 8/4/2017
PROJECT LEADER: D. GOZALKOWSKI	DRAWN BY: R. BROWN
DESIGNED BY: J. PARRELLI	CHECKED BY: J. SHIELDS
EPSC FINAL SITE PLAN SHEET 6	SHEET 336 OF 340

FILE NAME = N:\p-projects\ANY\K3\28173\CADD\MSTN\2b142\CadDrawings\2b142erodet.dgn  
DATE/TIME = 8/4/2017  
USER = 3724

VAOT LOW GROW/FINE FESCUE MIX						
LBS/AC			NAME	LATIN NAME	GERM	PURITY
WEIGHT	BROADCAST	HYDROSEED				
38%	57	95	CREeping RED FESCUE	FESTUCA RUBRA VAR. RUBRA	90%	98%
29%	43.5	72.5	HARD FESCUE	FESTUCA LONGIFOLIA	85%	95%
15%	22.5	37.5	CHEWINGS FESCUE	FESTUCA RUBRA VAR. COMMUTATA	87%	95%
15%	22.5	37.5	ANNUAL RYEGRASS	LOLIUM MULTIFLORUM	90%	95%
3%	4.5	7.5	INERTS			
100%	150	250				

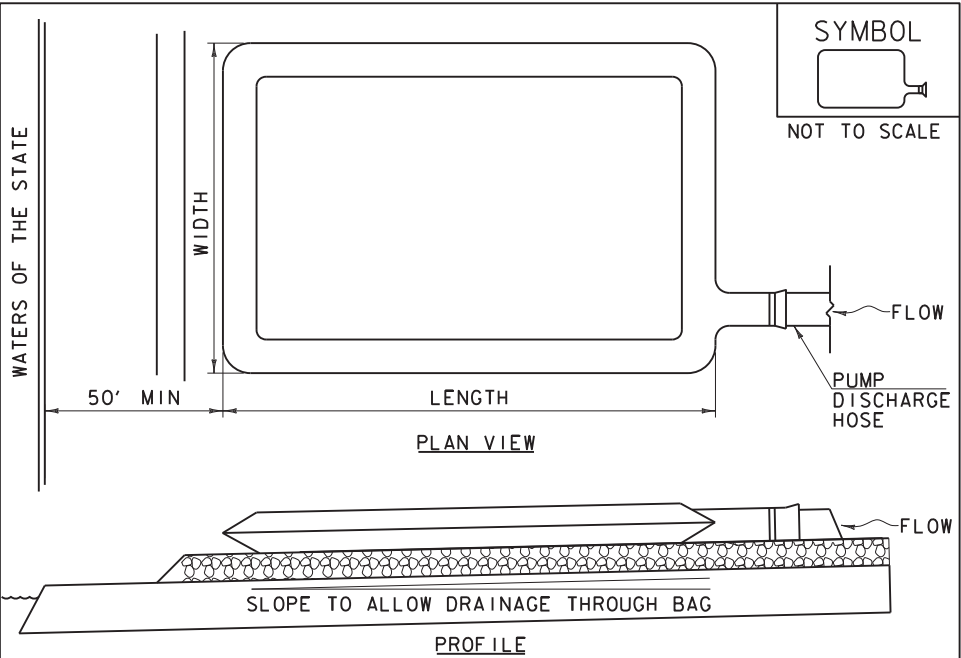
VAOT RURAL AREA MIX						
LBS/AC			NAME	LATIN NAME	GERM	PURITY
WEIGHT	BROADCAST	HYDROSEED				
37.5%	22.5	45	CREeping RED FESCUE	FESTUCA RUBRA VAR. RUBRA	85%	98%
37.5%	22.5	45	TALL FESCUE	FESTUCA ARUNDINACEA	90%	95%
5.0%	3	6	RED TOP	AGROSTIS GIGANTEA	90%	95%
15.0%	9	18	WHITE FIELD CLOVER	TRIFOLIUM REPENS	85%	98%
5.0%	3	6	ANNUAL RYE GRASS	LOLIUM MULTIFLORUM	85%	95%
100%	60	120				

GENERAL AMENDMENT GUIDANCE		
FERTILIZER	LIME	
10/20/10	AG LIME	PELLITIZED
500 LBS/AC	2 TONS/AC	1 TONS/AC

CONSTRUCTION GUIDANCE

1. SEED MIX: THE CONTRACTOR SHALL COORDINATE WITH THE RESIDENT ENGINEER ON WHICH SEED MIX TO USE.
2. SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.
3. ALL SEED MIXTURES: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.
4. FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER.
5. HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, ACHIEVE 90% GROUND COVER OR AS DIRECTED BY THE ENGINEER.
6. HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED PROPOSED FOR USE WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED.
7. TURF ESTABLISHMENT: PLACING SEED, FERTILIZER, LIME AND MULCH PRIOR TO SEPTEMBER 15 AND AFTER APRIL 15 CAN BETTER ENSURE A VIGOROUS GROWTH OF GRASS.

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES	TURF ESTABLISHMENT
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 651 FOR SEED (PAY ITEM 651J5)	REVISIONS
	JANUARY 12, 2015    WHF



CONSTRUCTION SPECIFICATIONS

1. THE PRIMARY PURPOSE OF FILTER BAG IS TO RETAIN SILT, SAND, AND FINES DURING DEWATERING OPERATIONS.
2. FILTER BAGS SHALL BE INSTALLED ON A VEGETATED SLOPE GRADED TO ALLOW INCOMING WATER TO FLOW THROUGH THE BAG.
3. FILTER BAGS MAY ALSO BE PLACED ON COARSE AGGREGATE, STONE, OR HAYBALES TO INCREASE FILTRATION EFFICIENCY.
4. FILTER BAGS SHALL BE LOCATED A MINIMUM OF 50' FROM WATERS OF THE STATE UNLESS OTHERWISE APPROVED BY THE ENGINEER.
5. THE NECK OF THE FILTER BAG SHALL BE STRAPPED TIGHTLY TO THE DISCHARGE HOSE.
6. A FILTER BAG IS FULL WHEN IT NO LONGER CAN EFFICIENTLY FILTER SEDIMENT OR ALLOW WATER TO PASS AT A REASONABLE RATE.
7. FILTER BAG SHALL BE DISPOSED OF AS APPROVED IN THE EPSC PLAN OR AS DIRECTED BY THE ENGINEER.

FILTER BAG

NOTES:  
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR FILTER BAG (PAY ITEM 653.45) AND AS SPECIFIED IN THE CONTRACT.

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF

PROJECT NAME: NORTH HERO GRAND ISLE BRIDGE

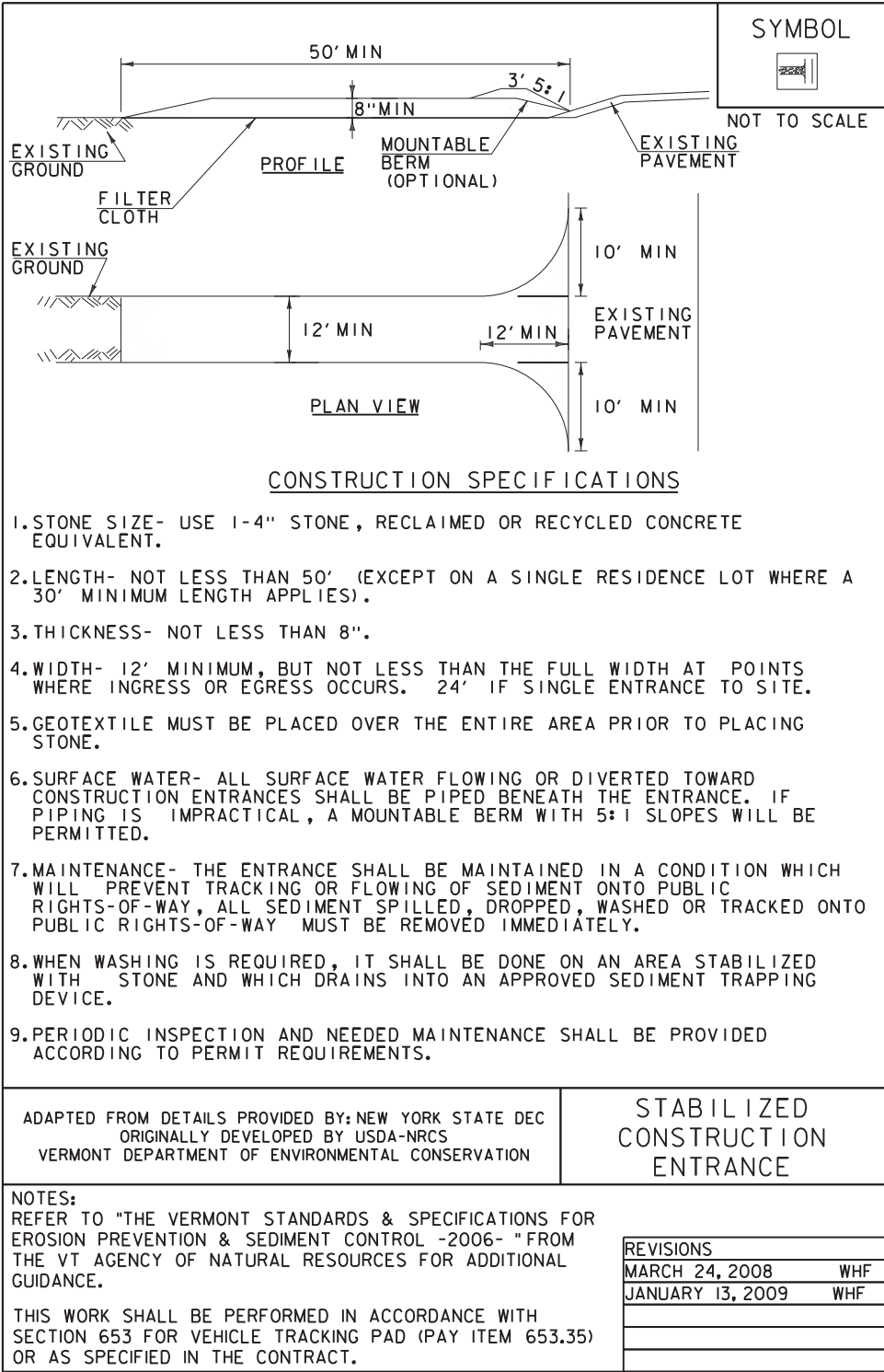
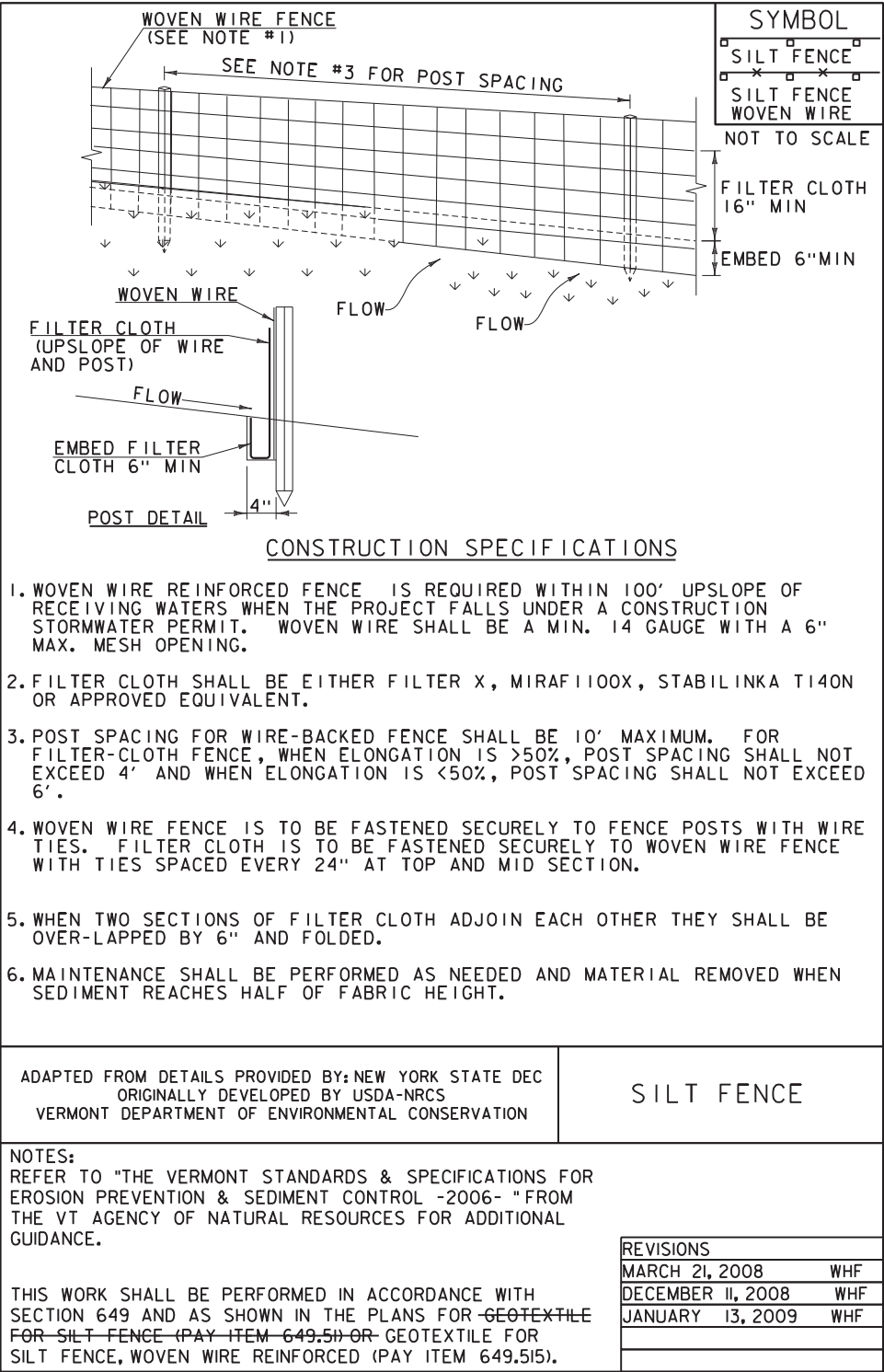
PROJECT NUMBER: BHF 028-1(26)

FILE NAME: z12b142erodet.dgn  
PROJECT LEADER: D. GOZALKOWSKI  
DESIGNED BY: J. PARRELLI  
EPSC DETAIL SHEET 1

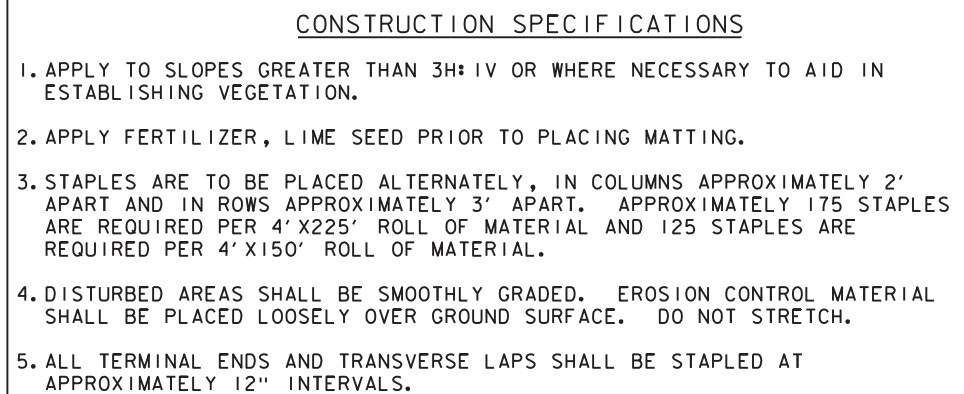
PLOT DATE: 8/4/2017  
DRAWN BY: R. BROWN  
CHECKED BY: J. SHIELDS  
SHEET 337 OF 340



FILE NAME = V:\p-projects\ANY\K3\28173\CADD\1\28173\28173-1\28173-1.dgn  
DATE/TIME = 8/4/2017  
USER = 3724





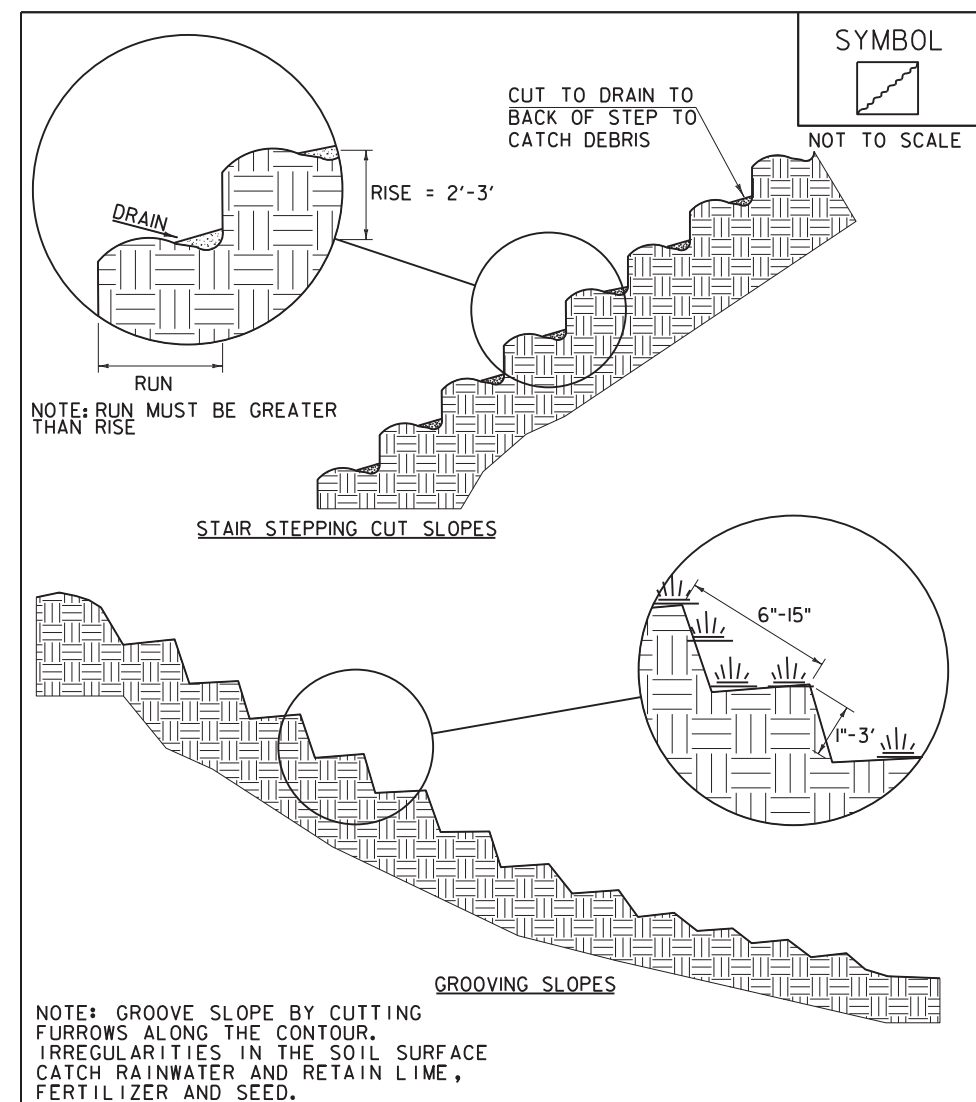


ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC  
ORIGINALLY DEVELOPED BY USDA-NRCS  
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

ROLLED EROSION  
CONTROL PRODUCT  
(RECP) SIDE SLOPE

NOTES:  
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR  
EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM  
THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL  
GUIDANCE.  
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION  
653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION  
MATTING (PAY ITEM 653.20) OR PERMANENT EROSION MATTING  
(PAY ITEM 653.20).

REVISIONS	
APRIL 16, 2007	JMF
JANUARY 13, 2009	WHF



ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC  
ORIGINALLY DEVELOPED BY USDA-NRCS  
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

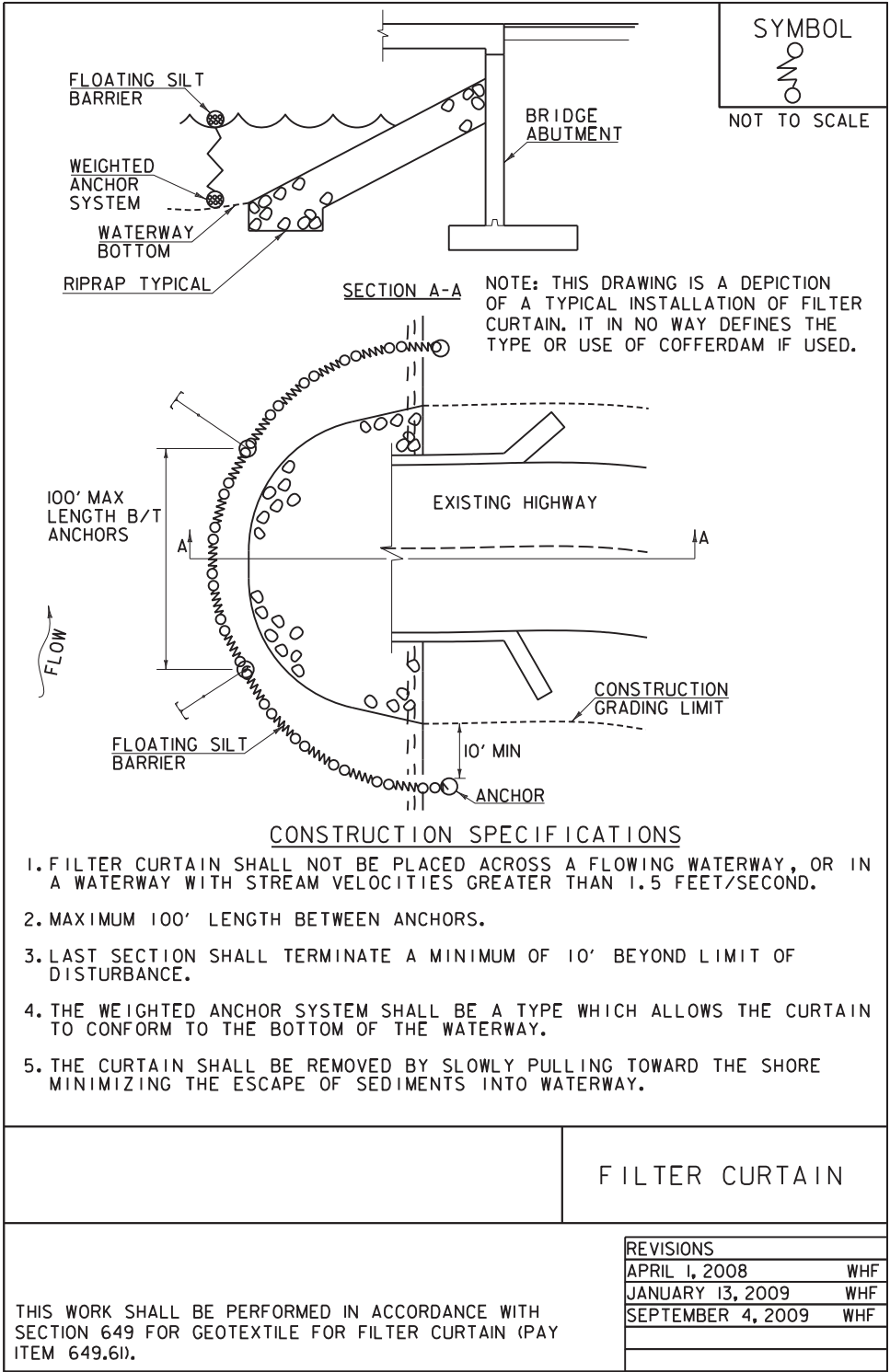
## SURFACE ROUGHENING

NOTES:  
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR  
EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM  
THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL  
GUIDANCE.

REVISIONS	
APRIL 1, 2008	WHF
JANUARY 13, 2009	WHF

THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT

FILE NAME = N:\Projects\ANY\K3\28173\CADD\MSTN\2b142\Consultants\212b142erodet.dgn  
DATE/TIME = 8/4/2017  
USER = 3724





## Individual Permit Application

### For a Lake Encroachment Permit under

Chapter 11 of Title 29, § 401 *et seq.*

*For Lake Encroachment Permitting Use Only*

Application Number:

Submission of this application constitutes notice that the person in Section B intends to encroach beyond the mean water level of a lake or pond, and certifies that the project will comply with Chapter 11 of Title 29, § 401 *et seq.* All information required on this form must be provided, and the requisite fees (Section I) must be submitted made payable to the State of Vermont, to be deemed complete.

#### A. Project Information

1. Physical Address (911 Address):

2a. Town- County:

2b. Zip:

3. Span (School Parcel Account Number is required for your application to be deemed complete. It can be obtained from your property tax bill. If you cannot locate your property tax bill, please obtain this information from your Town Clerk)

4. Name of Lake/Pond:

5. Have you ever applied for a permit with the Department of Environmental Conservation associated with this parcel?  
Yes No

#### B. Applicant (Landowner if applicable) Contact Information

1. Name:

2a. Mailing Address:

2b. Town:

2c. State:

2d. Zip:

3. Phone:

4. Email:

#### C. Application Preparer Contact Information:

1. Name:

2a. Mailing Address:

2b. Town:

2c. State:

2d. Zip:

3. Phone:

4. Email:

#### D. Abutting Land Owners

Using the abutter addendum available on [dec.vermont.gov](http://dec.vermont.gov), attach a list of land owners who abut the proposed project.

#### E. Project Description

1. Describe the proposed project including the description of the materials and mechanical equipment which may be used during construction and the anticipated work schedule. Identify whether or not the project includes placement or removal of fill and if so, specify the number of cubic yards of fill or dredged materials to be placed or removed beyond the shoreline at mean water level.

2. Describe the purpose of the proposed project:

3. Describe what less intrusive feasible alternatives have been considered:

4. Describe the public benefits of the proposed project:

**F. Encroachment Effects (describe how the proposed project will affect the following)**

1. What measures are proposed to minimize the project's effects on water quality (e.g., use of a turbidity curtain)?

2. How will the project minimize effects to fish and wildlife habitat (e.g., project is not to commence until after fish spawning July 1 of any calendar year)?

3. Does the project propose removal of aquatic or shoreline vegetation? If so, what measures are proposed to reduce the effects of vegetation removal?

4. Describe the surrounding shoreline. Is the project consistent with these surroundings? What measures are proposed to ensure the project is in-keeping with the surroundings?

5. Will the project affect navigation, recreation, and other public uses? If so, how will these effects be minimized?

#### **G. Applicant Certification**

As APPLICANT, I hereby certify that the statements presented on this application are true and accurate and recognize that by signing this application, I agree to complete all aspects of the project as authorized. I understand that failure to comply with the foregoing may result in violation of the Chapter 11 of Title 29, § 401 *et seq.*, and the Vermont Agency of Natural Resources may bring an enforcement action for violations of the Act pursuant to 10 V.S.A. chapter 201.

Applicant (landowner if applicable) Signature: _____ Date: _____

#### **I. Applicant Preparer Certification (if applicable)**

As APPLICATION PREPARER, I hereby certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Application Preparer Signature: _____ Date: _____

#### **J. Additional Required Documentation: (please check to ensure you have completed the following)**

All sections of the application are complete or otherwise indicate "not applicable";

Application includes site plans with aerial and cross section views;

Application description includes dimensions and surface areas of cleared areas and impervious surfaces; and

Application includes photos of project area.



K. Permit Application Fees		
Select the most applicable permit description and requisite fee. If the proposed project involves more than one of the project types, multiple fees may apply. For example, a project involving structural erosion control and marina improvement will require both fees (2) and (3).		
<b>1. Non-structural erosion control project (e.g., rip rap):</b>		
Non-structural erosion control project: \$155.00		
<b>Total:</b>		
<b>2. Structural erosion control project (e.g., vertical wall replacement)</b>		
Structural erosion control project: \$250.00		
<b>Total:</b>		
<b>3. Other Projects (e.g., marina improvements):</b>		
Other Project: \$300.00		
Project Cost Fee: 0.01 times project cost	Total Project Cost: _____ x 0.01	
<b>Total:</b>		

***Submit this form and application fee, payable to:***  
**State of Vermont**  
**Vermont Department of Environmental Conservation**  
**Watershed Management Division**  
**1 National Life Dr, Main 2**  
**Montpelier, VT 05620-3522**

Direct all correspondence or questions to Lake Encroachment Permitting at:  
[ANR.WSMDShoreland@vermont.gov](mailto:ANR.WSMDShoreland@vermont.gov)

For additional information visit: <http://dec.vermont.gov/watershed/lakes-ponds>