STATE OF VERMONT
AGENCY OF TRANSPORTATION

Scoping Report

FOR

Salisbury-Cornwall 1445(39)

Town Highway 1/3, Bridge 8 over Otter Creek

September 20, 2021

I. Contents

I. Site Information

The bridge is located over the Town boundary line connecting Creek Road (Salisbury/Town Highway 1) to Swamp Road (Cornwall/Town Highway 3). Town Highway 1 and 3 are classified as Class 2 Town Highways through the project area. The existing conditions were gathered from a combination of a Site Visit, the Inspection Report, and the existing Survey. See correspondence in the Appendix for more detailed information.

Roadway Classification	Local Road (Class 2 TH)
Bridge Type	Town Lattice Covered Bridge
Bridge Span	154 feet
Year Built	1865, Reconstructed 2008
Ownership	Towns of Salisbury and Cornwall
County	Addison

Need

The following is a list of the deficiencies of Salisbury-Cornwall Bridge 8 and Town Highway 1/3 (Creek Road/ Swamp Road) in this location.

1. The structure was destroyed by a fire in 2016 and needs replacing.

2. The existing roadway is substandard in width for the speed and traffic volumes present.

Traffic

A traffic study of this site was performed by the Vermont Agency of Transportation. The traffic volumes are projected for the years 2023 and 2043.

TRAFFIC DATA	2023	2043
AADT	490	540
DHV	75	85
ADTT	30	45
%T	3.0	4.3
%D	60	60

Design Criteria

The design standards for this bridge project are the Vermont State Standards (VSS), dated October 22, 1997. Minimum standards are based on a AADT of 540, a DHV of 85 and a design speed of 35 mph for a Local Road. The posted speed for the previous covered bridge was 10 mph.

Design Criteria	Source	Existing Condition	Minimum Standard	Comment
Approach Lane and Shoulder Widths	VSS Table 6.3	9'/0/ (18')	9'/2' (22')	Substandard
Bridge Lane and Shoulder Widths	VSS Table 6.3	(10') single lane (temp bridge) (14' between trusses) (covered bridge)	18' rail to rail for a one-lane bridge 9'/2' (22') for a two-lane bridge	Substandard
Clear Zone Distance	VSS Table 6.5		7' Fill 7' Cut	
Banking	VSS Section 6.12	Western approach is banked 6.5%	8% max	
Speed	VSS Section 6.2	35 mph 10 mph on bridge (signed)	35 mph (Design)	
Horizontal Alignment	AASHTO Green Book, Table 3.10b	Western approach radius = 500' Eastern approach ∞	R = 4260' @NC R = 609' @ e=6.5%	Substandard but would be sufficient at 10 mph design speed
Vertical Grade	VSS Table 6.6	5.3% (max)	7% (Max)	
K Values for Vertical Curves	VSS Table 6.1	K=20 (crest) on bridge, K=23 (sag) Western approach K=25 (sag) Eastern approach	40 crest / 50 sag	Substandard but would be sufficient at 10mph design speed
Vertical Clearance	VSS Section 6.7	10'	14'-3" (min)	Substandard
Stopping Sight Distance	VSS Table 6.1	157' (EB), 181' (WB)	225'	Substandard
Bicycle/Pedestrian Criteria	VSS Table 6.7	No bike/pedestrian access	2' shoulder	
Bridge Railing	Structures Design Manual Section 13	TL-2	TL-2	
Hydraulics	VTrans Hydraulics Manual, Table 6.1	Temporary bridge passes Q_{25} storm event with 1' of freeboard Covered Bridge with pier passes Q_{25} storm event with no freeboard 150' bankfull width	Pass Q_{25} storm event with 1' of freeboard	Original Covered Bridge did not provide adequate freeboard
Structural Capacity	Structures Design Manual, Ch. 3.4.1	Failed	Design Live Load: HL-93	Substandard

Inspection Report Summary

Deck Rating	0 Failed
Superstructure Rating	0 Failed
Substructure Rating	6 Satisfactory
Channel Rating	7 Good

From the Structure Inspection, Inventory, and Appraisal Sheet:

08/20/2020 – Temporary bridge is in good condition. ~JS/AC

08/09/2018 – Temporary bridge is in good shape. ~MJ/MK

12/2016 – Temporary structure in place.

09/2016 – Structure was destroyed by fire.

8/11/2016 – Bridge is in good condition. ~JAS/SMP

8/22/2014 – Structure is in good condition. Debris should be removed from the pier nose. ~FRE/MJ

8/15/2012 – Structure is in good condition. However, the debris on the pier should be removed from the channel. Missing weight limit sign should be added to the abutment #1 side along with the speed limit sign. ~FRE/JAS

09/14/2011 – This was a special inspection performed due to collision damage on the covered portion of the structure. A few scattered knee braces along the upstream truss are either broken or heavily split. Replacement of broken members needs to be done. ~PLB

07/21/2010 – This bridge is in good condition ~DCP/JWW

Hydraulics

On 04/08/21 the hydraulics unit visited the site and found that the existing 150-ft span meets bankfull width requirements. In an email on 5/4/21 ANR indicated the following: Maintaining the current opening and abutment locations would meet the bankfull width requirements for replacement.

Bridge 8 is located within a FEMA Special Flood Hazard Area (SFHA) Zone A without Base Flood Elevation.

The VT Hydraulics unit suggested two options involving the existing pier to remain in place and determined though modeling the existing conditions that the hydraulic characteristics were not influenced significantly if the pier was fully removed. For all scenarios, there is a significant roadway overtopping on either side of the bridge before the 4% AEP.

Utilities

There are no utilities in the project area.

Right of Way

There is an existing 4-rod Right-of-Way (ROW) in Cornwall and an existing 3-rod ROW in Salisbury which is shown on the Layout sheet.

Resources

Biological:

Wetlands/Watercourses

The project is located within the Cedar Swamp, a 6,619-acre wetland complex. Every quadrant of the project has wetlands. The parking area in the SW quadrant is not wetland, although wetlands are surrounding it. The wetlands are located within a large diverse floodplain complex of Otter Creek. This wetland complex is part of one the most biologically diverse wetland complexes in VT according to the Nature Conservancy.

During the design, any work in wetland areas should be avoided and minimized to the maximum extent possible. All work within the existing prism of the road should not be counted toward wetland or buffer impact.

The Otter Creek flows northerly thorough the project site. The Otter Creek is the longest river in the state of Vermont and has one of the largest intact floodplains. All work below ordinary high water on the waterway is regulated by the VT ANR and the USCOE.

Wildlife Habitat

Important terrestrial and aquatic habitat is located in the project area. The adjacent wetlands provide valuable habitat for migratory birds, small and large mammals, and amphibians and reptiles. The Otter Creek is classified as warm water fishery according to the VT ANR Water Quality Standards.

Rare, Threatened and Endangered Species

Several species have mapped occurrences at this location. Most species (S2, S3) would be located on the adjacent lands or within the Otter Creek. Uncommon species should be avoided although are not protected by state law.

Natural Communities:

Silver Maple-Ostrich Fem Riverine, S3
Red or Silver Maple-Green Ash Swamp, S3

RTE Species:

Four-toed Salamander, *Hemidactylium scutatum,* S2, Species of Greatest Conservation Need (SGCN)
Blue-spotted Salamander, *Ambystoma laterale,* S3, SGCN
Nodding Trillium, *Trillium cernuum,* S3, SGCN
Northern long-eared bat, *Myotis septentrionalis* (state endangered, federally threatened)
Creek Heelsplitter, *Lasmigona compressa,* S2, SGCN

Agricultural

Soils mapped in the project area are mapped as Winooski very fine sandy loam which is designated as prime soil.

Archaeological:

This region is highly archaeologically sensitive. Existing site reports completed for the area mention that artifacts were found on both the swamp islands and in the flooded fields around them. Due to the high sensitivity of the region, any work outside of the previously disturbed areas will require further archaeological work.

See the Archaeological Resource ID in Appendix H for additional information.

Historic:

No historic resources were identified within the project area and the temporary bridge is not historically significant. One 4(f) resource was identified within the survey area: the Cornwall Swamp Wildlife Management Area.

See the Historic Resource ID in Appendix I for additional information.

Hazardous Materials:

There are no hazardous materials present in the project area.

Stormwater:

There are no stormwater concerns for this project.

II. Maintenance of Traffic

The Vermont Agency of Transportation developed an Accelerated Bridge Program in 2012, which focuses on expedited delivery of construction plans, permitting, and Right-of-Way, as well as accelerated construction of projects in the field. One practice that will help in this endeavor is closing bridges for portions of the construction period, rather than providing temporary bridges. In addition to saving money, the intention is to minimize the closure period with accelerated construction techniques and incentives to encourage contractors to complete projects early. The Agency will consider the closure option on projects where rapid reconstruction or rehabilitation is feasible. The use of prefabricated elements and systems for new bridges will also expedite construction schedules. This can apply to decks, superstructures, and substructures. Accelerated Bridge Construction should provide enhanced safety for the workers and the travelling public while maintaining project quality. The following options have been considered:

Option 1: Off-Site Detour

This option would close the bridge and reroute traffic onto an offsite detour. Since the bridge is located on a class 2 Town Highway, it would be the joint responsibility of the Towns of Salisbury and Cornwall to choose the preferred detour route, and to sign it according to the MUTCD.

There are several routes that could serve as an appropriate detour at this site.

The shortest route has an end-to-end distance of 13.9 miles and adds approximately 8.9 miles to the through route travel distance. The detour route is as follows:

> Creek Road to Dewey Road, Old Jerusalem Road, Leicester Whiting Road, VT-30 North, to Swamp Road (13.9 miles end-to-end).

An additional detour option has an end-to-end distance of 18.1 miles and adds approximately 13.1 miles to the through route travel distance. This detour route is as follows:

> Creek Road to West Salisbury Road, Shard Villa Road, 3 Mile Bridge Road, continue onto Creek Road, Court Street, Cross Street, VT-30 South, to Swamp Road (18.1 mile end-to-end).

Since there is no sidewalk on the existing bridge, a pedestrian detour is not necessary.

A map of these detour routes can be found in Appendix O.

Advantages: This option would eliminate the need for a temporary bridge, which would significantly decrease cost and time of construction. Also, this option would have minimal impacts to wetlands and archaeological resources adjacent to the bridge. This option reduces the time and cost of the project both at the development stage and construction. The Towns of Salisbury and Cornwall would reduce their local share by 50% for choosing to close the bridge during construction per ACT 153 of the 2012 legislative session.

Disadvantages: Traffic flow would not be maintained through the project site during construction.

Option 2: Phased Construction

Phased construction is not a feasible option for this project due to the insufficient width and temporary bridge that is in place.

Option 3: Temporary Bridge

From a constructability standpoint a temporary bridge could be placed on either the upstream or downstream side and would likely be a one-lane 14.5-foot rail-to-rail temporary bridge. However, building on either side would have additional impacts to an existing farm road, gravel lot and various resources.

A temporary bridge built on the North (downstream) side would require installation of a temporary culvert to allow for passage over a small stream on the Salisbury side of the bridge. There is a farm road that runs over this stream on the Cornwall side that would need to be temporarily redirected.

A temporary bridge built on the South (upstream) side would impart a small gravel parking lot on the Cornwall side. The Town of Cornwall states that this is used as a boat launch and would like to keep it open to the greatest extent possible.

Aside from considering bridge placement, there are significant archeological and environmental resources adjacent to the bridge on both sides that would also be impacted. As well as various endangered species living within the wetlands along the creek. Specifically, the Northern Long-eared bat population that would be impacted by tree removal if deemed necessary. Significant additional costs would be incurred to use a temporary bridge, including the cost of the bridge itself, installation and removal, restoration of the disturbed area, and the time and money associated with the temporary Right-of-Way.

III. Alternatives Discussion

The existing superstructure was destroyed by a fire in 2016 and the substructure now stands at a rating of fair. Bridge 8 is currently a temporary bridge that needs a permanent replacement. A full bridge replacement is likely the only option for reparative action on this bridge. The following options have been evaluated:

No Action

This alternative would involve leaving the bridge in its current condition. It is likely that some action will need to be taken at this site in the near future due to the condition of the existing abutments and the current temporary bridge in place. In the interest of safety to the traveling public, the No Action alternative is not recommended.

Rehabilitation

Rehabilitation is not possible for this project. The superstructure has been completely destroyed and the existing abutments have likely suffered fire damage as well and therefore would not be viable for recovery.

Full Bridge Replacement on Alignment

This alternative would replace the existing bridge with a new superstructure as well as new substructures at the existing location. The new bridge would have a 75-year design life.

Both the Towns of Salisbury and Cornwall have stated that they would like the bridge to remain a one-lane structure. Both Towns have also indicated that a covered bridge or a bridge with similar height constraints may be preferred by some citizens. Additionally, Swamp Road on the Cornwall side of Bridge 8 is not designed for heavier truck traffic and Cornwall's current road ordinance prohibits traffic on Swamp Road that is heavier than 12,000 lbs. and/or wider than eight feet. As such, three structure types have been evaluated below, a conventional steel beam bridge, a truss, and a new covered bridge. The final structure type will need to be decided upon by both the Towns of Salisbury and Cornwall and will require public input and comment.

A line-of-sight issue on the Cornwall side has been documented by both Towns as well as VTrans district staff. The current alignment makes sight distance difficult for vehicles traveling east.

Vehicles traveling from Cornwall do not have a clear view to the Salisbury side on approach from Cornwall. The design team should attempt to improve the sight distance as part of the project.

Steel Beam Bridge
This alternative would involve construction of a new conventional steel beam bridge. The various considerations under this option include: the bridge width and length, skew, superstructure type and substructure type:

a. Bridge Width

The existing temporary bridge has a rail-to-rail width of 10-feet. The original covered bridge provided an approximate distance of 14-feet between trusses. This does not meet the minimum standard of 18-feet rail-to-rail for a single-lane bridge.

It is recommended that the rail-to-rail width be increased to a minimum of 18-feet, to meet the minimum State Standards for a one-lane structure.

Since a new 75+ year bridge is being proposed, the Towns of Salisbury and Cornwall should also consider bridge geometry that meets the minimum standards. A two-lane bridge will also be evaluated for the conventional steel beam bridge option. The minimum standard rail-to-rail width for a two-lane structure is 22-feet and would allow for two 9-foot lanes with 2-foot shoulders.

b. Bridge Length and Skew

The existing bridge was 154-feet long with no skew. The VTrans hydraulics section recommends that any new bridge maintains a minimum 150-foot clear span to meet bankfull width requirements. It is recommended that any new bridge have no skew to match the site conditions.

c. Superstructure Type

A new steel beam bridge would be the most conventional, cost-effective option for a full bridge replacement. A cast-in-place composite concrete deck on steel beams would be the most economical superstructure structure type for an approximate 150-foot span structure. The low chord elevation of the previous covered bridge was approximately 348.1 feet and maintaining or improving that low beam is recommended for improved hydraulic conditions.

d. Substructure Type

The existing abutments are masonry abutments with concrete facing that are founded on spread footings, bearing on native material. The existing concrete pier in the center of the bridge is founded on five steel H-piles, with an estimated length of 140 feet. Field observations indicate no visible bedrock in the project area, but boring logs should be done early in the design to confirm this. Based on in-situ soil findings, the substructure will either be spread footings or pile caps with a single-row of H-piles.

e. Maintenance of Traffic:

The options for traffic control at this site are an offsite detour or a temporary bridge.

Truss

This alternative would replace the existing temporary bridge with a new steel thru truss as well as a new substructure at the existing location. The current alignment meets the minimum standard for a stopped condition, so a truss should be on the existing alignment to minimize impacts to resources and adjacent properties. The various considerations under this option include: the bridge width and length, skew, superstructure type and substructure type:

a. Bridge Width

The existing temporary bridge has a rail-to-rail width of 10-feet. The original covered bridge provided an approximate distance of 14-feet between trusses. This does not meet the minimum standard of 18-feet rail-to-rail for a single-lane bridge.

It is recommended that the rail-to-rail width be increased to a minimum of 18-feet, to meet the minimum State Standards for a one-lane structure.

Since a new 75+ year bridge is being proposed, the Towns of Salisbury and Cornwall should also consider bridge geometry that meets the minimum standards. A two-lane bridge will also be evaluated for the conventional steel beam bridge option. The minimum standard rail-to-rail width for a two-lane structure is 22-feet and would allow for two 9-foot lanes with 2-foot shoulders.

b. Bridge Length and Skew

The existing bridge was 154-feet long with no skew. The VTrans hydraulics section recommends that any new bridge maintains a minimum 150-foot clear span to meet bankfull width requirements. It is recommended that any new bridge have no skew to match the site conditions.

c. Superstructure Type

A new truss bridge is also a consideration for the new superstructure. A new truss would provide a shallow superstructure type for improved hydraulics and would also provide a structure that meets the vertical height restriction considerations from the Town. The truss should be constructed with galvanized or painted steel for long term durability. The truss would require periodic maintenance for the cleaning and painting of steel members. It is recommended that any new truss be prefabricated to reduce construction time.

d. Substructure Type

The existing abutments are masonry abutments with concrete facing that are founded on spread footings, bearing on native material. The existing concrete pier in the center of the bridge is founded on five steel H-piles, with an estimated length of 140 feet. Field observations indicate no visible bedrock in the project area, but boring logs should be done early in the design to confirm this. Based on in-situ soil findings, the substructure will either be spread footings or pile caps with a single-row of H-piles.

e. Maintenance of Traffic:

The options for traffic control at this site are an offsite detour or a temporary bridge.

Covered Bridge

This alternative would replace the existing temporary bridge with a new covered bridge similar to the previous permanent structure. It would also include new substructures at the existing location. The current alignment meets the minimum standard for a stopped condition, so a covered bridge should be on the existing alignment to minimize impacts to resources and adjacent properties. The various considerations under this option include: the bridge width and length, skew, superstructure type, fire protection options, and substructure type:

a. Bridge Width

The existing temporary bridge has a rail-to-rail width of 10-feet. The original covered bridge provided an approximate distance of 14-feet between trusses. This does not meet the minimum standard of 18-feet rail-to-rail for a single-lane bridge. However, for a new covered bridge, a bridge width similar to the original dimensions would be recommended. A minimum 14-foot width between trusses would be recommended. A wider bridge to allow for safe pedestrian and bicycle passage should also be considered by the Towns of Salisbury and Cornwall.

b. Bridge Length and Skew

The existing bridge was 154-feet long with no skew. The VTrans hydraulics section recommends that any new bridge maintains a minimum 150-foot clear span to meet bankfull width requirements. It is recommended that any new bridge have no skew to match the site conditions.

c. Superstructure Type

A new covered bridge would likely be the most expensive option for the new superstructure. This type of structure will fit both roadway alignment and hydraulic standards. Therefore, if the towns are compliant with the increase in cost this would allow for maintaining the aesthetic of the previous covered bridge, per request of community members.

d. Fire Protection Options

The original covered bridge was destroyed due to fire damage. There were no fire detection or protection systems documented at the covered bridge site. The following fire detection/protection systems should be considered by the Towns for any new covered bridge project: Fire Retardant Coatings, Fire Detection Systems, and a sprinkler system.

<u>Intumescent or Fire-Retardant Coatings (Nochar/Polaseal)</u>

These coatings are water-based, water repellent treatments that are specifically designed to protect exterior and interior wood surfaces. They penetrate the wood and then cure by reaction with air to lock into the pore structure of the wood. These coatings work by raising the flashpoint of the wood making it difficult to start a fire. The fire-retardant coatings contain a proven fire retardant to reduce flame spread in the event of a fire and a blend of special preservatives to fight against the causes of decay. The coatings are available in colored and clear versions that are applied to the wood by brush or spray. The coatings do not affect the strength of the wood.

The application of fire-retardant coatings is recommended for any new covered bridge and is included in the cost estimate found in Section V below.

Fire Detection System (Protectowire)

If a fire is started, it is advantageous to notify the local fire department as soon as possible. The "Protectowire" is a proprietary alert system that works by running a small wire through key locations in the bridge. The sensor cable is comprised of steel conductors individually insulated with a heat sensitive polymer. The insulated conductors are twisted together to impose a spring pressure between them and wrapped with a protective tape. If a rapid rise in temperature is detected or if a wire is cut, the system alerts the local mutual aid or fire department. This advanced warning can greatly reduce fire damage to a bridge and hopefully prevent the fire from making the bridge a total loss.

It should be noted that there is an annual maintenance cost associated with this system. The system requires power and a phone line (land or cell) to contact mutual aid. In addition, the control box contains batteries that have small electric strip heaters on them to prevent damage from freezing during cold weather. The control box is typically hidden at the end of the bridge in siding and can be well insulated to reduce electrical costs.

The fire detection system has an upfront cost of approximately $40,000, which would be a participating cost for the project.

Dry Deluge Sprinkler System

The purpose of a deluge sprinkler system is to prevent the spread of fire by wetting down the entire fire area. The sprinkler system typically used includes dry pipes with a fire department connection away from the ends of the bridge. During a fire, the fire department feeds the system which directs water to the source of the fire. The majority of the piping and heads are in the roof; however, coverage is also provided under the bridge at the abutments. These systems are typically used in long or multi-span bridges where the fire department cannot effectively fight the fire near the center of the bridge.

The sprinkler system has an upfront cost of approximately $100,000, which would be a participating cost for the project.

e. Substructure Type

The existing abutments are masonry abutments with concrete facing that are founded on spread footings, bearing on native material. The existing concrete pier in the center of the bridge is founded on five steel H-piles, with an estimated length of 140 feet. Field observations indicate no visible bedrock in the project area, but boring logs should be done early in the design to confirm this. Based on in-situ soil findings, the substructure will either be spread footings or pile caps with a single-row of H-piles.

f. Maintenance of Traffic:

The options for traffic control at this site are an offsite detour or a temporary bridge adjacent to the project zone.

IV. Alternatives Summary

Based on the existing site conditions, bridge condition, and recommendations from hydraulics, there are several viable alternatives:

Alternative 1a. Full Bridge Replacement (1-lane Steel Beam Bridge) with Traffic Maintained by Off-site Detour
Alternative 1b. Full Bridge Replacement (2-lane Steel Beam Bridge) with Traffic Maintained by Off-site Detour
Alternative 1c. Full Bridge Replacement (1-lane Steel Beam Bridge) with Traffic Maintained on a Temporary Bridge
Alternative 1d. Full Bridge Replacement (2-laneSteel Beam Bridge) with Traffic Maintained on a Temporary Bridge
Alternative 2a. Full Bridge Replacement (1-lane Truss Bridge) with Traffic Maintained by Off-site Detour
Alternative 2b. Full Bridge Replacement (2-lane Truss Bridge) with Traffic Maintained by Off-site Detour
Alternative 2c. Full Bridge Replacement (1-lane Truss Bridge) Traffic Maintained on a Temporary Bridge
Alternative 2d. Full Bridge Replacement (2-lane Truss Bridge) with Traffic Maintained on a Temporary Bridge
Alternative 3a. Full Bridge Replacement (1-lane Covered Bridge) with Traffic Maintained by Off-site Detour
Alternative 3b. Full Bridge Replacement (1-lane Covered Bridge) with Traffic Maintained on a Temporary Bridge

V. Cost Matrix[1]

Salisbury-Cornwall 1445(39)		Do Nothing	Alternative 1				Alternative 2				Alternative 3	
			Full Bridge Replacement: Conventional Steel Beam Bridge				Full Bridge Replacement: Truss Bridge				Full Bridge Replacement: Covered Bridge	
			Offsite Detour		Temporary Bridge		Offsite Detour		Temporary Bridge		Offsite Detour	Temporary Bridge
			1a. One Lane	1b. Two Lane	1c. One Lane	1d. Two Lane	2a. One Lane	2b. Two Lane	2c. One Lane	2d. Two Lane	3a. One Lane	3b. One Lane
COST	Bridge Cost	$0	$1,073,200	$1,119,700	$1,073,200	$1,119,700	1,732,500	2,117,500	1,732,500	2,117,500	2,644,500	2,213,800
	Removal of Structure	$0	$115,500	$115,500	$115,500	$115,500	192,500	192,500	192,500	192,500	192,500	192,500
	Roadway	$0	$273,000	$277,000	$273,000	$277,000	376,000	390,000	376,000	390,000	387,000	353,000
	Maintenance of Traffic	$0	$95,700	$95,700	$437,165	$437,165	95,700	95,700	437,165	437,165	95,700	437,165
	Construction Costs	$0	$1,557,400	$1,607,900	$1,898,865	$1,949,365	2,396,700	2,795,700	2,738,165	3,137,165	3,319,700	3,196,465
	Construction Engineering & Contingencies	$0	$358,202	$369,817	$474,716	$487,341	551,241	643,011	684,541	627,433	564,349	639,293
	Accelerated Premium	$0	$0	$0	$0	$0	0	0	0	0	0	0
	Total Construction Costs w CEC	$0	$1,915,602	$1,977,717	$2,373,581	$2,436,706	2,947,941	3,438,711	3,422,706	3,764,598	3,884,049	3,835,758
	Preliminary Engineering	$0	$233,610	$241,185	$379,773	$389,873	359,505	419,355	547,633	941,150	497,955	958,940
	Right of Way	$0	$0	$0	$40,000	$40,000	5,000	5,000	40,000	40,000	5,000	40,000
	Total Project Costs	$0	$2,149,212	$2,218,902	$2,793,354	$2,866,579	3,312,446	3,863,066	4,010,339	4,745,748	4,387,004	4,834,698
	Annualized Costs	$0	$28,656	$29,585	$37,245	$38,221	$44,166	$51,508	$53,471	$63,277	$58,493	$64,463
TOWN SHARE			$107,461	$110,945	$279,335	$286,658	$165,622	$193,153	$401,034	$474,575	$219,350	$483,470
TOWN %			5%	5%	10%	10%	5%	5%	10%	10%	5%	10%
SCHEDULEING	Project Development Duration	NA	2 Years	2 Years	4 Years	4 Years	2 Years	2 Years	4 Years	4 Years	2 Years	4 Years
	Construction Duration	NA	8 months	8 months	8 months	8 months	8 months	8 months	8 months	8 months	8 months	8 months
	Closure Duration (If Applicable)	NA	Construction Season	Construction Season	NA	NA	Construction Season	Construction Season	NA	NA	Construction Season	NA
ENGINEERING	Typical Section - Roadway (feet)	18'	18'	18'	22'	22'	18'	18'	22'	22'	18'	22'
	Typical Section - Bridge (feet)	10'	2'-14'-2'	2'-14'-2'	2'-9'-9'-2'	2'-9'-9'-2'	2'-14'-2'	2'-14'-2'	2'-9'-9'-2'	2'-9'-9'-2'	14'	14'
	Geometric Design Criteria	Substandard Width	Substandard Width	Substandard Width	Meets Standard	Meets Standard	Substandard Width	Substandard Width	Meets Standard	Meets Standard	Substandard Width	Substandard Width
	Traffic Safety	No Change	Improved	Improved	Improved	Improved	Improved	Improved	Improved	Improved	Improved	Improved
	Alignment Change	No Change	No	No	No	No	No	No	No	No	No	No
	Bicycle Access	No Change	Improved	Improved	Improved	Improved	Improved	Improved	Improved	Improved	No Change	No Change
	Pedestrian Access	No Change	Improved	Improved	Improved	Improved	Improved	Improved	Improved	Improved	No Change	No Change
	Hydraulics	No Change	Meets Standard	Meets Standard	Meets Standard	Meets Standard	Meets Standard	Meets Standard	Meets Standard	Meets Standard	Meets Standard	Meets Standard
	Utilities	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change	No Change
OTHER	ROW Acquisition	No Change	No	No	Yes	Yes	No	No	Yes	Yes	No	Yes
	Road Closure	No Change	Yes	Yes	No	No	Yes	Yes	No	No	Yes	No
	Design Life (years)	0	75	75	75	75	75	75	75	75	75	75

[1] Costs are estimates only, used for comparison purposes.

VI. Conclusion

We recommend a new 150-foot span bridge while maintaining traffic on an offsite detour during construction. The final structure type will need to be decided upon by both the Towns of Salisbury and Cornwall and will require public input and comment.

Structure:
The existing bridge was destroyed by a fire in 2016 and as such needs to be replaced.

The most economical solution here would be a conventional steel beam bridge. This type of structure would have the lowest long-term maintenance costs as well. A new covered bridge or a truss are structure type options that the Town(s) may choose from as well.

The original structure was a covered bridge and based on correspondence with the Towns, there is a desire for the bridge to remain a one-lane structure. Both Towns have also indicated that a covered bridge or a bridge with similar height constraints may be preferred by some citizens.

Traffic Maintenance:
The recommended method of traffic control is to close the bridge for a construction season and maintain traffic on an offsite detour. The detour for this project location would add approximately 8.96 miles to the through route and has an end-to-end distance of 13.9 miles. The average daily traffic volume on TH 1/3 is 490 vehicles per day, which is considered relatively low. The option to close the road is the least expensive and has the least impacts to surrounding properties and significant environmental and cultural resources.

VII. Appendices

- Appendix A: Site Pictures
- Appendix B: Town Maps – Salisbury and Cornwall
- Appendix C: Bridge Inspection Report
- Appendix D: Preliminary Hydraulics Report
- Appendix E: Preliminary Geotechnical Information
- Appendix F: Resource ID Completion Memo
- Appendix G: Natural Resources Memo
- Appendix H: Archaeology Memo
- Appendix I: Historic Memo
- Appendix J: Hazardous Waste Map
- Appendix K: Community Input – Salisbury
- Appendix L: Community Input – Cornwall
- Appendix M: Operations Input
- Appendix N: Crash Data
- Appendix O: Detour Routes
- Appendix P: Scoping Planset

Appendix A: Site Pictures

Picture one: Looking East over temporary bridge

Picture two: Looking West over temporary bridge

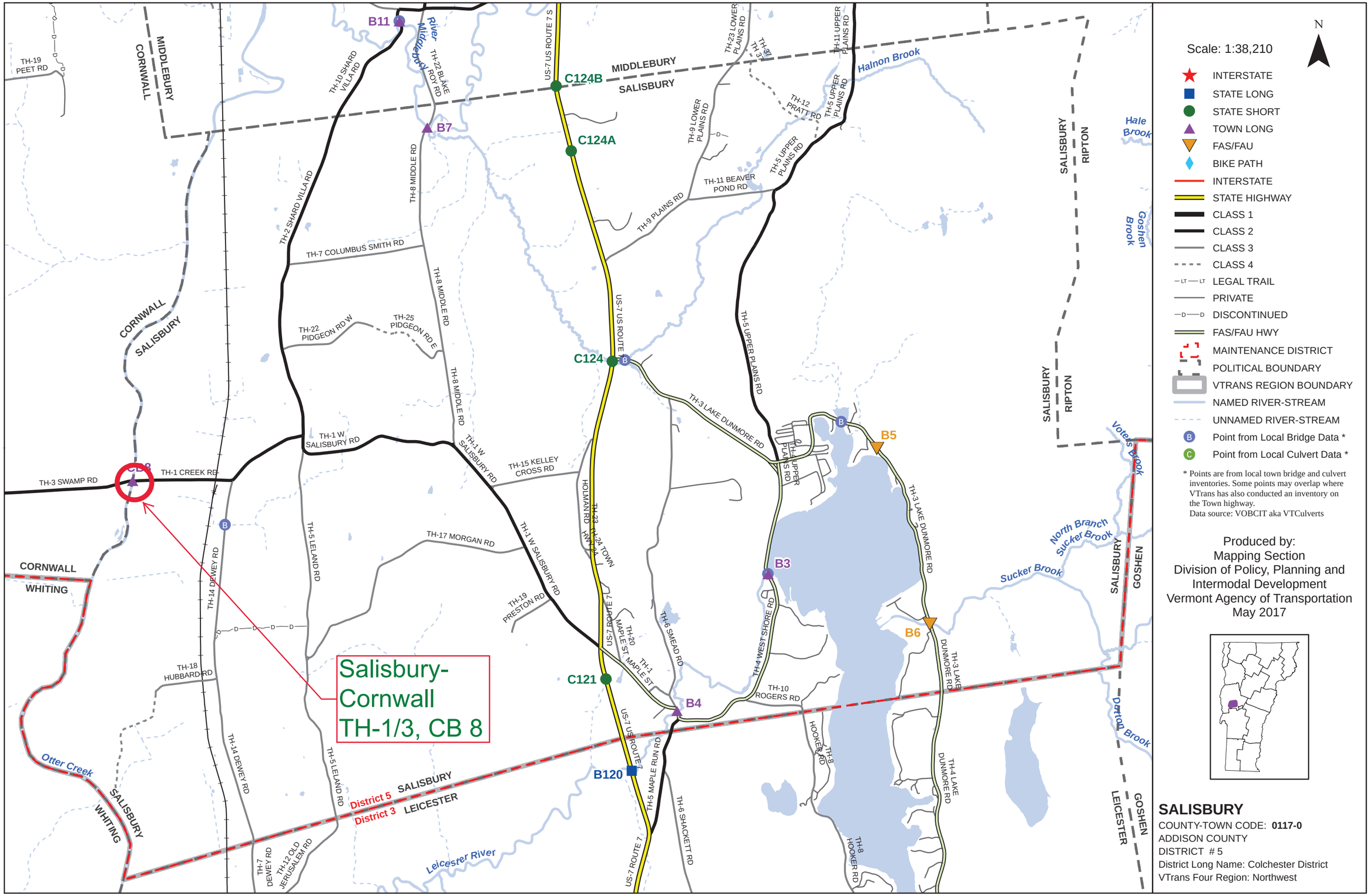
Picture three: Existing temporary bridge

Picture four: Existing deck

Picture five: Fire damage to existing abutments

Picture six: Fire damage to existing center pier

Appendix B: Town Maps – Salisbury and Cornwall



Scale: 1:38,210

N

- INTERSTATE
- STATE LONG
- STATE SHORT
- TOWN LONG
- FAS/FAU
- BIKE PATH
- INTERSTATE
- STATE HIGHWAY
- CLASS 1
- CLASS 2
- CLASS 3
- CLASS 4
- LEGAL TRAIL
- PRIVATE
- DISCONTINUED
- FAS/FAU HWY
- MAINTENANCE DISTRICT
- POLITICAL BOUNDARY
- VTRANS REGION BOUNDARY
- NAMED RIVER-STREAM
- UNNAMED RIVER-STREAM
- Point from Local Bridge Data *
- Point from Local Culvert Data *

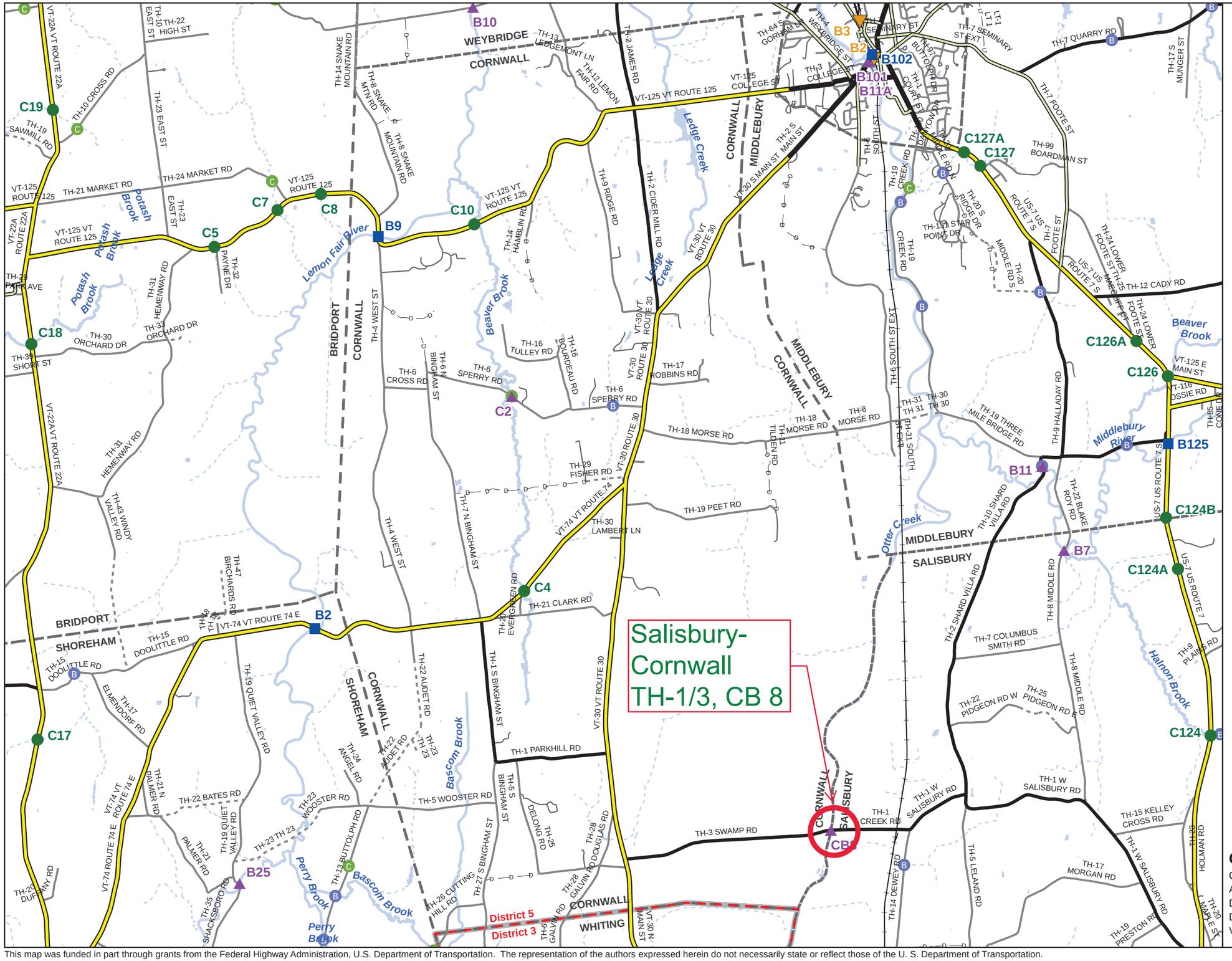
* Points are from local town bridge and culvert inventories. Some points may overlap where VTrans has also conducted an inventory on the Town highway.
Data source: VOBCIT aka VTCulverts

Produced by:
Mapping Section
Division of Policy, Planning and Intermodal Development
Vermont Agency of Transportation
May 2017

SALISBURY

COUNTY-TOWN CODE: **0117-0**
ADDISON COUNTY
DISTRICT # 5
District Long Name: Colchester District
VTrans Four Region: Northwest

This map was funded in part through grants from the Federal Highway Administration, U.S. Department of Transportation. The representation of the authors expressed herein do not necessarily state or reflect those of the U. S. Department of Transportation.



This map was funded in part through grants from the Federal Highway Administration, U.S. Department of Transportation. The representation of the authors expressed herein do not necessarily state or reflect those of the U. S. Department of Transportation.

Appendix C: Bridge Inspection Report

STRUCTURE INSPECTION, INVENTORY and APPRAISAL SHEET

Vermont Agency of Transportation ~ Structures Section ~ Bridge Management and Inspection Unit

Inspection Report for SALISBURY **bridge no.:** 00008 **District:** 5

Located on: C2001 **over** OTTER CREEK **approximately** 0.7 MI TO JCT W CL3 TH1 **Owner:** 03 TOWN-OWNED

CONDITION

Deck Rating: 0 FAILED

Superstructure Rating: 0 FAILED

Substructure Rating: 6 SATISFACTORY

Channel Rating: 7 GOOD

Culvert Rating: N NOT APPLICABLE

Federal Str. Number: 100117000801171

Federal Sufficiency Rating: 00

Deficiency Status of Structure: SD

AGE and SERVICE

Year Built: 1865 **Year Reconstructed:** 2008

Service On: 1 HIGHWAY

Service Under: 5 WATERWAY

Lanes On the Structure: 01

Lanes Under the Structure: 00

Bypass, Detour Length (miles): 14

ADT: 000700 **% Truck ADT:** 02

Year of ADT: 2008

GEOMETRIC DATA

Length of Maximum Span (ft): 0071

Structure Length (ft): 000156

Lt Curb/Sidewalk Width (ft): 0

Rt Curb/Sidewalk Width (ft): 0

Bridge Rdwy Width Curb-to-Curb (ft): 12.5

Deck Width Out-to-Out (ft): 13

Appr. Roadway Width (ft): 018

Skew: 00

Bridge Median: 0 NO MEDIAN

Min Vertical Clr Over (ft): 10 FT 05 IN

Feature Under: FEATURE NOT A HIGHWAY OR RAILROAD

Min Vertical Underclr (ft): 00 FT 00 IN

STRUCTURE TYPE and MATERIALS

Bridge Type: TOWN LATTICE COV BR

Number of Approach Spans: 0000 **Number of Main Spans:** 002

Kind of Material and/or Design: 7 TIMBER

Deck Structure Type: 8 TIMBER

Type of Wearing Surface: 7 WOOD OR TIMBER

Type of Membrane: 0 NONE

Deck Protection: 7 CCA.CREOSOTED WOOD

APPRAISAL *AS COMPARED TO FEDERAL STANDARDS

Bridge Railings: 0 DOES NOT MEET CURRENT STANDARD

Transitions: 0 DOES NOT MEET CURRENT STANDARD

Approach Guardrail: 0 DOES NOT MEET CURRENT STANDARD

Approach Guardrail Ends: 0 DOES NOT MEET CURRENT STANDARD

Structural Evaluation: 0 BRIDGE CLOSED

Deck Geometry: 0 BRIDGE CLOSED

Underclearances Vertical and Horizontal: 0 BRIDGE CLOSED

Waterway Adequacy: 5 OCCASIONAL OVERTOPPING OF BRIDGE & ROADWAY WITH SIGNIFICANT TRAFFIC DELAYS

Approach Roadway Alignment: 4 MEETS MINIMUM TOLERABLE CRITERIA

Scour Critical Bridges: 5 STABLE FOR CALCULATED SCOUR

DESIGN VEHICLE, RATING, and POSTING

Load Rating Method (Inv): 5 NO RATING ANALYSIS PERFORMED

Posting Status: E OPEN, TEMPORARY STRUCTURE

Bridge Posting: 4 POSTING REQUIRED

Load Posting: 03 BRIDGE IS LEGALLY LOAD POSTED AT ONE END ONLY

Posted Vehicle: 6 GROSS LOAD ONLY

Posted Weight (tons): 03

Design Load: 9 HS 25

INSPECTION and CROSS REFERENCE

X-Ref. Route:

Insp. Date: 082018 **Insp. Freq. (months)** 24 **X-Ref. BrNum:**

INSPECTION SUMMARY and NEEDS

08/09/2018 - Temporary bridge is in good shape. ~ MJ/MK

12/2016 Temporary structure in place.

09/2016 Structure was destroyed by fire.

8/11/2016 Bridge is in good condition. JAS/SMP

8/22/2014 Structure is in good condition. Debris should be removed from the pier nose. ~FRE/MJ

8/15/2012 Structure is in good condition. however the debris on the pier should be removed from the channel. Missing weight limit sign should be added to the abutment #1 side along with the speed limit sign. ~FRE/JAS

Appendix D: Preliminary Hydraulics Report

VERMONT

State of Vermont
Structures and Hydraulics Section
One National Life Drive
Montpelier, Vermont 05633-5001
vtrans.vermont.gov

Agency of Transportation

[phone] 802-371-7326
[fax] 802-828-3566
[ttd] 800-253-0191

TO: Laura Stone, Structures, Scoping Engineer

CC: Nick Wark, Hydraulics Engineer

FROM: Christian Boisvert, Hydraulics Project Engineer

DATE: July 1, 2021

SUBJECT: Salisbury-Cornwall BO pin #18J164
Salisbury, TH-1 Br8, over Otter Creek
Site location: Salisbury TH-1, Creek Road
Coordinates: 43.918087, -73.173924

We have completed our hydraulic study for the above referenced site, and offer the following for your use:

On 04/08/21 the hydraulics unit visited the site and found the existing 150-ft span meets bankfull width requirements. In an email on 5/4/21 ANR indicated the following: Maintaining the current opening and abutment locations would meet the bankfull width requirements for replacement.

Bridge 8 is located within a FEMA Special Flood Hazard Area (SFHA) Zone A without Base Flood Elevations.

Salisbury TH-1 is a Local Road. The Design Storm Flow is 4% AEP (Q25).

The following was analyzed:

Existing Conditions: Single Span Temporary Structure w/ existing pier

- Temporary structure was installed in 2016 after the 2-Span Town Lattice Covered Bridge burned down.
- 150-foot hydraulic clear span (from abutment to abutment) with the estimated temporary bridge low chord elevation of 350.15 feet
- There is approximately 1.04-ft freeboard at the 4% AEP and no freeboard at the 1% AEP.
- A contraction and pier scour depth of 0- and 3.4-ft were computed, respectively during the 50-year flood (Design Scour Event).
- For this condition, a total scour depth of 3.4-ft was determined.

Option 1: 150-ft single span bridge (pier remains in place, low chord elevation of 348.1 feet)

- For this analysis we assumed that the existing abutments will be replaced in kind.
- Low chord elevation of 348.1 feet (low chord from record plans).
- There is no freeboard at the 4% AEP.
- Does not appear to increase upstream 100-year base flood elevations.
- A contraction, pier, and pressure flow scour depth of 0-, 3.4-, and 4.9-ft were computed, respectively during the 50-year flood (Design Scour Event).
- For this option, a total scour depth of 8.3-ft was determined.

Option 2: 150-ft single span bridge (pier remains in place, low chord elevation of 350.1 feet)

- For this analysis we assumed that the existing abutments will be replaced in kind.
- There is approximately 1.0-ft freeboard at the 4% AEP and no freeboard at the 1% AEP.
- Does not appear to increase upstream 100-year base flood elevations.
- To accommodate the low chord elevation, the bridge/roadway approach elevations may need to be raised for this option.
- A contraction and pier scour depth of 0- and 3.4-ft were computed, respectively during the 50-year flood (Design Scour Event).
- For this option, a total scour depth of 3.4-ft was determined.

For all scenarios, there is significant roadway overtopping on either side of Bridge 8 before the 43% AEP (Q2.33).

The hydraulics unit developed a model to analyze the existing conditions if the pier was fully removed and determined that the hydraulic characteristics were not influenced significantly due to this obstruction.

A preliminary scour analysis was performed as part of this study using a D50 of 0.8 mm which was determined using available phase 2 geomorphic assessments. If the existing center pier is to remain in place, further soil sampling is recommended to determine appropriate soil properties. If the existing center pier is to be reused, stability may also need to be considered. A final scour analysis will be performed during the final design phase.

Channel bank armoring may need to occur to retain fill and/or armor any disturbed areas. Based on the preliminary analysis, Type III stone fill should be used for estimating purposes only.

For all options considered, the hydraulics unit strongly recommends sloping stone fill not to be placed in front of the abutments in order to maximize the waterway area and to allow for debris passage.

Other similar sized structures could be considered for this site. If another alternative is considered, coordinate with the Hydraulics Unit to perform additionally analyses.

Please contact us with any questions, or to check substructure configuration scenarios.

Appendix E: Preliminary Geotechnical Information

AGENCY OF TRANSPORTATION **OFFICE MEMORANDUM**

To: Nick Wark, P.E., P.I.I.T. Program Manager

SPM CEE

From: Stephen Madden, Geotechnical Engineer, via Callie Ewald, P.E., Geotechnical Engineering Manager

Date: November 12th, 2019

Subject: Salisbury-Cornwall BO 1445(39) Preliminary Geotechnical Information

1.0 INTRODUCTION

As requested, we have completed our preliminary geotechnical investigation of Bridge No. 8 on Salisbury TH-1 and Cornwall TH-3 over Otter Creek. Bridge No 8 is located at the town line of Salisbury and Cornwall. The subject project consists of replacement of the previously existing covered bridge that was rehabilitated in 2016 and destroyed by fire later in 2016. A temporary bridge is currently in place. The project is currently in the scoping phase. This review included the examination of as-built record plans, historical in-house bridge boring files, water well logs and hazardous site information on-file at the Vermont Agency of Natural Resources (ANR), published surficial and bedrock geologic maps, and observations made during a site visit.

2.0 SUBSURFACE INFORMATION

2.1 Published Geologic Data

Mapping conducted in 1970 for the Surficial Geologic Map of Vermont shows that the project area consists of postglacial fluvial deposits, consisting primarily of alluvium and fluvial sand and gravel deposits (Doll, 1970).

According to the 2011 Bedrock Map of Vermont, published by the USGS and State of Vermont, the project site is underlain with limestone of the Middlebury Limestone Formation, and is close to the boundary with limestone and dolostone of the Chipman Formation (Ratliffe, et. al, 2011).

The Geotechnical Engineering Section maintains a GIS based historical record of subsurface investigations, which contains electronic records for the majority of borings completed in the past 10 years. An exploration of this database revealed no nearby projects within a 0.5-mile radius of the project site.

2.2 Water Well Logs

The Vermont ANR documents and publishes all water wells that are drilled for residential or commercial purposes. Published online, these logs may provide general characteristics of the soil strata and depth to bedrock in the area. The three closest recorded water wells were TAG B-1 #17, TAG 50886 and TAG 45494 located approximately 0.64 mi, 0.67 mi, and 0.68 mi from the project site, respectively. Bedrock was reported at a depth of 15 ft, and 9 ft for wells TAG B-1 #17 and TAG 50886, respectively. Well TAG 45494 did not report bedrock to a termination depth of 19 ft.

2.3 Hazardous Materials and Underground Storage Tanks

The ANR Natural Resource Atlas also maps the location and information of known hazardous waste sites and underground storage tanks. The location of this project is not on the Hazardous Site List. No underground storage tanks are located within a 1.0-mile radius and no impact from other hazardous waste sites is anticipated.

2.4 Record Plans

Record plans for the bridge rehabilitation project, constructed in 2016, were reviewed as part of this investigation. These plans detail installation of wingwalls, removal of the existing concrete cap and portions of the existing masonry abutments, removal of existing 'blocking and bolster beams', and installations of new concrete caps and timbers at the abutment locations. We were unable to locate any Geotechnical Reports associated with this project.

Also included in the available plan set for the 2016 construction project were undated historical sheets from a previous construction project detailing abutment rehabilitation and repointing of mortar, as well as construction of the central pier. These sheets indicate that the existing abutments are masonry abutments with a concrete facing and are founded on spread footings bearing on native material. The existing concrete pier is reportedly founded on five 12BP53 steel H-piles, with an estimated length of 140 feet and a note that states "…steel piles (12BP53) are to be driven to a min. safe bearing capacity of 35 tons/pile.".

3.0 FIELD OBSERVATIONS

A preliminary site visit was conducted on September 10th, 2019 to identify possible obstructions inhibiting boring operations and to make any other pertinent observations about the project. No overhead utilities were visible and there were no indications of underground utilities in the vicinity. The temporary bridge that is currently in place has a steel plate deck in place that will likely restrict borings from being advanced from the bridge itself, shown in Figure 3.1. There were no visible signs of bedrock in the area and the upstream and downstream embankments appeared well vegetated, as seen in Figure 3.2. Some material loss was noted at the bottom of the eastern abutment, exposing the bottom of the abutment, as shown in Figure 3.3. The temporary bridge does not bear on the existing central pier. The pier has some visible spalling of concrete and apparent material loss around the upstream end, shown in Figures 3.4 and 3.5. The western abutment is visible in Figure 3.6.

Figure 3.1: *Facing east; note steel plate deck on temporary bridge.*

Figure 3.2: *Facing upstream; note vegetated embankments.*

Figure 3.3: *Facing eastern abutment; note material loss exposing bottom of abutment and spalling of concrete.*

Figure 3.4: *Facing west towards center pier; note spalling of concrete and exposure of bottom of pier. Temporary bridge is not connected to or bearing on pier.*

Figure 3.5: *Facing east towards center pier; note spalling of concrete.*

Figure 3.6: *Facing western abutment.*

4.0 RECOMMENDATIONS

4.1 Bridge Rehabilitation/Deck Replacement Option

Based on the information reviewed during this investigation this structure appears to be a good candidate for a deck/structure replacement assuming the loads from the replacement structure are similar in magnitude to the loads from the previously existing timber structure. If a replacement deck will increase the loading on the existing abutments, then a detailed geotechnical assessment of the abutments will be required to assess their capacity to support the increased loads.

If a deck replacement is selected as the preferred alternative, we recommend placement of material at the existing abutment locations. As noted above, during our preliminary site investigation the eastern Abutment appears to be partially unsupported and the bottom of the abutment is exposed. This may require partial excavation of existing material and placement of appropriate material or construction of a concrete subfooting to ensure the abutment is bearing on suitable material. The concrete that constitutes the existing pier should be assessed for structural integrity and repaired as needed. The pier is supported by a pile foundation however exposure of the bottom of the pier through material loss should be addressed to ensure the pier performs as expected during the design life of the replacement deck.

4.2 Bridge Replacement Option

4.2.1 Preliminary Foundation Alternatives

Based on the information reviewed during this investigation, if a full bridge replacement option is chosen as the preferred alternative foundation options for a replacement structure include the following:

Abutments

- Reinforced concrete abutments on spread footings supported on soil or bedrock
- Pile caps supported on a single row of H-Piles

Pier

- Pile caps supported by H-Piles
- Pier columns supported by drilled shafts or micropiles

4.2.2 Proposed Subsurface Investigation

If a full replacement of the bridge is chosen as the preferred alternative we recommend a minimum of one boring be advanced at opposite corners of each abutment as well as a minimum of one boring at the pier location in order to more fully assess the subsurface conditions at the site including, but not limited to, the soil properties, depth to and characteristics of bedrock, and groundwater conditions. The temporary bridge that is currently in place has a steel panel deck which will negate drilling from the bridge itself and if a boring is required at the pier location then it will potentially need to be advanced using equipment from within the river (such as a barge etc.). Weight restrictions for the bridge will also be considered during any subsurface investigation as the drilling equipment may exceed the posted weight of the temporary bridge. It is likely that the bridge will be required to close during drilling operations if borings are to be advanced close the existing abutments given the narrow width of the roadway and bridge.

5.0 CLOSING

When a design alternative has been chosen, the Geotechnical Engineering Section can assist in designing a subsurface investigation that efficiently gathers adequate information for the alternative chosen.

If you have any questions or would like to discuss this report, please contact us by phone at (802) 828-2561.

6.0 REFERENCES

Doll, C. G., 1970, Surficial Geologic Map of Vermont, Vermont Geological Survey, Montpelier, VT.

Ratcliffe, N. M., Stanley, R. S., Gale, M. H., Thompson, P. J., Walsh, G. J., 2011, Bedrock Geologic Map of Vermont, Vermont Geological Survey, Montpelier, VT.

Vermont Agency of Natural Resources Department of Environmental Conservation, Natural Resources Atlas, www.anr.vermont.gov/maps/nr-atlas%20, accessed 11/6/2019.

cc: Laura Stone, P.E., P.I.I.T. Project Engineer
Electronic Read File/MG
Project File/CEE
SPM

"Z:\Highways\CMB\GeotechEngineering\Projects\Salisbury-Cornwall BO 1445(39)\REPORTS\Salisbury-Cornwall BO 1445(39) Preliminary Geotechnical Information.docx"

Appendix F: Resource ID Completion Memo

OFFICE MEMORANDUM

AOT - PDB - ENVIRONMENTAL SECTION

RESOURCE IDENTIFICATION COMPLETION MEMO

TO: Laura Stone, Project Manager
FROM: Jeff Ramsey, Environmental Specialist Supervisor
DATE: 11/13/19
Project: Salisbury-Cornwall BO 1445 (39)

ENVIRONMENTAL RESOURCES:

Archaeological Site:	X Yes	___ No	See Archaeological Resource ID Memo
Historic/Historic District:	___ Yes	X No	See Historic Resource ID Memo
Wetlands:	X Yes	___ No	See Natural Resource ID Memo
Agricultural Land:	X Yes	___ No	See Natural Resource ID Memo
Fish & Wildlife Habitat:	X Yes	___ No	See Natural Resource ID Memo
Wildlife Habitat Connectivity:	X Yes	___ No	See Natural Resource ID Memo
Endangered Species:	X Yes	___ No	See Natural Resource ID Memo
Stormwater:	___ Yes	X No	
6(f) Property:	___ Yes	X No	
Hazardous Waste/ ANR Urban Background Soils:	___ Yes	X No	
USDA-Forest Service Lands:	___ Yes	X No	
Scenic Highway/ Byway:	___ Yes	X No	
Act 250 Permits:	___ Yes	X No	
FEMA Floodplains:	___ Yes	X No	
Flood Hazard Area/ River Corridor:	X Yes	___ No	Mapped river corridor, new bridge should span base flood elevation, may require a FHARC permit
US Coast Guard:	___ Yes	X No	
Lakes and Ponds:	___ Yes	X No	
303D List/ Class A Water/ Outstanding Resource Water:	___ Yes	X No	
Surface and Ground Water (SPA) Source Protection Area:	___ Yes	X No	
Groundwater Classification:	___ Yes	X No	
Public Water Sources/ Private Wells:	___ Yes	X No	
Other:	___ Yes	X No	

cc:
Project File

Appendix G: Natural Resources Memo

VERMONT

State of Vermont *Agency of Transportation*
Program Development Division
One National Life Drive [phone] 802-279-0583
Montpelier, VT 05633-5001 [fax] 802-828-2334
www.aot.state.vt.us [ttd] 800-253-0191

To: Jeff Ramsey, VTrans Environmental Specialist Supervisor
From: Glenn Gingras, VTrans Senior Biologist
Date: 11/13/2019
Subject: Salisbury-Cornwall BO 1445(39)
Natural Resource ID

I reviewed the above referenced project area for potential natural resource involvement. I have completed a remote sensing of known mapped resources and I have completed a field inspection of the site. The site is within the Champlain Valley in a rural part of VT that is a mix of agricultural, and forested settings and once had a covered bridge spanning the Otter Creek. Currently there is a temporary *Maybe* bridge as the covered bridge was destroyed in a fire.

Wetlands
The project site is located within the Cornwall Swamp, a 6,619-acre wetland complex. Every quadrant of the project has wetlands. There is a parking area that in the southwest quadrant that is not wetland although wetlands are present surrounding it. The wetlands are located within a large diverse floodplain complex of the Otter Creek. This wetland complex is part of one of the most biologically diverse wetland complexes in VT according to the Nature Conservancy. Functions and values of the subject wetland are: Flood storage, Surface and Ground Water Protection, Fish Habitat, Wildlife Habitat, Exemplary Wetland Natural Community, RTE Species, Education and Research in Natural Sciences, Recreational Value, Open Space and Aesthetics and Erosion Control.

I have mapped wetlands within ArcMap so that we can upload boundaries into the resource dgn. During the design, any work in these areas should be avoided and minimized to the maximum extent practical. All work within the existing prism of the road should not be counted toward wetland or buffer impact.

Watercourses
The Otter Creek flows northerly through the project site. The Otter Creek is the longest river in the state of VT and has one of the largest intact floodplains. All work below ordinary high water on the waterway is regulated by the VT Agency of Natural Resources and the USCOE.

Wildlife Habitat
Important terrestrial and aquatic habitat is adjacent to the project area. The wetlands adjacent provide valuable habitat for migratory birds, small and large mammals, and amphibians and reptiles. The Otter Creek is classified as a warm water fishery according to the VT ANR Water Quality Standards.

Rare, Threatened and Endangered Species (R/T/E):
I have queried the state of VT Natural Heritage program mapping and several species have mapped occurrences at this location.

Natural Communities:
Silver Maple-Ostrich Fern Riverine, S3
Red or Silver Maple-Green Ash Swamp, S3

RTE species:

four-toed Salamander, *Hemidactylium scutatum,* S2, Species of Greatest Conservation Need (SGCN)
blue-spotted Salamander, *Ambystoma laterale*, S3, SGCN
Nodding Trillium, *Trillium cernuum*, S3
northern long-eared bat, *Myotis septentrionalis* (state endangered, federally threatened)-documented habitat at project site.
Creek Heelsplitter, *Lasmigona compressa*, S2, SGCN

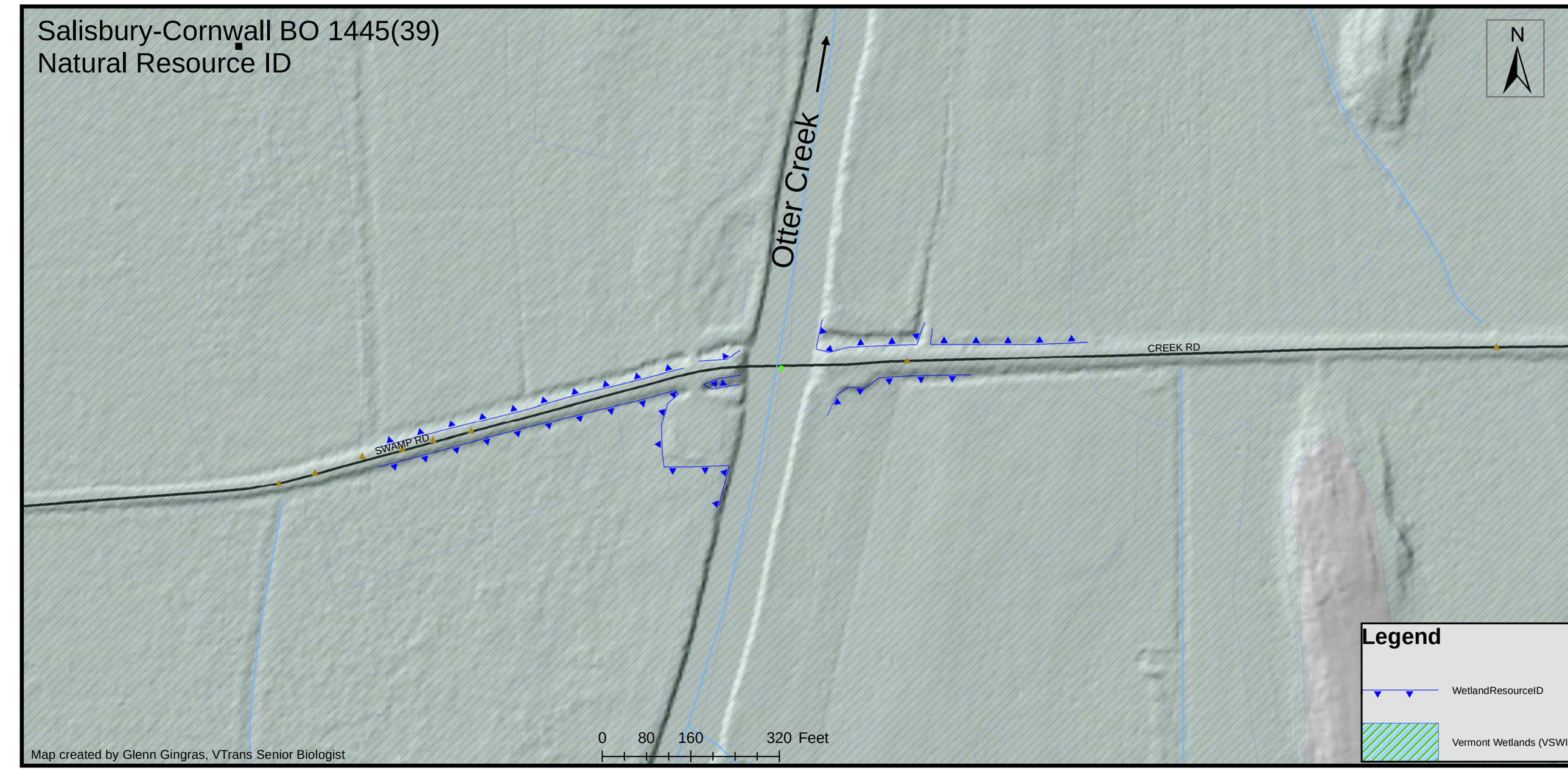
Most of the species (S2, S3) would be located on the adjacent lands or within the Otter Creek. Uncommon species should be avoided although are not protected by state law.

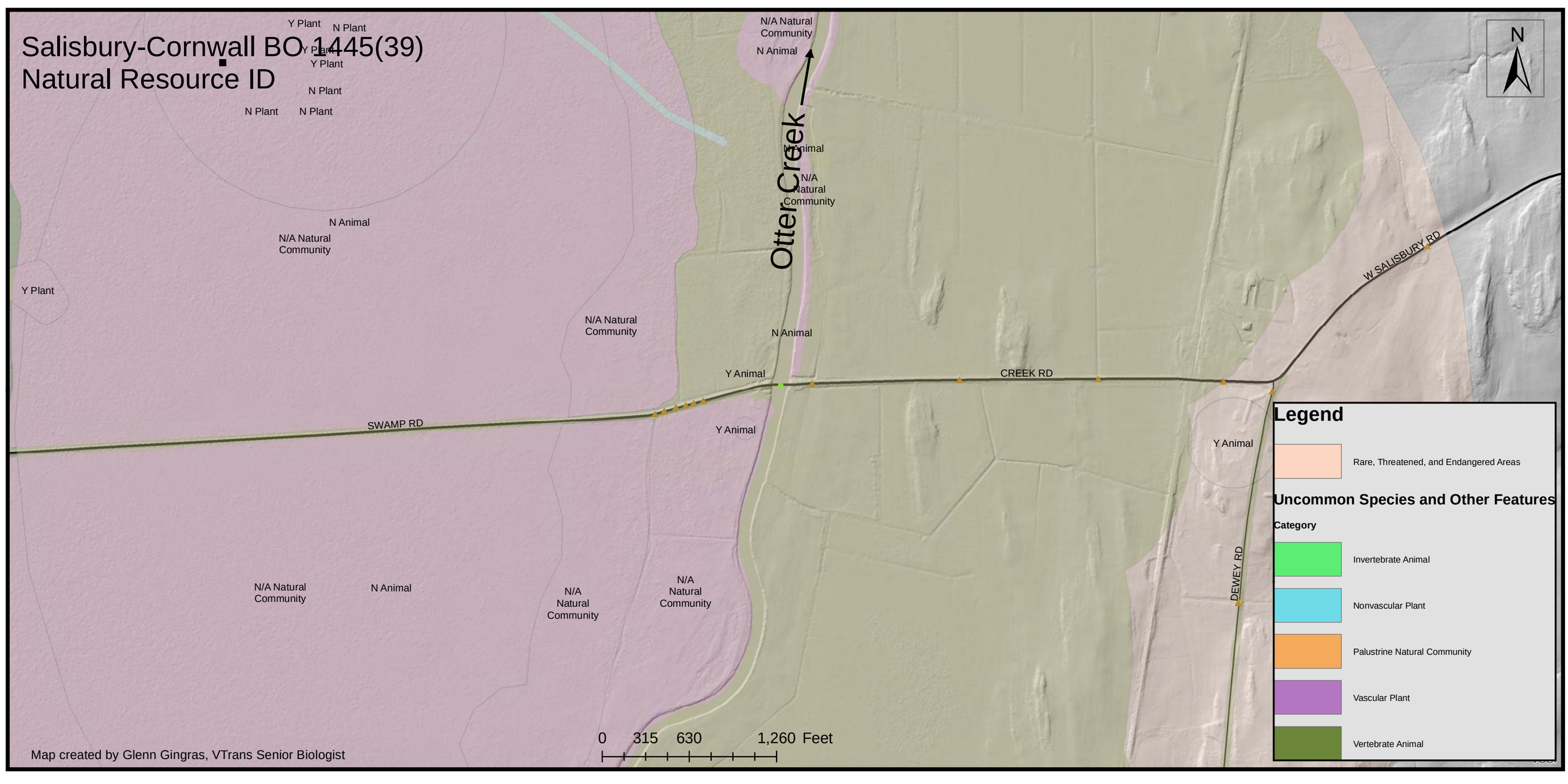
Agricultural Soils

Soils mapped in the project area are mapped as Winooski very fine sandy loam. This soil is mapped as a prime agricultural soil. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. This component is on flood plains on river valleys. The parent material consists of coarse-silty alluvium.

Summary

Natural resources of concern in the project area are the wetlands, the Otter Creek, wildlife habitat, RTE species and prime agricultural soils.

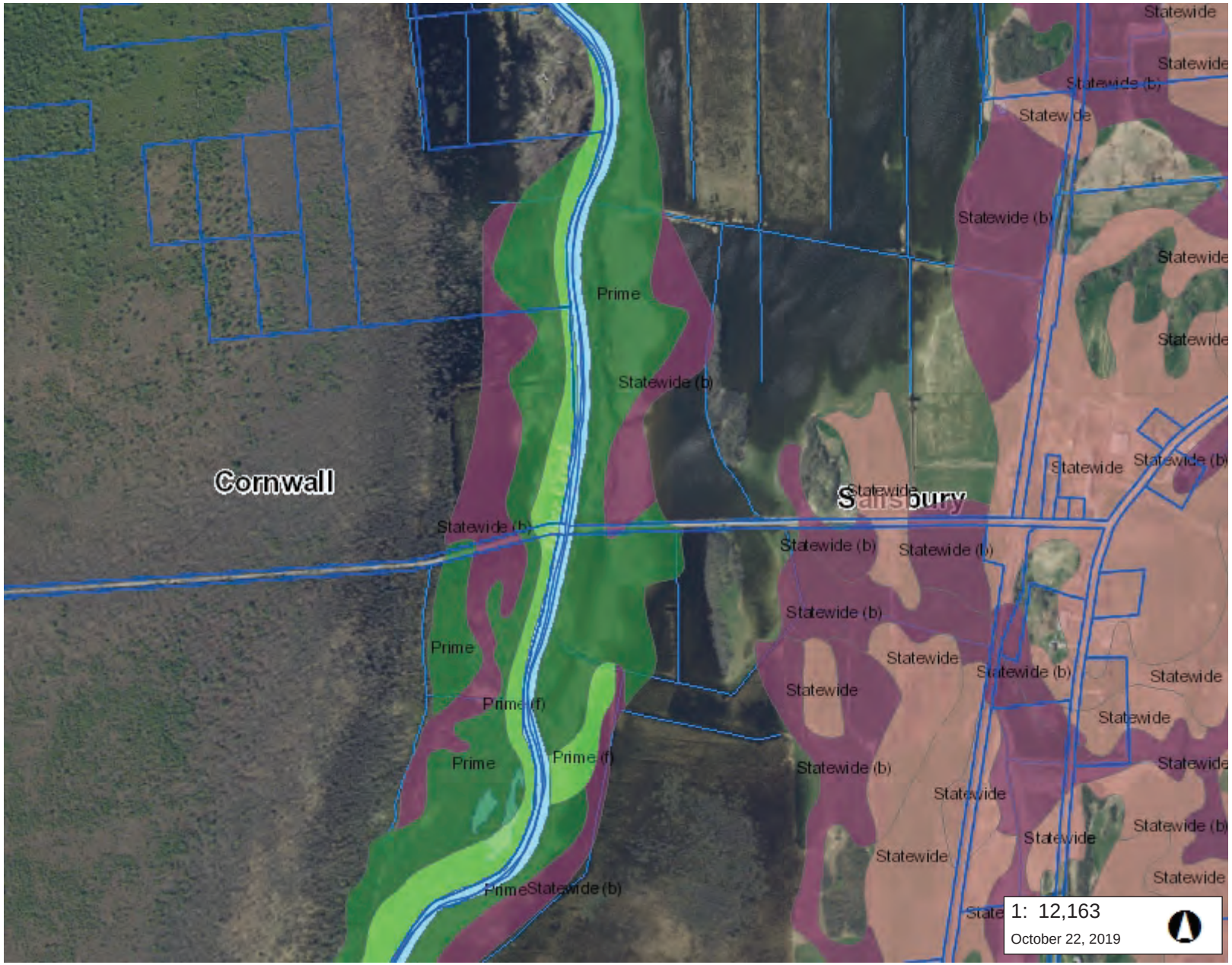

Salisbury-Cornwall BO 1445(39)
Natural Resource ID
Otter Creek
CREEK RD
SWAMP RD
N
0 80 160 320 Feet
Map created by Glenn Gingras, VTrans Senior Biologist
Legend
WetlandResourceID
Vermont Wetlands (VSWI


Salisbury-Cornwall BO 1445(39)
Natural Resource ID
Y Plant
N Plant
Y Plant
Y Plant
N Plant
N Plant
N Plant
N/A Natural Community
N Animal
Otter Creek
N Animal
N/A Natural Community
N Animal
N/A Natural Community
Y Plant
N/A Natural Community
N Animal
Y Animal
CREEK RD
W SALISBURY RD
SWAMP RD
Y Animal
Y Animal
DEWEY RD
N/A Natural Community
N Animal
N/A Natural Community
N/A Natural Community
N
0 315 630 1,260 Feet
Legend
Rare, Threatened, and Endangered Areas
Uncommon Species and Other Features
Category
Invertebrate Animal
Nonvascular Plant
Palustrine Natural Community
Vascular Plant
Vertebrate Animal
Map created by Glenn Gingras, VTrans Senior Biologist

Natural Resources Atlas

Vermont Agency of Natural Resources

vermont.gov



LEGEND

- Vernal Pools Confirmed – AE/V
- Vernal Pools Unconfirmed – AI
- Designated ORW (Streams an
- Prospective ORW (Streams an
- Prospective ORW (Lakes and
- Soils - Prime Agricultural
  - Local
  - Local (b)
  - Not rated
  - Prime
  - Prime (b)
  - Prime (f)
  - Statewide
  - Statewide (a)
  - Statewide (b)
  - Statewide (c)
- Parcels (standardized)
- Parcels (non-standardized)
- Waterbody
- Stream
- Town Boundary

NOTES

Map created using ANR's Natural Resources Atlas

618.0 0 309.00 618.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 1014 Ft. 1cm = 122 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

VERMONT WETLAND EVALUATION FORM

Project Name:_____ Project #:_____

Date: _____ Investigator:_____

SUMMARY OF FUNCTIONAL EVALUATION:
Each function gets a score of 0= not present; L = Low; P = Present; or H = High.

1. Water Storage for Flood Water and Storm Runoff ☐	**6. Rare, Threatened, and Endangered Species Habitat** ☐
2. Surface & Ground Water Protection ☐	**7. Education and Research in Natural Sciences** ☐
3. Fish Habitat ☐	**8. Recreational Value and Economic Benefits** ☐
4. Wildlife Habitat ☐	**9. Open Space and Aesthetics** ☐
5. Exemplary Wetland Natural Community ☐	**10. Erosion Control through Binding and Stabilizing the Soil** ☐

Note:

- ***When to use this form:*** This is a field form to help you compile data needed to evaluate the 10 possible functions and values of a wetland as described in the Vermont Wetland Rules. All information in this form is replicated in the applications for both wetland determinations and wetland permits.
- ***Both a desktop review and field examination*** should be employed to accurately determine surrounding land use, hydrology, hydroperiod, vegetation, position in the landscape, and physical attributes.
- ***The entire wetland or wetland complex*** in question must be evaluated to determine the level of function in all ten (10) categories for accurate classification. A wetland complex can be defined as a series of interconnected wetland types.
- ***The surrounding upland and outflow area*** of the wetland should be examined to determine land use, development, nearby natural resources, and hydrology. The surrounding land use, previous development, and cumulative impacts may play a role in the current function of the wetland. For best results please read all descriptions prior to scoring activity.
- ***Evaluation***: The first portion in each section determines whether the wetland does or does not provide the function. If none of the conditions listed in the first section are met, proceed

to the next section. If any of these conditions are met, determine if the wetland provides this function at a higher or lower level based on the information listed in the subsequent sections.

- ***Presumptions:*** Please note that many wetlands are already presumed to be significant under the Vermont Wetland Rules. A wetland is presumed to be significant if:
    - The wetland is mapped on the VSWI map
    - The wetland is contiguous to a VSWI mapped wetland
    - The wetland meets the presumptions of significance under Section 4.6
    - The wetland has a preliminary determination that it is Class II

1. Water Storage for Flood Water and Storm Runoff

☐ Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

- ☐ Constricted outlet or no outlet and an unconstricted inlet.
- ☐ Physical space for floodwater expansion and dense, persistent, emergent vegetation or dense woody vegetation that slows down flood waters or stormwater runoff during peak flows and facilitates water removal by evaporation and transpiration.
- ☐ If a stream is present, its course is sinuous and there is sufficient woody vegetation to intercept surface flows in the portion of the wetland that floods.
- ☐ Physical evidence of seasonal flooding or ponding such as water stained leaves, water marks on trees, drift rows, debris deposits, or standing water.
- ☐ Hydrologic or hydraulic study indicates wetland attenuates flooding.

If any of the above boxes are checked, the wetland provides this function. Complete the following to determine if the wetland provides this function above or below a moderate level:

☐ Check box if any of the following conditions apply that may indicate the wetland provides this function at a *lower* level.

- ☐ Significant flood storage capacity upstream of the wetland, and the wetland in question provides this function at a negligible level in comparison to upstream storage (unless the upstream storage is temporary such as a beaver impoundment).
- ☐ Wetland is contiguous to a major lake or pond that provides storage benefits independently of the wetland.
- ☐ Wetland's storage capacity is created primarily by recent beaver dams or other temporary structures.
- ☐ Wetland is very small in size, not contiguous to a stream, and not part of a collection of small wetlands in the landscape that provide this function cumulatively.

☐ Check box if any of the following conditions apply that may indicate the wetland provides this function at a *higher* level.

- ☐ History of downstream flood damage to public or private property.
- ☐ Any of the following conditions present downstream of the wetland, but upstream of a major lake or pond, could be impacted by a loss or reduction of the water storage function.
  - ☐ 1. Developed public or private property.
  - ☐ 2. Stream banks susceptible to scouring and erosion.
  - ☐ 3. Important habitat for aquatic life.
- ☐ The wetland is large in size and naturally vegetated.

☐ Any of the following conditions present upstream of the wetland may indicate a large volume of runoff may reach the wetland.

- ☐ 1. A large amount of impervious surface in urbanized areas.
- ☐ 2. Relatively impervious soils.
- ☐ 3. Steep slopes in the adjacent areas.

2. Surface and Ground Water Protection

☐ Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

- ☐ Constricted or no outlets.
- ☐ Low water velocity through dense, persistent vegetation.
- ☐ Hydroperiod permanently flooded or saturated.
- ☐ Wetlands in depositional environments with persistent vegetation wider than 20 feet.
- ☐ Wetlands with persistent vegetation comprising a defined delta, island, bar or peninsula.
- ☐ Presence of seeps or springs.
- ☐ Wetland contains a high amount of microtopography that helps slow and filter surface water.
- ☐ Position in the landscape indicates the wetland is a headwaters area.
- ☐ Wetland is adjacent to surface waters.
- ☐ Wetland recharges a drinking water source.
- ☐ Water sampling indicates removal of pollutants or nutrients.
- ☐ Water sampling indicates retention of sediments or organic matter.
- ☐ Fine mineral soils and alkalinity not low.
- ☐ The wetland provides an obvious filter between surface water or ground water and land uses that may contribute point or nonpoint sources of sediments, toxic substances or nutrients to the wetland, such as: steep erodible slopes; row crops; dumps; areas of pesticide, herbicide or fertilizer application; feed lots; parking lots or heavily traveled road; and septic systems.

If any of the above boxes are checked, the wetland provides this function. Complete the following to determine if the wetland provides this function above or below a moderate level.

☐ Check box if any of the following conditions apply that may indicate the wetland provides this function at a *lower* level.

- ☐ Presence of dead forest or shrub areas in sufficient amounts to result in diminished

nutrient uptake.

- ☐ Presence of ditches or channels that confine water and restrict contact of water with vegetation.
- ☐ Wetland is very small in size, not contiguous to a stream, and not part of a collection of small wetlands in the landscape that provide this function cumulatively.
- ☐ Current use in the wetland results in disturbance that compromises this function.

☐ Check box if any of the following conditions apply that may indicate the wetland provides this function at a *higher* level.

- ☐ The wetland is adjacent to a well head or source protection area, and provides ground water recharge.
- ☐ The wetland provides flows to Class A surface waters.
- ☐ The wetland contributes to the protection or improvement of water quality of any impaired waters.
- ☐ The wetland is large in size and naturally vegetated.

3. Fish Habitat

☐ Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

- ☐ Contains woody vegetation that overhangs the banks of a stream or river and provides any of the following: shading that controls summer water temperature; cover including refuges created by overhanging branches or undercut banks; source of terrestrial insects as fish food; or streambank stability.
- ☐ Provides spawning, nursery, feeding or cover habitat for fish (documented or professionally judged). Common habitat includes deep marsh and shallow marsh associates with lakes and streams, and seasonally flooded wetlands associated with streams and rivers.
- ☐ Documented or professionally judged spawning habitat for northern pike.
- ☐ Provides cold spring discharge that lowers the temperature of receiving waters and creates summer habitat for salmonoid species.
- ☐ The wetland is located along a tributary that does not support fish, but contributes to a larger body of water that does support fish. The tributary supports downstream fish by providing cooler water, and food sources.

4. Wildlife Habitat

☐ Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

- ☐ Provides resting, feeding staging or roosting habitat to support waterfowl migration, and feeding habitat for wading birds. Good habitats for these species include open water wetlands.
- ☐ Habitat to support one or more breeding pairs or broods of waterfowl including all species of ducks, geese, and swans. Good habitats for these species include open water habitats adjacent shallow marsh, deep marsh, shrub wetland, forested wetland, or naturally vegetated buffer zone.
- ☐ Provides a nest site, a buffer for a nest site or feeding habitat for wading birds including but not limited to: great blue heron, black-crowned night heron, green-backed heron, cattle egret, or snowy egret. Good habitats for these species include open water or deep marsh adjacent to forested wetlands, or standing dead trees.
- ☐ Supports or has the habitat to support one or more breeding pairs of any migratory bird that requires wetland habitat for breeding, nesting, rearing of young, feeding, staging roosting, or migration, including: Virginia rail, common snipe, marsh wren, American bittern, northern water thrush, northern harrier, spruce grouse, Cerulean warbler, and common loon.
- ☐ Supports winter habitat for white-tailed deer. Good habitats for these species include softwood swamps. Evidence of use includes deer browsing, bark stripping, worn trails, or pellet piles.
- ☐ Provides important feeding habitat for black bear, bobcat, or moose based on an assessment of use. Good habitat for these types of species includes wetlands located in a forested mosaic.
- ☐ Has the habitat to support muskrat, otter or mink. Good habitats for these species include deep marshes, wetlands adjacent to bodies of water including lakes, ponds, rivers and streams.
- ☐ Supports an active beaver dam, one or more lodges, or evidence of use in two or more consecutive years by an adult beaver population.
- ☐ Provides the following habitats that support the reproduction of Uncommon Vermont amphibian species including:
  - ☐ 1. Wood Frog, Jefferson Salamander, Blue-spotted Salamander, or Spotted Salamander. Breeding habitat for these species includes vernal pools and small ponds.
  - ☐ 2. Northern Dusky Salamander and the Spring Salamander. Habitat for these species includes headwater seeps, springs, and streams.
  - ☐ 3. The Four-toed salamander; Fowler's Toad; Western or Boreal Chorus frog, or other amphibians found in Vermont of similar significance.

- ☐ Supports or has the habitat to support significant populations of Vermont amphibian species including, but not limited to Pickerel Frog, Northern Leopard Frog, Mink Frog, and others found in Vermont of similar significance. Good habitat for these types of species includes large marsh systems with open water components.
- ☐ Supports or has the habitat to support populations of uncommon Vermont reptile species including: Wood Turtle, Northern Map Turtle, Eastern Musk Turtle, Spotted Turtle, Spiny Softshell, Eastern Ribbonsnake, Northern Watersnake, and others found in Vermont of similar significance.
- ☐ Supports or has the habitat to support significant populations of Vermont reptile species, including Smooth Greensnake, DeKay's Brownsnake, or other more common wetland-associated species.
- ☐ Meets four or more of the following conditions indicative of wildlife habitat diversity:
  - ☐ 1. Three or more wetland vegetation classes (greater than 1/2 acre) present including but not limited to: open water contiguous to, but not necessarily part of, the wetland, deep marsh, shallow marsh, shrub swamp, forested swamp, fen, or bog;
  - ☐ 2. The dominant vegetation class is one of the following types: deep marsh, shallow marsh, shrub swamp or, forested swamp;
  - ☐ 3. Located adjacent to a lake, pond, river or stream;
  - ☐ 4. Fifty percent or more of surrounding habitat type is one or more of the following: forest, agricultural land, old field or open land;
  - ☐ 5. Emergent or woody vegetation occupies 26 to 75 percent of wetland, the rest is open water;
  - ☐ 6. One of the following:
    - ☐ i. hydrologically connected to other wetlands of different dominant classes or open water within 1 mile;
    - ☐ ii. hydrologically connected to other wetlands of same dominant class within 1/2 mile;
    - ☐ iii. within 1/4 mile of other wetlands of different dominant classes or open water, but not hydrologically connected;
- ☐ Wetland or wetland complex is owned in whole or in part by state or federal government and managed for wildlife and habitat conservation; and
- ☐ Contains evidence that it is used by wetland dependent wildlife species.

If any of the above boxes are checked, the wetland provides this function. Complete the following to determine if the wetland provides this function above or below a moderate level.

☐ Check box if any of the following conditions apply that may indicate the wetland provides this function at a *lower* level.

- ☐ The wetland is small in size for its type and does not represent fugitive habitat in

developed areas (vernal pools and seeps are generally small in size, so this does not apply).

- ☐ The surrounding land use is densely developed enough to limit use by wildlife species (with the exception of wetlands with open water habitat). Can be negated by evidence of use.
- ☐ The current use in the wetland results in frequent cutting, mowing or other disturbance.
- ☐ The wetland hydrology and character is at a drier end of the scale and does not support wetland dependent species.

☐ Check box if any of the following conditions apply that may indicate the wetland provides this function at a *higher* level.

- ☐ The wetland complex is large in size and high in quality.
- ☐ The habitat has the potential to support several species based on the assessment above.
- ☐ Wetland is associated with an important wildlife corridor.
- ☐ The wetland has been identified by ANR-F&W as important habitat.

5. Exemplary Wetland Natural Community

☐ Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

- ☐ Wetlands that are identified as high quality examples of Vermont's natural community types recognized by the Natural Heritage Information Project of the Vermont Fish and Wildlife Department, including rare types such as dwarf shrub bogs, rich fens, alpine peatlands, red maple-black gum swamps and the more common types including deep bulrush marshes, cattail marshes, northern white cedar swamps, spruce-fir-tamarack swamps, and red maple-black ash seepage swamps are automatically significant for this function.

The wetland is also likely to be significant if any of the following conditions are met:

- ☐ Is an example of a wetland natural community type that has been identified and mapped by, or meets the ranking and mapping standards of, the Natural Heritage Information Project of the Vermont Fish and Wildlife Department.
- ☐ Contains ecological features that contribute to Vermont's natural heritage, including, but not limited to:
  - ☐ Deep peat accumulation reflecting a long history of wetland formation;
  - ☐ Forested wetlands displaying very old trees and other old growth characteristics;
  - ☐ A wetland natural community that is at the edge of the normal range for that type;

- ☐ A wetland mosaic containing examples of several to many wetland community types; or
- ☐ A large wetland complex with examples of several wetland community types.

6. Rare, Threatened, and Endangered Species Habitat

☐ Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

- ☐ Wetlands that contain one or more species on the federal or state threatened or endangered lists, as well as species that are rare in Vermont, are automatically significant for this function.

The wetland is also likely to be significant if any of the following apply:

- ☐ There is creditable documentation that the wetland provides important habitat for any species on the federal or state threatened or endangered species lists;
- ☐ There is creditable documentation that threatened or endangered species have been present in past 10 years;
- ☐ There is creditable documentation that the wetland provides important habitat for any species listed as rare in Vermont (S1 or S2 ranks), state historic (SH rank), or rare to uncommon globally (G1, G2, or G3 ranks) by the Natural Heritage Information Project of the Vermont Fish and Wildlife Department;
- ☐ There is creditable documentation that the wetland provides habitat for multiple uncommon species of plants or animals (S3 rank).

List name of species and ranking:

7. Education and Research in Natural Sciences

☐ Function is present and likely to be significant: Any of the following characteristics indicate the wetland provides this function.

- ☐ Owned by or leased to a public entity dedicated to education or research.
- ☐ History of use for education or research.
- ☐ Has one or more characteristics making it valuable for education or research.

8. Recreational Value and Economic Benefits

☐ Function is present and likely to be significant: Any of the following characteristics indicate the wetland provides this function.

- ☐ Used for, or contributes to, recreational activities.
- ☐ Provides economic benefits.
- ☐ Provides important habitat for fish or wildlife which can be fished, hunted or trapped under applicable state law.
- ☐ Used for harvesting of wild foods.

Comments:

9. Open Space and Aesthetics

☐ Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

- ☐ Can be readily observed by the public; and
  - ☐ Possesses special or unique aesthetic qualities; or
  - ☐ Has prominence as a distinct feature in the surrounding landscape;
- ☐ Has been identified as important open space in a municipal, regional or state plan.

10. Erosion Control through Binding and Stabilizing the Soil

☐ Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

- ☐ Erosive forces such as wave or current energy are present and any of the following are present as well:
  - ☐ Dense, persistent vegetation along a shoreline or stream bank that reduces an adjacent erosive force.
  - ☐ Good interspersion of persistent emergent vegetation and water along course of water flow.
  - ☐ Studies show that wetlands of similar size, vegetation type, and hydrology are important for erosion control.

What type of erosive forces are present?

- ☐ Lake fetch and waves
- ☐ High current velocities
- ☐ Water level influenced by upstream impoundment

If any of the above boxes are checked, the wetland provides this function. Complete the following to determine if the wetland provides this function above or below a moderate level.

☐ Check box if any of the following conditions apply that may indicate the wetland provides this function at a *lower* level.

- ☐ The stream is artificially channelized and/or lacks vegetation that contributes to controlling the erosive force.

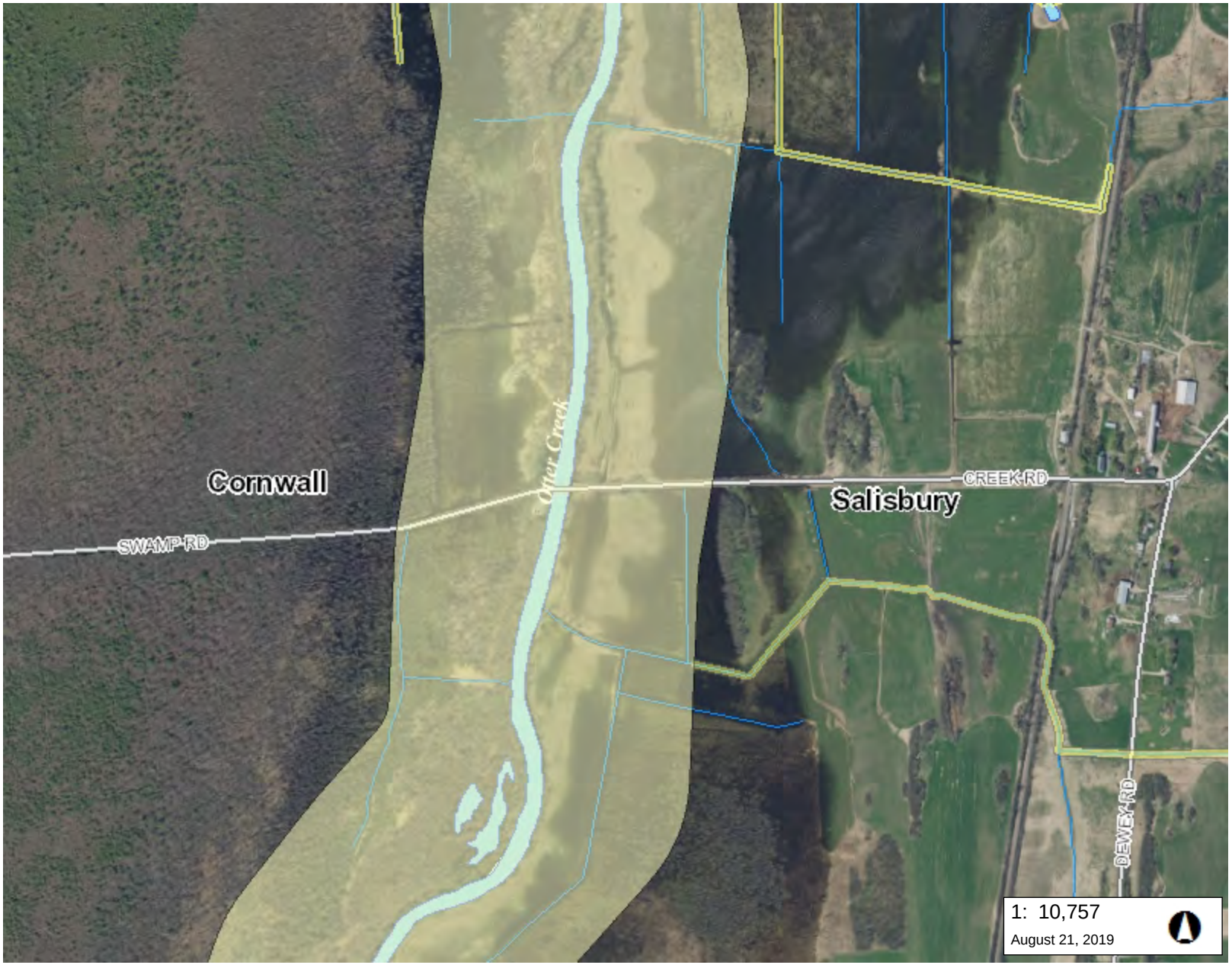
☐ Check box if any of the following conditions apply that may indicate the wetland provides this function at a *higher* level.

- ☐ The stream contains high sinuosity.
- ☐ Has been identified through fluvial geomorphic assessment to be important in maintaining the natural condition of the stream or river corridor.

Floodplains River Corridors

Vermont Agency of Natural Resources

vermont.gov



LEGEND

- DFIRM X-Sections
- DFIRM - Letter of Map Revisio
- DFIRM Panels
- DFIRM Floodways
- Flood Hazard Areas (Only FEM
  - AE (1-percent annual chance floodp
  - A (1-percent annual chance floodpl
  - AO (1-percent annual chance zone feet)
  - 0.2-percent annual chance flood ha
- River Corridors (Jan 2, 2015)
- .5 - 2 sqmi.
- .25-.5 sqmi.
- Roads
  - Interstate
  - Principal Arterial
  - Minor Arterial
  - Major Collector
  - Minor Collector
  - Local
  - Not part of function Classification S
- Waterbody
- Stream
- Town Boundary

NOTES

Map created using ANR's Natural Resources Atlas

546.0 0 273.00 546.0 Meters

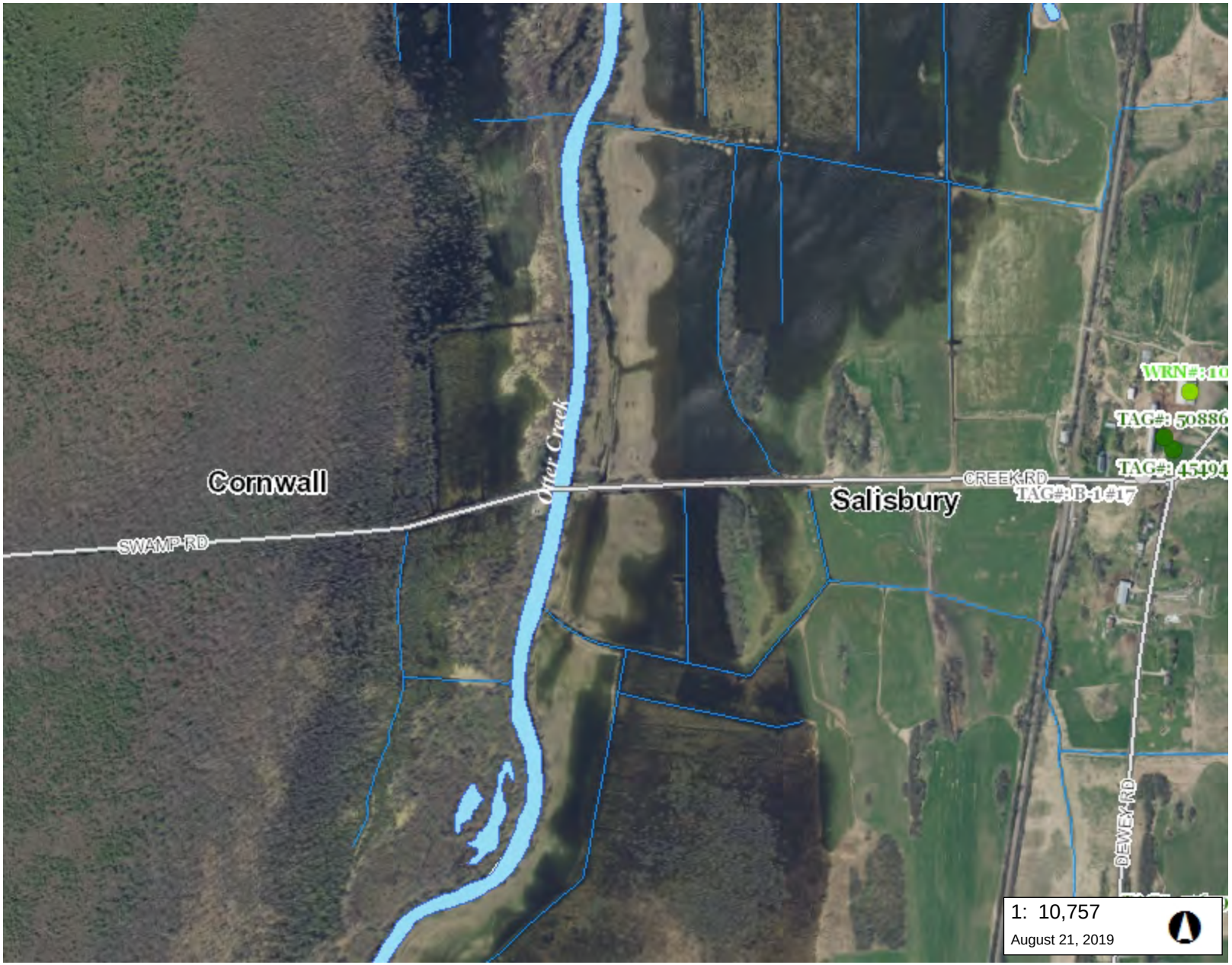
WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 896 Ft. 1cm = 108 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

Wells Drinking Water

Vermont Agency of Natural Resources

vermont.gov



LEGEND

Private Wells
- Incorrectly Located
- GPS Located
- Screen Digitized
- E911 Address Matched
- Welldriller/Clarion
- Unknown Location Method

Public Water Sources
- Active
- Proposed
- Inactive

SurfaceWaterSPA
- Active
- Inactive

Ground Water SPA
- Active
- Proposed
- Inactive

Roads
- Interstate
- Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Local
- Not part of function Classification S

Waterbody

NOTES

Map created using ANR's Natural Resources Atlas

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Appendix H: Archaeology Memo

VERMONT

Jeannine Russell
VTrans Archaeology Officer
State of Vermont
Environmental Section
One National Life Drive
Montpelier, VT 05633-5001
802-477-3460 phone
Jeannine.russell@vermont.gov

Agency of Transportation

To: Jeff Ramsey, Environmental Specialist Supervisor

From: Jeannine Russell, VTrans Archaeology Officer via Timothy Quesnell, Archaeology Technical Apprentice II

Date: September 19, 2019

Subject: Salisbury-Cornwall BO 1445(39) – Archaeological Resource ID

VTrans proposes work on a bridge at the border of the towns of Salisbury and Cornwall. The Salisbury side of the bridge connects to Creek Road while the Cornwall side connects to Swamp Road. The current scope and boundaries of the project are unknown. A circle with the bridge sitting at the center has been used for a stand in project area on the map provided. The VTrans Archaeology Apprentice was able to conduct a field visit on August 28th, 2019.

The project area is located half a mile west of Salisbury Station. The bridge runs over Otter Creek, one of the four major rivers that drains into Lake Champlain. To the west of the bridge is Cedar Swamp, an expansive wetland complex. Based on observations made out in the field and satellite imagery, the lower elevation wetlands surrounding the bridge appear to stay semiannually flooded. Three large archaeology sites sit on rocky knolls a quarter mile east of the bridge.

The wetlands on the west side of the river remain mostly undisturbed. A small gravel parking spot has been made in the SW quadrant of the project area, but the rest of the land outside of this patch remains undisturbed, and highly sensitive. The area along the east side of the river is plowed farmland. However, the plowing done still leaves much of the subsurface undisturbed. A small patch of gravel has been laid down next to the road in the SE quadrant, but the rest of the surrounding land is considered archaeologically sensitive.

Using the environmental predictive model, a high score of 120 was found for this area. Environmental factors contributing to this high score include the project area location on top of a major river and major wetland, presence of Swamp knolls, Otter Creek as natural travel corridor and the high recorded site density. This region is highly archaeologically sensitive. Existing site reports completed for the area mention that artifacts were found on both the swamp islands and in the flooded fields around them.

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Vermont Agency of Transportation

Due to the high sensitivity of the region, any work outside of the previously disturbed areas will require further archaeological work. Formal review of the area of potential effect and determination of effect will be offered once plans are available.

A map outlining the archaeologically sensitive areas has been provided below, along with other relevant figures and images. Please let me know if you have any questions.

Thank you,
Jen Russell
VTrans Archaeology Officer

Figure 1: Project Location

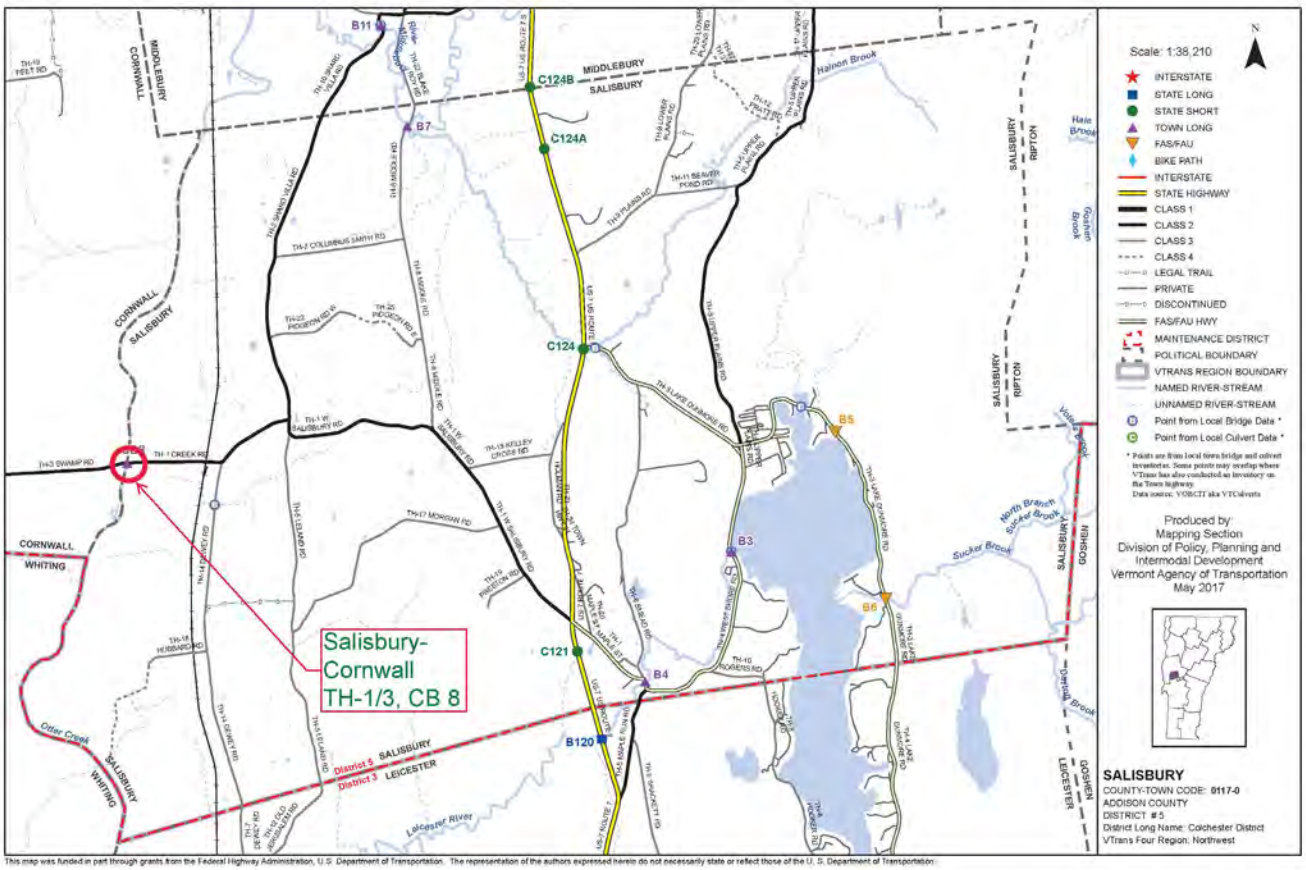

Figure 2: ARA Map

Figure 3: Photo of temporary bridge from road elevation facing eastward

Figure 4: NW quadrant of project area

Figure 5: SW quadrant of project area

Figure 6: SE quadrant of project area

Figure 7: NE quadrant of project area

Figure 8: Swamp islands to the NE of bridge, highly arch sensitive

Appendix I: Historic Memo

VERMONT

State of Vermont *Agency of Transportation*

Gabrielle Fernandez
AOT Technical Apprentice IV
Gabrielle.Fernandez@vermont.gov
(802) 793-3738

Project Delivery Bureau - Environmental Section
One National Life Drive
Montpelier, VT 05633-5001
vtrans.vermont.gov

Historic Resources Identification Memo

To: Jeff Ramsey, AOT Environmental Specialist
CC: Jeannine Russell, AOT Archaeologist
Judith Ehrlich, AOT Historic Preservation Officer

Date: September 19, 2019

Subject: Salisbury-Cornwall BO 1445(39) 18J164

Hello Jeff:

I have completed the Resource Identification for Salisbury-Cornwall BO 1445(39). At this time, no historic resources were identified within the possible project area. One 4(f) resource was identified within the survey area: the Cornwall Swamp Wildlife Management Area

This Resource Identification effort is being undertaken to provide information to the VTrans designers working on a proposed improvement project on bridge number 8 in Salisbury-Cornwall (Figure 1). Toward that end, VTrans Cultural Resources staff have identified potential resources within a broad preliminary Area of Potential Effect to ensure the designers are aware of all cultural resources that could possibly be affected by a project. Once the project is defined at the Conceptual Design phase, Cultural Resources staff will be able to determine a formal Area of Potential Effect for purposes of Section 106 and 22 VSA § 14.

Bridge number 8 is a temporary bridge crossing the Otter Creek between Salisbury and Cornwall (Figure 2). This temporary bridge has been in place since 2016, when the historic covered bridge that was built in 1865 at this crossing burned down. Due to the age of this temporary bridge, VTrans has determined that this bridge is not historic and does not possess any qualities for inclusion on the National Register.

No other buildings, structures, or sites lie within the survey area.

Please do not hesitate to contact me should you have any questions.

Attachments:
- Map
- Photos

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Vermont Agency of Transportation

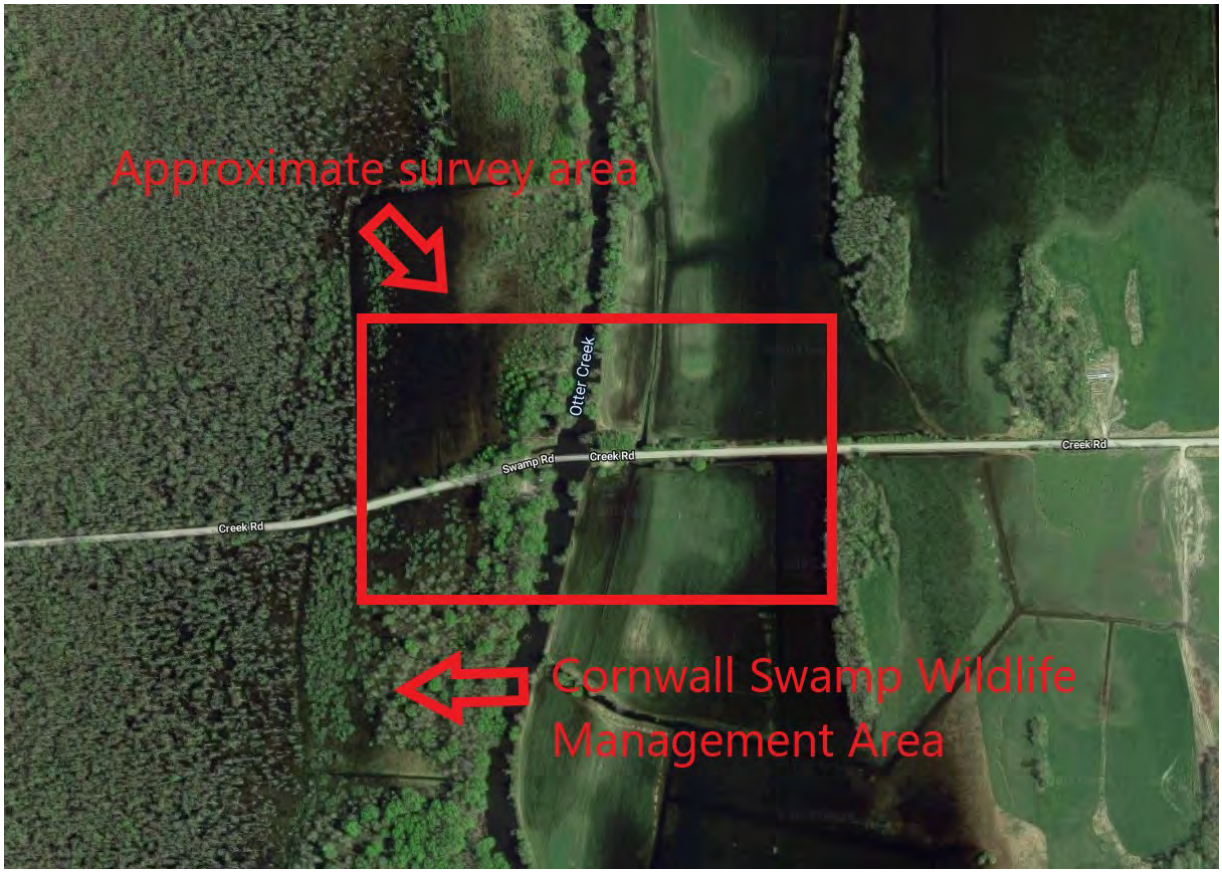


Figure 1: Google Earth view of the approximate survey area for Salisbury-Cornwall BO 1445(39).

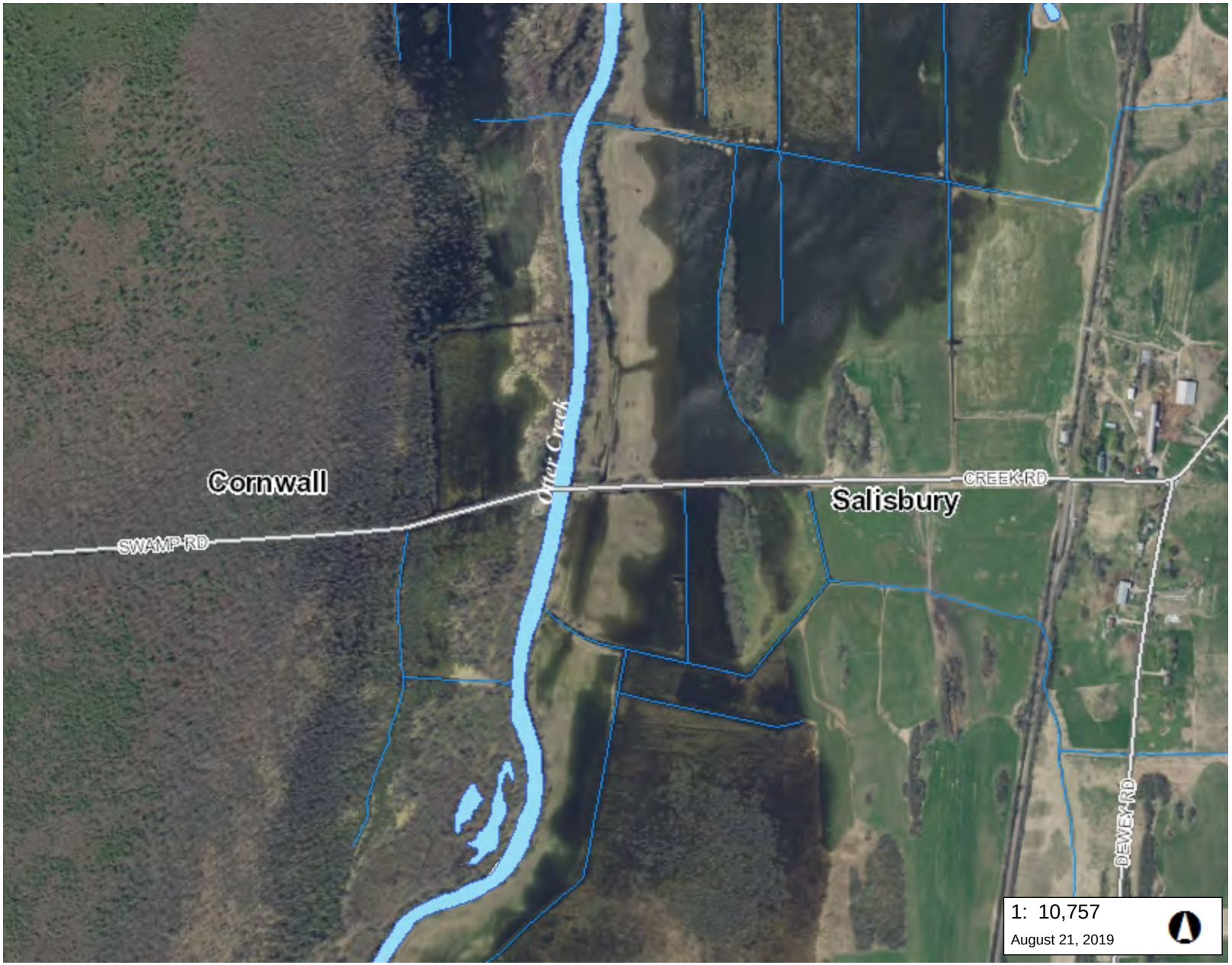
Figure 2: Bridge number 8.

Appendix J: Hazardous Waste Map

Haz Waste VT LRS

Vermont Agency of Natural Resources

vermont.gov



LEGEND

- Landfills
  - OPERATING
  - CLOSED
- Land Use Restrictions
  - Class IV GW Reclass
  - Class VI GW Reclass
  - Deed Restriction
  - Easement
  - Land Record Notice
  - Other
- Hazardous Site
- Hazardous Waste Generators
- Brownfields
- Salvage Yard
- Aboveground Storage Tank
- Underground Storage Tank (w
- Dry Cleaner
- Urban Soil Background Areas
- Roads
  - Interstate
  - Principal Arterial
  - Minor Arterial
  - Major Collector
  - Minor Collector
  - Local
  - Not part of function Classification S
- Waterbody

NOTES

Map created using ANR's Natural Resources Atlas

546.0 0 273.00 546.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 896 Ft. 1cm = 108 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

Appendix K: Community Input – Salisbury

Local & Regional Input Questionnaire

Project Summary

This project, BO 1445(39), focuses on covered bridge 8 on Town Highway 1 in Salisbury, Vermont. As is known, the bridge was destroyed in a fire, and has a temporary bridge replacing it at the moment. We at the agency are looking into the possibility of replacing the bridge. Potential options being considered for this project include a new covered bridge at the original location, a new non-covered bridge at the original location, and a new covered bridge in a new location. It is possible that VTrans will recommend a road closure and detour traffic away from the project site for the duration of the work.
Responses from Paul Vaczy (Selectboard chair) in red

Community Considerations

1. Are there regularly scheduled public events in the community that will generate increased traffic (e.g. vehicular, bicycles and/or pedestrians), or may be difficult to stage if the bridge is closed during construction? Examples include annual bike races, festivals, parades, cultural events, weekly farmers market, concerts, etc. that could be impacted? If yes, please provide approximate date, location and event organizers' contact info. There are none.

2. Is there a "slow season" or period of time from May through October where traffic is less or no events are scheduled? There is no "slow season".

3. Please describe the location of the Town garage, emergency responders (fire, police, ambulance) and emergency response routes that might be affected by the closure of the bridge, one-way traffic, or lane closures and provide contact information (names, address, email addresses, and phone numbers. Disruption of mutual aid w/ Cornwall creates a longer distance.

4. Are there businesses (including agricultural operations and industrial parks) or delivery services (fuel or goods) that would be adversely impacted either by a detour or due to work zone proximity? None.

5. Are there important public buildings (town hall, community center, senior center, library) or community facilities (recreational fields, town green, etc.) close to the project? No.

6. What other municipal operations could be adversely affected by a road/bridge closure or detour? None.

7. Are there any town highways that might be adversely impacted by traffic bypassing the construction on other local roads? Please indicate which roads may be affected and their condition (paved/unpaved, narrow, weight-limited bridges, etc), including those that may be or go into other towns. More travel on Shand Villa Paved.

8. Is there a local business association, chamber of commerce, regional development corporation, or other downtown group that we should be working with? If known, please provide name, organization, email, and phone number. None.

9. Are there any public transit services or stops that use the bridge or transit routes in the vicinity that may be affected if they become the detour route? None.

Schools

1. Where are the schools in your community and what are their yearly schedules (example: first week in September to third week in June)? School located on Kelly Cross Road. No bus traffic through bridge.

2. Is this project on specific routes that school buses or students use to walk to and from school? No.

3. Are there recreational facilities associated with the schools nearby (other than at the school)? No.

Pedestrians and Bicyclists

1. What is the current level of bicycle and pedestrian use on the bridge? Minimal.

2. Are the current lane and shoulder widths adequate for pedestrian and bicycle use? Done with Caution.

3. Does the community feel there is a need for a sidewalk or bike lane on the bridge? No.

4. Is pedestrian and bicycle traffic heavy enough that it should be accommodated during construction? No.

5. Does the Town have plans to construct either pedestrian or bicycle facilities leading up to the bridge? Please provide any planning documents demonstrating this (scoping study, master plan, corridor study, town or regional plan). No.

6. In the vicinity of the bridge, is there a land use pattern, existing generators of pedestrian and/or bicycle traffic, or zoning that will support development that is likely to lead to significant levels of walking and bicycling? No.

Design Considerations

1. Are there any concerns with the alignment of the previous bridge? For example, if the bridge is located on a curve, has this created any problems that we should be aware of? There is a line of sight issue on the Cornwall side.

2. Are there any concerns with the width of the previous bridge? Would like to remain one lane.

3. Are there any special aesthetic considerations we should be aware of? Some citizens would like covered bridge.

4. Does the location have a history of flooding? If yes, please explain. Yes. Road closures on Cornwall side.

5. Are there any known Hazardous Material Sites near the project site? None known.

6. Are there any known historic (other than the previous bridge), archeological and/or other environmental resource issues near the project site? No.

7. Are there any utilities (water, sewer, communications, power) attached to the existing bridge? Please provide any available documentation. No.

8. Are there any existing, pending, or planned municipal utility projects (communications, lighting, drainage, water, wastewater, etc.) near the project that should be considered? No.

9. Are there any other issues that are important for us to understand and consider?

Land Use & Zoning

1. Please provide a copy of your existing and future land use map or zoning map, if applicable.

2. Are there any existing, pending or planned development proposal that would impact future transportation patterns near the bridge? If so, please explain. No.

3. Is there any planned expansion of public transit or intercity transit service in the project area? Please provide the name and contact information for the relevant public transit provider. No.

Communications

1. Please identify any local communication outlets that are available for us to use in communicating with the local population. Include weekly or daily newspapers, blogs, radio, public access TV, Facebook, Front Page Forum, etc. Also include any unconventional means such as local low-power FM.

   Addison Independent Front Porch Forum. WFAD, Salisbury Town Clerk.

2. Other than people/organizations already referenced in this questionnaire, are there any others who should be kept in the loop as the project moves forward?

   Salisbury Road Foreman, 352-1017.
   Salisbury Selectboard, Paul Vaczy, 349-4514.

Appendix L: Community Input – Cornwall

Local & Regional Input Questionnaire

Project Summary

This project, BO 1445(39), focuses on covered bridge 8 on Town Highway 3 in Cornwall, Vermont. As is known, the bridge was destroyed in a fire, and has a temporary bridge replacing it at the moment. We at the agency are looking into the possibility of replacing the bridge. Potential options being considered for this project include a new covered bridge at the original location, a new non-covered bridge at the original location, and a new covered bridge in a new location. It is possible that VTrans will recommend a road closure and detour traffic away from the project site for the duration of the work.

Community Considerations

1. Are there regularly scheduled public events in the community that will generate increased traffic (e.g. vehicular, bicycles and/or pedestrians), or may be difficult to stage if the bridge is closed during construction? Examples include annual bike races, festivals, parades, cultural events, weekly farmers market, concerts, etc. that could be impacted? If yes, please provide approximate date, location and event organizers' contact info.
   There are no regularly scheduled public events in Cornwall that will be affected by closing the bridge during construction
2. Is there a "slow season" or period of time from May through October where traffic is less or no events are scheduled?

   There is no "slow season" where traffic is less.

3. Please describe the location of the Town garage, emergency responders (fire, police, ambulance) and emergency response routes that might be affected by the closure of the bridge, one-way traffic, or lane closures and provide contact information (names, address, email addresses, and phone numbers.

   As the bridge is at the border of Cornwall and Salisbury, all Cornwall facilities are located to the west of the bridge. During bridge closure, the Cornwall Volunteer Fire Department will not be able to respond to mutual aid calls in Salisbury, except by going through Middlebury.

   CVFD Fire Chief: David Berno 802-989-3331; dberno@shoreham.net
   Cornwall Town Clerk: Sue Johnson: 802-462-2775; cornwallvt@shoreham.net; 2629 Route 30, Cornwall, Vermont 05753

4. Are there businesses (including agricultural operations and industrial parks) or delivery services (fuel or goods) that would be adversely impacted either by a detour or due to work zone proximity?

   There is at least one farmer who has fields on both sides of the bridge; however as a practical matter the current temporary bridge will have to be replaced with a permanent structure at some point. There are residents from both communities who use this route to commute to work. They can however take another route.

5. Are there important public buildings (town hall, community center, senior center, library) or community facilities (recreational fields, town green, etc.) close to the project?

   No.

6. What other municipal operations could be adversely affected by a road/bridge closure or detour?

   None. There is a boat launch directly south of the current bridge on the Cornwall side of Otter creek. Ideally, the boat launch would be open to the greatest extent possible.

7. Are there any town highways that might be adversely impacted by traffic bypassing the construction on other local roads? Please indicate which roads may be affected and their condition (paved/unpaved, narrow, weight-limited bridges, etc), including those that may be or go into other towns.

   Cornwall expects that there will be a certain amount of additional traffic on Route 30 from commuters who currently use Cornwall's Swamp Road for East-West travel. Some of the additional traffic will go south to use the Leicester-Whiting Road; some will go north through Middlebury.

8. Is there a local business association, chamber of commerce, regional development corporation, or other downtown group that we should be working with? If known, please provide name, organization, email, and phone number.

   Cornwall has no local business association, chamber of commerce, regional development corporation, or other downtown group. Communication should be with the Select Board, Road Commissioner, Road Foreman, and Town Clerk.

   Select Board Chair: Benjamin Marks. 802-462-3536/802-598-9562 (cell); bmarkscornwall@gmail.com.
   Road Commissioner: Brian Kemp. 802-989-9966 (cell); bkempcornwall@gmail.com.
   Road Foreman: Mike Sunderland: 802-462-2752 (Garage); 802-349-9178
   Town Clerk: Sue Johnson (see contact information above)

9. Are there any public transit services or stops that use the bridge or transit routes in the vicinity that may be affected if they become the detour route?

   None known.

Schools

1. Where are the schools in your community and what are their yearly schedules (example: first week in September to third week in June)?

   The Cornwall School is located in the center of town on Route 30. Schedule: First week of September to fourth week in June.

2. Is this project on specific routes that school buses or students use to walk to and from school?

   No.

3. Are there recreational facilities associated with the schools nearby (other than at the school)?

   No.

Pedestrians and Bicyclists

1. What is the current level of bicycle and pedestrian use on the bridge?

   Moderate. Cornwall's Swamp Road is a local bicycle route. Pedestrian traffic is limited.

2. Are the current lane and shoulder widths adequate for pedestrian and bicycle use?

   Yes, due to low traffic. Cars must pause if a bicycle is on the bridge.

3. Does the community feel there is a need for a sidewalk or bike lane on the bridge?

   Yes. Subject to cost concerns.

4. Is pedestrian and bicycle traffic heavy enough that it should be accommodated during construction?

   No. With proper signage to alert biker's.

5. Does the Town have plans to construct either pedestrian or bicycle facilities leading up to the bridge? Please provide any planning documents demonstrating this (scoping study, master plan, corridor study, town or regional plan).

   Not at this time.

6. In the vicinity of the bridge, is there a land use pattern, existing generators of pedestrian and/or bicycle traffic, or zoning that will support development that is likely to lead to significant levels of walking and bicycling?

   No.

Design Considerations

1. Are there any concerns with the alignment of the previous bridge? For example, if the bridge is located on a curve, has this created any problems that we should be aware of?

   Yes. Current alignment does not allow Cornwall traffic to have a clear view to the Salisbury side on approach from Cornwall.

2. Are there any concerns with the width of the previous bridge?

   No. Cornwall <u>specifically</u> requests a narrow bridge, with similar height constraints of its prior wooden covered bridge that will not allow 18-wheel truck traffic or traffic weighing over 12,000 lbs. This is because of the design constraints of Cornwall's Swamp Road, which is built on an old cord road. Traffic heavier will damage Corwall's Swamp Road, leading to expensive repairs. Cornwall's current road ordinance prohibits traffic on Swamp Road that is heavier than 12,000 lbs. wider than eight feet, or travelling faster over the bridge than 10 mph. Additionally Cornwall's ordinance bars through-traffic of trucks.

3. Are there any special aesthetic considerations we should be aware of?

   The Swamp Road Bridge that burnt was a restored historic wooden covered bridge. The Cornwall Select Board has stated that it will hold at least one public meeting regarding the design/aesthetic of the new bridge.

4. Does the location have a history of flooding? If yes, please explain.

   Yes. The Cornwall Swamp typically floods every spring. It also floods whenever the flow of the Otter Creek exceeds the creek's carrying capacity – e.g. large storm events.

5. Are there any known Hazardous Material Sites near the project site?

   Not immediately adjacent. There are private camps located north of the project site that have had, historically, equipment such as tractors and lawn mowers.

6. Are there any known historic (other than the previous bridge), archeological and/or other environmental resource issues near the project site?
   No.

7. Are there any utilities (water, sewer, communications, power) attached to the existing bridge? Please provide any available documentation.
   No.

8. Are there any existing, pending, or planned municipal utility projects (communications, lighting, drainage, water, wastewater, etc.) near the project that should be considered?
   None.

9. Are there any other issues that are important for us to understand and consider?
   [ ]

Land Use & Zoning

1. Please provide a copy of your existing and future land use map or zoning map, if applicable.

2. Are there any existing, pending or planned development proposal that would impact future transportation patterns near the bridge? If so, please explain.
   No.

3. Is there any planned expansion of public transit or intercity transit service in the project area? Please provide the name and contact information for the relevant public transit provider.

   No.

Communications

1. Please identify any local communication outlets that are available for us to use in communicating with the local population. Include weekly or daily newspapers, blogs, radio, public access TV, Facebook, Front Page Forum, etc. Also include any unconventional means such as local low-power FM.

Addison Independent
Front Porch Forum
Quarterly Cornwall Newsletter
Town Clerk maintains an e-mail list for matters of public interest.

2. Other than people/organizations already referenced in this questionnaire, are there any others who should be kept in the loop as the project moves forward?

Conor Stinson, Chair of the Cornwall Planning Commission. 802-989-5446; sinsoncpc@gmail.com

Appendix M: Operations Input

Bridge Scoping Project BO 1445(39)
Operations Input Questionnaire

The Structures Section has begun the scoping process for BO 1445(39), Salisbury-Cornwall TH 1/3, Ex-Covered Bridge 8, over the Otter creek. This was a lattice covered bridge constructed in 1865, reconstructed in 2008, and burned down in 2016. The Structure Inspection, Inventory, and Appraisal Sheet (attached) rates the deck as 0 (failed), the superstructure as 0 (failed), and the substructures as 6 (satisfactory). A Mabey bridge has been installed at the location. We are interested in hearing your thoughts regarding the items listed below. Leave it blank if you don't wish to comment on a particular item.

1. What are your thoughts on the general condition of the previous bridge and the general maintenance effort required to keep it in service?

2. What are your comments on the current geometry and alignment of the bridge (curve, sag, banking, sight distance)? The current alignment makes sight distance hard for vehicles traveling east. The elevated grade is at a disadvantage for the sight distance of this one lane bridge too.

3. Do you feel that the posted speed limit is appropriate?

   Yes

4. Was the previous bridge and approach roadway width adequate for winter maintenance including snow plowing?

5. Were the railings constantly in need of repair or replacement? What type of railing works best for your district? (We are recommending more and more box beam guardrail on our bridges because of crash-worthiness and compatibility with accelerated projects).

6. Are you aware of any unpermitted driveways within close proximity to the bridge? We frequently encounter driveways that prevent us from meeting railing and safety standards.

7. Are you aware of abutting property owners that are likely to need special attention during the planning and construction phases? These could be people with disabilities, elderly, or simply folks who feel they have been unfairly treated in the past.

   The farm just east of the bridge has been vocal with concerns in the past.

8. Do you find that extra effort is required to keep the slopes and river banks around the bridge in a stable condition? Is there frequent flood damage that requires repair?

   West side of the bridge access is used as a fishing and boat access.

9. Did this bridge seem to catch an unusual amount of debris from the waterway?

10. Are you familiar with traffic volumes in the area of this project?

    This route is used as a cut off to East Middlebury.

11. Do you think a closure with off-site detour and accelerated construction would be appropriate? Do you have any opinion about a possible detour route, assuming that we use any route for Town projects? Are there locations on a potential detour that are already congested that we should consider avoiding?

    North- Route 30 and 7 would be used as a state detour. South- A town detour would be Leicester/ whiting road and Route 30.

12. Please describe any larger projects that you have completed that may not be reflected on the attached Appraisal sheet, such as deck patches, paving patches, railing replacement with new type, steel coating, etc.

13. Are there any drainage issues that we should address on this project?

14. Are you aware of any complaints that the public has about issues that we can address on this project?

    Members of the public from both towns had been indecisive in the past with the replacement bridge regarding structure type and amount of lanes

15. Is there anything else we should be aware of?
    Farm equipment uses this road often with this bridge being a limitation to the size of the farm equipment before. This limitation has been a complaint prior.

Appendix N: Crash Data

General Yearly Summaries - Town Highway Crash Listing: Non-Federal Aid Highways-Local

WHERE Year of Crash >= 2012 AND Year of Crash <= 2016

Reporting Agency/ Incident No.	County	Town	Route	Crash Date	Time	Weather	Contributing Circumstances	Direction of Collision	Number Of Injuries	Number Of Fatalities	Number Of Untimely Deaths	Location
							or aggressive manner, Failure to keep in proper lane					
VTVSP0600/13C200072	Addison	Bristol	T0020	01/06/2013	13:55	Cloudy		Single Vehicle Crash	0	0	0	Plank Road at Choiniere Road, TH #17
VTVSP0600/13C203301	Addison	Bristol	T0020	09/22/2013	22:07	Cloudy	Driving too fast for conditions, Under the influence of medication/drugs/alcohol	Single Vehicle Crash	0	0	0	7543 Plank Road at 8 Kilbourn Lane Pvt
VTVSP0600/13C203486	Addison	Bristol	T0020	10/05/2013	21:45	Clear	Driving too fast for conditions, Exceeded authorized speed limit	Single Vehicle Crash	0	0	0	Plank Road at North Street
VTVSP0600/14C202875	Addison	Bristol	T0020	09/06/2014	15:58	Cloudy	Driving too fast for conditions	Single Vehicle Crash	0	0	0	6950 Plank Rd at Burpee Rd
VTVSP0600/15C203189	Addison	Bristol	T0020	10/06/2015	16:57	Clear	Operating vehicle in erratic, reckless, careless, negligent, or aggressive manner, Failure to keep in proper lane	Same Direction Sideswipe	0	0	0	7800 Plank Road at North Street
VTVSP0600/16C202892	Addison	Bristol	T0020	08/31/2016	14:30	Clear	Driving too fast for conditions, Wrong side or wrong way	Single Vehicle Crash	1	0	0	6939 Plank Road at Burpee Raod
VTVSP0600/14C200254	Addison	Bristol	T0023	01/20/2014	12:50	Snow	Driving too fast for conditions	Single Vehicle Crash	0	0	0	Lower Notch Road at Bristol Cliffs (Private Road) @ Intersection
VTVSP0600/15C202324	Addison	Bristol	T0023	07/25/2015	09:30	Clear	Failed to yield right of way, Wrong side or wrong way, No improper driving	Head On	0	0	0	3190 Lower Notch Road at Upper Notch Road
VTVSP0600/14C203085	Addison	Bristol	T0024	09/22/2014	20:25	[No Weather]		[No Direction of Collision]	0	0	0	TH-24 (716 Briggs Hill Rd.)
VTVSP0600/12C202501	Addison	Bristol	T0025	08/16/2012	14:59	Cloudy	Failure to keep in proper lane, No improper driving	Opp Direction Sideswipe	0	0	0	316 Carlstrom Road at Sturdevant Drive
VTVSP0600/15C200727	Addison	Bristol	T0026	03/11/2015	13:46	[No Weather]		[No Direction of Collision]	0	0	0	TH-26 (15Cove Rd.)
VTVSP0600/16C202400	Addison	Bristol	T0026	07/27/2016	08:35	[No Weather]		[No Direction of Collision]	0	0	0	COVE RD at S 116 RD
VT0010100/15BR00857	Addison	Bristol	T0032	09/03/2015	10:15	Cloudy	No improper driving	Single Vehicle Crash	0	0	0	10 Airport Drive at Airport Drive
VTVSP0600/15C201172	Addison	Bristol	T0034	04/20/2015	12:16	[No Weather]		[No Direction of Collision]	0	0	0	TH-34 (3 COLD SPRING RD.)
VTVSP0600/16C203711	Addison	Cornwall	0000	11/08/2016	21:44	[No Weather]		[No Direction of Collision]	0	0	0	FOOTE FARM RD at VT ROUTE 125
VTVSP0600/12C200105	Addison	Cornwall	T0001	01/12/2012	12:52	Snow	Driving too fast for conditions, Failure to keep in proper lane	Single Vehicle Crash	0	0	0	1239 South Bingham Street at 981 Park Hill Road TH#5
VTVSP0600/12C200386	Addison	Cornwall	T0001	02/17/2012	06:50	Cloudy		Single Vehicle Crash	0	0	0	Park Hill Rd at Vt Rt 30
VTVSP0600/16C200120	Addison	Cornwall	T0001	01/12/2016	18:10	Snow	Other improper action, Not Distracted, No improper driving	Left Turn and Thru, Broadside v<--	0	0	0	515 Park HIll Road at Delong Road
VTVSP0600/12C202533	Addison	Cornwall	T0003	08/18/2012	22:01	Clear	Exceeded authorized speed limit	Single Vehicle Crash	0	0	0	626 Swamp Road at VT RT 30
VTVSP0600/13C201323	Addison	Cornwall	T0003	04/23/2013	02:20	Clear	Fatigued, asleep	Single Vehicle Crash	0	0	0	900 Swamp Road at VT RT 30
VTVSP0600/15C201625	Addison	Cornwall	T0003	06/02/2015	07:56	[No Weather]		[No Direction of Collision]	0	0	0	TH-3 (1764 SWAMP ROAD)
VTVSP0600/16C201782	Addison	Cornwall	T0003	06/15/2016	15:20	Clear	Other improper action	Single Vehicle Crash	0	0	0	Swamp Road at Vt Route 30

General Yearly Summaries - Town Highway Crash Listing: Non-Federal Aid Highways-Local

WHERE Year of Crash >= 2012 AND Year of Crash <= 2016

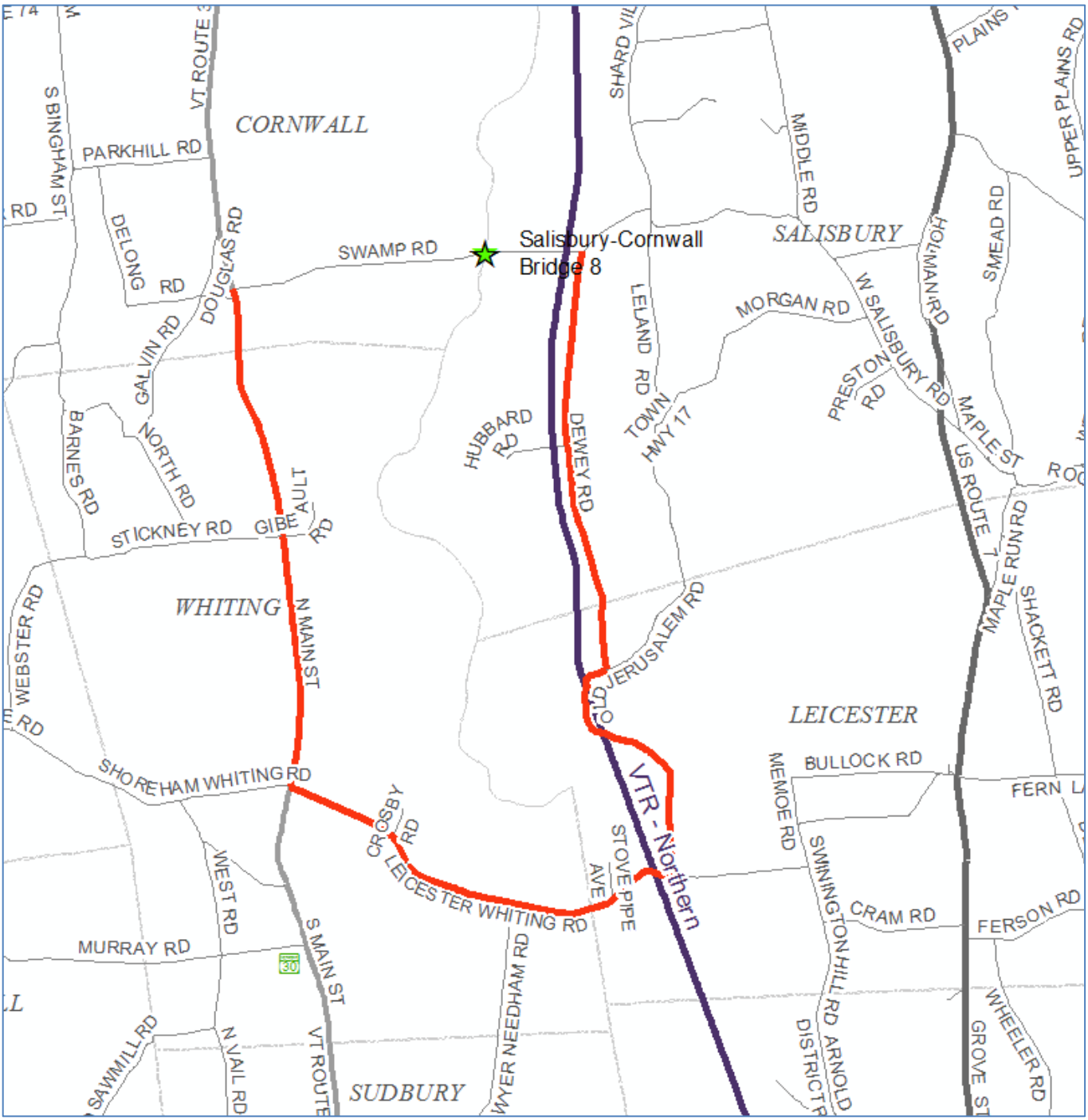
Reporting Agency/ Incident No.	County	Town	Route	Crash Date	Time	Weather	Contributing Circumstances	Direction of Collision	Number Of Injuries	Number Of Fatalities	Number Of Untimely Deaths	Location
VTVSP0600/16C201207	Addison	Cornwall	T0004	05/04/2016	15:23	[No Weather]		[No Direction of Collision]	0	0	0	938 WEST ST
VTVSP0600/16C204254	Addison	Cornwall	T0007	12/24/2016	06:45	Cloudy	Driving too fast for conditions, Failure to keep in proper lane	Single Vehicle Crash	0	0	0	628 North Bingham Street at Cross Street (TH#6)
VTVSP0600/12C203215	Addison	Cornwall	T0009	10/19/2012	05:05	Cloudy	Driving too fast for conditions, Failure to keep in proper lane	Single Vehicle Crash	0	0	0	325 Ridge Road at Vt Route 30
VTVSP0600/15C201209	Addison	Cornwall	T0009	04/24/2015	13:34	[No Weather]		[No Direction of Collision]	0	0	0	TH-9 Ridge Rd.
VTVSP0600/16C203861	Addison	Cornwall	T0009	11/20/2016	17:34	[No Weather]		[No Direction of Collision]	0	0	0	RIDGE RD at VT ROUTE 125
VTVSP0600/16C200348	Addison	Cornwall	T0012	02/04/2016	16:23	[No Weather]		[No Direction of Collision]	0	0	0	LEMON FAIR RD at SAMPSON RD
VTVSP0600/16C201179	Addison	Cornwall	T0012	05/03/2016	09:45	Cloudy	Failure to keep in proper lane	Single Vehicle Crash	1	0	0	299 Lemon Fair Road at VT RT 125
VTVSP0600/16C203968	Addison	Cornwall	T0014	11/28/2016	18:22	[No Weather]		[No Direction of Collision]	0	0	0	1 Block HAMBLIN RD
VTVSP0600/12C203771	Addison	Cornwall	T0018	12/09/2012	08:15	Clear	Failure to keep in proper lane, Inattention, No improper driving	Head On	0	0	0	Morse Road at Vt Rt 30
VTVSP0600/12C203886	Addison	Cornwall	T0018	12/20/2012	07:35	Cloudy	Failure to keep in proper lane, Swerving or avoiding due to wind, slippery surface, vehicle, object, non-motorist in roadway etc	Single Vehicle Crash	0	0	0	Morse Road at Tilden Road TH #11
VTVSP0600/13C200424	Addison	Cornwall	T0018	02/03/2013	00:55	Clear	Fatigued, asleep	Single Vehicle Crash	0	0	0	1 Morse Road at VT RT 30
VTVSP0600/14C201243	Addison	Cornwall	T0021	04/26/2014	18:06	[No Weather]	Driving too fast for conditions	Single Vehicle Crash	2	0	0	173 Clark Rd at VT Route 30
VTVSP0600/14C203211	Addison	Cornwall	T0021	10/01/2014	20:13	Clear	No improper driving	Single Vehicle Crash	1	0	0	851 Clark Road at VT RT 74
VTVSP0600/16C201071	Addison	Cornwall	T0024	04/23/2016	07:35	[No Weather]		[No Direction of Collision]	0	0	0	112 SCHOOL ROAD
VTVSP0600/13C200359	Addison	Cornwall	T0027	01/30/2013	04:47	[No Weather]		[No Direction of Collision]	0	0	0	TH-27 (2130 S. Bingham St.)
VTVSP0600/15C201937	Addison	Ferrisburgh	S0676	06/24/2015	14:26	[No Weather]		[No Direction of Collision]	0	0	0	Min. C 0676 MT PHILO RD.
VTVSP0600/16C202144	Addison	Ferrisburgh	S0676	07/09/2016	13:39	[No Weather]		[No Direction of Collision]	0	0	0	147 MOUNT PHILO RD
VTVSP0100/16A104698	Addison	Ferrisburgh	S0676	09/10/2016	11:37	Clear	No improper driving, Failed to yield right of way, Followed too closely	[No Direction of Collision]	1	0	0	392 Mt. Philo Road at Spear Street
VTVSP0600/13C200522	Addison	Ferrisburgh	T0001	02/11/2013	20:30	Clear	Under the influence of medication/drugs/alcohol, Swerving or avoiding due to wind, slippery surface, vehicle, object, non-motorist in roadway etc	Single Vehicle Crash	1	0	0	529 Stage Road at Greenbush Road
VTVSP0600/16C201405	Addison	Ferrisburgh	T0003	05/20/2016	09:02	[No Weather]		[No Direction of Collision]	0	0	0	531 PLANK RD
VTVSP0600/13C204384	Addison	Ferrisburgh	T0005	12/23/2013	17:52	Cloudy	Disregarded traffic signs, signals, markings, No improper driving	No Turns, Thru moves only, Broadside ^<	0	0	0	904 Little Chicago Road at Hawkins Road TH#19

General Yearly Summaries - Town Highway Crash Listing: Non-Federal Aid Highways-Local

WHERE Year of Crash >= 2012 AND Year of Crash <= 2016

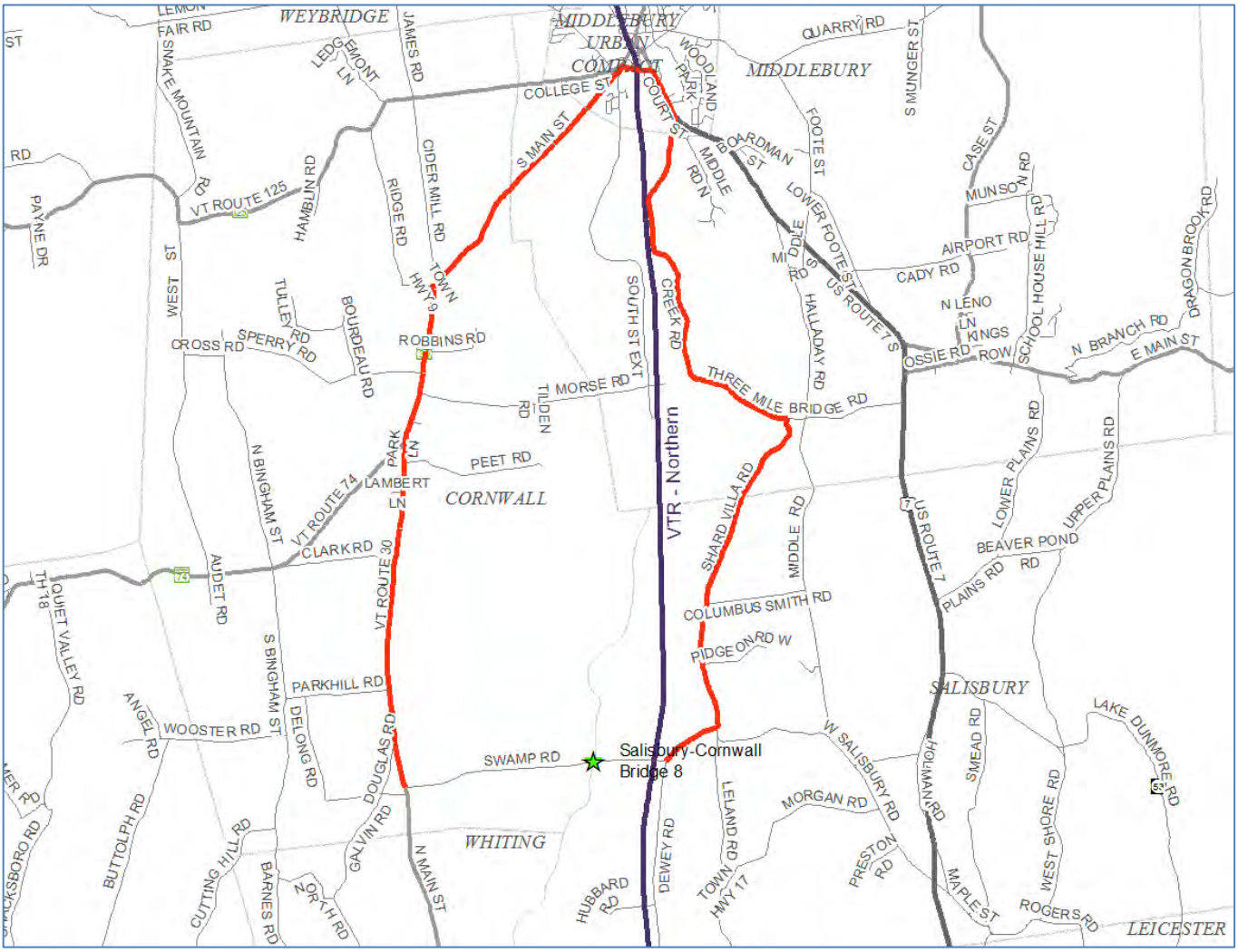
Reporting Agency/ Incident No.	County	Town	Route	Crash Date	Time	Weather	Contributing Circumstances	Direction of Collision	Number Of Injuries	Number Of Fatalities	Number Of Untimely Deaths	Location
VTVSP0600/15C203233	Addison	Salisbury	S0628	10/11/2015	10:28	[No Weather]		[No Direction of Collision]	0	0	0	Min. C 0628 (950 W. Shore Rd.)
VTVSP0600/13C201705	Addison	Salisbury	T0001	05/22/2013	17:47	Clear	Made an improper turn, Failure to keep in proper lane, No improper driving	Left Turn and Thru, Broadside v<--	0	0	0	West Salisbury Road at US Route 7
VTVSP0600/15C200958	Addison	Salisbury	T0001	04/02/2015	19:00	Clear	Exceeded authorized speed limit, Failure to keep in proper lane, Unknown, No improper driving	No Turns, Thru moves only, Broadside ^<	1	0	0	1563 West Salisbury Road at 1563 West Salisbury Road
VTVSP0600/15C202090	Addison	Salisbury	T0001	07/06/2015	14:49	[No Weather]		[No Direction of Collision]	0	0	0	TH-1 W SALISBURY RD. at MAPLE ST.
VTVSP0600/15C202696	Addison	Salisbury	T0001	08/23/2015	13:00	Clear	No improper driving	Single Vehicle Crash	1	0	0	2963 West Salisbury Road at Leland Road
VTVSP0600/16C201319	Addison	Salisbury	T0001	05/13/2016	11:02	[No Weather]		[No Direction of Collision]	0	0	0	34 CREEK RD
VTVSP0600/13C200695	Addison	Salisbury	T0002	02/26/2013	16:43	Cloudy	Swerving or avoiding due to wind, slippery surface, vehicle, object, non-motorist in roadway etc	Single Vehicle Crash	0	0	0	338 Shard Villa Road at West Salisbury Road TH#1
VTVSP0600/16C201691	Addison	Salisbury	T0002	06/07/2016	09:00	Cloudy	Inattention, Failed to yield right of way, No improper driving	No Turns, Thru moves only, Broadside ^<	0	0	0	1789 Shard Villa Road at Columbus Smith Road (TH #7)
VTVSP0600/13C203759	Addison	Salisbury	T0005	10/30/2013	07:35	Cloudy	Driving too fast for conditions, Failure to keep in proper lane	Single Vehicle Crash	0	0	0	1899 Upper Plains Road at Beaver Pond Road TH#11
VTVSP0600/14C200285	Addison	Salisbury	T0005	01/24/2014	09:45	Clear	Failed to yield right of way, Driving too fast for conditions, No improper driving	Head On	1	0	0	1928 Leland Road at 1928 Leland Road
VTVSP0600/15C202268	Addison	Salisbury	T0005	07/20/2015	02:57	[No Weather]		[No Direction of Collision]	0	0	0	TH-5 (2281 LELAND RD.)
VTVSP0600/16C200234	Addison	Salisbury	T0005	01/23/2016	20:05	Clear	Driving too fast for conditions, Failure to keep in proper lane	Single Vehicle Crash	0	0	0	1503 Leland Road at Morgan Road TH14
VTVSP0600/12C203919	Addison	Salisbury	T0006	12/22/2012	12:59	Cloudy	Operating vehicle in erratic, reckless, careless, negligent, or aggressive manner, Under the influence of medication/drugs/alcohol	Single Vehicle Crash	1	0	0	Smead Road #1412 at Sunset Drive Private
VTVSP0600/15C202639	Addison	Salisbury	T0006	08/18/2015	15:20	Clear	Exceeded authorized speed limit	Single Vehicle Crash	1	0	0	1570 Smead Road at Vermont Route 53
VTVSP1200/15C203047	Addison	Salisbury	T0006	09/22/2015	15:15	Clear	Failure to keep in proper lane	Single Vehicle Crash	0	0	0	642 Smead Road at Sunset Drive
VTVSP0600/16C201148	Addison	Salisbury	T0006	04/30/2016	00:24	Clear	Under the influence of medication/drugs/alcohol, Wrong side or wrong way	Single Vehicle Crash	0	0	0	1041 Smead Road at Sunset Drive
VTVSP0600/15C203954	Addison	Salisbury	T0008	12/25/2015	00:48	Clear	Failure to keep in proper lane	Single Vehicle Crash	0	0	0	Middle Road at Columbus Smith Road
VTVSP0600/16C200200	Addison	Salisbury	T0008	01/20/2016	09:06	Clear	Operating vehicle in erratic, reckless, careless, negligent, or aggressive manner	Single Vehicle Crash	0	0	0	1447 Middle Rd at Columbus Rd
VTVSP0600/12C202121	Addison	Salisbury	T0009	07/17/2012	09:10	Rain	Failure to keep in proper lane, Swerving or avoiding due to wind, slippery surface, vehicle, object, non-motorist in roadway etc	Single Vehicle Crash	1	0	0	Lower Plains Road at Middlebury Town Line

Appendix O: Detour Routes



Detour Route 1: Creek Road to Dewey Road, Old Jerusalem Road, Leicester Whiting Road, VT-30 North, to Swamp Road.

Through Route: 2.5 Miles
Detour Route: 11.4 Miles
Added Distance: 8.9 Miles
End-to-End Distance: 13.9 Miles



Detour Route 2: Creek Road to West Salisbury Road, Shard Villa Road, 3 Mile Bridge Road, continue onto Creek Road, Court Street, Cross Street, VT-30 South, to Swamp Road

Through Route: 2.5 Miles
Detour Route: 15.6 Miles
Added Distance: 13.1 Miles
End-to-End Distance: 18.1 Miles

Appendix P: Scoping Planset

STATE OF VERMONT
BY AND THROUGH ITS
AGENCY OF NATURAL RESOURCES

L & R FARMS, LLC
joined by
VERMONT LAND TRUST, INC.;
VERMONT AGENCY OF AGRICULTURE, FOOD AND MARKETS;
VERMONT HOUSING & CONSERVATION BOARD

STA 11+57.75=
CHAN 51+00.00
Δ= 80°0'0" LT

BENCHMARK
SPIKE IN TREE
ELEV=346.321

OTTER CREEK
FLOW

TOWN LINE

PT STA 9+31.44

PI STA 10+27.49

PI STA 14+58.19

PC STA 14+31.74

PT STA 10+85.79

PC STA 9+68.65

PI STA 8+73.86

TH-3 (SWAMP ROAD)

TH-1 (CREEK ROAD)

9+00 10+00 11+00 12+00 13+00 14+00

50+00 51+00 52+00

340 330 350

ARCH HVCTRL GRAVEL DRIVE FIELD DRIVE SIGN R2-1 (35) W5-2 R1-1 36" CMP FLOW HDPE FLOW

CORNWALL
SALISBURY
TOWN LINE

N

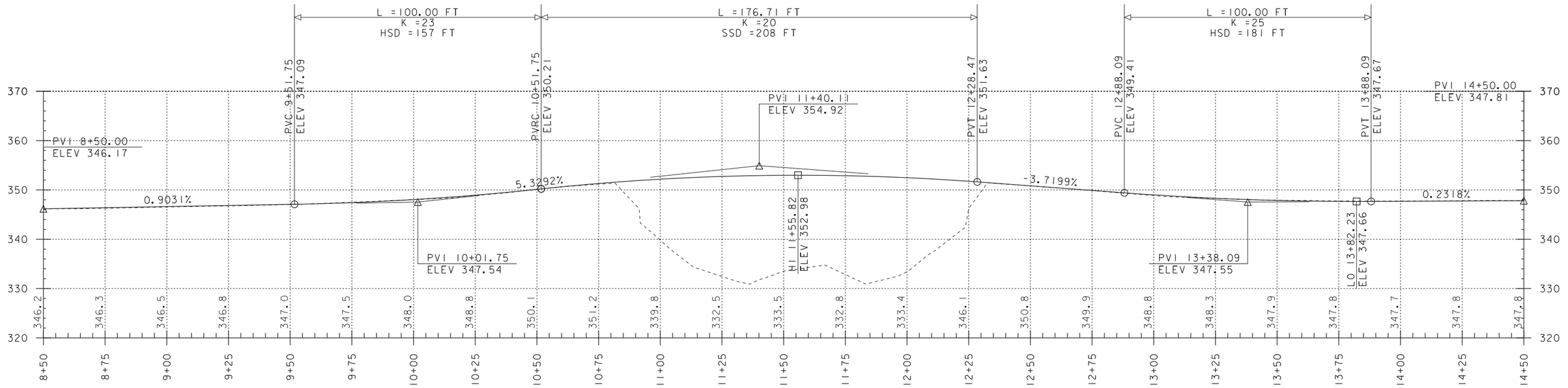
VT STATE PLANE GRID

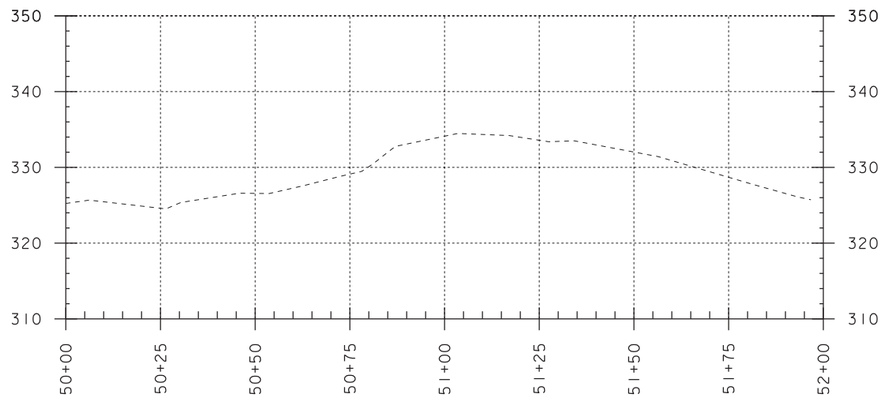
EXISTING BRIDGE INFORMATION
TOWN LATTICE COVERED BRIDGE
BUILT 1865, RECONSTRUCTED 2008,
BURNED DOWN 9/2016,
TEMPORARY BRIDGE INSTALLED 12/2016,
156' TWO SPAN, 71' MAX SPAN
12.5' CURB TO CURB

EXISTING CONDITIONS

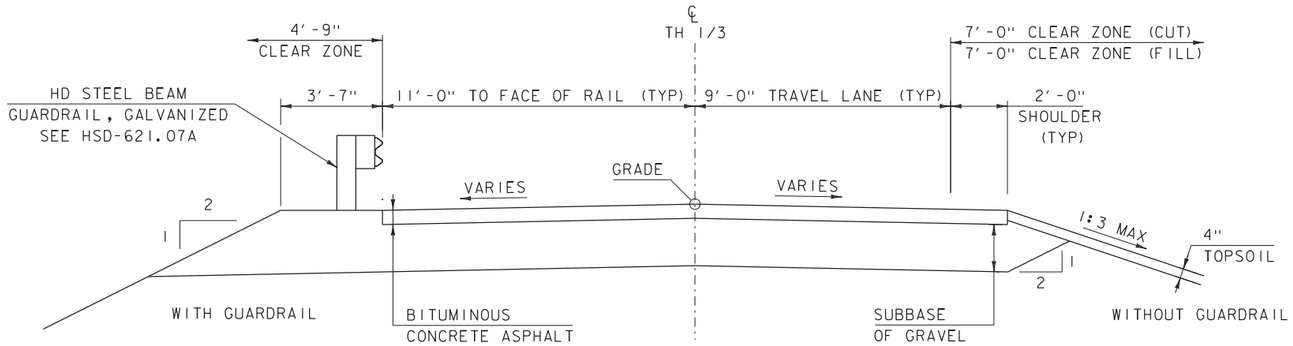
SCALE 1" = 20'-0"
20 0 20

PROJECT NAME:	SALISBURY-CORNWALL
PROJECT NUMBER:	BO 1445(39)
FILE NAME: 18j164/sl8j164border.dgn	PLOT DATE: 20-AUG-2021
PROJECT LEADER: L.J.STONE	DRAWN BY: D.D.BEARD
DESIGNED BY: ------	CHECKED BY: ------
EXISTING CONDITIONS LAYOUT SHEET	SHEET 1 OF 14



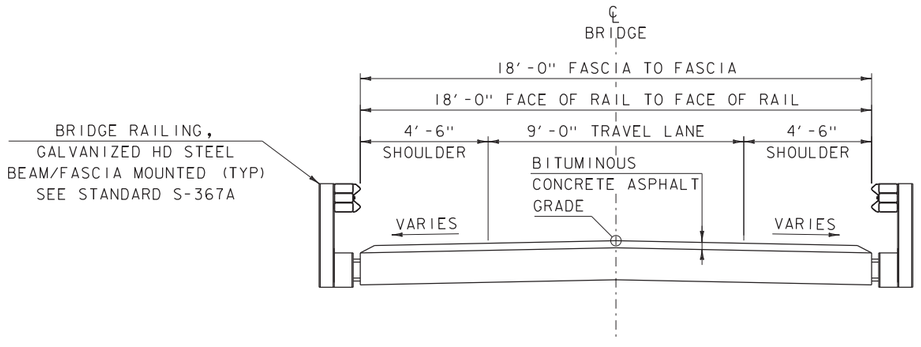


PROJECT NAME:	SALISBURY-CORNWALL
PROJECT NUMBER:	BO 1445(39)
FILE NAME: 18J164/s18J164profile.dgn	PLOT DATE: 20-AUG-2021
PROJECT LEADER: L.J.STONE	DRAWN BY: D.D.BEARD
DESIGNED BY: ------	CHECKED BY: ------
PROFILE SHEET	SHEET 2 OF 14



PROPOSED TH 1/3 TYPICAL SECTION

SCALE 3/8" = 1'-0"



PROPOSED SINGLE LANE STEEL BEAM BRIDGE TYPICAL SECTION

SCALE 3/8" = 1'-0"

MATERIAL TOLERANCES

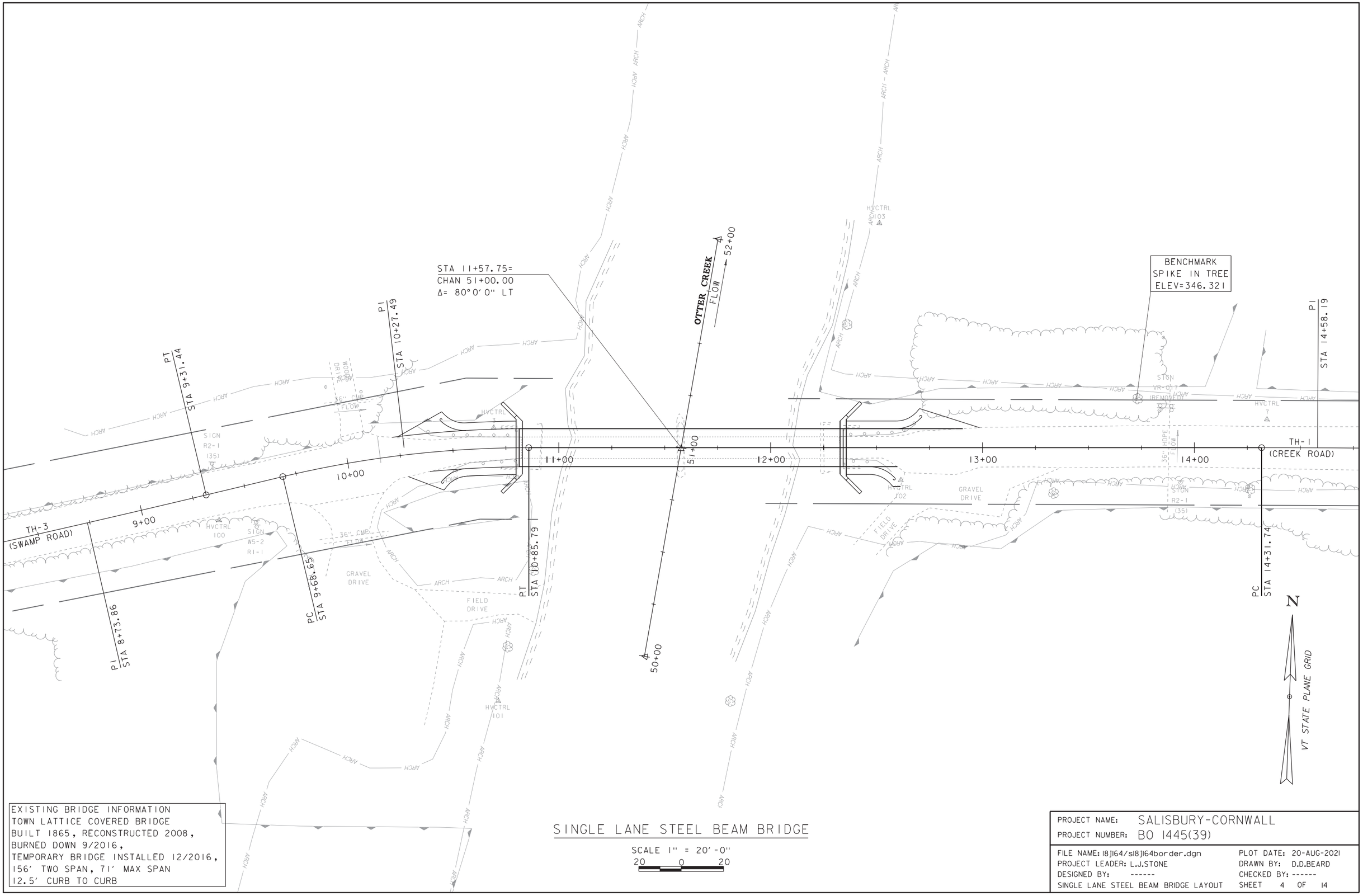
(IF USED ON PROJECT)

SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
- AGGREGATE SURFACE COURSE	+/- 1/2"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"

PROJECT NAME: SALISBURY/CORNWALL
PROJECT NUMBER: BO 1445(39)

FILE NAME: 18J164\s18J164typical.dgn
PROJECT LEADER: L.J.STONE
DESIGNED BY: ----------
SINGLE LANE STEEL BEAM TYPICAL SECTIONS

PLOT DATE: 20-AUG-2021
DRAWN BY: D.D.BEARD
CHECKED BY: ------



EXISTING BRIDGE INFORMATION
TOWN LATTICE COVERED BRIDGE
BUILT 1865, RECONSTRUCTED 2008,
BURNED DOWN 9/2016,
TEMPORARY BRIDGE INSTALLED 12/2016,
156' TWO SPAN, 71' MAX SPAN
12.5' CURB TO CURB

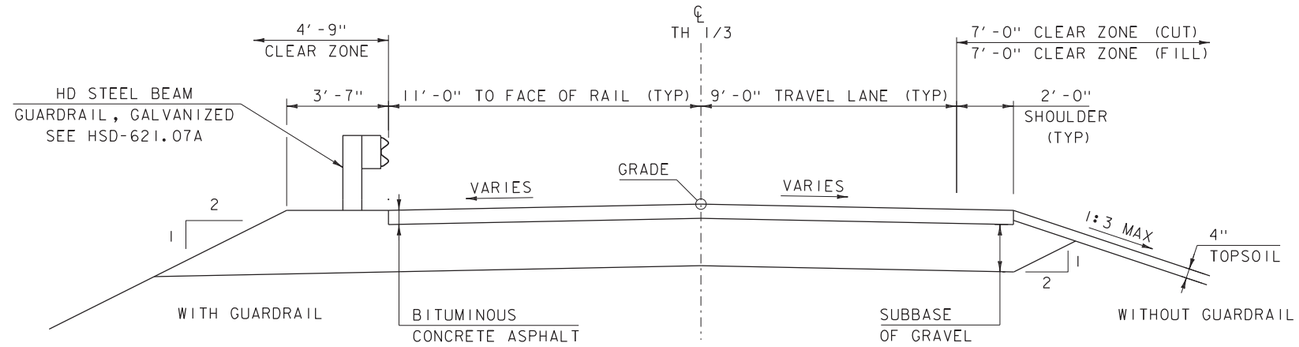
SINGLE LANE STEEL BEAM BRIDGE

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

PROJECT NAME: SALISBURY-CORNWALL
PROJECT NUMBER: BO 1445(39)

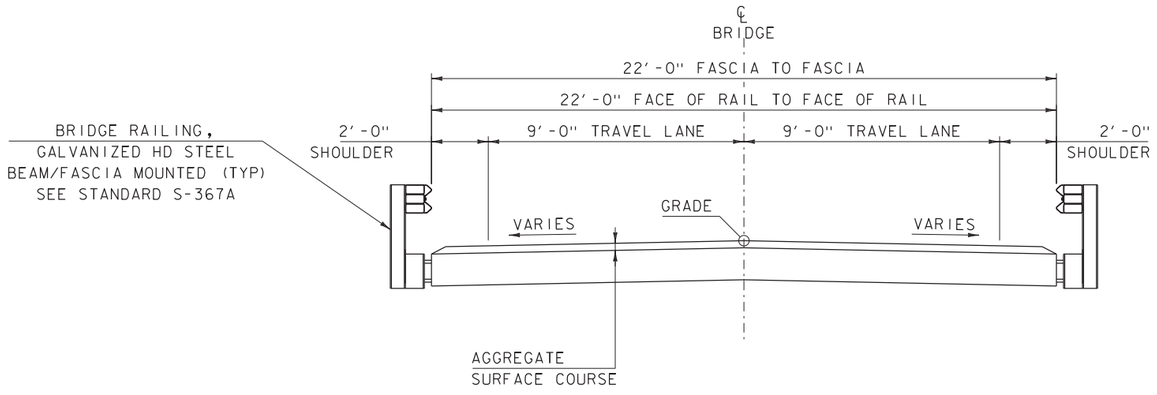
FILE NAME: 18J164/sl8J164border.dgn
PROJECT LEADER: L.J.STONE
DESIGNED BY: ------
SINGLE LANE STEEL BEAM BRIDGE LAYOUT

PLOT DATE: 20-AUG-2021
DRAWN BY: D.D.BEARD
CHECKED BY: ------
SHEET 4 OF 14



PROPOSED TH 1/3 TYPICAL SECTION

SCALE 3/8" = 1'-0"



PROPOSED 2-LANE STEEL BEAM BRIDGE TYPICAL SECTION

SCALE 3/8" = 1'-0"

MATERIAL TOLERANCES

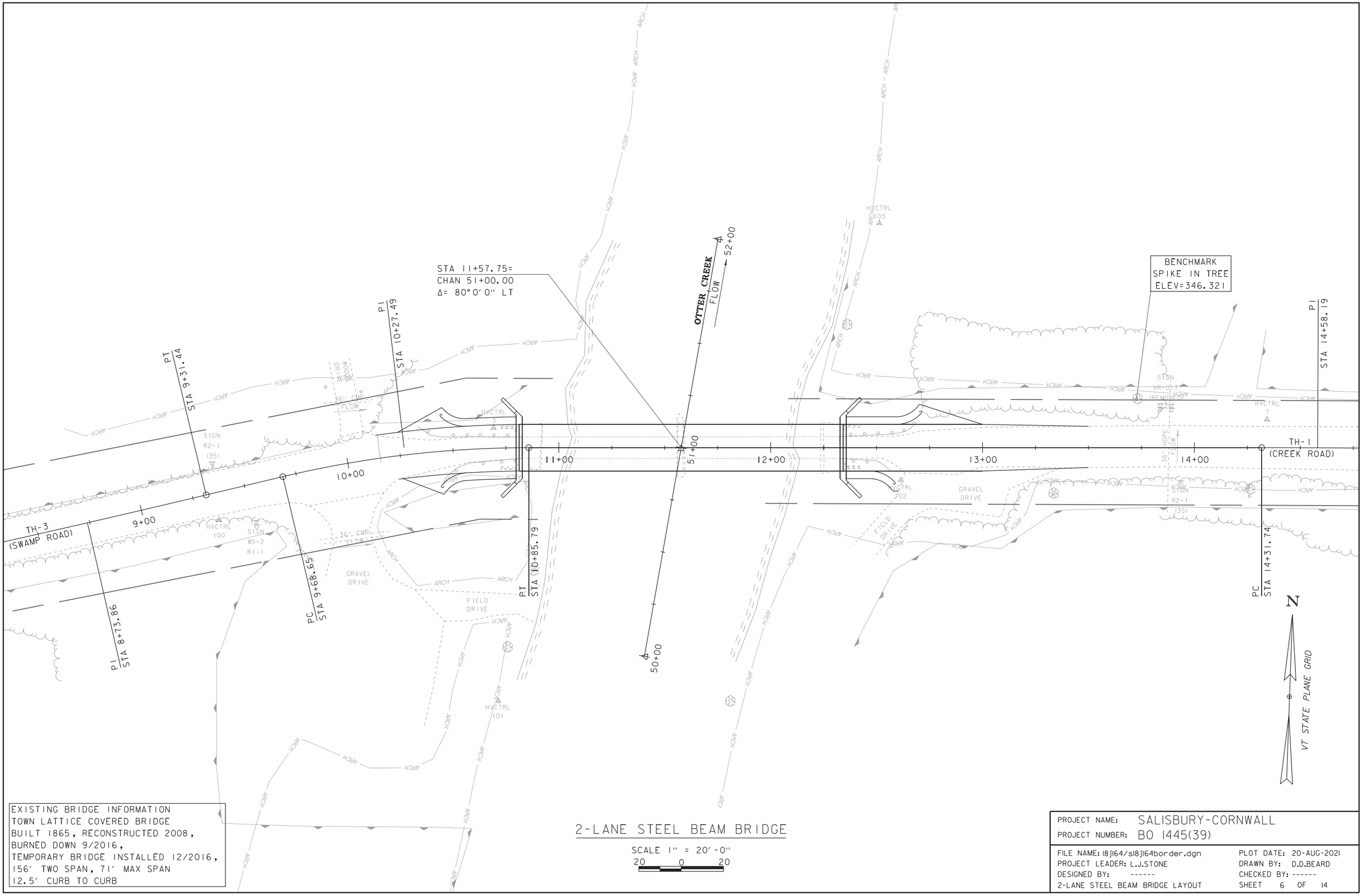
(IF USED ON PROJECT)

SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
- AGGREGATE SURFACE COURSE	+/- 1/2"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"

PROJECT NAME: SALISBURY/CORNWALL
PROJECT NUMBER: BO 1445(39)

FILE NAME: 18J164\s18J164typical.dgn
PROJECT LEADER: L.J.STONE
DESIGNED BY: ----------
2-LANE STEEL BEAM TYPICAL SECTIONS

PLOT DATE: 20-AUG-2021
DRAWN BY: D.D.BEARD
CHECKED BY: ------
SHEET 5 OF 14

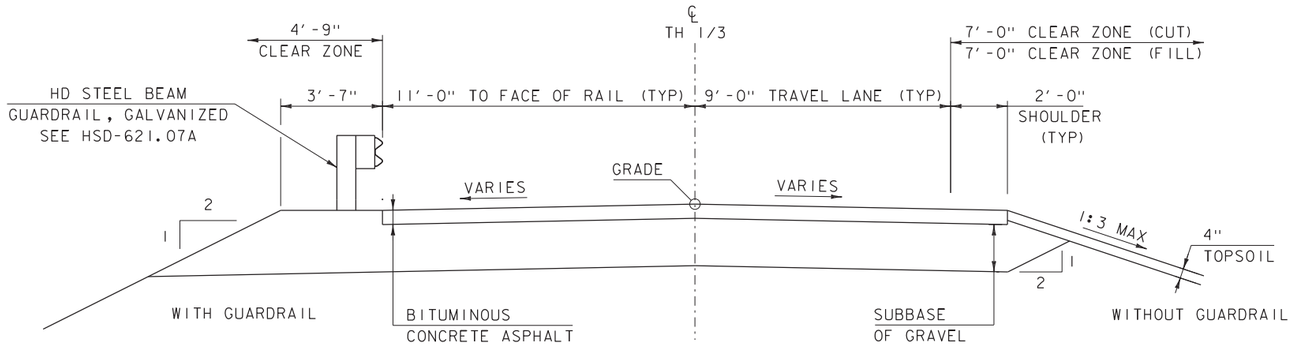


EXISTING BRIDGE INFORMATION
TOWN LATTICE COVERED BRIDGE
BUILT 1865, RECONSTRUCTED 2008,
BURNED DOWN 9/2016,
TEMPORARY BRIDGE INSTALLED 12/2016,
156' TWO SPAN, 71' MAX SPAN
12.5' CURB TO CURB

2-LANE STEEL BEAM BRIDGE

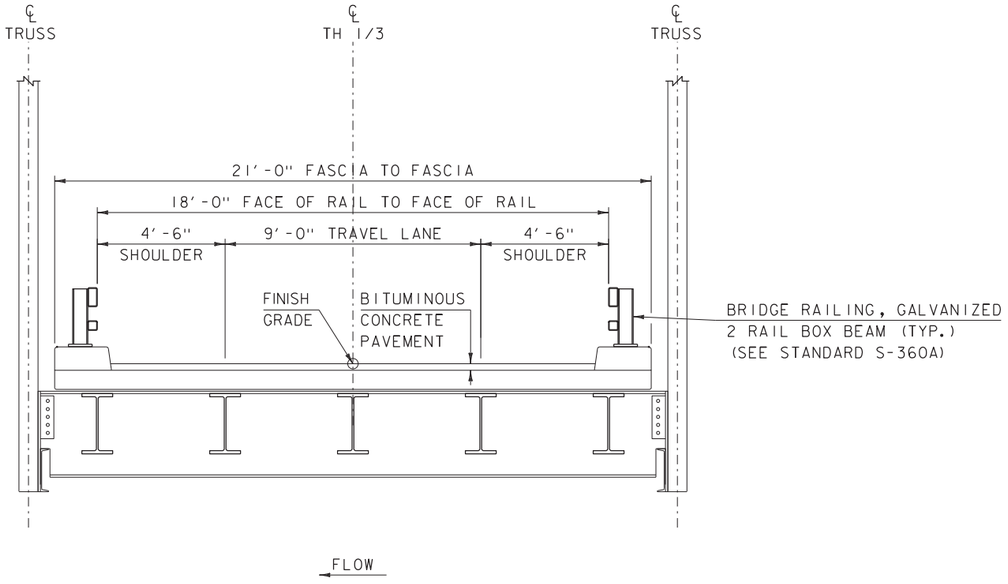
SCALE 1" = 20'-0"
20 0 20

PROJECT NAME:	SALISBURY-CORNWALL
PROJECT NUMBER:	BO 1445(39)
FILE NAME: 18J164/sl8J164border.dgn	PLOT DATE: 20-AUG-2021
PROJECT LEADER: L.J.STONE	DRAWN BY: D.D.BEARD
DESIGNED BY: ------	CHECKED BY: ------
2-LANE STEEL BEAM BRIDGE LAYOUT	SHEET 6 OF 14



PROPOSED TH 1/3 TYPICAL SECTION

SCALE 3/8" = 1'-0"



PROPOSED SINGLE LANE-PONY TRUSS BRIDGE TYPICAL SECTION

SCALE 3/8" = 1'-0"

MATERIAL TOLERANCES

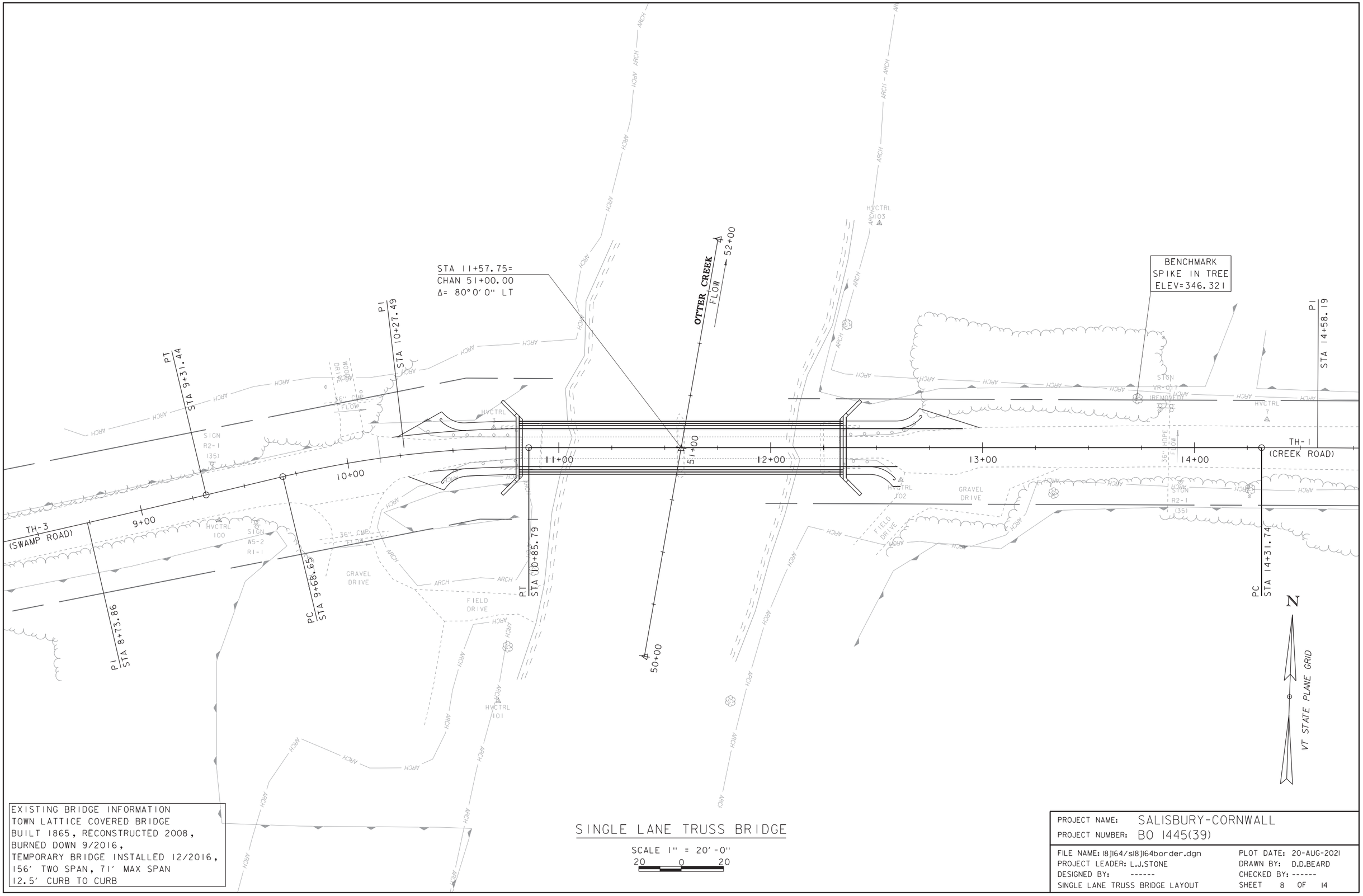
(IF USED ON PROJECT)

SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
- AGGREGATE SURFACE COURSE	+/- 1/2"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"

PROJECT NAME: SALISBURY/CORNWALL
PROJECT NUMBER: BO 1445(39)

FILE NAME: 18J164\s18J164typical.dgn
PROJECT LEADER: L.J.STONE
DESIGNED BY: ----------
SINGLE LANE-PONY TRUSS TYPICAL SECTIONS

PLOT DATE: 20-AUG-2021
DRAWN BY: D.D.BEARD
CHECKED BY: ------



EXISTING BRIDGE INFORMATION
TOWN LATTICE COVERED BRIDGE
BUILT 1865, RECONSTRUCTED 2008,
BURNED DOWN 9/2016,
TEMPORARY BRIDGE INSTALLED 12/2016,
156' TWO SPAN, 71' MAX SPAN
12.5' CURB TO CURB

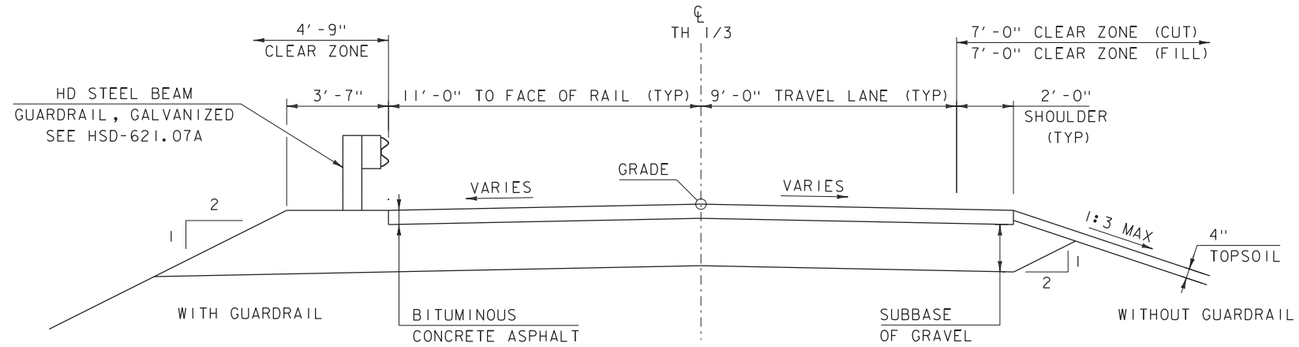
SINGLE LANE TRUSS BRIDGE

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

PROJECT NAME: SALISBURY-CORNWALL
PROJECT NUMBER: BO 1445(39)

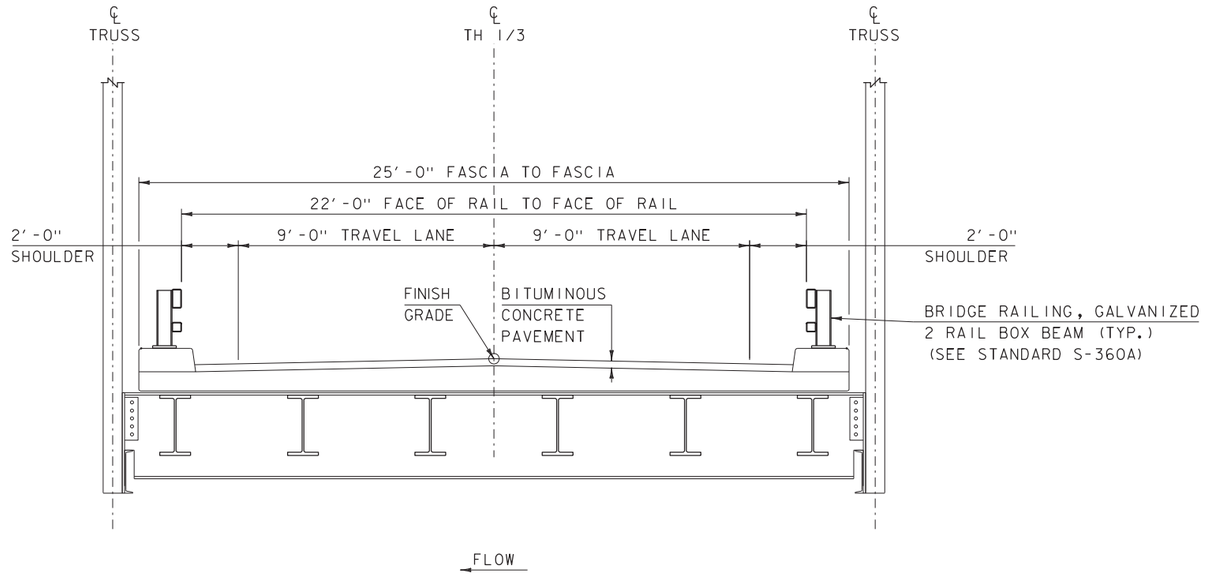
FILE NAME: 18J164/s18J164border.dgn
PROJECT LEADER: L.J.STONE
DESIGNED BY: ------
SINGLE LANE TRUSS BRIDGE LAYOUT

PLOT DATE: 20-AUG-2021
DRAWN BY: D.D.BEARD
CHECKED BY: ------
SHEET 8 OF 14



PROPOSED TH 1/3 TYPICAL SECTION

SCALE 3/8" = 1'-0"



PROPOSED PONY TRUSS BRIDGE TYPICAL SECTION

SCALE 3/8" = 1'-0"

MATERIAL TOLERANCES

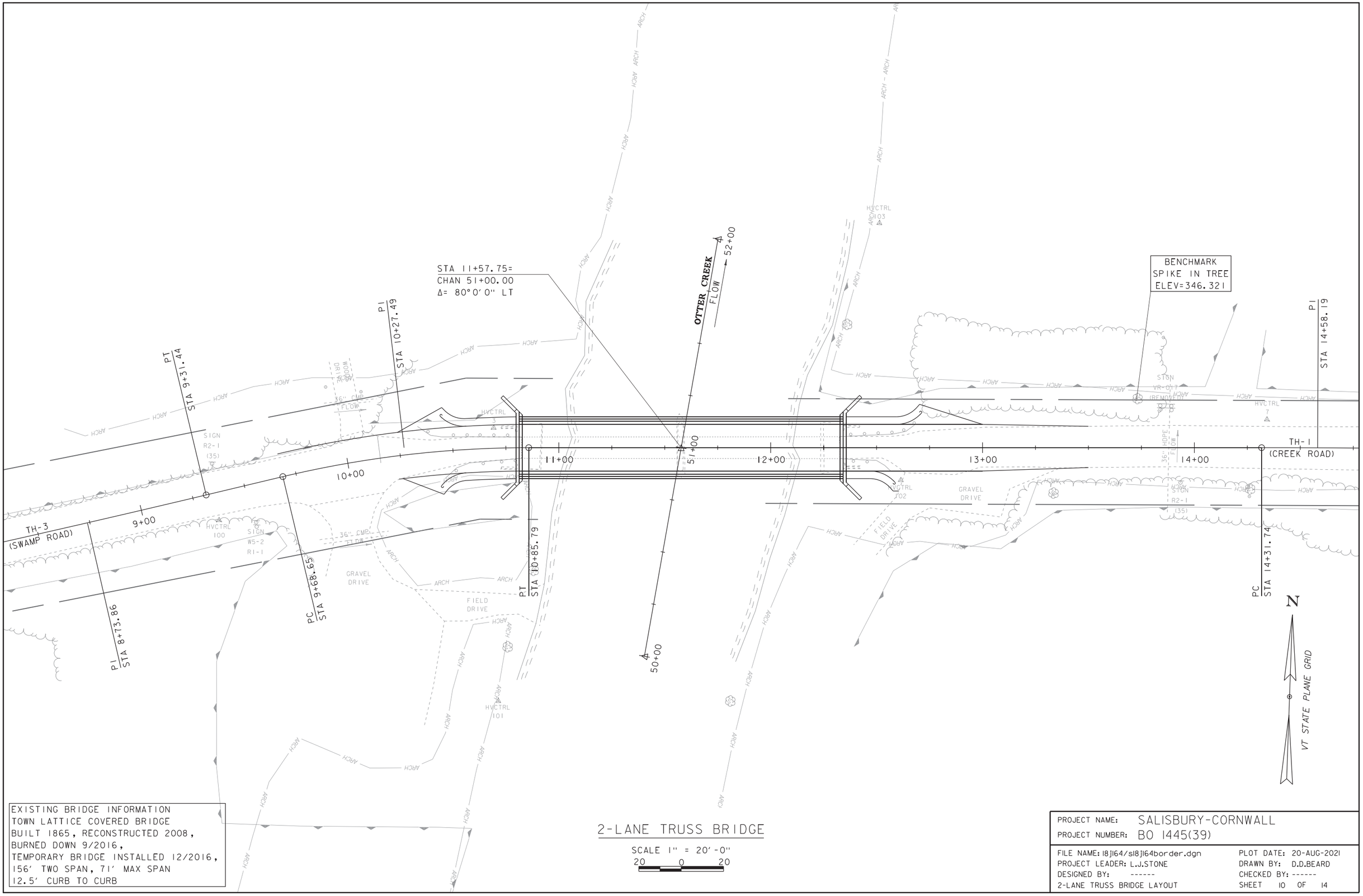
(IF USED ON PROJECT)

SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
- AGGREGATE SURFACE COURSE	+/- 1/2"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"

PROJECT NAME: SALISBURY/CORNWALL
PROJECT NUMBER: BO 1445(39)

FILE NAME: 18J164\s18J164typical.dgn
PROJECT LEADER: L.J.STONE
DESIGNED BY: ----------
PONY TRUSS TYPICAL SECTIONS

PLOT DATE: 20-AUG-2021
DRAWN BY: D.D.BEARD
CHECKED BY: ------



EXISTING BRIDGE INFORMATION
TOWN LATTICE COVERED BRIDGE
BUILT 1865, RECONSTRUCTED 2008,
BURNED DOWN 9/2016,
TEMPORARY BRIDGE INSTALLED 12/2016,
156' TWO SPAN, 71' MAX SPAN
12.5' CURB TO CURB

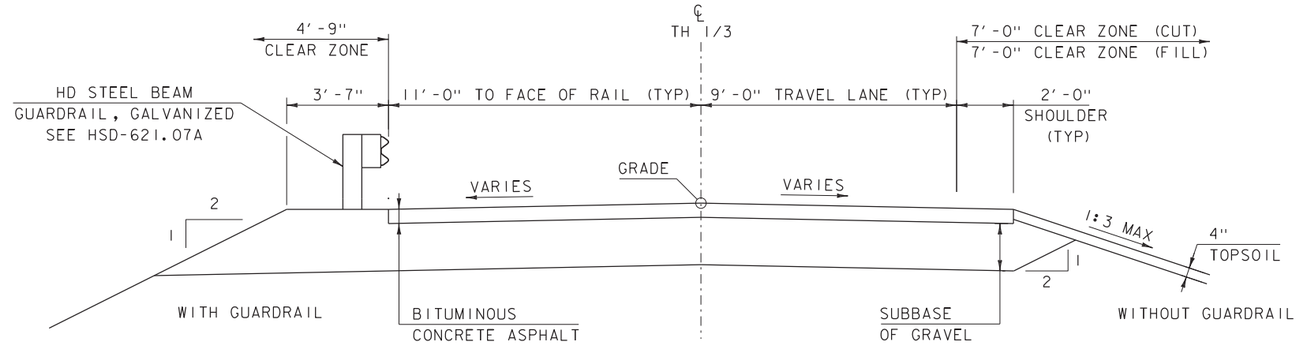
2-LANE TRUSS BRIDGE

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

PROJECT NAME: SALISBURY-CORNWALL
PROJECT NUMBER: BO 1445(39)

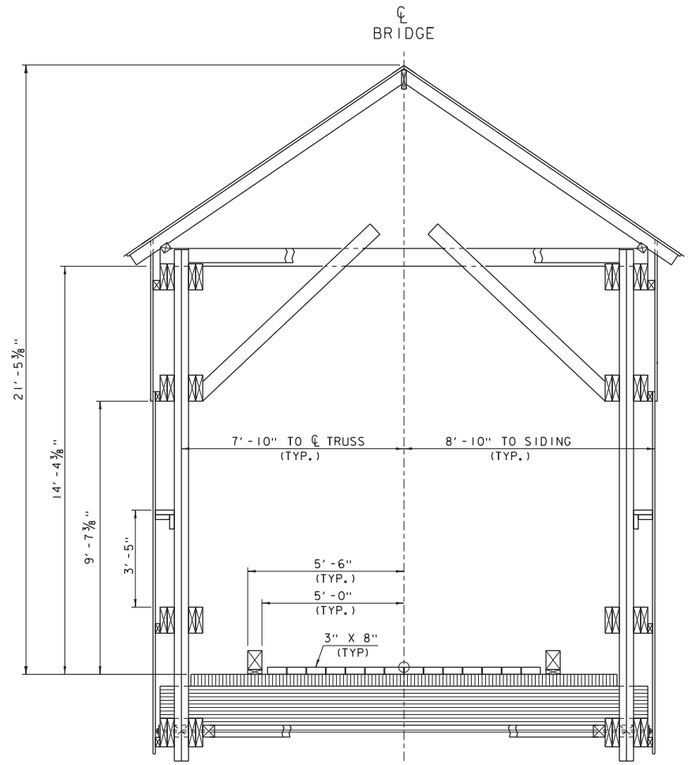
FILE NAME: 18J164/sl8J164border.dgn
PROJECT LEADER: L.J.STONE
DESIGNED BY: ------
2-LANE TRUSS BRIDGE LAYOUT

PLOT DATE: 20-AUG-2021
DRAWN BY: D.D.BEARD
CHECKED BY: ------
SHEET 10 OF 14



PROPOSED TH 1/3 TYPICAL SECTION

SCALE 3/8" = 1'-0"



PROPOSED COVERED BRIDGE TYPICAL SECTION

SCALE 3/8" = 1'-0"

MATERIAL TOLERANCES

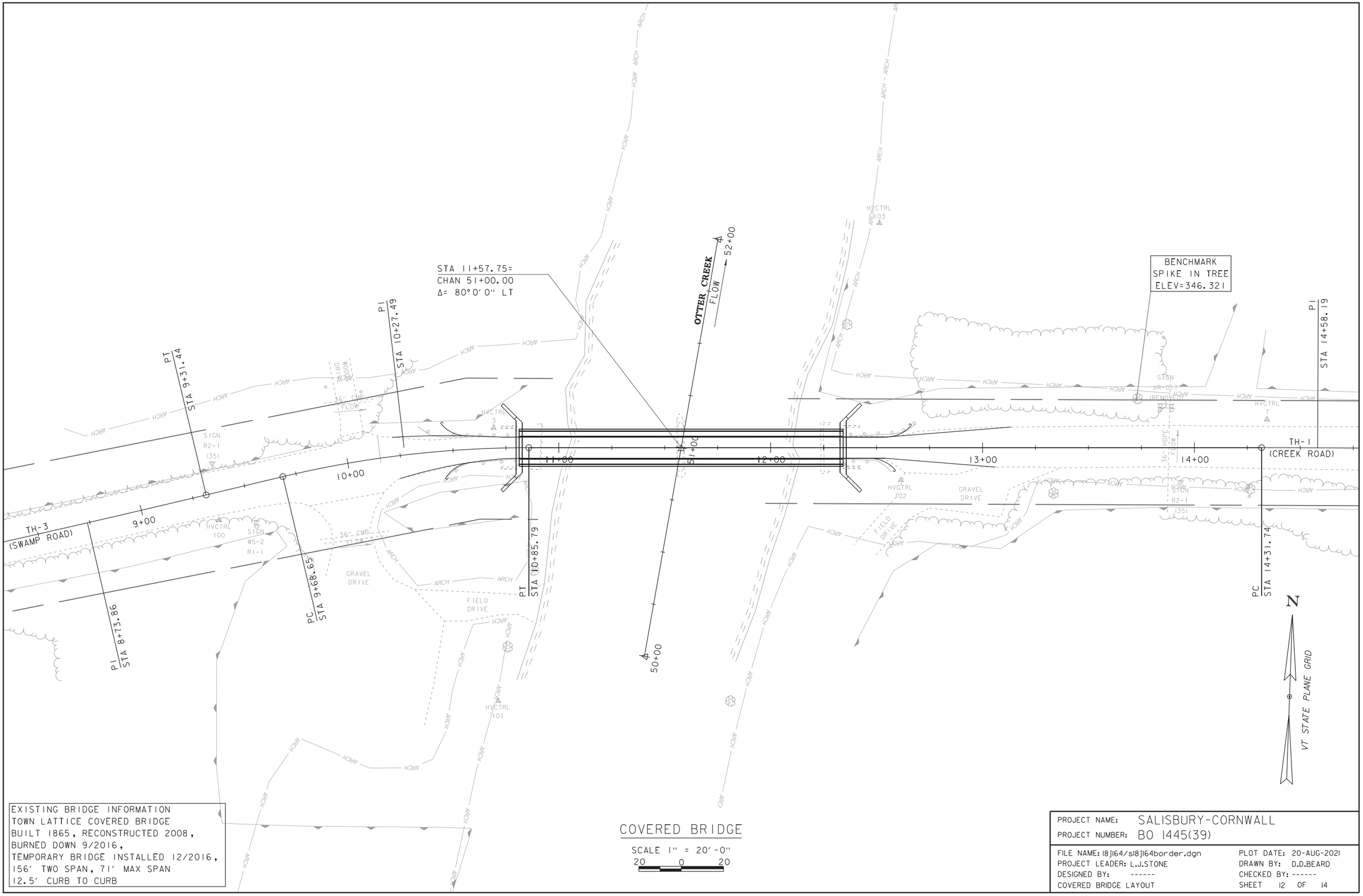
(IF USED ON PROJECT)

SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- 1/4"
- AGGREGATE SURFACE COURSE	+/- 1/2"
SUBBASE	+/- 1"
SAND BORROW	+/- 1"

PROJECT NAME: SALISBURY/CORNWALL
PROJECT NUMBER: BO 1445(39)

FILE NAME: 18J164\s18J164typical.dgn
PROJECT LEADER: L.J.STONE
DESIGNED BY: ----------
COVERED BRIDGE TYPICAL SECTIONS

PLOT DATE: 20-AUG-2021
DRAWN BY: D.D.BEARD
CHECKED BY: ------
SHEET 11 OF 14

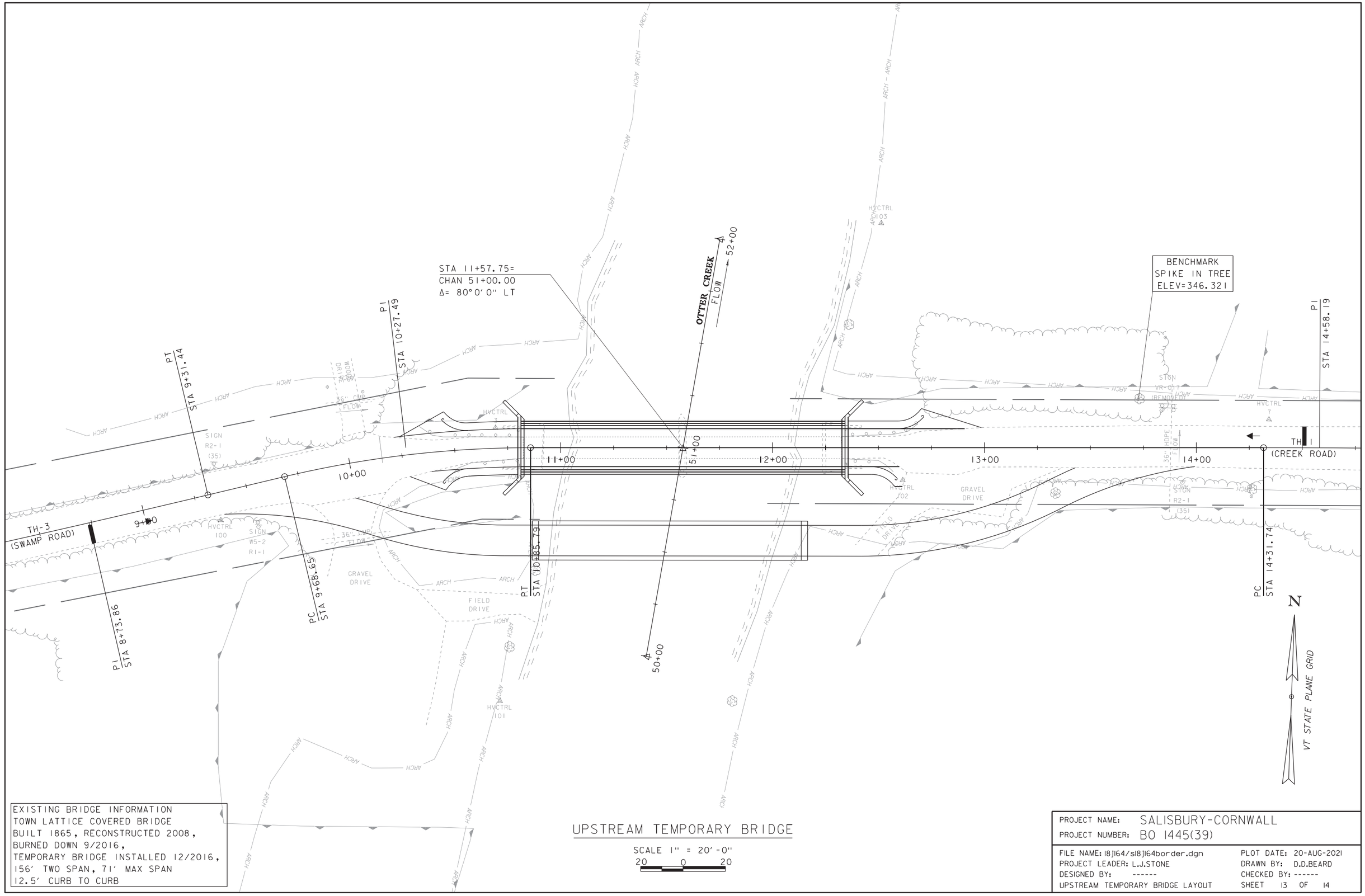


EXISTING BRIDGE INFORMATION
TOWN LATTICE COVERED BRIDGE
BUILT 1865, RECONSTRUCTED 2008,
BURNED DOWN 9/2016,
TEMPORARY BRIDGE INSTALLED 12/2016,
156' TWO SPAN, 71' MAX SPAN
12.5' CURB TO CURB

COVERED BRIDGE

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

PROJECT NAME:	SALISBURY-CORNWALL
PROJECT NUMBER:	BO 1445(39)
FILE NAME: 18J164/s18J164border.dgn	PLOT DATE: 20-AUG-2021
PROJECT LEADER: L.J.STONE	DRAWN BY: D.D.BEARD
DESIGNED BY: ------	CHECKED BY: ------
COVERED BRIDGE LAYOUT	SHEET 12 OF 14

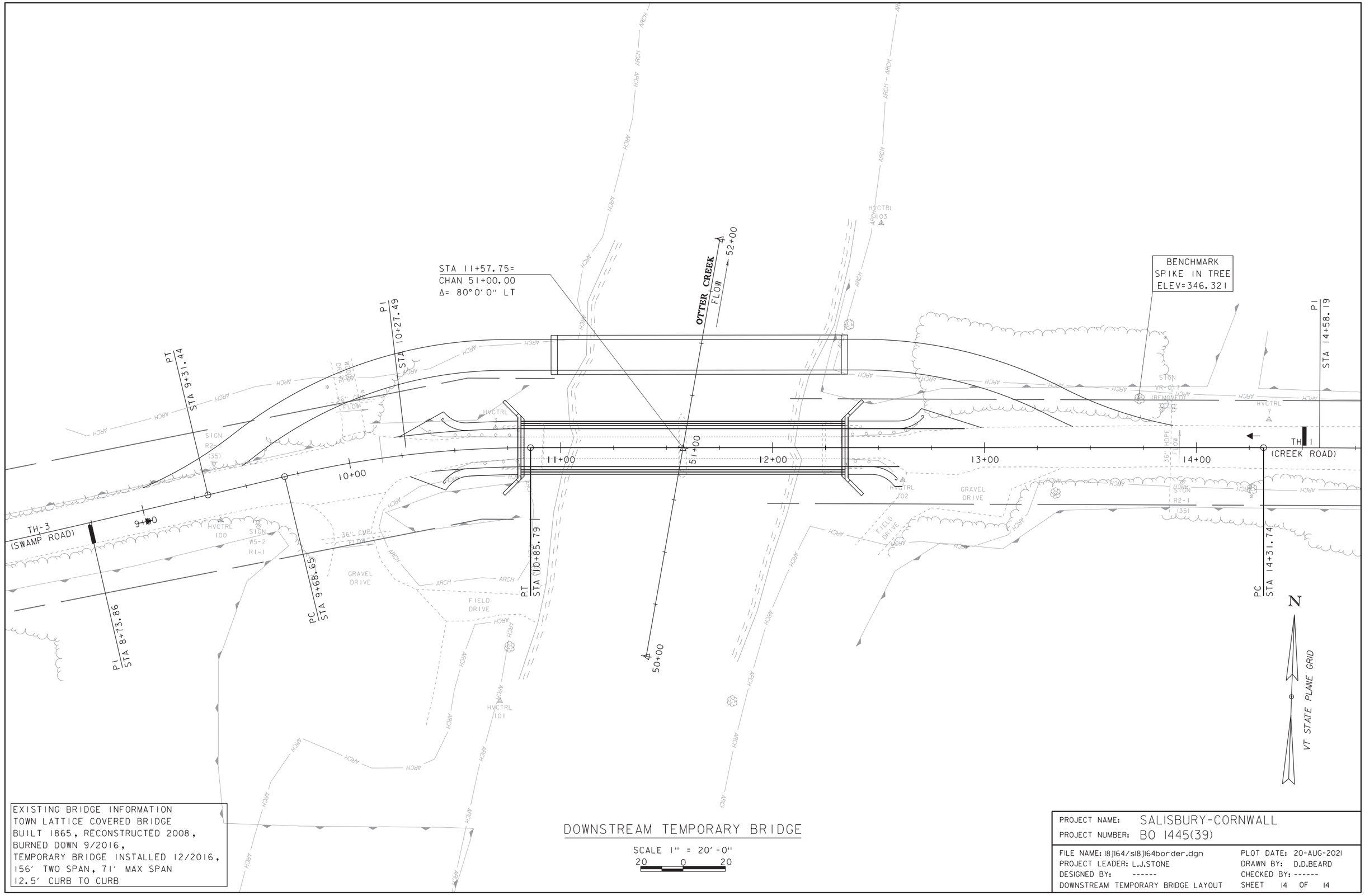


EXISTING BRIDGE INFORMATION
TOWN LATTICE COVERED BRIDGE
BUILT 1865, RECONSTRUCTED 2008,
BURNED DOWN 9/2016,
TEMPORARY BRIDGE INSTALLED 12/2016,
156' TWO SPAN, 71' MAX SPAN
12.5' CURB TO CURB

UPSTREAM TEMPORARY BRIDGE

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

PROJECT NAME:	SALISBURY-CORNWALL
PROJECT NUMBER:	BO 1445(39)
FILE NAME: 18j164/sl8j164border.dgn	PLOT DATE: 20-AUG-2021
PROJECT LEADER: L.J.STONE	DRAWN BY: D.D.BEARD
DESIGNED BY: ------	CHECKED BY: ------
UPSTREAM TEMPORARY BRIDGE LAYOUT	SHEET 13 OF 14



EXISTING BRIDGE INFORMATION
TOWN LATTICE COVERED BRIDGE
BUILT 1865, RECONSTRUCTED 2008,
BURNED DOWN 9/2016,
TEMPORARY BRIDGE INSTALLED 12/2016,
156' TWO SPAN, 71' MAX SPAN
12.5' CURB TO CURB

DOWNSTREAM TEMPORARY BRIDGE

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

PROJECT NAME: SALISBURY-CORNWALL
PROJECT NUMBER: BO 1445(39)

FILE NAME: 18j164/s18j164border.dgn
PROJECT LEADER: L.J.STONE
DESIGNED BY: ------
DOWNSTREAM TEMPORARY BRIDGE LAYOUT

PLOT DATE: 20-AUG-2021
DRAWN BY: D.D.BEARD
CHECKED BY: ------
SHEET 14 OF 14