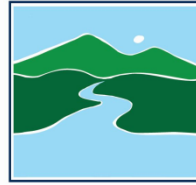


Individual Permit Application

for a **Lake Encroachment Permit** under
Chapter 11 of Title 29, § 401 *et seq.*

For Lake Encroachment Permitting Use Only

Application Number: _____



VERMONT DEPARTMENT OF
ENVIRONMENTAL CONSERVATION

**WATERSHED
MANAGEMENT DIVISION**

LAKES & PONDS PROGRAM

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

1a. Physical Address (911 Address): _____

1b. Town - County: _____

1c. Zip: _____

2 SPAN*: _____

NA

3. Name of lake/pond: _____

4. Is there an existing lake encroachment permit associated with this project location?

Yes No Permit #: _____

B. Applicant (landowner if applicable) Contact Information

1. Name: _____

2a. Mailing Address: _____

2b. Municipality: _____

2c. State: _____

2d. Zip: _____

3. Phone: _____

4. Email: _____

C. Application Preparer Contact Information

1. Name: _____

2a. Mailing Address: _____

2b. Municipality: _____

2c. State: _____

2d. Zip: _____

3. Phone: _____

4. Email: _____

D. Abutting Land Owners

Using the abutter addendum available on watershedmanagement.vt.gov/permits/html/pm_encroachment-application.htm, attach a list of land owners who abut the proposed project.

*SPAN: The "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. SPAN is a unique identification number for each parcel of property in the State of Vermont consisting of eleven digits. The first three digits identify the town; the next three digits identify the school district; and the last five digits represent the unique parcel or property.

E. Project Description

1. Describe the proposed project including a 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. On separate pages attach site plans with aerial and cross section views as well as any other relevant supporting documents:

2. Describe the purpose of the proposed project:

3. Describe what less intrusive feasible alternatives have been considered and what measures are proposed to reduce adverse impacts on the waterbody:

4. Describe the public benefits of the proposed project:

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

1. Water quality:

2. Fish and wildlife habitat:

3. Aquatic and shoreline vegetation:

4. Consistency with natural surroundings:

5. Navigation, recreation, and other public uses:

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: _____

H. Application 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: _____

I. 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 (3) and (4).

1. Non-structural erosion control project (e.g., rip rap):

Non-structural erosion control project: \$155.00		
Total:		

2. Structural erosion control project (e.g., concrete wall replacement):

Structural erosion control project: \$250.00		
Total:		

3. Other projects (e.g., marina improvements):

Other Project: \$300.00		
Project Cost Fee: 0.01 times project cost	Project cost (11.) _____ x 0.01	
Total:		

Submit this form and application fee, payable to:

**State of Vermont
Vermont Department of Environmental Conservation
Watershed Management Division
Lake Encroachment Permitting
1 National Life Drive, Main 2
Montpelier, VT 05620-3522**

Direct all correspondence or questions to Lake Encroachment Permitting at:
ANR.WSMDShoreland@state.vt.us

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

**Lake Encroachment
Application Addendum**
for a **Lake Encroachment Permit** under
Chapter 11 of Title 29, § 401 *et seq.*



VERMONT DEPARTMENT OF
ENVIRONMENTAL CONSERVATION
**WATERSHED
MANAGEMENT DIVISION**
LAKES & PONDS PROGRAM

For Lake Encroachment Permitting Use Only

Application Number:

This Abutting Land Owner Addendum is intended to accompany a completed *Lake Encroachment Permit Application* in instances of a proposed lake encroachment abutting land owners other than the applicant.

I. Abutting Land Owner Information

1. Name:

Address:

2. Name:

Address:

3. Name:

Address:

4. Name:

Address:

5. Name:

Address:

6. Name:

Address:

7. Name:

Address:

8. Name:

Address:

9. Name:

Address:

10. Name:

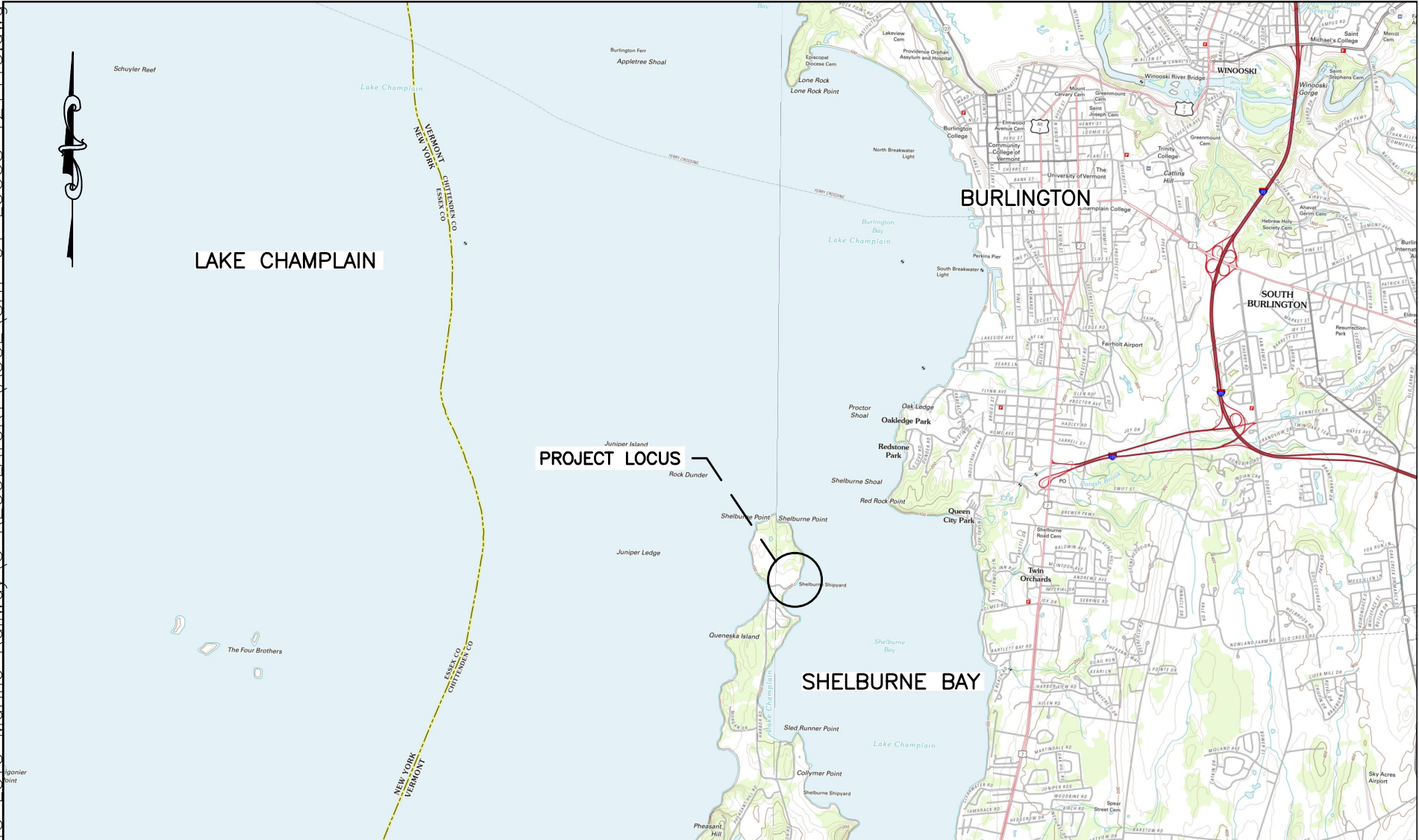
Address:

Submit this form as an addendum to a complete Lake Encroachment Application to:

**State of Vermont
Vermont Department of Environmental Conservation
Watershed Management Division
Lake Encroachment Permitting
1 National Life Drive, Main 2
Montpelier, VT 05620-3522**

Direct all correspondence or questions to Lake Encroachment Permitting at:
ANR.WSMDSshoreland@state.vt.us

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



LAKE CHAMPLAIN

PROJECT LOCUS

SHELBURNE BAY



SCALE: 1" = 5000'-0"

100 YR FLOOD	102.0	ORDINARY LOW WATER	93.0
EXTREME LAKE LEVEL	103.7	NGVD29	0.5
ORDINARY HIGH WATER	98.0	NAVD88	0.00

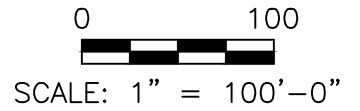
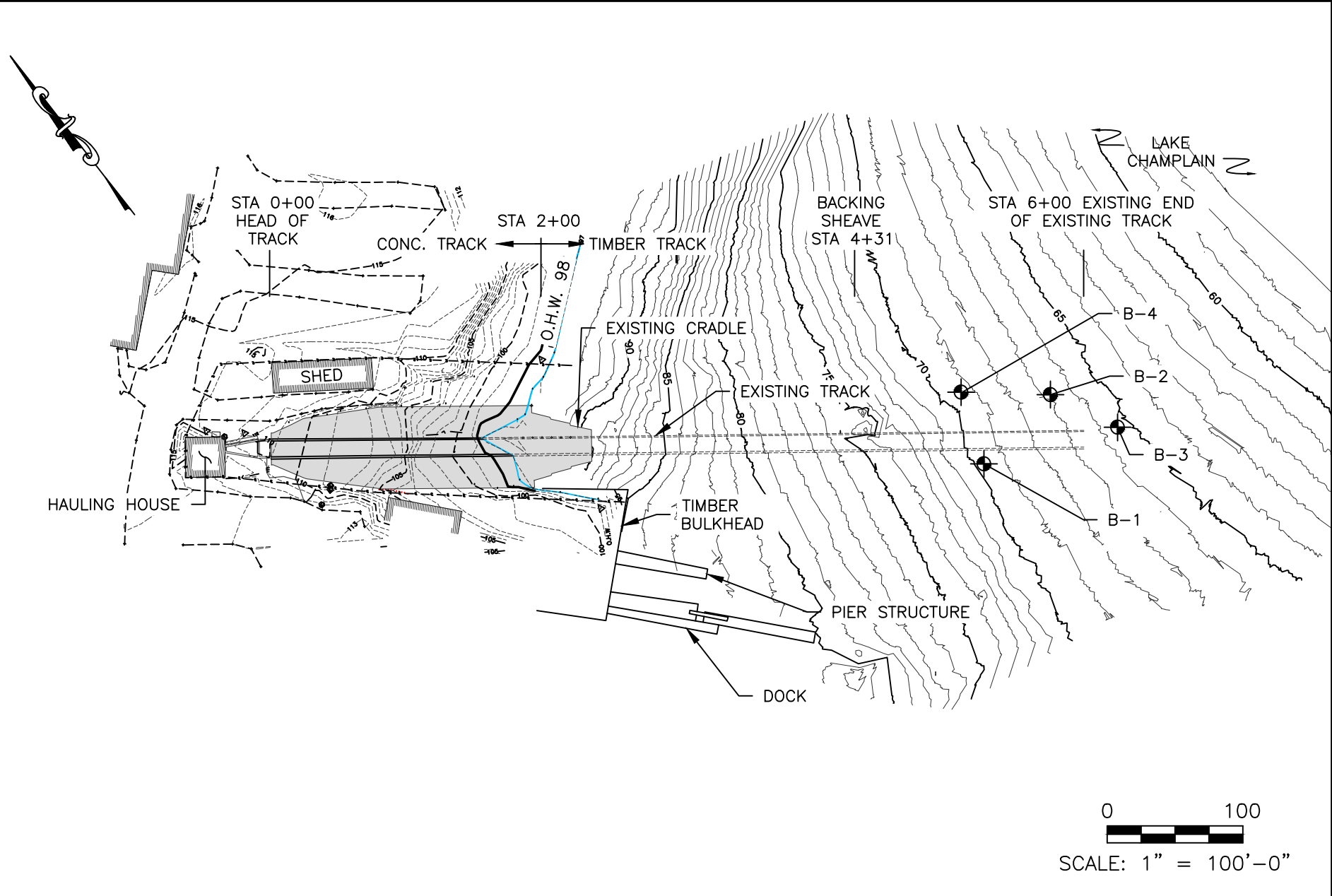
TITLE:	PROJECT LOCUS		IN: SHELBURNE BAY
			AT: SHELBURNE
			COUNTY: CHITTENDEN STATE: VT

BCE Bourne Consulting Engineering, PC
 3 Boat Street
 Franklin, VT 05630
 TEL. (800) 533-0000 FAX. (800) 533-0000

PURPOSE:
**MARINE RAILWAY
 RECONSTRUCTION**

APPLICATION BY:
**VERMONT AGENCY OF
 TRANSPORTATION**

SHEET 1 OF 6
 DATE: 12/01/15 REV:12/14/15



100 YR FLOOD	102.0	ORDINARY LOW WATER	93.0
EXTREME LAKE LEVEL	103.7	NGVD29	0.5
ORDINARY HIGH WATER	98.0	NAVD88	0.00

TITLE: **EXISTING CONDITIONS**

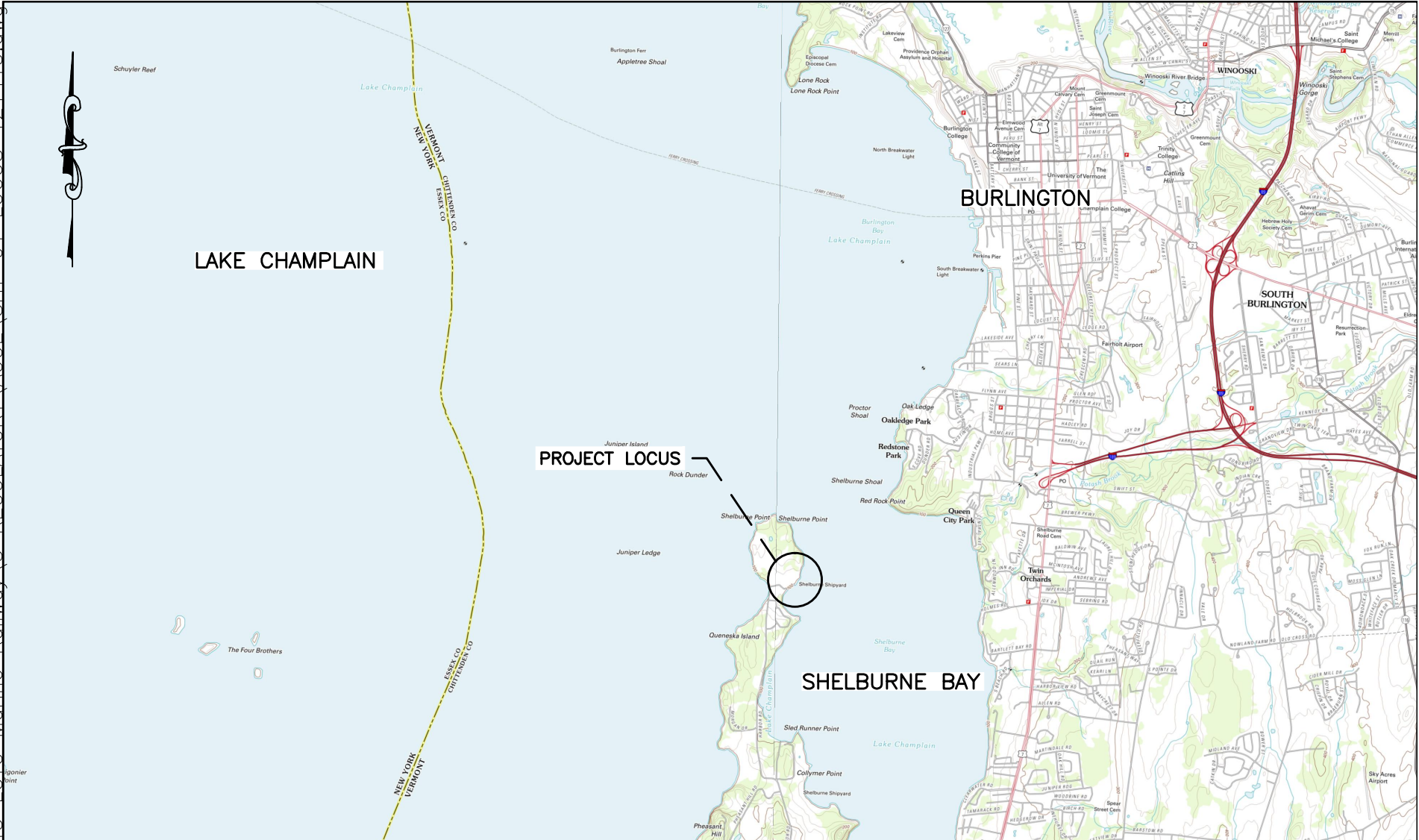
IN: **SHELBURNE BAY**
 AT: **SHELBURNE**
 COUNTY: **CHITTENDEN** STATE: **VT**

SHEET **2** OF **6**
 DATE: **12/01/15** REV: **12/14/15**

BCE Bourne Consulting Engineering, PC
 3 Bent Street
 Franklin, MA 01830
 TEL. (508) 533-0000 FAX. (508) 533-0000

PURPOSE:
**MARINE RAILWAY
 RECONSTRUCTION**

APPLICATION BY:
**VERMONT AGENCY OF
 TRANSPORTATION**



LAKE CHAMPLAIN

PROJECT LOCUS

SHELBURNE BAY



SCALE: 1" = 5000'-0"

100 YR FLOOD	102.0	ORDINARY LOW WATER	93.0
EXTREME LAKE LEVEL	103.7	NGVD29	0.5
ORDINARY HIGH WATER	98.0	NAVD88	0.00

TITLE: PROJECT LOCUS

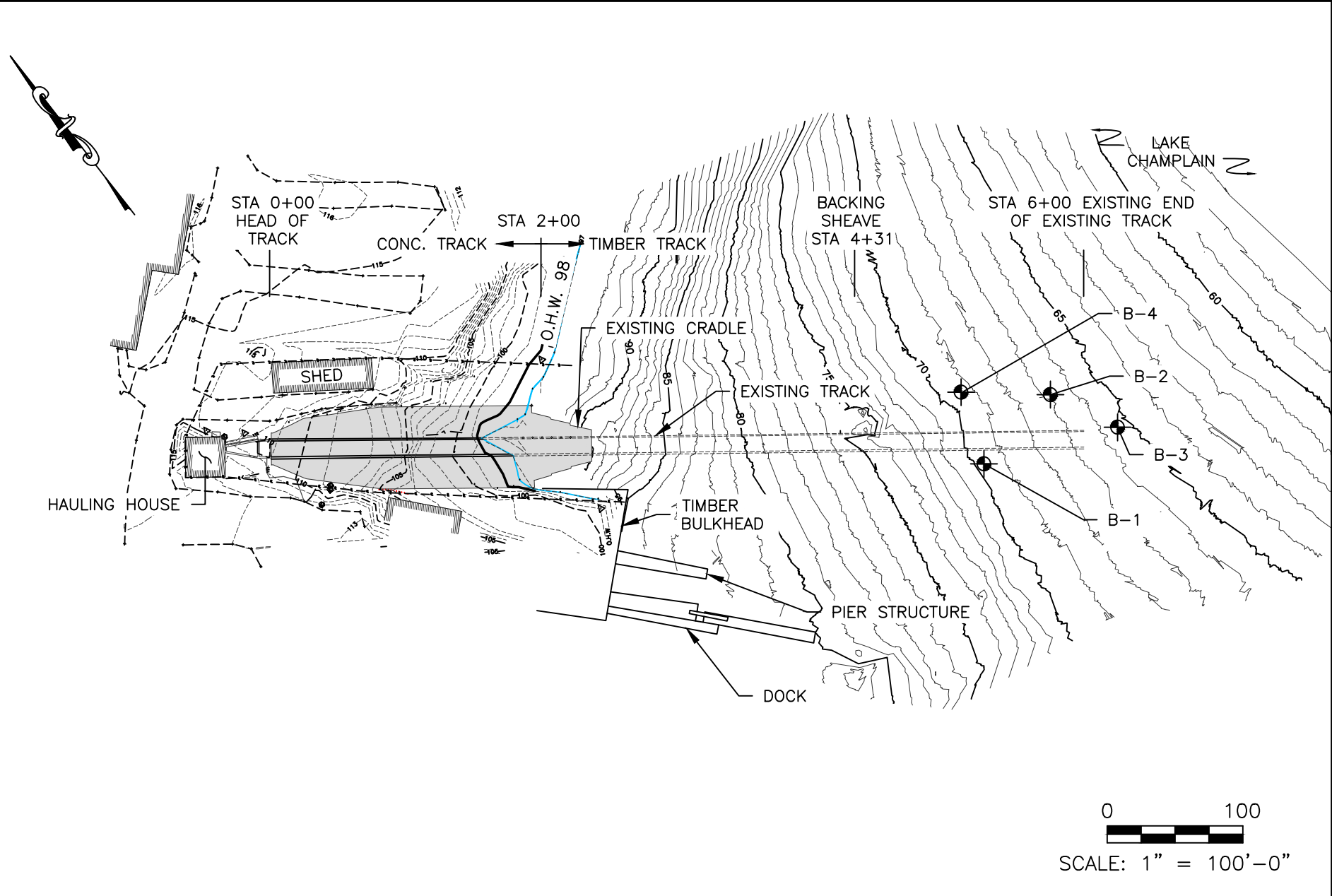
IN: SHELBURNE BAY
 AT: SHELBURNE
 COUNTY: CHITTENDEN STATE: VT



PURPOSE:
 MARINE RAILWAY
 RECONSTRUCTION

APPLICATION BY:
 VERMONT AGENCY OF
 TRANSPORTATION

SHEET 1 OF 6
 DATE: 12/01/15 REV:12/14/15



100 YR FLOOD	102.0	ORDINARY LOW WATER	93.0
EXTREME LAKE LEVEL	103.7	NGVD29	0.5
ORDINARY HIGH WATER	98.0	NAVD88	0.00

TITLE: **EXISTING CONDITIONS**

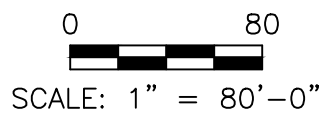
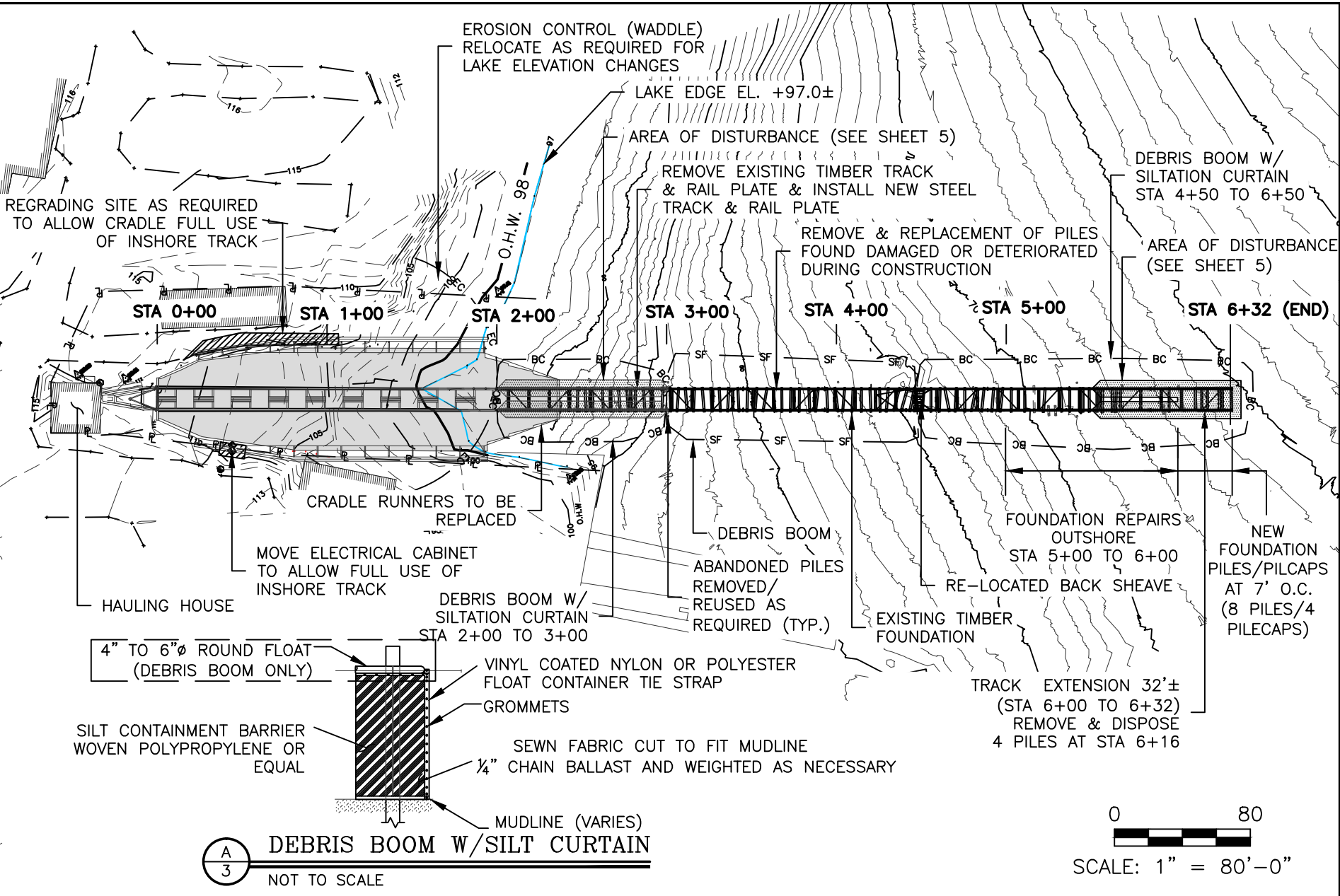
IN: **SHELBURNE BAY**
 AT: **SHELBURNE**
 COUNTY: **CHITTENDEN** STATE: **VT**

Bourne Consulting Engineering, PC
 3 Bent Street
 Franklin, MA 01830
 TEL. (508) 533-0000 FAX. (508) 533-0000

PURPOSE:
**MARINE RAILWAY
 RECONSTRUCTION**

APPLICATION BY:
**VERMONT AGENCY OF
 TRANSPORTATION**

SHEET **2** OF **6**
 DATE: **12/01/15** REV: **12/14/15**



DEBRIS BOOM W/ SILT CURTAIN
 NOT TO SCALE

100 YR FLOOD	102.0	ORDINARY LOW WATER	93.0
EXTREME LAKE LEVEL	103.7	NGVD29	0.5
ORDINARY HIGH WATER	98.0	NAVD88	0.00

TITLE: **RAILWAY TRACK RECONSTRUCTION**

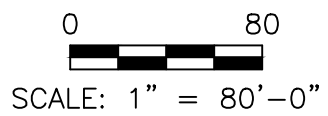
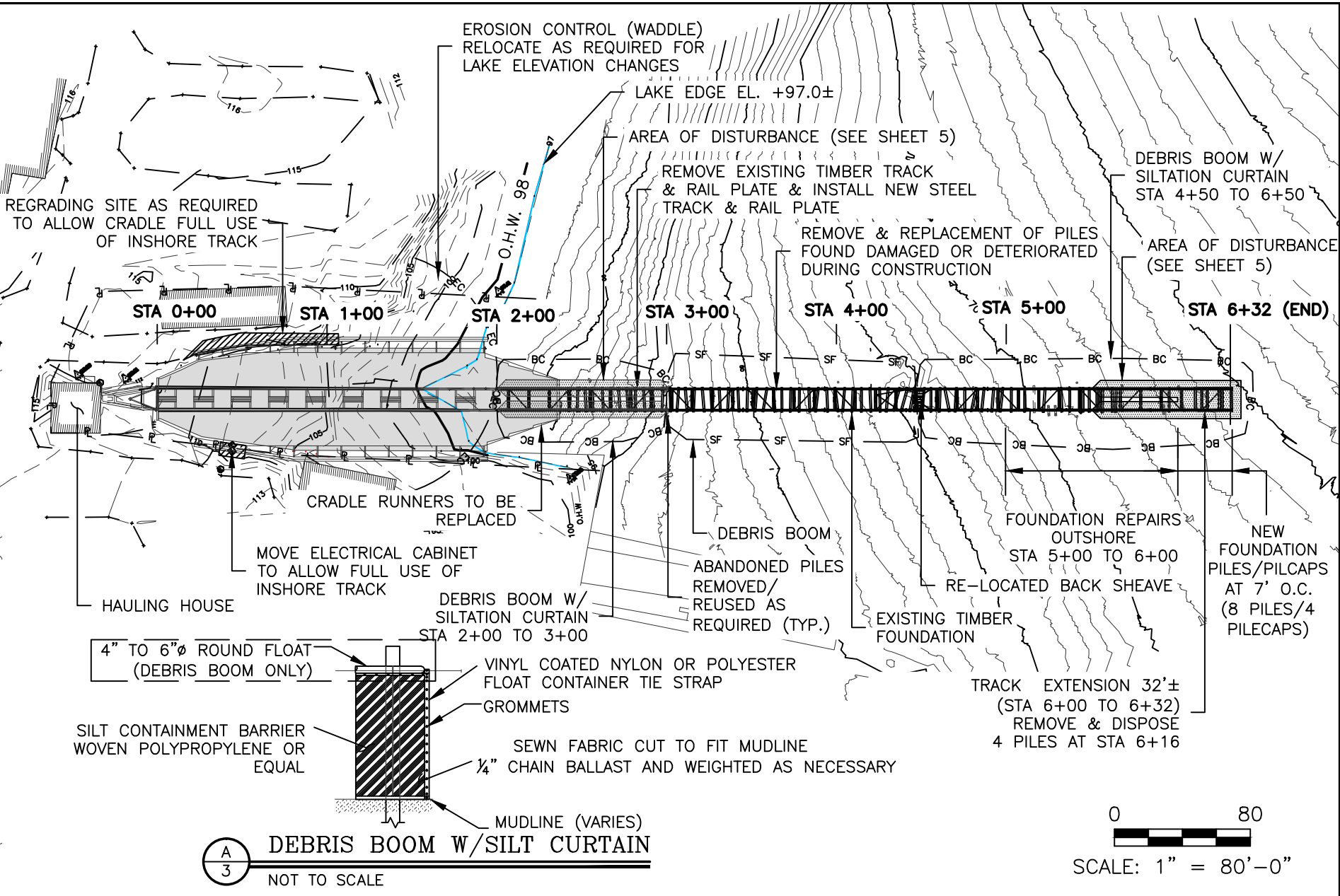
IN: **SHELBURNE BAY**
 AT: **SHELBURNE**
 COUNTY: **CHITTENDEN** STATE: **VT**



PURPOSE: **MARINE RAILWAY RECONSTRUCTION**

APPLICATION BY: **VERMONT AGENCY OF TRANSPORTATION**

SHEET **3** OF **6**
 DATE: **12/01/15** REV: **12/14/15**



DEBRIS BOOM W/ SILT CURTAIN
 NOT TO SCALE

100 YR FLOOD	102.0	ORDINARY LOW WATER	93.0
EXTREME LAKE LEVEL	103.7	NGVD29	0.5
ORDINARY HIGH WATER	98.0	NAVD88	0.00

TITLE: **RAILWAY TRACK RECONSTRUCTION**

IN: **SHELBURNE BAY**
 AT: **SHELBURNE**
 COUNTY: **CHITTENDEN** STATE: **VT**

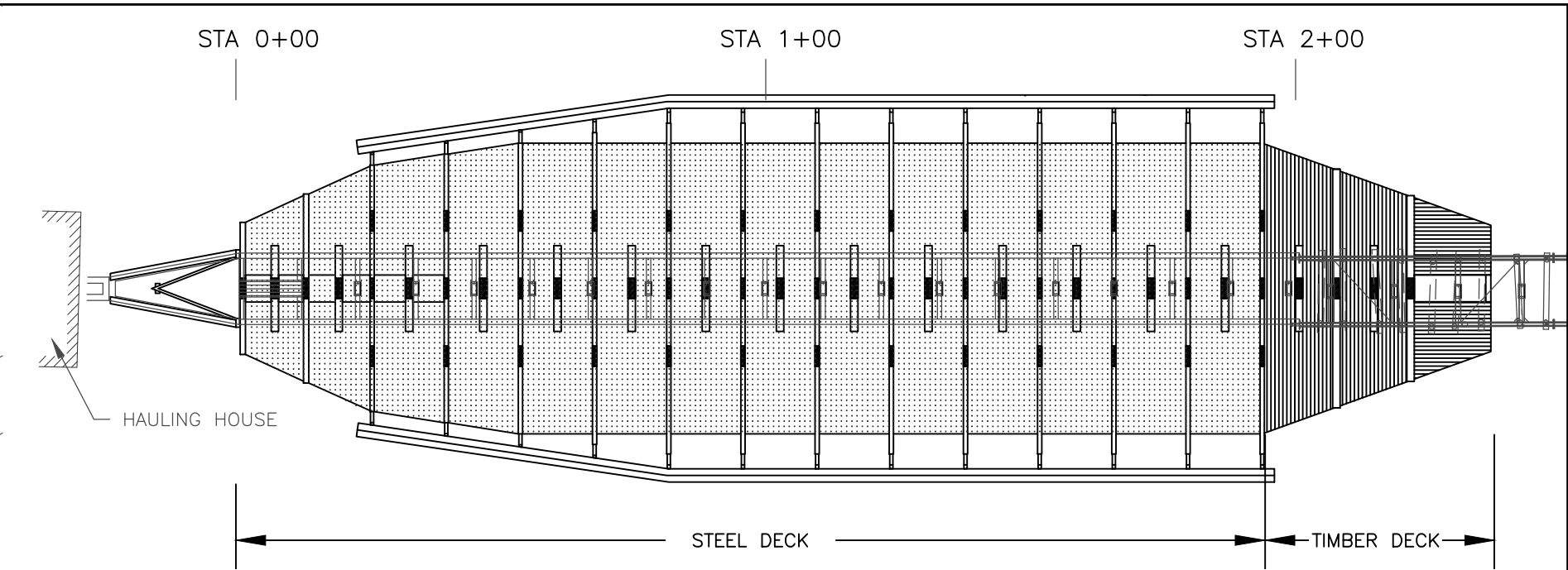


PURPOSE: **MARINE RAILWAY RECONSTRUCTION**

APPLICATION BY: **VERMONT AGENCY OF TRANSPORTATION**

SHEET **3** OF **6**
 DATE: **12/01/15** REV: **12/14/15**

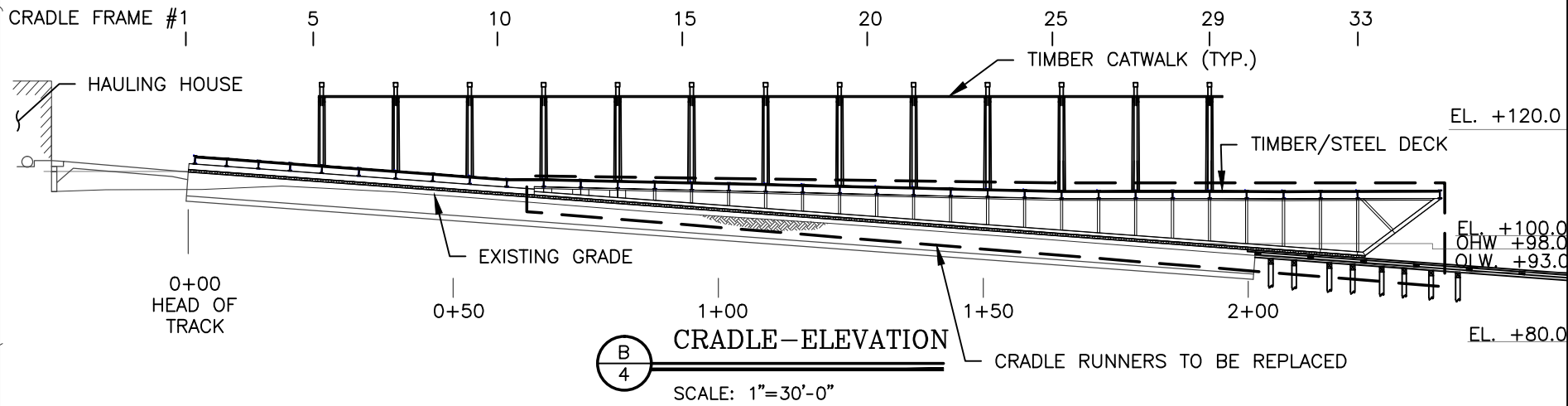
File: X:\35041-35043 LCIC Marine Railway\3 REGULATORY\ACOF\SHT-04 CRADLE 121415.dwg



CRADLE-PLAN

A
4

SCALE: 1"=30'-0"



CRADLE-ELEVATION

B
4

SCALE: 1"=30'-0"

100 YR FLOOD	102.0	ORDINARY LOW WATER	93.0
EXTREME LAKE LEVEL	103.7	NGVD29	0.5
ORDINARY HIGH WATER	98.0	NAVD88	0.00

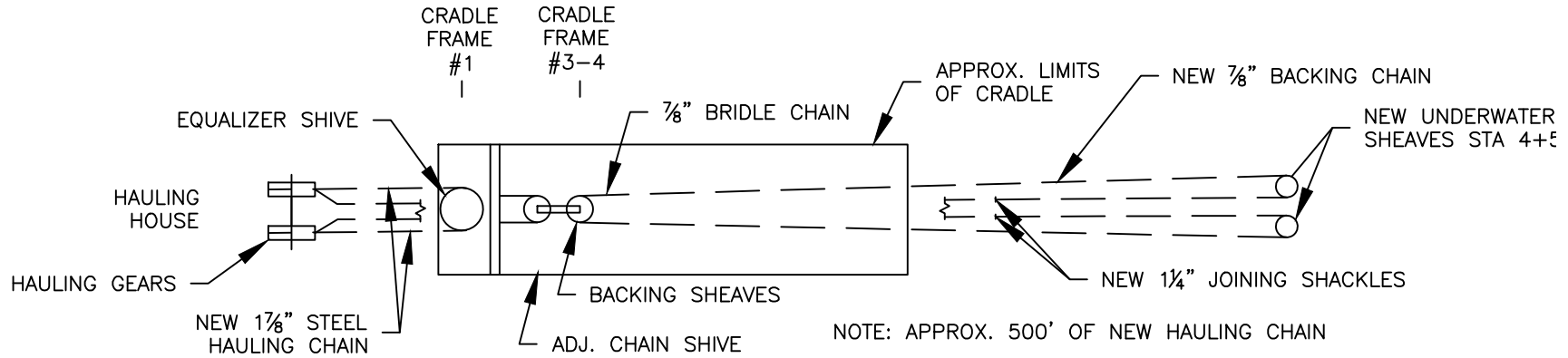
TITLE:	CRADLE RECONSTRUCTION	IN: SHELBURNE BAY
		AT: SHELBURNE
		COUNTY: CHITTENDEN STATE: VT

BCE Bourne Consulting Engineering, PC
 3 Bent Street
 Franklin, VT 05530
 TEL. (800) 533-0000 FAX. (800) 533-0000

PURPOSE:
**MARINE RAILWAY
 RECONSTRUCTION**

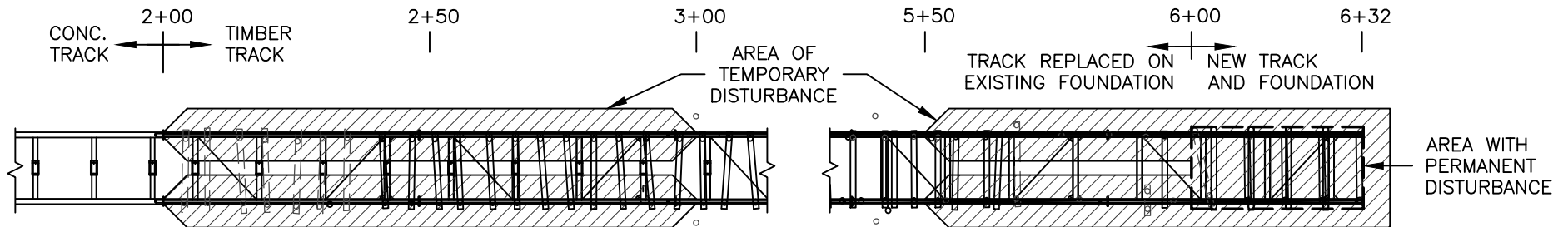
APPLICATION BY:
**VERMONT AGENCY OF
 TRANSPORTATION**

SHEET **4** OF **6**
 DATE: **12/01/15** REV: **12/14/15**



A
5
CHAIN REAVING PLAN
 NOT TO SCALE

TOTAL IMPACT AREAS
 TEMPORARY DISTURBANCE: 3200± SQ.FT
 PERMANENT DISTURBANCE: 160± SQ.FT



NOTE:
 TEMPORARY DISTURBANCE: 1720± SQ.FT.
 PERMANENT DISTURBANCE: 0 SQ.FT.

NOTE:
 TEMPORARY DISTURBANCE: 1480± SQ.FT.
 PERMANENT DISTURBANCE: 160± SQ.FT.

B
5
STA 2+00 TO 3+00 IMPACT-PLAN
 SCALE: 1"=30'-0"

C
5
STA 5+50 TO 6+32 IMPACT-PLAN
 SCALE: 1"=30'-0"

100 YR FLOOD	102.0	ORDINARY LOW WATER	93.0
EXTREME LAKE LEVEL	103.7	NGVD29	0.5
ORDINARY HIGH WATER	98.0	NAVD88	0.00

TITLE: **TRACK REPAIR IMPACT PLAN**

IN: **SHELBURNE BAY**
 AT: **SHELBURNE**
 COUNTY: **CHITTENDEN** STATE: **VT**

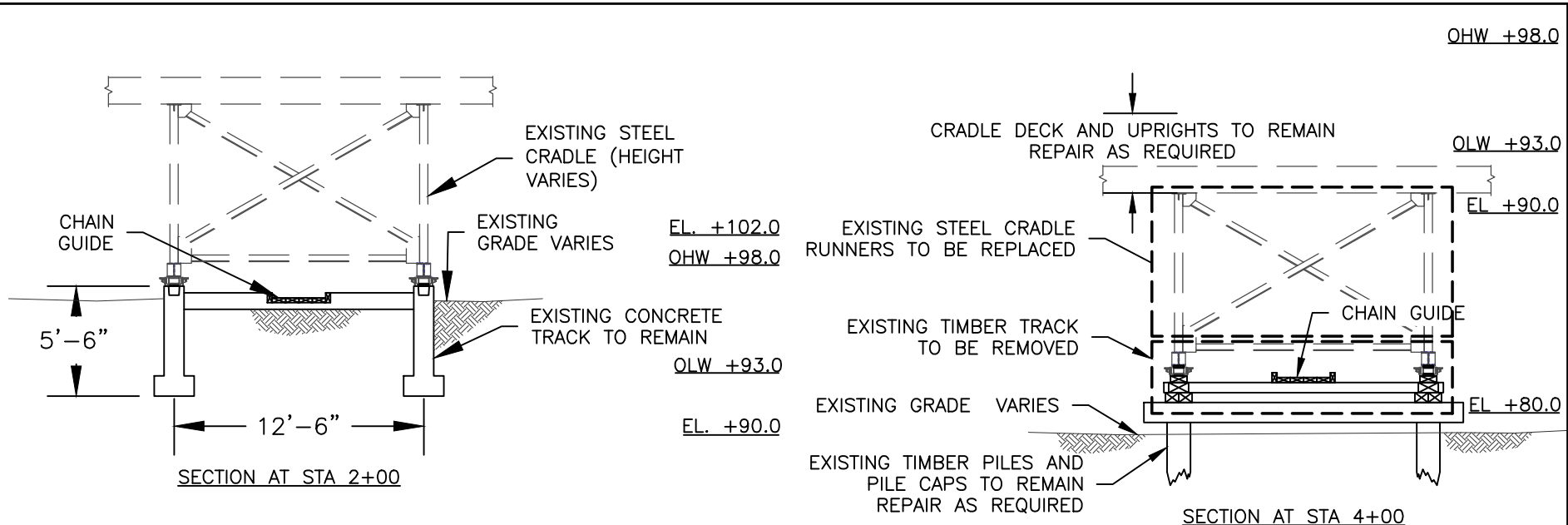


PURPOSE:
**MARINE RAILWAY
 RECONSTRUCTION**

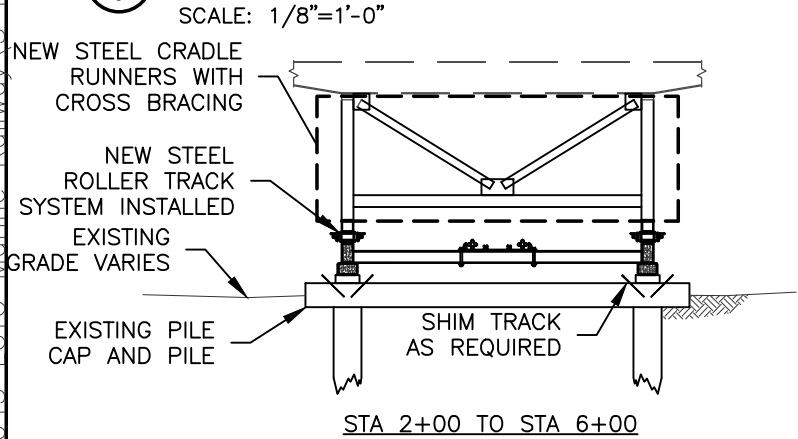
APPLICATION BY:
**VERMONT AGENCY OF
 TRANSPORTATION**

SHEET **5** OF **6**
 DATE: **12/01/15** REV: **12/14/15**

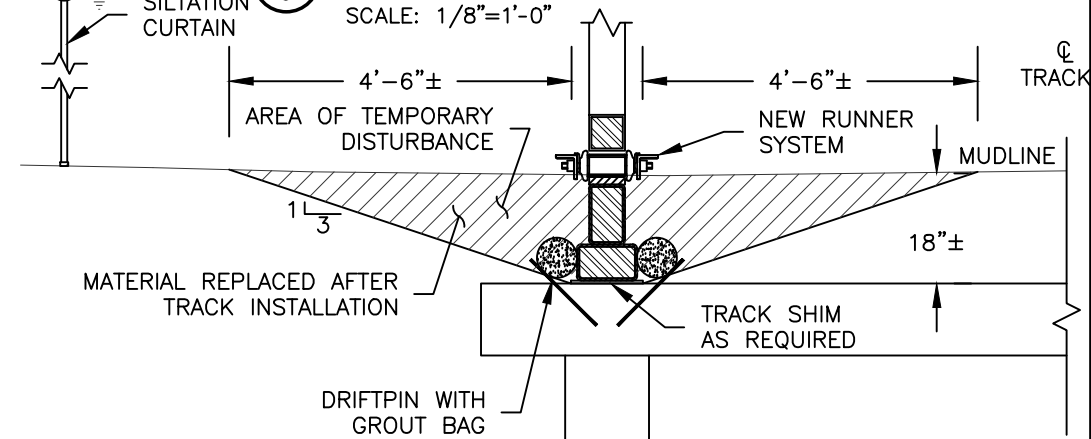
File: X:\35041-35043 LCIC Marine Railway\3 REGULATORY\ACOF\SH1-06 TRACK-CRADLE SEC



A
6
EXISTING TRACK SECTION-INSHORE



B
6
EXISTING CRADLE TRACK-OUTSHORE



C
6
CRADLE/TRACK SECTION-TYP.

SCALE: 1/8"=1'-0"

D
6
CRADLE/TRACK DETAIL-TYP.

SCALE: 3/8"=1'-0"

100 YR FLOOD	102.0	ORDINARY LOW WATER	93.0
EXTREME LAKE LEVEL	103.7	NGVD29	0.5
ORDINARY HIGH WATER	98.0	NAVD88	0.00

TITLE:	MARINE RAILWAY SECTIONS	IN: SHELBURNE BAY
		AT: SHELBURNE
		COUNTY: CHITTENDEN STATE: VT

BCE Bourne Consulting Engineering, PC
3 Bent Street
Franklin, MA 01830
TEL. (508) 533-0000 FAX. (508) 533-0000

PURPOSE:
MARINE RAILWAY RECONSTRUCTION

APPLICATION BY:
VERMONT AGENCY OF TRANSPORTATION

SHEET **6** OF **6**
DATE: **12/01/15** REV: **12/14/15**

Shelburne Vermont
Marine Railway Reconstruction

PROJECT NARRATIVE

Lake Champlain Transportation Company

December 14, 2015 (revised)

I. Project Description

The Lake Champlain Transportation Company (LCTC) is seeking the necessary regulatory approvals to reconstruct their existing marine railway in Shelburne, Vermont. The project is part of a continual process to maintain a safe working marine railway for USCG hull inspections and all below waterline maintenance of vessels. This dry dock is the only one large enough to haul the LCTC vessels. The current dock was built in 1929 and is in need of an overhaul of its cradle and track systems. The site is within the Shelburne Shipyards facility located on the eastern shore of Shelburne Point facing Shelburne bay on Lake Champlain's east shoreline. This project would replace and repair major components to maintain the docks working ability and extend the life of the facility.

The proposed work includes retrofitting the existing cradle with new runners and rail plate; repairs and replacement of approximately 100 feet of underwater track foundation; installation of a steel track with rail plate for the full length of 600 feet plus a 32 foot extension; installation of new hauling and backing chains; replacement of existing rollers and roller frames (420 feet on each track); and other minor site improvements to allow use of the entire length of track.

II. History

The facility has undergone many improvements and owners since the dock was first built in 1929. The original owner was Lake Champlain Steamboat Company who purchased the land around 1820. In the early 1900's the railway was powered with horse driven capstans hauling miles of rope to move the greased timbers up the slope. In October 1929 the existing track was built and the LCTC started performing the required periodic inspections of their vessels.

In 1932 LCTC closed operations when the shipyard and dock were bought out. Since 1937 the property has changed owners five times, the final being to the Lake Champlain Transportation Co.

Since the 1960's the following major repairs have been made:

1963 – Wood port bow cradle runner replaced with steel

1966 – Hoist steam engine replaced with electric motor

1972 – Wood starboard bow cradle runner replaced with steel

1976 – Transverse wooden short beams replaced with steel

1985 – Wood port and starboard aft cradle runners replaced with steel

1988 – Replaced upper 30ft of wood track

1990 – Removal of iron ballast from cradle and replacement of 7/8" backing chain

1991 – Replacement of wooden roller frames with steel

2004 – Trimmed 8 piles and installation of new timber pile caps

2005 – Replacement of submerged hauling chain, and new hauling chain above water

2012 – Replacement of upper 50 feet of timber track, trimmed 23 piles and installation of new timber pile caps, and realigned wood track

2013 – Trimmed 20 piles and installation of new timber pile caps, and realigned wood track

III. Existing Conditions

Railway Foundation

The existing track railway is supported by a timber and concrete foundations. The original concrete strip foundation supports the inshore 200 feet of the track to the average lake level elevation. Once the track extends into the lake the original timber pile foundation supports a timber track structure extending approximately 400 feet into Shelburne Bay. The concrete and timber foundation are in good condition typically. Between Station 2+00 and approximately 3+50 the track is above the mudline. Outshore of Station 3+50 the track foundation becomes buried in the mudline. The outshore most 100 feet station 5+00 to 6+00 of railway foundation requires limited repairs.

Track

The existing timber track is comprised of three layers of timber beams stacked to create a track frame. The timber track also has timber horizontal and diagonal bracing along the 400 foot length. The timber track has exceeded its life expectancy and requires complete replacement.

Cradle Runner

The existing cradle is comprised of a steel and timber structure. The Timber structure is the superstructure above the deck level including timber decking at the bow and stern as well as the catwalks and their supports. The steel structure is the main frame and support below the deck level. The substructure was replaced in 1985 which included the aft timber cradle runners being replaced with the current steel runners. The forward runners were replaced with steel in 1963 and 1972. Due to damage to the aft cradle runners, these sections require replacement at this time.

Chain

Since installation in 1962 the hauling chain (1-7/8 inch dia.) has only undergone replacement once which was in 2005 where the outshore, typically submerged, half of the chain was removed and replaced with the original inshore half of chain which was typically not submerged. New chain was installed in the inshore half at that time. No other major chain repairs have been performed.

The current project proposed to replace original hauling chain segment as well as the complete replacement of the backing chain. The new chain will be installed at the inshore, high load, segment and the 1962 chain will be relocated outshore.

Existing Site

The existing site configuration does not allow the cradle to be pulled completely up to the hauling house. During the hauling process an electrical cabinet and existing grade conditions limit the cradle's forward movement. To allow this additional movement some limited upland grading (above Elev. 98) on the starboard (north) side is required and the electrical cabinet located near property line on the port side of the cradle needs to be moved.

IV. Proposed Project

The proposed project reflects the required improvements to maintain a working marine railway and will extend the life of the existing system removing the future need for large repairs. The improvements include the following;

1. Replacement of the forward runner plate,
2. Removal and replacement of the aft runners,
3. Replacement of the existing timber track with a steel track,
4. Extension of the track approximately 32 feet

5. Repairs to the outshore 100 feet of track foundation,
6. Removal and replacement of the roller system,
7. Complete replacement of the backing chains and partial replacement of the hauling chain.
8. Minor modifications to allow the cradle to be moved further inshore including regrading above the water line and relocation of the electrical cabinet.

Steel Cradle Runners

The existing forward steel runners were installed in 1963 and 1972 and will be reused. The plate below the forward runners requires a replacement. This will be performed in conjunction with the full removal and replacement of the aft port and starboard runners. The aft runners were originally replaced in 1985 and no major repairs have been completed since. The aft steel runners will be fully replaced with a steel tubular framing.

Foundation Repairs and Track Replacement with New Steel Track

The foundation requiring repair consists of replacement of cross beams between Station 5+00 and 6+00 and which are currently just below the mudline. Some of the timber pilings will be cut down where the top of the piling has been damaged. A new timber pile cap will be placed over the piling to support the steel track. Where existing piles are found to be too poor to reuse, a replacement pile will be installed.

The steel track system will replace the existing timber track. During this process the track will be regraded and, due to the differences in the heights of the two tracks, high adjustment of the existing pile caps will be performed. The height adjustment will vary from less than 1 inch to about 14 inches depending on the historic settlement of the track. In addition, the new track detail results in the final elevation of the track being elevated slightly relative to historic grades. To maintain the drydock system to keep the historic clearance draft required, the track to be extended approximately 32 feet outshore to meet the required draft for existing LCTC vessels. The track extension will be supported with re-located timber pilings and new timber pile caps. The removal of 4 piles is proposed with the installation of 8 new piles.

Some temporary bottom sediment relocation will be required during this work to allow access to the existing pile caps and removal of the existing track system as well as the installation of the new track along with securing it to the original pile caps.

It is our estimate that this will be required along 180 feet of each of two tracks with a wedge of material up to 4.5 feet wide and 18 inches deep. This is anticipated to be 1,720 sf inshore (Station 2+00 to 3+00) and 1,480 sf outshore (Station 5+50 to 6+32). Sediments will be relocated immediately near the work by jetting and replaced after track work is completed. All work will be done within a siltation curtain.

A new steel track will replace the existing original timber track for the full length of the track. Outshore the steel track will rest on the existing timber pile/ pile cap foundation. Some of the foundation pile and caps will require repair or replacement depending of the existing condition of the element. The majority of the timber foundation is in good condition and will be re-used without repairs. The proposed track extension will be 8 piles with 4 pile caps to support the track extension required for maintaining the dry dock freeboard needed.

Steel Rollers and Roller Frames

The existing steel rollers are well past their life expectancy and will be removed and replaced. The new rollers will be similar in type. Approximately 28 roller frames will be installed on each track and consist of 420 rollers each. Each frame of rollers will be 15 feet long.

Chains

The existing chains have only been replaced once since originally being installed. The hauling chain is 1-7/8" dia while the backing chain is 7/8" dia. The existing inshore half of the hauling chain will replace the existing outshore half and the inshore half will now have a new chain installed. The proposed changes will also include the complete replacement of the backing chain.

Site Modifications

The site modifications to be performed will include some regrading of the site near the head of track and relocation of the electrical cabinet. The grading will allow full use of the inshore track and ensure the cradle will not ground out during hauling operations. The electrical cabinet will be relocated to accommodate the full use of the inshore track.

V. Project Impacts

The project will have some impacts to the surrounding environment which will be mitigated to the greatest extent feasible depending if the work is above or below the water. Mitigation will be performed as follows:

Inshore Work

The work, above the lake elevation, will be mitigated using straw waddles or staked erosion control to retain any of the earthworks during construction. The erosion barrier may be relocated or multiple barriers may be used to accommodate the multiple lake elevations which will be seen during the construction.

Outshore Work

The work, below the lake elevation, will create minor disturbances during the construction. The inshore segment (Sta. 2+00 to 3+00) of the submerged track is partially buried and a siltation curtain will be implemented to surround the construction. The track from Sta 3+00 to 5+50 will be above the mudline and this area of construction will be surrounded by a debris boom. Outshore of Station 5+50 the track construction will have impacts to the mudline due to the pile caps being imbedded in the mud. Some relocation of material to allow existing caps to be removed and new caps installed from Station 5+00 to 6+32. Outshore of Station 5+50, the work area will be contained by a siltation curtain to surround the construction to mitigate these disturbances during construction. Upon completion of the work, the bottom sediments will be relocated to their original location.