

Vermont Wetlands Program Permit Application Database Form

Under Sections 8 and 9
of the Vermont Wetland Rules



Application Submittal Instructions

- If submitting via US post, include a check in the correct fee amount made payable to the **“State of Vermont,”** and a CD for applications that contain large files (1 MB or greater).
Mail to: Vermont Wetlands Program
 Watershed Management Division
 One National Life Drive, Main 2
 Montpelier, VT 05620-3522

- Applications can also be submitted via email to the following address: anr.wsmdwetlands@vermont.gov
 - If submitting via email, please mail a check in the correct fee amount, made payable to the **“State of Vermont,”** and a copy of the Vermont Wetlands Program Application Database Form (this page) to the address provided above. ***It is not necessary to mail in a copy of the complete application.***

Applicant Name:	Application Preparer Name:
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Town where project is located:	County:
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Span#:	Vermont Wetlands Project (VWP)# if Known:
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Project Location Description:
911 street address or direction from nearest intersection

Brief Project Summary:

Application Type:
 Individual Permit (multiple wetlands)
 After the Fact Permit
 Wetland Determination
 Individual Permit (single wetland)
 General Permit Coverage Authorization
 Permit Amendment: VWP Project # _____

Existing Land Use Type(s): *(Check all that apply)*
 Residential (single family)
 Residential (subdivision)
 Undeveloped
 Agriculture
 Transportation
 Forestry
 Parks/Rec/Trail
 Institutional
 Industrial/Commercial

Proposed Land Use Type(s): *(Check all that apply)*
 Residential (single family)
 Residential (subdivision)
 Undeveloped
 Agriculture
 Transportation
 Forestry
 Parks/Rec/Trail
 Institutional
 Industrial/Commercial

Proposed Impact Type(s): *(Check all that apply)*
 Buildings
 Utilities
 Parking
 Septic/Well
 Stormwater
 Driveway
 Park/Path
 Agriculture
 Pond
 Lawn
 Dry Hydrant
 Beaver Dam Alteration
 Silviculture
 Road
 Aesthetics
 No Impact
 Other: _____

Wetland and Buffer Impact Type: *(Check all that apply)*
 Dredge
 Drain
 Cut Vegetation
 Stormwater
 Trench/Fill
 Other: _____

Wetland Delineation Date(s):

Wetland Improvements	Buffer Zone Improvements	Reason for Improvements
Restoration: s.f.	Restoration: s.f.	<input type="checkbox"/> Correction of Violation
Creation: s.f.	Creation: s.f.	<input type="checkbox"/> To offset permit impacts
Enhancement: s.f.	Enhancement: s.f.	<input type="checkbox"/> Voluntary
Conservation: s.f.	Conservation: s.f.	

Wetland Impact Fee Calculations: Round to the nearest square foot. Fees will auto-calculate.

Total Wetland Impact <i>(minus linear clear, including ATF)</i>	square feet (s.f.)	Wetland Impact Fee: (\$0.75/sf)	\$
Total Wetland Clearing <i>(qualified linear projects only)</i>	square feet (s.f.)	Wetland Clearing Fee: (\$0.25/sf)	\$
After The Fact Wetland Impact <i>(to correct a violation)</i>	square feet (s.f.)	After the Fact Wetland Fee: (0.75/sf) <i>(Required for after the fact permit applications)</i>	\$

Total Buffer Zone Impacts and Calculations: Round to the nearest square foot

Total Buffer Zone Impact	square feet (s.f.)	Buffer Impact Fee: (\$0.25/sf)	\$
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Additional Fees

	Agricultural Crop Conversion <i>Check here:</i> <i>(Flat fee of \$200.00)</i>	\$
	Minimum Application Fee: (\$50.00) <i>Required when total impact fee is less than \$50.00</i>	\$
	Administrative Fee:	\$

Make Checks Payable to: State of Vermont	Total Check Amount:	\$
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**Vermont Individual Wetland
Permit Application and
Determination Petition**
Under Sections 8 and 9
of the Vermont Wetland Rules



VERMONT DEPARTMENT OF
ENVIRONMENTAL CONSERVATION
**WATERSHED
MANAGEMENT DIVISION**
WETLANDS PROGRAM

Applicant Information: <i>If the applicant is someone other than the landowner, the landowner information must be included below</i>			
Applicant Name: VTrans			
Address: One National Life Drive		City/Town: Montpelier	State: VT
Phone Number: (802)279-0583		Email Address: glenn.gingras@vermont.gov	
Applicant Certification: By signing this application you are certifying that all of the information contained within is true, accurate, and complete to the best of your knowledge. Original signature is required.			
Applicant Signature: <u>Glenn Gingras</u>		Date: _____	
<small>Digitally signed by Glenn Gingras DN: cn=Glenn Gingras, o=VTrans, ou=PDB-Environmental, email=glenn.gingras@vermont.gov, c=US Date: 2016.08.09 09:49:50 -04'00'</small>			

Landowner Information: <i>Landowner must sign the application. If landowner is different from the applicant this section must be filled out</i>			
<input checked="" type="checkbox"/> Check this box if landowner is the same as the applicant			
Landowner Name: _____			
Address: _____		City/Town: _____	State: _____
Phone Number: _____		Email Address: _____	
Landowner Easement: <i>Attach copies of any easements, agreements, or other documents conveying permission, and agreement with the landowner stating who will be responsible for meeting the terms and conditions of the permit. List the attachment for this information in this section. Describe the nature of the agreement or easement in the space provided below:</i>			
Landowner Certification: By signing this application you are certifying that all the information contained within is true, accurate, and complete to the best of your knowledge. Original signature is required.			
Landowner Signature: <u>Glenn Gingras</u>		Date: _____	
<small>Digitally signed by Glenn Gingras DN: cn=Glenn Gingras, o=VTrans, ou=PDB-Environmental, email=glenn.gingras@vermont.gov, c=US Date: 2016.08.09 09:50:13 -04'00'</small>			

Application Preparer Information: <i>Consultant, engineer, or other representative that is responsible for filling out the application, if other than the applicant or landowner.</i>			
Application Preparer Name: Glenn Gingras		Organization/Company: VTrans	
Address: One National Life Drive		City/Town: Montpelier	State: VT
Phone Number: (802)-279-0583		Email Address: glenn.gingras@vermont.gov	
Application Preparer Certification: By signing this application you are certifying that all of the information contained within is true, accurate, and complete to the best of your knowledge. Original signature is required.			
Application Preparer Signature: <u>Glenn Gingras</u>		Date: _____	
<small>Digitally signed by Glenn Gingras DN: cn=Glenn Gingras, o=VTrans, ou=PDB-Environmental, email=glenn.gingras@vermont.gov, c=US Date: 2016.08.09 09:50:35 -04'00'</small>			

Handwritten signatures are also accepted

<p>1. Location of wetland and project: <i>Location description should include the road the wetland is located on, the compass direction of the wetland in relation to the road, 911 street address if available, and any other distinguishing features.</i></p>

<p>2. Site visit date(s) and attendees: <i>A site visit is required before the application can be called complete</i></p>	
<p>2.1 Date of Visit(s) with State District Wetland Ecologist</p>	<p>2.2. List of people present for site visit(s) including Ecologist, landowner, and representatives.</p>

<p>3. Wetland Classification: <i>For multiple wetlands fill out the multiple wetlands table for sections 1 and 3 through 1</i></p>
<p>3.1. The wetland is a Class II wetland because :</p>
<p>3.2. Section 4.6 Presumption <i>If the wetland meets the Section 4.6 Presumption, it does so primarily because:</i></p>

<p>4. Description of the Entire Wetland: <i>Answer the following questions regarding the entire wetland, which includes all wetland areas connected to the wetland proposed for impact. Answers may be estimates based on desktop review when the wetland extends past the investigation area (parcel boundary). Specific questions about the wetland in the project area will follow. For multiple wetlands , fill out the multiple wetlands table.</i></p>
<p>4.1. Size of Complex in Acres: <i>The size of the complex can be obtained from the Wetland Inventory Map for mapped wetlands, or best estimation based on review of aerial photography or site visit. This is not the size of the of the delineated wetland on the subject property unless the entirety of the wetland is represented in the delineation.</i></p>
<p>4.2. Vegetation Cover Types Present: <i>List all wetland types in the wetland or wetland complex and their percent cover. For example: 50 acres of softwood forested swamp; or 30% scrub swamp, 70% emergent wetland</i></p>
<p>4.3. Landscape Position: <i>Where is the wetland located on the landscape? For example: Bottom of a basin, edge of a stream, shore of a lake, etc.</i></p>
<p>4.4. Hydrology: <i>Describe the main source of water for the entire wetland. List any river, stream, lakes, or ponds</i></p>
<p>4.4.1. Direction of Flow: <i>For example: Stream flows from north to south through the wetland complex, or the wetland drains generally to the southwest.</i></p>
<p>4.4.2. Influence of Hydrology on the Entire Wetland: <i>For example: The river provides floodwater to the wetland in the spring.</i></p>
<p>4.4.3. Relation of Entire Wetland to the Project Area: <i>The distance between the project area and any nearby surface waters</i></p>

<p>4.4.4. Entire Wetland Hydroperiod: <i>Discuss the frequency and duration of flooding, ponding, and/or soil saturation</i></p>
<p>4.5. Surrounding Landuse of the Entire Wetland: <i>For example: Rural residential and forested; Agricultural and undeveloped</i></p>
<p>4.6. Relation of the Entire Wetland to Other Nearby Wetlands: <i>Provide any information on wetlands or wetland complexes that are close enough to contribute to the overall function of the wetland in question.</i></p>
<p>4.7. Pre-project Cumulative Impacts to the Entire Wetland: <i>Identify any cumulative ongoing impacts outside of the proposed project that may influence the wetland. Examples include but are not limited to: Wetland encroachments on and off the subject property, land use management in or surrounding the wetland, or development that influences hydrology or water quality. List any past Vermont Wetland Permits or CUD's related to this property.</i></p>
<p>5. Description of Subject Wetland and Buffer: <i>Subject wetland is defined as the area of wetland in the project vicinity, but not limited to the portion of the wetland to be directly impacted by the project. For the purposes of this application, the subject wetland should encompass any portion of the wetland that could either be directly or indirectly impacted by the project, as defined by chemical, physical, or biological characteristics. This may include the entire wetland area, or wetland area off property. For multiple wetlands, fill out the multiple wetlands table.</i></p>
<p>5.1. Context of Subject Wetland: <i>Describe where the subject wetland is in the context of the entire wetland described in section 4 above. For example: Upslope, narrow eastern "finger", 400 ft. from open water portion.</i></p>
<p>5.2. Subject Wetland Land Use: <i>For example: Mowed lawn, old field, naturally vegetated. Describe any previous and ongoing disturbance in the subject wetland.</i></p>
<p>5.3. Subject Wetland Vegetation: <i>List dominant wetland vegetation cover type and associated dominant plant species.</i></p>
<p>5.4. Subject Wetland Soils: <i>Use the USDA NRCS information where possible and use the ACOE Delineation Manual soil description</i></p>
<p>5.5. Subject Wetland Hydrology: <i>Use the description from the ACOE Delineation Manual</i></p>

5.6. Buffer Zone: <i>Describe the buffer zone of the subject wetland (50 foot envelope of land adjacent to wetland boundary).</i>
5.6.1. Buffer Land Use: <i>For example: Mowed shoulder, forested, old field, paved road, and residential lawns, etc. Describe any previous and ongoing disturbance in the buffer zone.</i>
5.6.2. Buffer Vegetation: <i>List the vegetation cover type and dominant plant species.</i>
5.6.3. Buffer Soils: <i>Use USDA NRCS information where possible, and the ACOE Delineation Manual soil description.</i>

6. Entire Wetland Function and Value Summary (as defined in the Vermont Wetland Rules Section 5): <i>Check which functions are present in the entire wetland</i>	
<input type="checkbox"/> Flood/Storm Storage	<input type="checkbox"/> RTE Species
<input type="checkbox"/> Surface & Groundwater Protection	<input type="checkbox"/> Education & Research
<input type="checkbox"/> Fish Habitat	<input type="checkbox"/> Recreation/Economic
<input type="checkbox"/> Wildlife Habitat	<input type="checkbox"/> Open Space/Aesthetics
<input type="checkbox"/> Exemplary Natural Community	<input type="checkbox"/> Erosion Control

<p>Functions and Values: <i>For each function and value:</i></p> <ol style="list-style-type: none"> 1. <i>Evaluate the entire wetland and check all that apply. Use Wetland Inventory Maps for offsite areas</i> 2. <i>Evaluate how the wetland in the project area contributes to the function.</i> 3. <i>Explain how the project will not result in adverse impacts to the function.</i> <p><i>Include any information on specific avoidance and minimization measures.</i></p> <p><i>If more than one wetland complex is involved, provide a function and value checklist for each wetland complex. In addition fill out the Multiple Wetlands Table.</i></p>
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7. Water Storage for Flood Water and Storm Runoff
<p><input type="checkbox"/> Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function</p> <ul style="list-style-type: none"> <input type="checkbox"/> Constricted outlet or no outlet and an unconstructed inlet. <input type="checkbox"/> 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. <input type="checkbox"/> If a stream is present, it's course is sinuous and there is sufficient woody vegetation to intercept surface flows in the portion of the wetland that floods. <input type="checkbox"/> Physical evidence of seasonal flooding or ponding such as water stained leaves, water marks on trees, drift rows, debris deposits, or standing water. <input type="checkbox"/> Hydrologic or hydraulic study indicates wetland attenuates flooding <p>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. If none of the following apply, the wetland provides this function at a moderate level.</p>

Water Storage for Flood Water and Storm Runoff Continued...

- Check this 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 this 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 loss or reduction of the water storage function.
 - Developed public or private property
 - Stream banks susceptible to scouring and erosion
 - 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.
 - A large amount of impervious surface in urbanized areas.
 - Relatively impervious soils.
 - Steep slopes in the adjacent areas.

7.1 Subject Wetland:

Explain how the subject wetland contributes to the function listed above

7.2 Statement of No Undue Adverse Impact to Water Storage for Flood Water and Storm Runoff:

Explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance, minimization, and compensation measures relevant to this function.

8. 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. If none of the following apply, the wetland provides this function at a moderate level.

- Check this box if any of the following conditions apply that may indicate the wetland provides 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 this box if any of the following conditions apply that may indicate the wetland provides 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 water. (Check ANR Atlas)
 - The wetland contributes to the protection or improvement of water quality of any impaired waters.
 - The wetland is large in size and naturally vegetated.

8.1. Subject Wetland Contribution to Water Protection:

Explain how the subject wetland contributes to the function listed above.

8.2. Statement of No Undue Adverse Impact to Surface and Ground Water Protection:

Explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance, minimization, or compensation measures relevant to this function.

9. 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.

9.1. Subject Wetland Contribution to Fish Habitat:

Explain how the subject wetland contributes to the function listed above.

9.2. Statement of No Undue Adverse Impact to Fish Habitat:

Explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance, minimization, or compensation measures relevant to this function.

10. 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 this species include softwood swamps. Evidence of use includes 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:
 - Wood frog, Jefferson salamander, blue-spotted salamander, or spotted salamander. Breeding habitat for these species includes vernal pools and small ponds.
 - Northern dusky salamander and the spring salamander. Habitat for these species includes headwater seeps, springs, and streams.
 - 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 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 include 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:
 - Three or more wetland vegetation classes (greater than 1/2 acre) present including but not

Wildlife Habitat Continued...

limited to: open water contiguous to, but not necessarily part of, the wetland, deep marsh, shallow marsh, shrub swamp, forested swamp, fen, or bog.

- The dominant vegetation class is one of the following types: deep marsh, shallow marsh, shrub swamp or, forested swamp.
- Located adjacent to a lake, pond, river or stream.
- Fifty percent or more of surrounding habitat type is one or more of the following: forest, agricultural land, old field or open land.
- Emergent or woody vegetation occupies 26 to 75 percent of wetland, the rest is open water.
- One of the following:
 - Hydrologically connected to other wetlands of different dominant classes or open water within 1 mile.
 - Hydrologically connected to other wetlands of same dominant class within 1/2 mile.
 - 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.

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. If none of the following apply, the wetland provides this function at 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 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 as a locally important wildlife habitat by an ANR Wildlife Biologist.

10.1. Subject Wetland Contribution to Wildlife Habitat Functions:

Explain how the subject wetland contributes to the function listed above.

10.2. Statement of No Undue Adverse Impact to Wildlife Habitat:

Explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance, minimization, or compensation measures relevant to this function.

11. 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 containing examples of several wetland community types.

List species or communities of concern:

11.1. Subject Wetland Proximity to Exemplary Natural Communities

11.2. Statement of No Undue Adverse Impact to Exemplary Wetland Natural Community:

Explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance, minimization, or compensation measures relevant to this function.

12. 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 credible documentation that the wetland provides important habitat for any species on the federal or state threatened or endangered species lists;

There is credible documentation that threatened or endangered species have been present in past 10 years;

There is credible 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 credible documentation that the wetland provides habitat for multiple uncommon species of plants or animals (S3 rank).

List name of species and ranking:

12.1. Subject Wetland Contribution to RTE Habitat:

Explain how the subject wetland contributes to the function listed above.

12.2 Statement of No Undue Adverse Impact to Rare, Threatened, or Endangered Species Habitat:

Explain how the proposed project will not result in any undue, adverse impact to this function. Include any avoidance, minimization, or compensation measures relevant to this function.

13. 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.

13.1. Subject Wetland Education and Research Potential:

Explain how the subject wetland contributes to the function listed above.

13.2 Statement of No Undue Adverse Impact to Education and Research in Natural Sciences:

Explain how the proposed project will not result in any undue, adverse impact to this value. Include any avoidance, minimization, or compensation measures relevant to this value.

14. 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:

14.1. Subject Wetland Recreational and Economic Value:

Explain how the subject wetland contributes to the value listed above.

14.2. Statement of No Undue Adverse Impact to Recreational Value and Economic Benefits:

Explain how the proposed project will not result in any undue, adverse impact to this value. Include any avoidance, minimization, or compensation measures relevant to this value.

15. 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.

Comments:

15.1. Subject Wetland Aesthetic Value:

Explain how the subject wetland contributes to the value listed above.

15.2. Statement of No Undue Adverse Impact to Open Space and Aesthetics:

Explain how the proposed project will not result in any undue, adverse impact to this value. Include any avoidance, minimization, or compensation measures relevant to this value.

16. Erosion Control Through Binding and Stabilizing

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

Erosion Control Through Binding and Stabilization Continued...

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. If none of the following apply, the wetland provides this function at 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.

16.1. Subject Wetland Contribution to Erosion Control:

Explain how the subject wetland contributes to the function listed above.

16.2. Statement of No Undue Adverse Impact to Erosion Control:

Explain how the proposed project will not result in any undue, adverse impact to this function. include any avoidance, minimization, or compensation measures relevant to this function.

17. Project Description:

17.1. Overall Project Purpose:

Description of the basic project and why it is needed. Partial projects with no clear purpose will not be accepted.

For example: six-lot residential subdivision; expansion of an existing commercial building, building a single family residence.

17.2. Description of Project Component Impacting Wetland or Buffer:

Explain in general terms which portions of the project will impact wetlands or buffer zones.

For example: Cross the wetland with a driveway to construct a residential subdivision, upgrade existing road through buffer to improve access, extend a trail system.

17.3. Acreage of Parcel(s) or Easements(s): <i>Acreage of subject property.</i>
17.4. Acreage of Project Area: <i>Acreage of area involved in the project.</i>

18. Project Details: <i>Provide details regarding specific impacts to the wetland and buffer zone.</i> For multiple wetlands fill out the multiple wetland table.

18.1. Specific Impacts to Wetland and Buffer Zone Dimensions: <i>List portions of the project that will specifically impact the wetland or buffer zone and their dimensions. For example: driveway crossing with 16' wide fill; installation of buried sewer force main with 5' trench including fill footprint; addition of Stormwater outfall which directs flow to northern portion of wetland</i>
--

--

18.2. Bridges and Culverts: <i>Culvert circumference, length, placement and shapes, or bridge details. List any stream alteration permits that are required or obtained where perennial streams or rivers are involved.</i>

--

18.3. Construction Sequence: <i>Describe any details pertaining to the work planned in the wetland and buffer in terms of sequence or phasing that is relevant. Describe the construction limits of disturbance, how those will be marked, and check to ensure these are shown on the site plans as well.</i>

--

18.4. Stormwater Design** <i>List any stormwater permits obtained or applied for. Describe stormwater and/or erosion controls proposed. ** Erosion prevention is <u>required</u> in order to prevent sediment from entering the wetland.</i>

--

18.5. Permanent Demarcation of Limit of Impacts** <i>Describe any boulders, fencing, signage, or other memorialization that provides permanent on-the-ground boundaries for the limits of disturbance for ongoing uses. **Permanent demarcations are <u>required</u> for projects with ongoing activities in or near wetlands or buffer zones such as houses, yards, woody clearing or parking areas, and needs to be depicted on the site plans.</i>
--

--

19. Wetland and Buffer Zone Impacts:

For multiple wetlands provide narrative overview for each section below, and fill out the Multiple Wetland Tables

19.1. Wetland Impacts:

*Summarize the square footage of impact in the appropriate category. Add After-the-Fact impacts here too. **Round to the nearest square foot***

Permanent Wetland Fill	s.f.
Temporary Wetland Impact	s.f.
Other Permanent Wetland Impact <i>(this number includes clearing of woody vegetation, dredging, and does not include fill)</i>	s.f.
Total Wetland Impact:	s.f.

Describe in detail the proposed impact to wetlands

For example: Fill for road crossing, temporary impacts for trench and fill related to utility installation.

General narrative required here even for projects with multiple wetlands and impacts

19.2. Buffer Zone Impacts:

Summarize the square footage of impact in the appropriate category.

Temporary Buffer Impact	s.f.
Permanent Buffer Impact	s.f.
Total Buffer Impact:	s.f.

Describe in detail the proposed impact to buffer zones

For example: Addition of fill along roadway embankment extending into buffer zone.

General narrative required here even for projects with multiple wetlands and impacts.

19.3. Cumulative Impacts:

List any potential cumulative or ongoing, direct and indirect impacts on the functions of the wetland.

For example: Increased noise from parking lot, vegetation management, inputs from stormwater pond outlet, reduction in flood storage volume from the addition of fill from the project.

20. Mitigation Sequence:

Before you begin, please read all of Section 20 to respond most appropriately to specific questions. Questions specifically related to Section 9.5b of the Vermont Wetland Rules.

20.1. Avoidance of Wetland Impacts:

20.1.1. Can the activity be located on another site owned or controlled by the applicant, or reasonably available to satisfy the basic project purpose? If not, indicate why. Cite any alternative sites and explain why they were not chosen.

20.1.2. Can the proposed activity be practicably located outside the wetland/buffer zone? If not, indicate why. Explain the alternatives you have explored for avoiding the wetland and buffer onsite, And why they are not feasible.

20.2. Avoidance to the Impact to Functions and Values:

20.2.1. If the proposed activity cannot be practicably located outside the wetland/buffer zone, have all practicable measures been taken to avoid adverse impacts on protected functions? Yes No

20.2.2. What design alternatives were examined to avoid impacts to wetland function? *For example: Use of matting, relocation of footprint, etc.*

20.2.3. What steps have been taken to minimize the size and scope of the project to avoid impacts to wetland functions and values? Include information on project size reduction and relocation.

20.2.4. Explain how the proposed project represents the least impact alternative design. Explain why other alternatives, which you described above, were not chosen.

20.3. Minimization and Restoration:

20.3.1. If avoidance of adverse effects on protected functions cannot be practically achieved, has the proposed activity been planned to minimize adverse impacts on the protected function? Yes No N/A

20.3.2. What measures will be used during construction and on an ongoing basis to protect the wetland and buffer zone? *For example: Stormwater treatment, signs, fencing, etc.*

Minimization and Restoration Continued...

20.3.3. Has a plan been developed for the prompt restoration of any adverse impacts on protected functions? Yes No N/A

Restoration Narrative:

For example: Planting along the stream.

Quantification of Restoration:

Wetland Area (sqft)	Buffer Area (sqft)	Functions/Value s Addressed

20.4. Compensation:

*Please refer to Section 9.5c of the Vermont Wetland Rules for compensation, which is required when the project will result in net adverse impact to wetland function. Not all functions are presumed to be compensable. **All projects requiring compensation need prior consultation with the Vermont Wetlands Program.***

If compensation is proposed please include a summary here. Also list any supporting documents you may have attached to the application including In-Lieu-Fee proposal or detailed compensation plan.

21. Wetland Determination:

If the application involves a wetland determination please answer the following. For multiple wetlands provide narrative overview for each section below, and fill out the Multiple Wetland Tables.

- Wetland is mapped or contiguous to the Vermont Significant Wetland Inventory Map
- Wetland is not mapped on or contiguous to the Vermont Significant Wetland Inventory Map

21.1. Reason for Petition:

Please choose one from the dropdown menu.

21.2. Determination Narrative:

Please provide any narrative to support the petition for a wetland determination here, including previous decisions by the Secretary or Water Board.

22. Supporting Materials:

****ADDITIONAL MATERIAL REQUIRED TO CALL APPLICATION COMPLETE**

22.1. **Location Map:

Provide a location map that is 8 ½” x 11” and separate from any site plans.
The Vermont Natural Resources Atlas is appropriate using USGS topography map base layer, roads, and VSWI wetlands at a minimum.

Date	Title

22.2. **Site Plan(s):

List as specified below. Plans must be legible and include wetland delineation and buffer zones, limits of disturbance, erosion controls, building envelopes, and any permanent memorialization.

Title	Author	Date	Date of Last Revision

22.3. **U.S. Army Corps of Engineer Wetland Delineation Forms:

List attachment names, dates data was collected, cover types sampled, and number of paired plots included

Attachment #/Title	Range of Collection Dates	Vegetation Cover Types	# of Paired Plots

22.4. Other Supporting Documents:

Provide any other documentation that supports the application.
Examples include but are not limited to: Photographs, easements, agreements, restoration/plan, GIS shapefiles, additional ACOE forms.

Date	Last Revision	Author	Title

23. Abutting Landowners

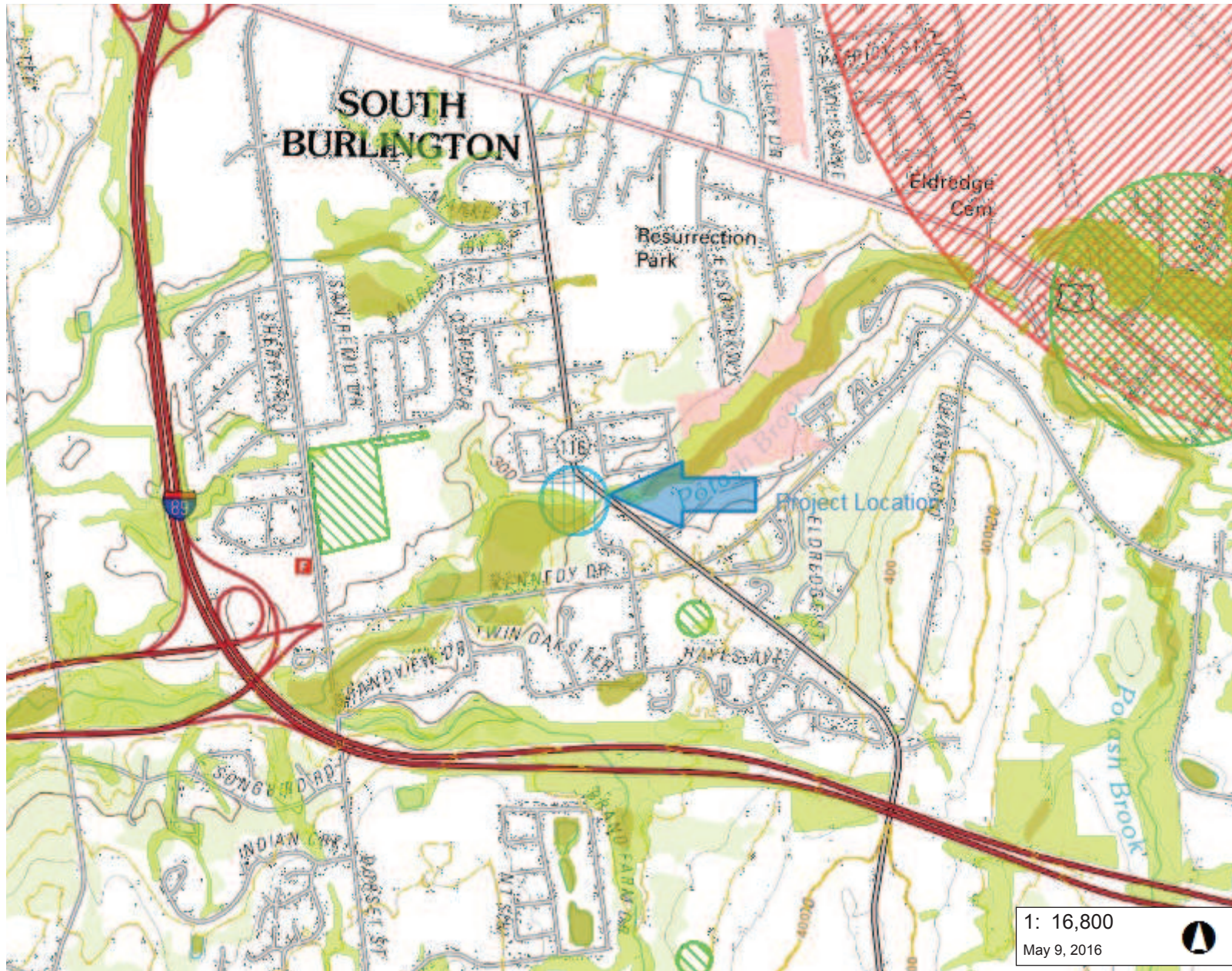
Please provide abutting landowner information so that all persons owning property within, or adjacent to, the affected wetland area of buffer zone can be notified during the public notice period. **Please use additional sheets if necessary.**

23.1. Abutting Land Owner Information: Please list as first names first followed by last name

1. Name: Street/Road: City/State/Zip:	16. Name: Street/Road: City/State/Zip:
2. Name: Street/Road: City/State/Zip:	17. Name: Street/Road: City/State/Zip:
3. Name: Street/Road: City/State/Zip:	18. Name: Street/Road: City/State/Zip:
4. Name: Street/Road: City/State/Zip:	19. Name: Street/Road: City/State/Zip:
5. Name: Street/Road: City/State/Zip:	20. Name: Street/Road: City/State/Zip:
6. Name: Street/Road: City/State/Zip:	21. Name: Street/Road: City/State/Zip:
7. Name: Street/Road: City/State/Zip:	22. Name: Street/Road: City/State/Zip:
8. Name: Street/Road: City/State/Zip:	23. Name: Street/Road: City/State/Zip:
9. Name: Street/Road: City/State/Zip:	24. Name: Street/Road: City/State/Zip:
10. Name: Street/Road: City/State/Zip:	25. Name: Street/Road: City/State/Zip:
11. Name: Street/Road: City/State/Zip:	26. Name: Street/Road: City/State/Zip:
12. Name: Street/Road: City/State/Zip:	27. Name: Street/Road: City/State/Zip:
13. Name: Street/Road: City/State/Zip:	28. Name: Street/Road: City/State/Zip:
14. Name: Street/Road: City/State/Zip:	29. Name: Street/Road: City/State/Zip:
15. Name: Street/Road: City/State/Zip:	30. Name: Street/Road: City/State/Zip:

24. Modified Distribution (Newspaper Notification): In situations where there is an application within a large wetland or buffer zone that has a large number of landowners, applicants can choose to limit the distribution list with a supplemental newspaper notification. At a minimum the applicant must 1) provide notice to immediate abutters, 2) provide notice to all persons owning property containing the wetland or buffer within 500 ft. of the project area, and 3) shall have the VWP publish notice of the application in a local newspaper generally circulating in the area where the wetland is located. ****The applicant will be billed directly by the newspaper listed. Use of newspaper notification may extend the notice period, depending on when the notice posts in the newspaper****

Name of Newspaper(s)



LEGEND

- Wetlands - VSWI**
 - Class 1 Wetland
 - Class 2 Wetland
- Wetlands Advisory Layer
- Conserved Lands**
 - Housing and Conservation Board
 - Local Government
 - Private Organization
 - US Dept. of Defense
 - US Fish and Wildlife Service
 - US National Park Service
 - UVM and State Colleges
 - VT Dept. Buildings and General Se
 - VT Division for Historical Preservati
- Rare Threatened Endangered**
 - Threatened or Endangered
 - Rare
- Uncommon Species and Other**
 - Animal
 - Plant
 - Natural Community
- Town Boundary

1: 16,800
May 9, 2016



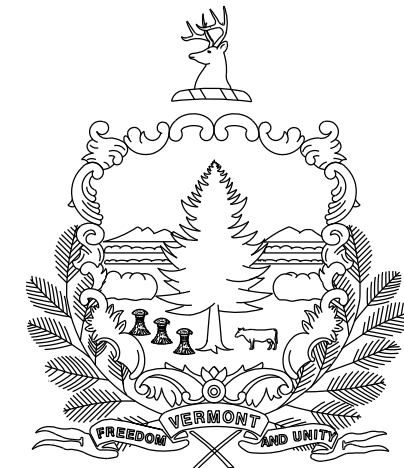
853.0 0 426.00 853.0 Meters
 WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 1400 Ft. 1cm = 168 Meters
 © Vermont Agency of Natural Resources THIS MAP IS NOT TO BE USED FOR NAVIGATION

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

NOTES

Map created using ANR's Natural Resources Atlas

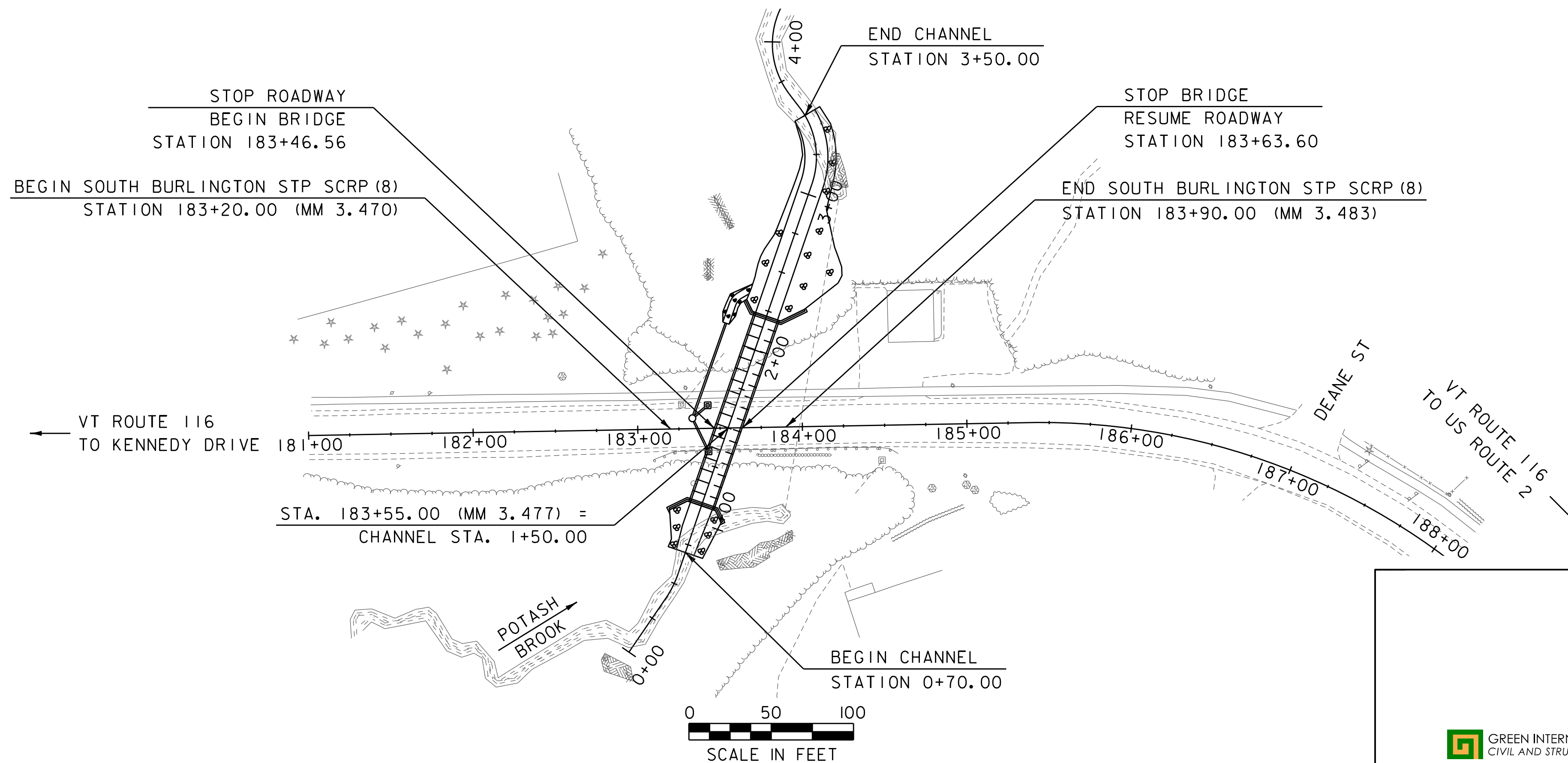
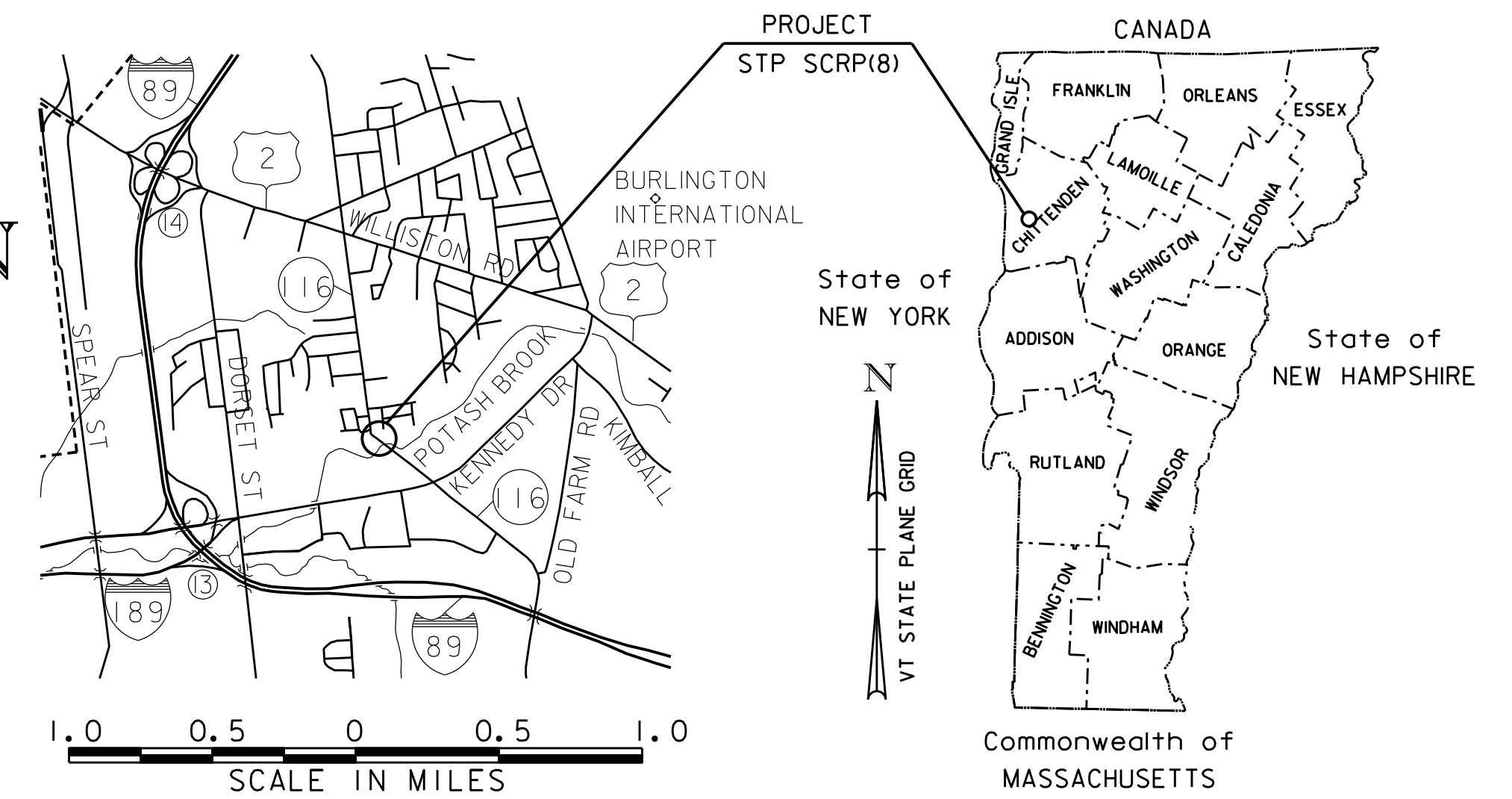
STATE OF VERMONT AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT BRIDGE PROJECT CITY OF SOUTH BURLINGTON COUNTY OF CHITTENDEN VT ROUTE 116 (PRINCIPAL ARTERIAL) (NHS)

BEGINNING IN THE CITY OF SOUTH BURLINGTON ON VT ROUTE 116 AT STATION 183+20.00 (MM 3.470)
EXTENDING NORTHERLY TO STATION 183+90.00 (MM 3.483)
LENGTH OF ROADWAY = 52.96' (0.010 MILES)
LENGTH OF STRUCTURE = 17.04' (0.003 MILES)
LENGTH OF CHANNEL = 280.00' (0.053 MILES)
LENGTH OF PROJECT = 70.00' (0.013 MILES)

WORK TO BE PERFORMED INCLUDES
INSTALLATION OF A PRECAST REINFORCED CONCRETE BOX WITH HEADWALLS AND WINGWALLS, AND RELOCATION OF NEARBY UTILITIES.



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

QUALITY ASSURANCE PROGRAM : LEVEL 2
SURVEYED BY : L.ORVIS P.C. SURVEYED DATE : 11/29/2012
DATUM VERTICAL NAVD 88 HORIZONTAL NAD 83 (2011)

**EPSC PLANS
APRIL 12, 2016**

<p>GREEN INTERNATIONAL AFFILIATES, INC. CIVIL AND STRUCTURAL ENGINEERS</p>	DIRECTOR OF PROJECT DELIVERY APPROVED _____ DATE _____
	PROJECT MANAGER : KEN UPMAL, P.E.
	PROJECT NAME : SOUTH BURLINGTON PROJECT NUMBER : STP SCRP(8)
	SHEET 1 OF 58 SHEETS

GENERAL INFORMATION

SYMBOLGY LEGEND NOTE

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

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

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

COMMON TOPOGRAPHIC POINT SYMBOLS

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

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

PROPOSED GEOMETRY CODES

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

UTILITY SYMBOLGY

UNDERGROUND UTILITIES

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

ABOVE GROUND UTILITIES (AERIAL)

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

PROJECT CONSTRUCTION SYMBOLGY

PROJECT DESIGN & LAYOUT SYMBOLGY

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

PROJECT CONSTRUCTION FEATURES

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

CONVENTIONAL BOUNDARY SYMBOLGY

BOUNDARY LINES

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

EPSC LAYOUT PLAN SYMBOLGY

EPSC MEASURES

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

SEE EPSC DETAIL SHEETS FOR ADDITIONAL SYMBOLGY

ENVIRONMENTAL RESOURCES

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

ARCHEOLOGICAL & HISTORIC

— ARCH —	ARCHEOLOGICAL BOUNDARY
— HISTORIC DIST —	HISTORIC DISTRICT BOUNDARY
— HISTORIC —	HISTORIC AREA
Ⓜ	HISTORIC STRUCTURE

CONVENTIONAL TOPOGRAPHIC SYMBOLGY

EXISTING FEATURES

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

PROJECT NAME: SOUTH BURLINGTON

PROJECT NUMBER: STP SCR(8)

FILE NAME: z11b220ANRlegend.dgn PLOT DATE: 3/24/2016  
 PROJECT LEADER: E. ATKINS DRAWN BY: D. VERTIYEV  
 DESIGNED BY: D. VERTIYEV CHECKED BY: E. ATKINS  
 CONVENTIONAL SYMBOLGY LEGEND SHEET SHEET 1 OF 2

**GENERAL:**

1. ALL PAVEMENT MARKING PLACEMENTS SHALL MATCH TO EXISTING AT THE LIMITS OF WORK.
2. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE AGENCY OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR CONSTRUCTION, DATED 2011, AND ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 6th EDITION, AND ITS LATEST REVISIONS.
3. BOX INVERT SURFACE SHALL BE CONSTRUCTED OF NATURAL STREAM BED MATERIAL
4. PRIOR TO PLACING MATERIALS, PREPARE SLOPE AND SUBGRADE AS FOLLOWS:
  - A. CUT OFF TREES AND EXISTING STUMPS TO GROUND LEVEL. LEAVE STUMPS & ROOTS BELOW GRADE IN PLACE.
  - B. EXCAVATE VEGETATION (EXCEPT STUMPS) AND ORGANIC SOILS FROM SURFACE OF SLOPE.
  - C. COMPACT SURFACE OF SLOPE (COMPACTION WITH EXCAVATOR BUCKET ACCEPTABLE).
  - D. PLACE MATERIALS AS SHOWN ON THE DETAILS.
5. PLACEMENT OF STONE SHALL BE IN ACCORDANCE WITH THE FOLLOWING:
  - A. STONE FILL SHALL BE CAREFULLY PLACED ON SLOPES AND INTERLOCKED TO CREATE A STABLE AND WELL-GRADED MIXTURE OF LARGE STONES AND SMALLER STONES WITHOUT LARGE VOIDS IN BETWEEN. VOIDS SHALL BE CHOKED WITH SMALLER STONES TO CREATE A MASS FREE OF LARGE VOIDS.
  - B. DUMPING OF STONE FILL AT THE TOP OF THE SLOPES AND ROLLING OR PUSHING INTO PLACE SHALL NOT BE PERMITTED.
  - C. PLATE COMPACTORS SHALL NOT BE USED IN THE PLACEMENT OF SPECIAL PROVISION (STONE FILL, CHANNEL ARMORING) OR THE NATIVE RIVERBED MATERIAL.
6. ALL EXCAVATION FOR THE ROADWAY OUTSIDE THE LIMITS OF STRUCTURE EXCAVATION SHALL BE PAID FOR UNDER ITEM 203.15, COMMON EXCAVATION. IF ENCOUNTERED IN AREAS OF COMMON EXCAVATION, PAYMENT FOR THE REMOVAL OF ROCK MEETING THE REQUIREMENTS OF 203.01 (b) WILL BE MADE UNDER ITEM 203.16, SOLID ROCK EXCAVATION WHEN APPROVED BY THE ENGINEER.
7. COST FOR TEMPORARY SUPPORT OF EXCAVATION, WHEN REQUIRED, OR WHEN DIRECTED BY THE ENGINEER SHALL BE INCIDENTAL TO ITEM NUMBER 204.25 STRUCTURE EXCAVATION. NO PAYMENT SHALL BE MADE FOR EXCAVATION OUTSIDE THE LIMITS SHOWN.

**UTILITIES:**

8. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO ENSURE THAT THE CONTRACTOR'S OPERATIONS SHALL IN NO WAY WEAKEN OR DAMAGE PROPERTY OF THE UTILITY. ANY DAMAGE TO THE PROPERTY OF THE UTILITY AS A RESULT OF THE CONTRACTOR'S OPERATIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REPAIRED AT THE EXPENSE OF THE CONTRACTOR TO THE FULL SATISFACTION OF THE OWNER OF THE UTILITY. SEE THE UTILITY SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
9. UNLESS OTHERWISE NOTED ON THE PLANS, ALL UTILITIES HAVE BEEN PLOTTED TO QUALITY LEVEL "C"; SEE BELOW.  
  
 UTILITY QUALITY LEVEL INFORMATION INDEX (SEE ASCE/CI 38-02):  
  
 UTILITY QUALITY LEVEL (QL-A):  
 PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES OBTAINED BY THE ACTUAL EXPOSURE (OR VERIFICATION OF PREVIOUSLY EXPOSED AND SURVEYED UTILITIES) AND SUBSEQUENT MEASUREMENT OF SUBSURFACE UTILITIES, USUALLY AT A SPECIFIC POINT. MINIMALLY INTRUSIVE EXCAVATION EQUIPMENT IS TYPICALLY USED TO MINIMIZE THE POTENTIAL FOR UTILITY DAMAGE. A PRECISE HORIZONTAL AND VERTICAL LOCATION, AS WELL AS OTHER UTILITY ATTRIBUTES, IS SHOWN ON PLAN DOCUMENTS. ACCURACY IS TYPICALLY SET TO 0.05 FEET (15-MM) VERTICAL AND TO APPLICABLE HORIZONTAL SURVEY AND MAPPING ACCURACY AS DEFINED OR EXPECTED BY THE PROJECT OWNER. INFORMATION IS ONLY VALID WITHIN THE VISIBLE LIMITS OF THE TEST HOLE.  
  
 UTILITY QUALITY LEVEL (QL-B):  
 INFORMATION OBTAINED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEOPHYSICAL METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF SUBSURFACE UTILITIES. QUALITY LEVEL B DATA SHOULD BE REPRODUCIBLE BY SURFACE GEOPHYSICS AT ANY POINT OF THEIR DEPICTION. THIS INFORMATION IS SURVEYED TO APPLICABLE TOLERANCES DEFINED BY THE PROJECT AND REDUCED ONTO PLAN DOCUMENTS.  
  
 UTILITY QUALITY LEVEL (QL-C):  
 INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE-GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGEMENT IN CORRELATING THIS INFORMATION TO QUALITY LEVEL D INFORMATION.  
  
 UTILITY QUALITY LEVEL (QL-D):  
 INFORMATION DERIVED FROM EXISTING RECORDS OR ORAL RECOLLECTIONS.
10. ALL UTILITIES WILL BE ADJUSTED OR TEMPORARILY ABANDONED AS SHOWN ON THE UTILITY PLAN. RELOCATION ROUTES SHOWN ON THE UTILITY PLAN ARE APPROXIMATE BASED ON INFORMATION PROVIDED BY THE UTILITY OWNERS. SEE UTILITY SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.

**TRAFFIC CONTROL**

11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND IMPLEMENTATION OF A SITE SPECIFIC TRAFFIC CONTROL PLAN FOR ALL STAGES OF CONSTRUCTION. THE PLAN SHALL CLEARLY DETAIL HOW TRAFFIC WILL BE MAINTAINED PRIOR TO, DURING AND AFTER THE CLOSURE PERIOD. THE CONTRACTOR SHALL SUBMIT DETAILED TRAFFIC CONTROL PLANS TO THE ENGINEER FOR APPROVAL PER SUBSECTION 105.03. ALL COSTS SHALL BE INCLUDED IN ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE). SEE SPECIAL PROVISIONS.
12. ALL TEMPORARY TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND IT'S REVISIONS. FOR ADDITIONAL SIGNING INSTRUCTIONS SEE THE T SERIES OF THE STANDARDS. WHERE CONFLICTS EXIST, THE MUTCD SHALL GOVERN.
13. INSTALLATION OF TEMPORARY TRAFFIC CONTROL SIGNS SHALL NOT BLOCK ANY EXISTING TRAFFIC CONTROL SIGN ASSEMBLIES. THE CONTRACTOR SHALL MAINTAIN AT LEAST 200 FEET BETWEEN SIGN ASSEMBLIES.
14. DURING THE CLOSURE PERIOD, TOWN HIGHWAYS SHALL BE PATROLLED FOR ANY OVERSIZED OR OVERLOADED VEHICLES NOT USING THE SIGNED DETOUR. PAYMENT FOR PATROLS SHALL BE INCIDENTAL TO ITEM 900.645 SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)
15. ACCESS TO THE PUMP STATION ON THE NORTHWEST SIDE OF THE PROJECT AND ALL DRIVES MUST BE MAINTAINED AT ALL TIMES.

**GENERAL PRECAST CONCRETE:**

16. THE CONTRACTOR SHALL TAKE ALL NECESSARY ACTIONS FOR THE ADEQUATE CONTROL OF WATER TO ALLOW FOR THE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS TO OCCUR IN THE DRY OR AS DIRECTED BY THE ENGINEER. DEWATERING AREAS HAVE BEEN NOTED ON THE EPSC CONSTRUCTION SHEET. REFER TO SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM) DETAIL ON TYPICAL SECTIONS AND DETAILS SHEET 2 FOR CONTROL OF WATER DURING CHANNEL TIE IN.
17. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT SILTATION OR POLLUTION, ESPECIALLY THE DISCHARGE OF RAW CONCRETE INTO THE EXISTING STREAMS/RIVERS AS DIRECTED BY THE ENGINEER AND STANDARD SPECIFICATIONS SECTION 105.
18. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68° F.
19. PRECAST CONCRETE SHALL MEET THE REQUIREMENTS OF SECTION 540 AND WILL BE PAID FOR UNDER CONTRACT ITEM 540.10 PRECAST CONCRETE STRUCTURE (14'-0" x 8'-0" x 121'-10" BOX).
20. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" X 1".
21. WATER REPELLENT, SILANE SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 514 AND SHALL BE SHOP APPLIED TO ALL INTERIOR PERIMETER SURFACES OF THE PRECAST CONCRETE STRUCTURE. PAYMENT FOR WATER REPELLENT, SILANE APPLIED TO INTERIOR PERIMETER SURFACES OF THE PRECAST CONCRETE STRUCTURE WILL BE INCLUDED IN THE BID UNIT PRICE FOR ITEM 540.10 PRECAST CONCRETE STRUCTURE (14'-0" x 8'-0" x 121'-10" BOX CULVERT). WATER REPELLENT, SILANE SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 514 AND SHALL BE FIELD APPLIED TO ALL EXPOSED SURFACES OF THE HEADWALLS AND WINGWALLS. PAYMENT FOR WATER REPELLENT, SILANE APPLIED TO EXPOSED SURFACES OF THE HEADWALLS AND WINGWALLS WILL BE PAID UNDER ITEM 514.10 WATER REPELLENT, SILANE.
22. JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
23. PAYMENT FOR PRECAST BAFFLES, PRECAST CUTOFF WALLS AND ANY DRILLING AND GROUTING REQUIRED TO ATTACH THE PRECAST BAFFLES AND PRECAST CUTOFF WALLS WILL BE CONSIDERED INCIDENTAL TO ITEM 540.10 PRECAST CONCRETE STRUCTURE (14'-0" x 8'-0" x 121'-10" BOX).
24. WHERE LEDGE IS ABOVE THE MINIMUM BOTTOM OF FOOTING ELEVATION, THE LEDGE SHALL BE EXCAVATED DOWN TO THE MINIMUM BOTTOM OF FOOTING ELEVATION. ALL OVER BREAKAGE BELOW THIS ELEVATION SHALL BE REPLACED WITH CONCRETE, HIGH PERFORMANCE CLASS B. PAYMENT FOR THIS CONCRETE SHALL BE MADE UNDER TO ITEM 501.34 CONCRETE, HIGH PERFORMANCE CLASS B.
25. BORINGS INDICATED ON THE PLANS HAVE BEEN MADE FOR DESIGN PURPOSES ONLY.
26. DESIGN CRITERIA PRECAST CONCRETE STRUCTURE (14'-0" x 8'-0" x 121'=10" BOX)
  - A. SOIL UNIT WEIGHT = 130/140 LBS/FT³
  - B. DESIGN LIVE LOAD = HL-93
  - C. NOMINAL BEARING RESISTANCE = 70 KSF
  - D. BEARING RESISTANCE FACTOR = 0.45
  - E. DESIGN FILL OVER BOX = 10+ FEET
  - F. AT-REST EARTH PRESSURE (Ko) = 0.47/0.44
  - G. CONCRETE COMPRESSIVE STRENGTH = SEE SUBSECTION 540.05(e)
27. SEE GEOTECHNICAL REPORT FOR ADDITIONAL SOIL INFORMATION NOT SHOWN HERE.
28. THE PRECAST CONCRETE STRUCTURE SHALL BE DESIGNED FOR HYDROSTATIC PRESSURE AND BUOYANCY. NO WEEPHOLES IN THE BOX SECTIONS WILL BE ALLOWED.

29. THE PRECAST BOX SECTIONS ARE SHOWN FOR REFERENCE ONLY. THE ACTUAL DIMENSIONS WILL BE DEPENDENT ON THE FABRICATOR. THE MINIMUM INSIDE DIMENSIONS SHALL BE 8'-0" IN HEIGHT AND 14'-0" IN WIDTH. MINIMUM SLAB AND WALL THICKNESSES SHALL BE AS SHOWN IN THE PRECAST CONCRETE BOX CULVERT TYPICAL SECTION.
30. ALL LIFTING HOLES AND BOLT POCKETS SHALL BE FILLED WITH MORTAR TYPE IV AFTER BEING SET IN THEIR FINAL POSITION. THIS WORK WILL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 540.10. FILLING THE JOINTS BETWEEN BOX SEGMENTS WITH GROUTING NOT REQUIRED.
31. NO ADDITIONAL WORK (I.E. BACKFILLING OR MEMBRANE) IS ALLOWED UNTIL THE GROUT HAS REACHED A STRENGTH OF 2000 PSI OR 30% OF MAXIMUM.
32. A TWO (2) FOOT WIDE STRIP OF SHEET MEMBRANE WATERPROOFING SHALL BE PLACED OVER EACH JOINT. THE SHEET MEMBRANE WATERPROOFING SHALL BE CENTERED ON THE JOINT AND COVER THE FULL LENGTH OF THE SIDES AND TOP. THE SIDES SHALL BE COVERED PRIOR TO THE TOP. ANY OVERLAPPING OF THE MEMBRANE SHALL BE DONE IN A SHINGLE TYPE STYLE TO SHED WATER AND SHALL OVERLAP A MINIMUM OF ONE FOOT. A SECOND LAYER OF SHEET MEMBRANE WATERPROOFING SHALL THEN BE PLACED OVER THE ENTIRE TOP AND BOTH SIDES OF THE CULVERT. PAYMENT FOR SHEET MEMBRANE WATERPROOFING WILL BE CONSIDERED INCIDENTAL TO CONTRACT ITEM 540.10 PRECAST CONCRETE STRUCTURE (14'-0" x 8'-0" x 121'-10" BOX).

**LAYOUT NOTES:**

33. PROPOSED CULVERT SHALL BE LAID OUT BASED ON THE DIMENSIONS GIVEN ON THE BRIDGE LAYOUT SHEET.
34. CHANNEL BASELINE SHALL BE ESTABLISHED AS INDICATED ON THE PLANS. OFFSETS TO THE CENTERLINE ARE MEASURED TO THE TOP OF THE SLAB AT EACH END.

**CULVERT ABANDONMENT NOTES**

35. THE EXISTING CULVERT SHALL NOT BE ABANDONED UNTIL THE PROPOSED BOX CULVERT AND CHANNEL ARE INSTALLED, ACCEPTED AND FUNCTIONING. ABANDONMENT OF EXISTING CULVERT SHALL BE PAID FOR UNDER ITEM 900.645 SPECIAL PROVISION (ABANDON CULVERT IN PLACE).
36. THE CONTRACTOR SHALL CLEAN AND VIDEO INSPECT THE EXISTING CULVERT. A COPY OF THE VIDEO SHALL BE SUBMITTED TO THE ENGINEER A MINIMUM OF 30-DAYS PRIOR TO ABANDONMENT. CLEANING AND VIDEO INSPECTION SHALL TAKE PLACE AFTER THE PROPOSED CULVERT IS INSTALLED, ACCEPTED AND FUNCTIONING. CLEANING AND VIDEO INSPECTION SHALL BE CONSIDERED INCIDENTAL TO ITEM 900.645 SPECIAL PROVISION (ABANDON CULVERT IN PLACE)
37. THE AREA BETWEEN THE EXISTING UPSTREAM BOX CULVERT AND THE EXISTING DOWNSTREAM CORRUGATED METAL PIPE (CMP) IS UNKOWN, BUT IS BELIEVED TO BE CAVERNOUS. AN ABANDONMENT PLAN SHALL BE SUBMITTED TO AND APPROVED BY THE ENGINEER AT LEAST 30-DAYS PRIOR TO ABANDONMENT ACTIVITIES AND BASED ON THE VIDEO INSPECTION RESULTS.
38. THE ABANDONMENT PLAN SHALL INCLUDE A METHOD TO ENSURE THE EXISTING BOX CULVERT, CMP, AND UNKOWN SPACE BETWEEN ARE COMPLETELY FILLED WITH CONTROLLED DENSITY (FLOWABLE) FILL AS DESCRIBED IN THE SPECIAL PROVISIONS.

**TEMPORARY RELOCATION OF STREAM:**

39. IT IS ANTICIPATED THAT THE MAJORITY OF THE CULVERT INSTALLATION WORK CAN BE PERFORMED WHILE MAINTAINING FLOWS THROUGH THE EXISTING CULVERT. WHEN WORK AT THE UPSTREAM END CONFLICTS WITH THE FLOWS THE CONTRACTOR SHALL RELOCATE THE STREAM BY A METHOD APPROVED BY THE ENGINEER.
40. SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM) DETAIL IS SCHEMATIC ONLY. ACTUAL LOCATIONS OF EQUIPMENT REQUIRED TO COMPLETE THE TEMPORARY STREAM RELOCATION SHALL BE ADJUSTED TO MATCH FIELD CONDITIONS AS DESIGNED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. THE DESIGN AND PLANS SHALL BE STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF VERMONT AND SHALL BE APPROVED BY VTRANS. ALL WORK AND EQUIPMENT SHALL BE PERFORMED AND PLACED WITHIN THE PROJECT SLOPE LIMITS.
41. THIS DETAIL SHOWS ONE POTENTIAL STREAM RELOCATION METHOD. THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING ITS OWN SITE SPECIFIC PLAN AND DESIGN FOR DEWATERING AND STREAM RELOCATION. SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
42. THE WORK WITHIN THE STREAM SHALL BE PERFORMED DURING THE SEASONAL LOW FLOW PERIOD (JULY 1 TO OCTOBER 1). THE DESIGN OF THE SITE SPECIFIC PLANS SHALL BE CAPABLE OF HANDLING AT LEAST TWICE THE FLOWS ASSOCIATED WITH THE AVERAGE DAILY FLOW AS NOTED ON SHEET 2. THE WORK RELATED TO THE CONSTRUCTION OF THE CULVERT SHALL BE PLANNED ACCORDING TO THE WEATHER AND SHOULD NOT BE PERFORMED DURING A PERIOD IN WHICH THE ENGINEER DETERMINES THAT A BAD WEATHER EVENT IS FORECAST.

PAYMENT FOR ITEM 900.645 SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM) SHALL INCLUDE PREPARATION OF THE SITE SPECIFIC TEMPORARY RELOCATION PLANS, THE DAM FOR CONTROL OF WATER, TEMPORARY STONE CHECK DAM, TYPE 1, BY-PASS PUMP(S), BY-PASS PIPE, TEMPORARY CHANNEL WORK AND ALL OTHER INCIDENTAL ITEMS REQUIRED TO CONSTRUCT THE CULVERT AND RESTORE THE STREAM BED IN THE DRY.

PROJECT NAME: SOUTH BURLINGTON  
PROJECT NUMBER: STP SCR(8)

FILE NAME: z1lb220notes.dgn	PLOT DATE: 4/12/2016
PROJECT LEADER: E. ATKINS	DRAWN BY: M. BRADLEY
DESIGNED BY: M. BRADLEY	CHECKED BY: E. ATKINS
GENERAL NOTES SHEET 1	SHEET 4 OF 58



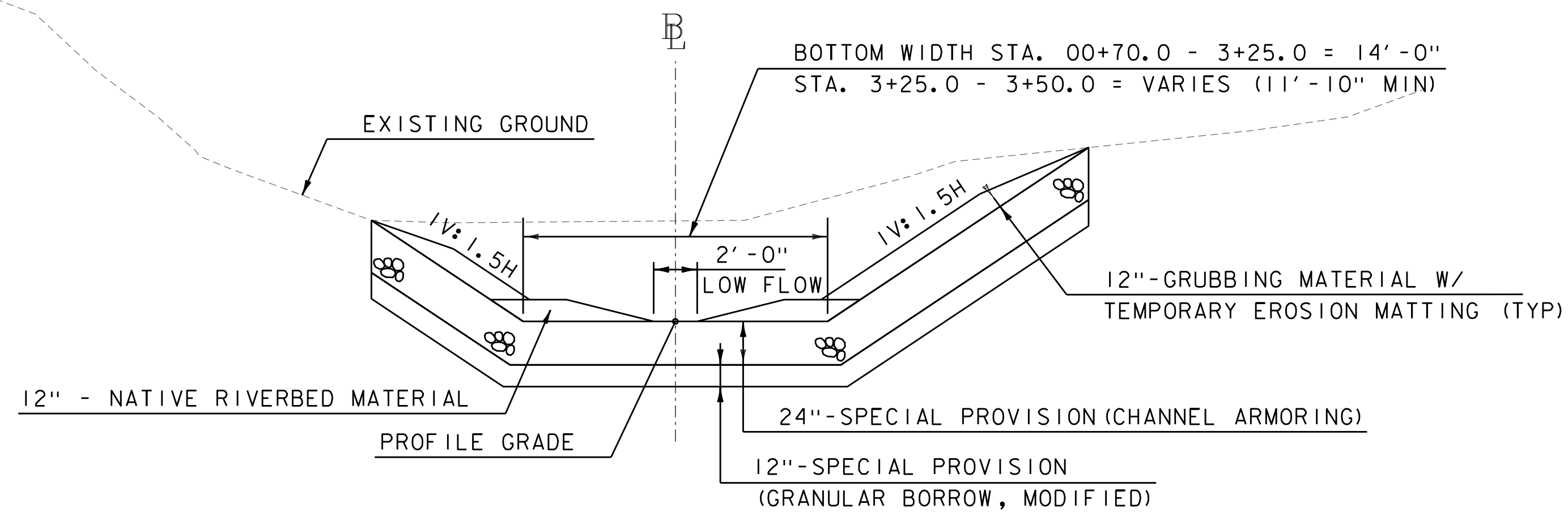
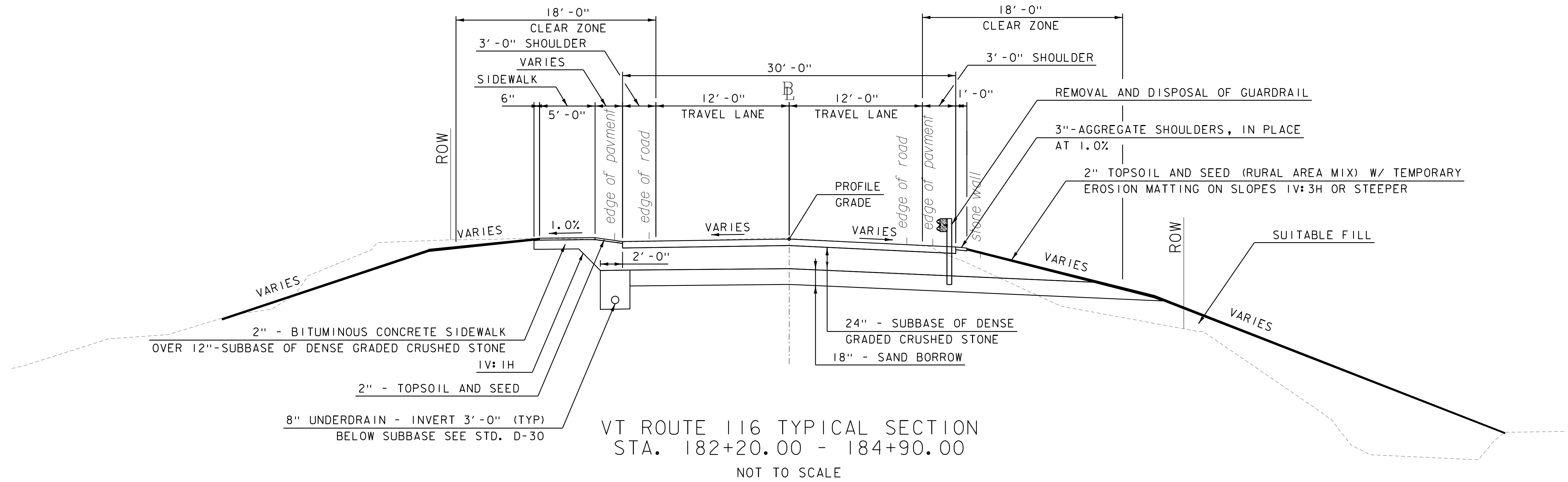
# TYPICAL SECTIONS VT ROUTE 116

MATERIAL ITEM	THICKNESS	TOLERANCE
PAVEMENT (TOTAL DEPTH ALL LAYERS)	+/- 1/4"	
SUBBASE (TOTAL DEPTH ALL LAYERS)	+/- 1"	
SAND BORROW (TOTAL DEPTH ALL LAYERS)	+/- 1"	

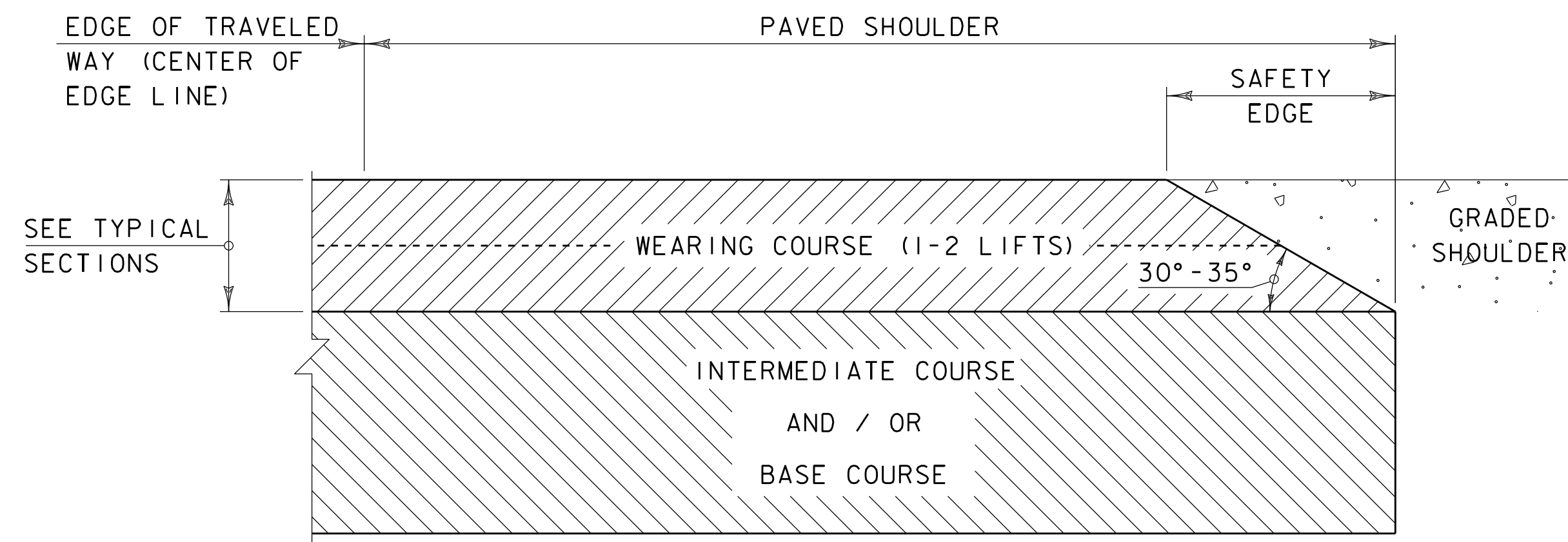
**VT ROUTE 116 FULL DEPTH RECONSTRUCTION:**  
 1 1/2" TYPE IVS - WEARING COURSE  
 2 3/4" TYPE IIS - INTERMEDIATE COURSE  
 2 3/4" TYPE IIS - BASE COURSE  
 24" SUBBASE OF DENSE GRADED CRUSHED STONE  
 18" SAND BORROW

**SIDEWALK FULL DEPTH RECONSTRUCTION:**  
 2" TYPE III - SURFACE COURSE  
 12" SUBBASE OF DENSE GRADED CRUSHED STONE

TACK COAT: EMULSIFIED ASPHALT IS TO BE APPLIED AT THE RATE OF 0.040 GAL/SY BETWEEN SUCCESSIVE COURSES OF PAVEMENT AS DIRECTED BY THE ENGINEER.

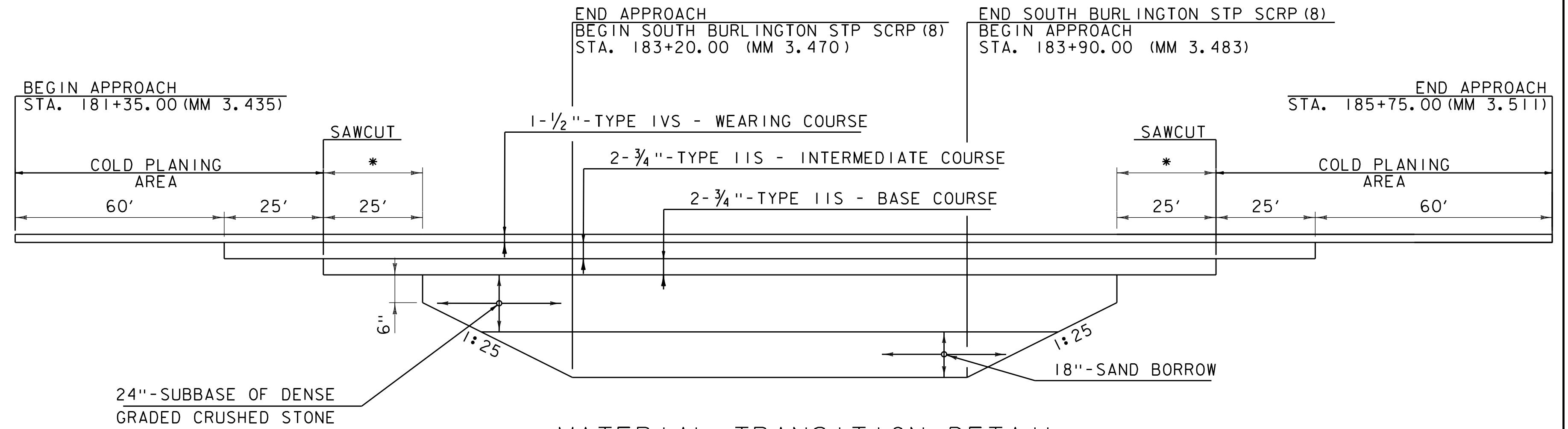


PROJECT NAME:	SOUTH BURLINGTON	PLOT DATE:	4/12/2016
PROJECT NUMBER:	STP SCR(8)	DRAWN BY:	D. VERTIYEV
FILE NAME:	z11b220+yp.dgn	CHECKED BY:	E. ATKINS
PROJECT LEADER:	E. ATKINS	TYPICAL SECTION SHEET	SHEET 5 OF 58
DESIGNED BY:	M. BRADLEY		



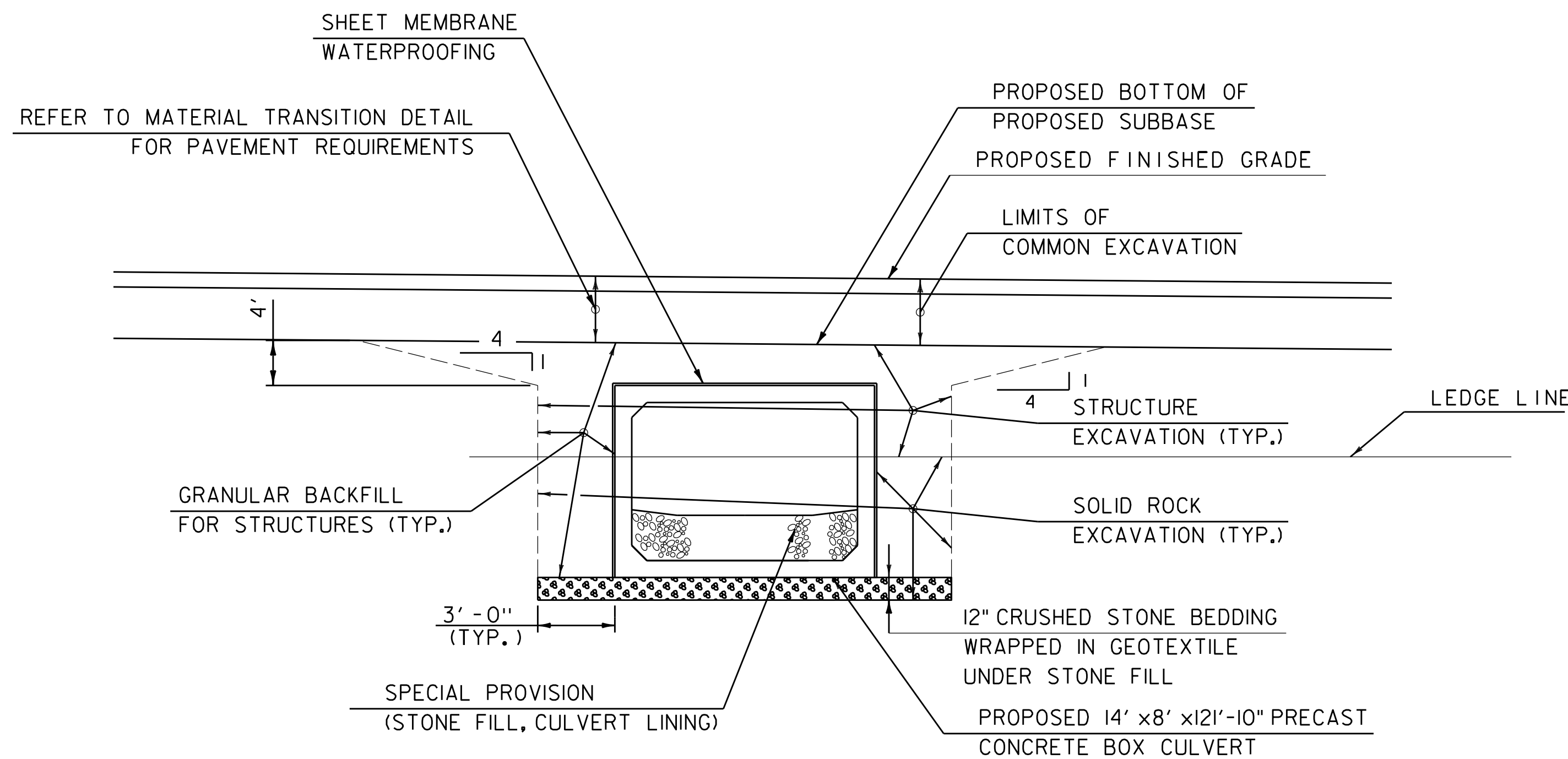
**SAFETY EDGE DETAIL**  
NOT TO SCALE

1. THE EDGE OF PAVEMENT SHALL BE FORMED IN SUCH A WAY THAT THE BITUMINOUS CONCRETE PAVEMENT IS EXTRUDED OR COMPRESSED TO FORM THE 30 TO 35 DEGREE ANGLE. DEVICES THAT SIMPLY STRIKE-OFF THE MIX WITHOUT PROVIDING ANY COMPACTIVE EFFORT WILL NOT BE ALLOWED.
2. THE PAVED SHOULDER EXTENDS FROM THE EDGE OF TRAVELED WAY TO THE EDGE OF THE WEARING COURSE, INCLUDING THE "SAFETY EDGE".



**MATERIAL TRANSITION DETAIL**  
NOT TO SCALE

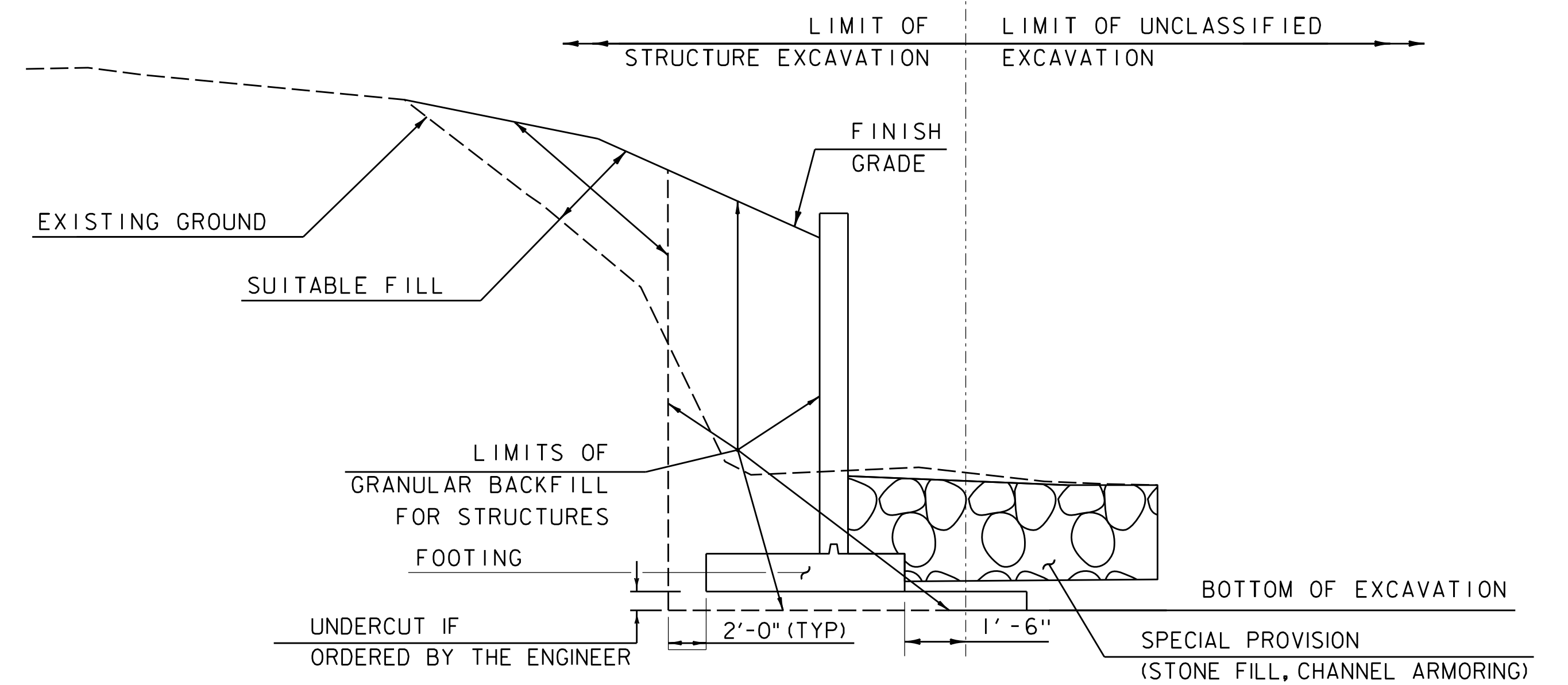
* PAVEMENT TO BE REMOVED DOWN TO SUBBASE. REMOVAL OF PAVEMENT TO BE PAID FOR UNDER COMMON EXCAVATION.



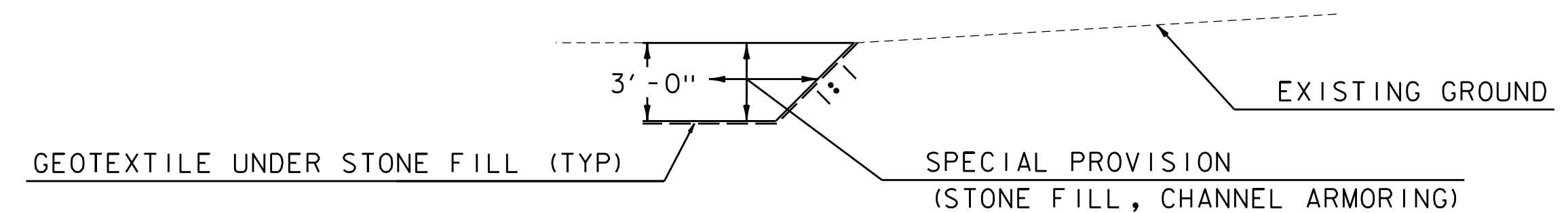
**NOTES:**

1. ABANDONMENT OF EXISTING CULVERT SHALL BE PAID FOR UNDER ITEM 900.645 SPECIAL PROVISION (ABANDON CULVERT IN PLACE)
2. PAYMENT FOR SHEET MEMBRANE WATERPROOFING SHALL BE CONSIDERED INCIDENTAL TO ITEM 540.10 PRECAST CONCRETE STRUCTURE (14'-0" x 8'-0" x 121'-10" BOX)

**EXCAVATION PAY LIMITS DETAIL**  
NOT TO SCALE



**EARTHWORK SECTION AT WINGWALLS**  
NOT TO SCALE

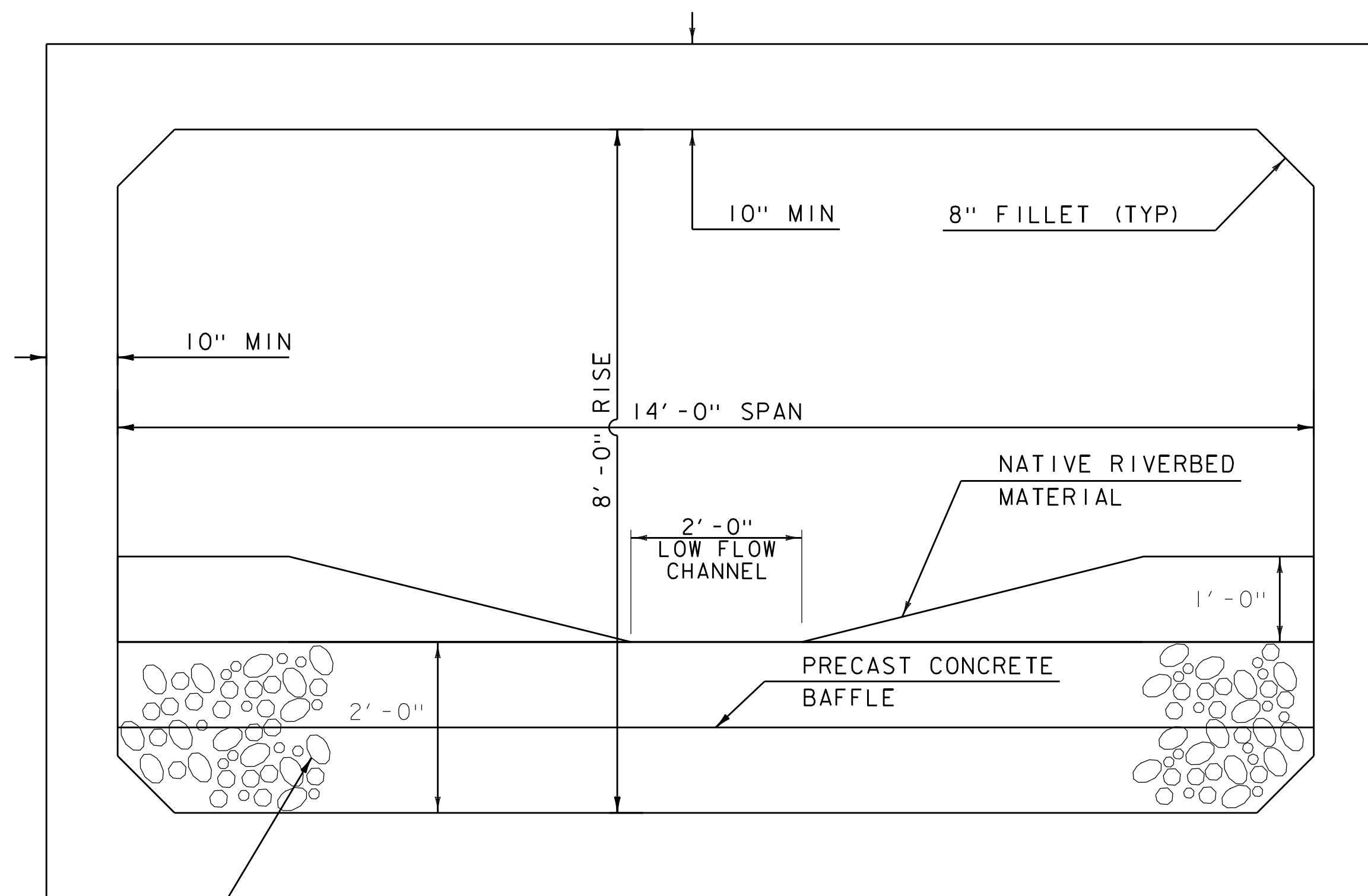


**STREAM BED MATERIAL TRANSITION**  
NOT TO SCALE

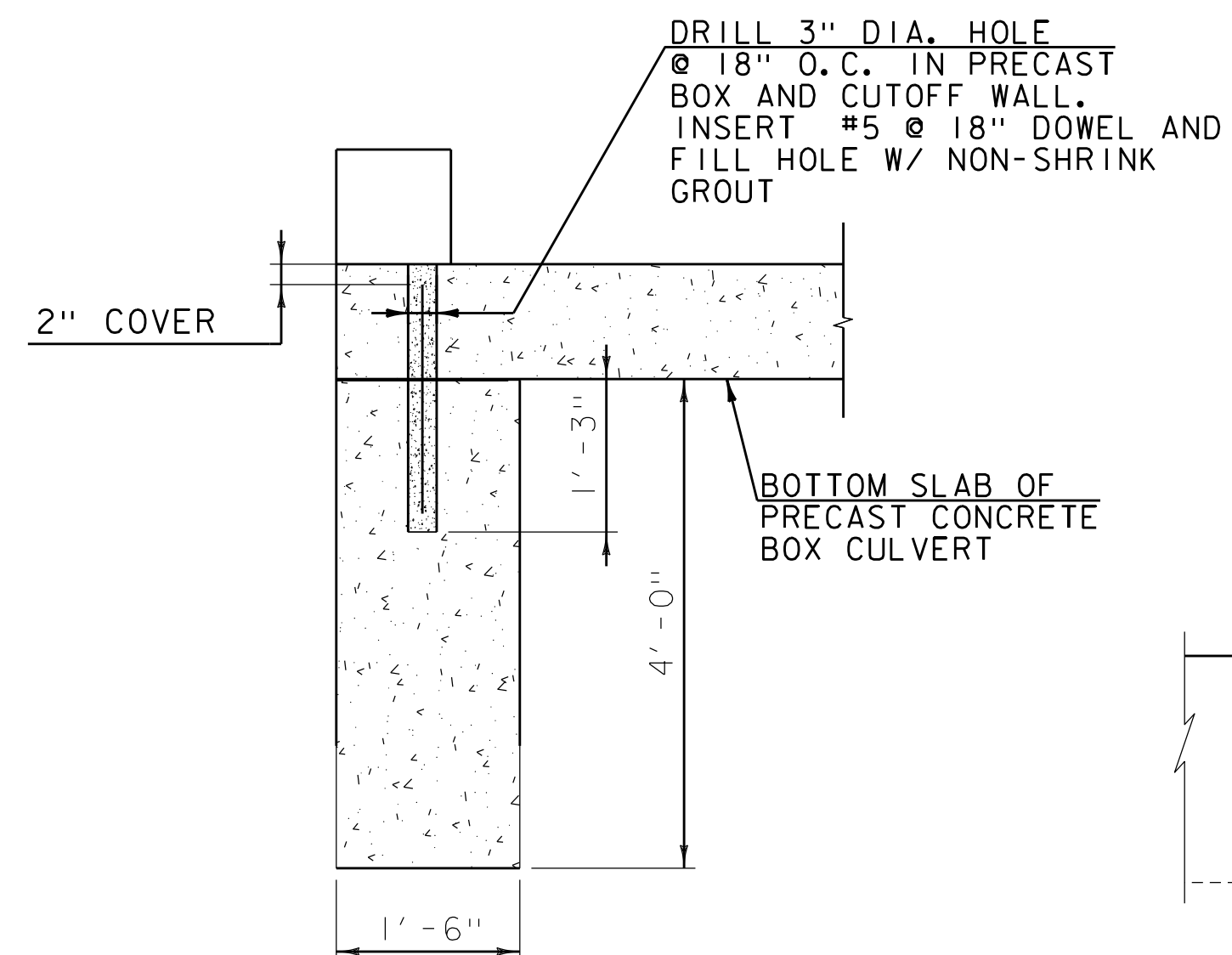
PROJECT NAME: SOUTH BURLINGTON  
PROJECT NUMBER: STP SCR(8)

FILE NAME: z1lb220de+.dgn  
PROJECT LEADER: E. ATKINS  
DESIGNED BY: M. BRADLEY  
DETAIL SHEET I

PLOT DATE: 4/12/2016  
DRAWN BY: D. VERTIYEV  
CHECKED BY: M. BRADLEY  
SHEET 6 OF 58

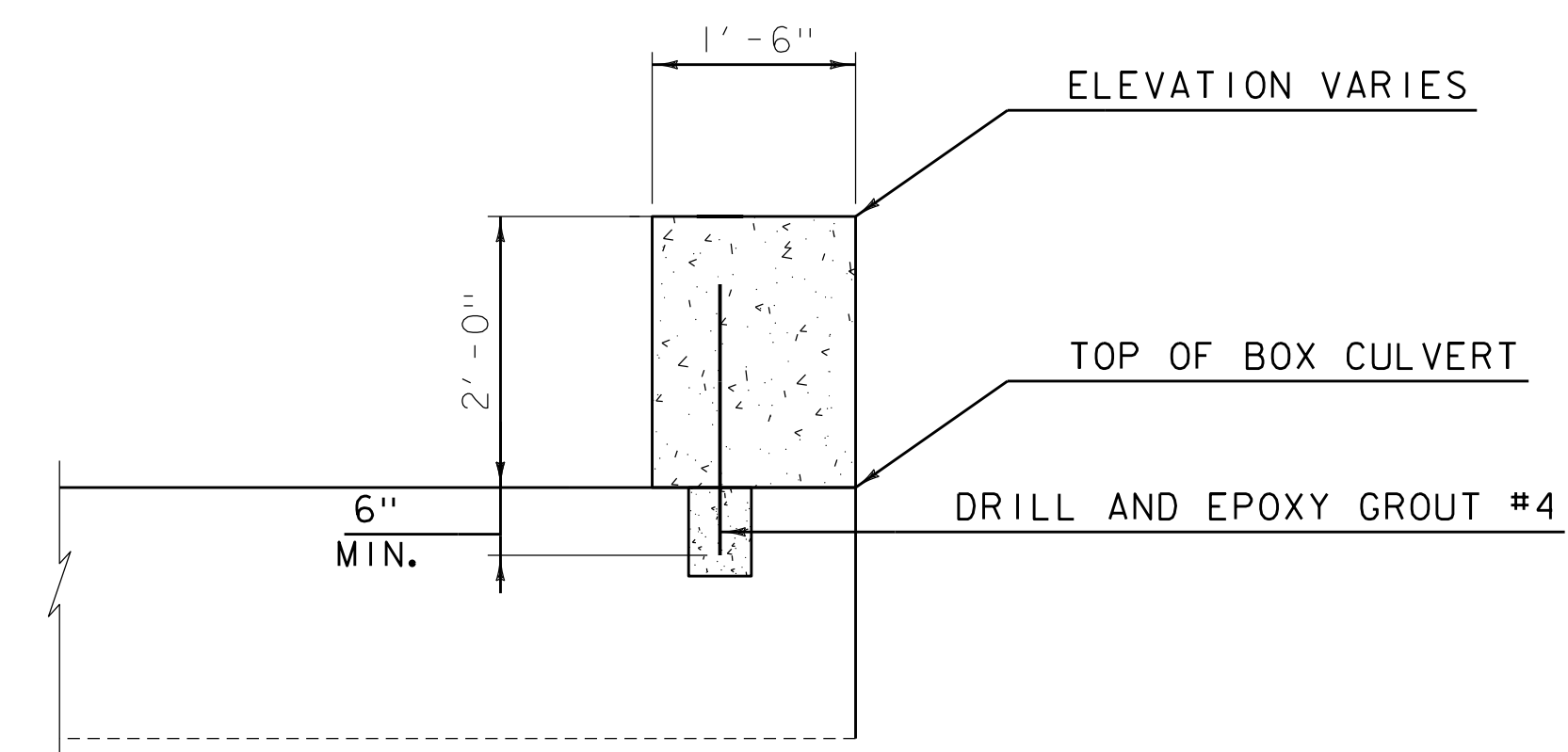


**PRECAST CONCRETE BOX CULVERT**  
**TYPICAL SECTION - BR 32**  
 SCALE 3/4" = 1'-0"



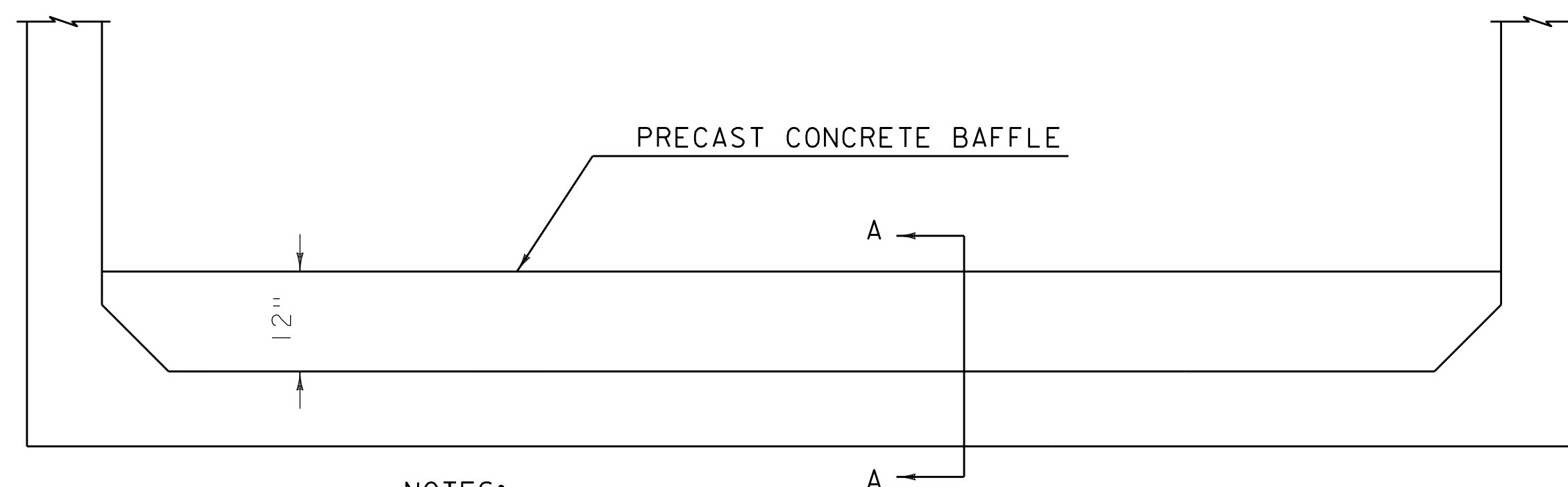
**CUTOFF WALL DETAIL**  
 SCALE 3/4" = 1'-0"

NOTE:  
 1. PAYMENT FOR CUTOFF WALL CONCRETE, REINFORCING STEEL, DOWEL AND NON-SHRINK GROUT SHALL BE CONSIDERED INCIDENTAL TO ITEM 540.10, PRECAST CONCRETE STRUCTURE (14'-0" x 8'-0" x 121'-10" BOX)



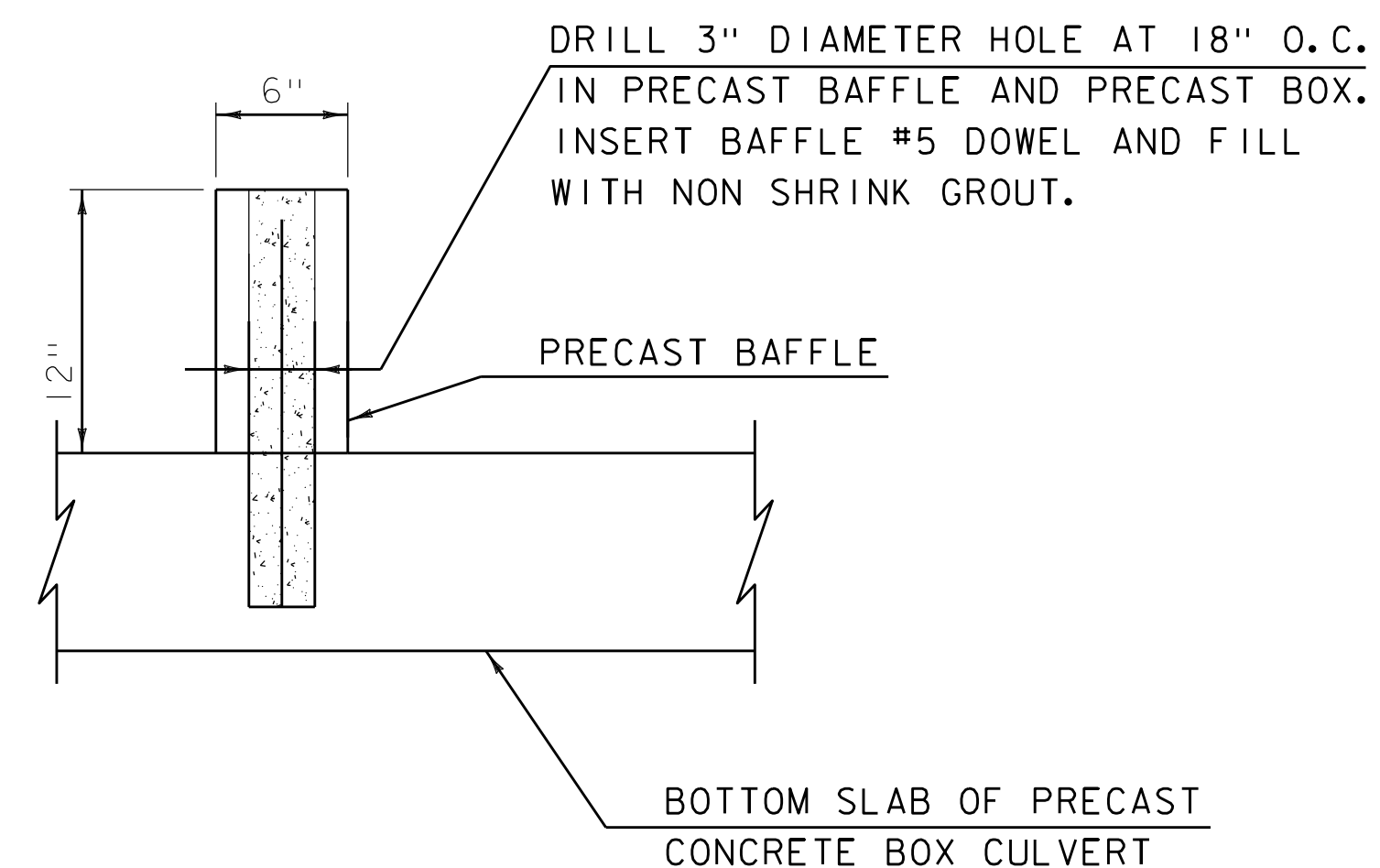
**HEADWALL DETAIL**  
 SCALE 3/4" = 1'-0"

NOTE:  
 1. PAYMENT FOR HEADWALL WALL SHALL BE CONSIDERED INCIDENTAL TO ITEM 540.10, PRECAST CONCRETE STRUCTURE (14'-0" x 8'-0" x 121'-10" BOX)



**PRECAST CONCRETE BAFFLE DETAIL**  
 NOT TO SCALE

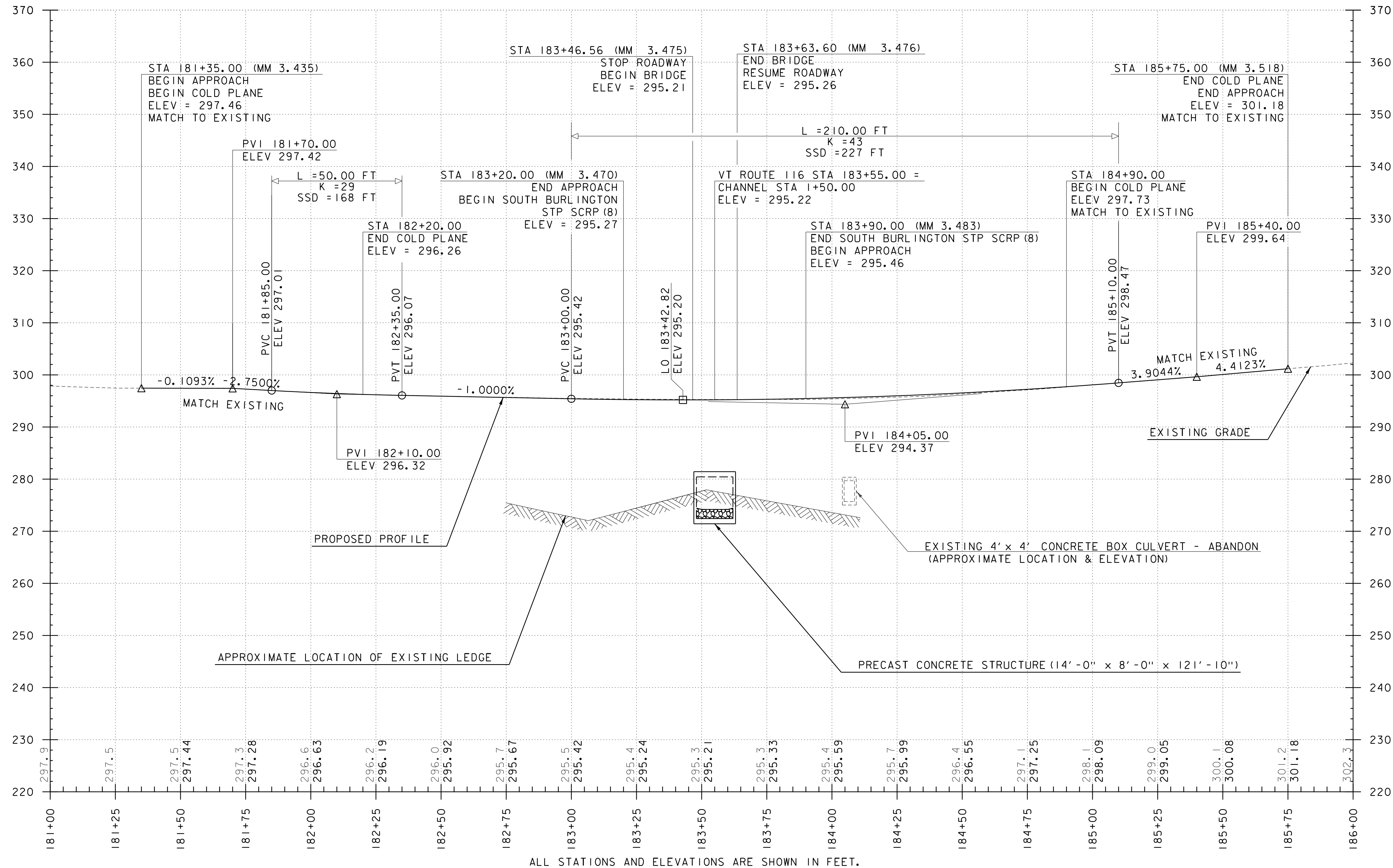
NOTES:  
 1. CONCRETE BAFFLE SHALL BE 12" DEEP (MAX).  
 2. CONCRETE BAFFLE TO BE PLACED EVERY PRECAST SECTION INCLUDING THE INLET AND OUTLET BUT SPACED NO GREATER THAN 8'-0" O.C.



**SECTION A-A**  
 SCALE 1/2" = 1'-0"

NOTE:  
 1. PAYMENT FOR BAFFLE AND #5 DOWEL SHALL BE CONSIDERED INCIDENTAL TO ITEM 540.10, PRECAST CONCRETE STRUCTURE (14'-0" x 8'-0" x 121'-10" BOX)

PROJECT NAME:	SOUTH BURLINGTON
PROJECT NUMBER:	STP SCRP(8)
FILE NAME:	zlib220de+.dgn
PROJECT LEADER:	E. ATKINS
DESIGNED BY:	M. BRADLEY
DETAIL SHEET 2	
PLOT DATE:	4/12/2016
DRAWN BY:	D. VERTIYEV
CHECKED BY:	M. BRADLEY
SHEET	7 OF 58



ALL STATIONS AND ELEVATIONS ARE SHOWN IN FEET.

THE GRADES SHOWN TO THE NEAREST TENTH ARE THE ORIGINAL GROUND APPROXIMATE ELEVATIONS ALONG THE PROPOSED ALIGNMENT. THE GRADES SHOWN TO THE NEAREST HUNDREDTH ARE THE PROPOSED PROFILE GRADES FOR THE NEW ALIGNMENT.

NOTE:

- THE CONTRACTOR SHALL MAINTAIN ALL EXISTING PROFILE GRADES FROM STA 181+35 TO STA 182+45 AND STA 184+65 TO 185+75. ELEVATIONS SHOWN BETWEEN THOSE STATIONS ARE AN APPROXIMATE REPRESENTATION OF EXISTING CONDITIONS AND HAVE BEEN SHOWN FOR INFORMATIONAL PURPOSES ONLY.

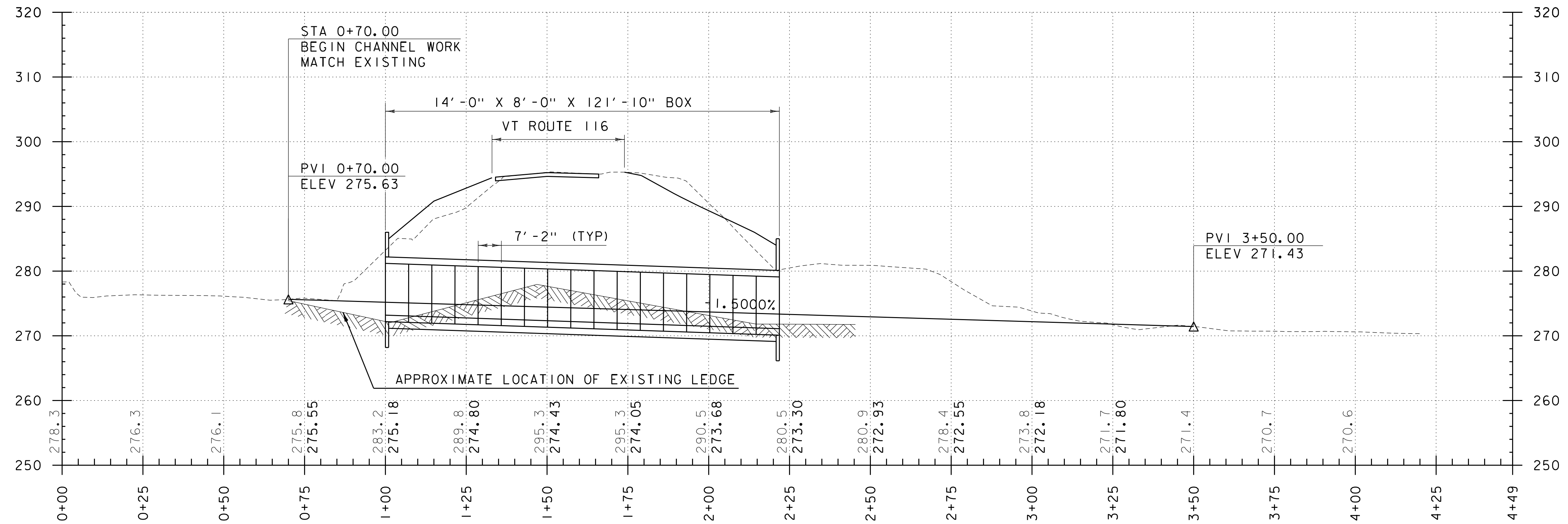
PROJECT NAME: SOUTH BURLINGTON  
PROJECT NUMBER: STP SCR(8)

FILE NAME: z1lb220prof.dgn  
PROJECT LEADER: E. ATKINS  
DESIGNED BY: M. BRADLEY  
VT ROUTE 116 PROFILE SHEET

PLOT DATE: 4/12/2016  
DRAWN BY: M. BRADLEY  
CHECKED BY: M. BRADLEY  
SHEET 22 OF 58



# POTASH BROOK PROFILE



ALL STATIONS AND ELEVATIONS ARE SHOWN IN FEET.

THE GRADES SHOWN TO THE NEAREST TENTH ARE THE ORIGINAL GROUND APPROXIMATE ELEVATIONS ALONG THE PROPOSED ALIGNMENT. THE GRADES SHOWN TO THE NEAREST HUNDREDTH ARE THE PROPOSED PROFILE GRADES FOR THE NEW ALIGNMENT.



PROJECT NAME:	SOUTH BURLINGTON
PROJECT NUMBER:	STP SCRP(8)
FILE NAME:	zlib220prof.dgn
PROJECT LEADER:	E. ATKINS
DESIGNED BY:	M. BRADLEY
VT ROUTE 116 PROFILE SHEET	
PLOT DATE:	4/12/2016
DRAWN BY:	M. BRADLEY
CHECKED BY:	M. BRADLEY
SHEET	23 OF 58



## EPSC PLAN NARRATIVE

### 1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE ABANDONMENT OF A 48" CULVERT AND ITS HEADWALLS (PARTIALLY A 48"x48" CONCRETE BOX CULVERT AND PARTIALLY A 48" CMP). THE 48" CULVERT WILL BE REPLACED WITH A PRECAST CONCRETE BOX CULVERT SPANNING 14 FEET WITH AN 8 FOOT RISE ALONG POTASH BROOK, ALONG AN ALIGNMENT 61 FEET SOUTHEAST OF THE 48" CULVERT. THE 48" CULVERT IS LOCATED IN THE CITY OF SOUTH BURLINGTON, ON VT ROUTE 116, APPROXIMATELY 1,090 FEET NORTHERLY OF KENNEDY DRIVE. THE LENGTH OF THE PROPOSED CULVERT IS 121'-10".

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

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 0.91 ACRES.

IT IS ANTICIPATED THAT THIS PROJECT WILL LAST ONE CONSTRUCTION SEASON.

### 1.2 SITE INVENTORY

#### 1.2.1 TOPOGRAPHY

THE TOPOGRAPHY SURROUNDING POTASH BROOK IS DEFINED BY FORESTED AND STEEP VALLEY SLOPES WHICH LEAD TO FLAT, RESIDENTIALLY AND COMMERCIALY DEVELOPED LAND. VT ROUTE 116, POTASH BROOK, AND A PAVED DRIVEWAY ARE WITHIN THE PROJECT SITE. THERE IS A PUMP STATION ON THE SOUTHWEST SIDE OF THE PROJECT.

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

POTASH BROOK IS THE ONLY WATER SOURCE ON THE PROJECT SITE. THE BROOK IS CLASSIFIED AS STEEP, SINUOUS, NARROW, WITH A CONFINED AND ARMORED CHANNEL AT THE SITE. THE STREAM BED CONSISTS OF GRAVEL, COBBLES AND BOULDERS. THERE ARE TWO DROP INLETS ON SITE DRAINING FROM THE ROADWAY TO THE BROOK. DUE TO THE NATURE OF THE SURROUNDING TERRAIN THE PROJECT SITE COULD RECEIVE RUNOFF WATER FROM A FEW NEARBY SLOPES. POTASH BROOK IS CLASSIFIED AS A STORMWATER IMPAIRED SURFACE WATER WITH AN ACCEPTED TMDL.

#### 1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF HARDWOOD TREES AND UNDERGROWTH. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY INSTALLATION OF THE PROPOSED CULVERT AND STONE FILL. UPON PROJECT COMPLETION, THE CHANNEL WILL BE ARMORED WITH STONE FILL AND TOPPED WITH GRUBBING MATERIAL AS SPECIFIED ON THE PLANS. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

#### 1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF CHITTENDEN, VERMONT. SOILS ON THE PROJECT SITE ARE:  
HINESBURG, FINE SANDY LOAM, 3% TO 8% SLOPES, "K FACTOR" = 0.17  
HINESBURG, FINE SANDY LOAM, 15% TO 25% SLOPES, "K FACTOR" = 0.17  
HINESBURG, FINE SANDY LOAM, 25% TO 60% SLOPES, "K FACTOR" = 0.17  
ENOSBURG AND WHATLEY SOILS, 0% TO 3% SLOPES, "K FACTOR" = 0.24  
ENOSBURG AND WHATLEY SOILS, 3% TO 8% SLOPES, "K FACTOR" = 0.24  
LIMERICK SILT LOAM, VERY WET, "K FACTOR" = 0.43

NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING:

0.0-0.23 = LOW EROSION POTENTIAL  
0.24-0.36 = MODERATE EROSION POTENTIAL  
0.37 AND HIGHER = HIGH EROSION POTENTIAL

#### 1.2.5 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: NO  
HISTORICAL OR ARCHEOLOGICAL AREAS: NO  
PRIME AGRICULTURAL LAND: NO  
THREATENED AND ENDANGERED SPECIES: NO  
WATER RESOURCE: POTASH BROOK (STORMWATER IMPAIRED WITH TMDL)  
WETLANDS: YES (CLASS II)

### 1.3 RISK EVALUATION

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

### 1.4 EROSION PREVENTION AND SEDIMENT CONTROL

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

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

#### 1.4.1 MARK SITE BOUNDARIES

SITE BOUNDARIES AND AREAS CONSTRUCTION EQUIPMENT CAN ACCESS SHALL BE DELINEATED.

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

#### 1.4.2 LIMIT DISTURBANCE AREA

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

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

#### 1.4.3 SITE ENTRANCE/EXIT STABILIZATION

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

STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AS PROPOSED ON THE EPSC PLAN AND ANYWHERE EQUIPMENT WILL BE GOING FROM AREAS OF EXPOSED SOILS TO PAVED SURFACES. LOCATIONS SHOWN ON EPSC PLANS ARE PICTORIAL ONLY, ACTUAL LOCATIONS WILL BE APPROVED BY THE ENGINEER.

#### 1.4.4 INSTALL SEDIMENT BARRIERS

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

BECAUSE THIS PROJECT FALLS UNDER THE CGP 3-9020, WOVEN WIRE REINFORCED SILT FENCE SHALL BE USED INSTEAD OF SILT FENCE. INLET PROTECTION WILL BE INSTALLED AT EXISTING INLETS.

#### 1.4.5 DIVERT UPLAND RUNOFF

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

THIS EPSC MEASURE IS NOT ANTICIPATED TO BE NEEDED ON THIS PROJECT.

#### 1.4.6 SLOW DOWN CHANNELIZED RUNOFF

CHECK STRUCTURES SHALL BE UTILIZED TO REDUCE THE VELOCITY, AND THUS THE EROSION POTENTIAL, OF CONCENTRATED FLOW IN CHANNELS.

THIS EPSC MEASURE IS NOT ANTICIPATED TO BE NEEDED ON THIS PROJECT.

#### 1.4.7 CONSTRUCT PERMANENT CONTROLS

PERMANENT STORMWATER TREATMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH PERMIT CONDITIONS.

THIS EPSC MEASURE IS NOT ANTICIPATED TO BE NEEDED ON THIS PROJECT.

#### 1.4.8 STABILIZE EXPOSED SOILS DURING CONSTRUCTION

ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY STABILIZATION IN PLACE WITHIN 14 DAYS OF DISTURBANCE OR IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT 3-9020 AUTHORIZATION.

SURFACE ROUGHENING OF ALL EXPOSED SLOPES, COMBINED WITH TEMPORARY MULCHING, SHALL BE UTILIZED ON A REGULAR BASIS.

BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3.

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

#### 1.4.9 WINTER STABILIZATION

VARIOUS MEASURES SPECIFIC TO WINTER MAY BE NECESSARY SHOULD THE PROJECT EXTEND INTO WINTER (OCTOBER 15 THROUGH APRIL 15). REFER TO THE LOW RISK SITE HANDBOOK FOR GUIDANCE.

#### 1.4.10 STABILIZE SOIL AT FINAL GRADE

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

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

#### 1.4.11 DE-WATERING ACTIVITIES

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

TREATMENT OF DEWATERING COFFERDAM IS NOT ANTICIPATED ON THIS PROJECT.

#### 1.4.12 INSPECT YOUR SITE

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

### 1.5 SEQUENCE AND STAGING

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

#### 1.5.1 CONSTRUCTION SEQUENCE

#### 1.5.2 OFF-SITE ACTIVITIES

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

#### 1.5.3 UPDATES

PROJECT NAME: SOUTH BURLINGTON

PROJECT NUMBER: STP_SCRP(8)

FILE NAME: z1lb220er_onar.dgn

PROJECT LEADER: E. ATKINS

DESIGNED BY: M. BRADLEY

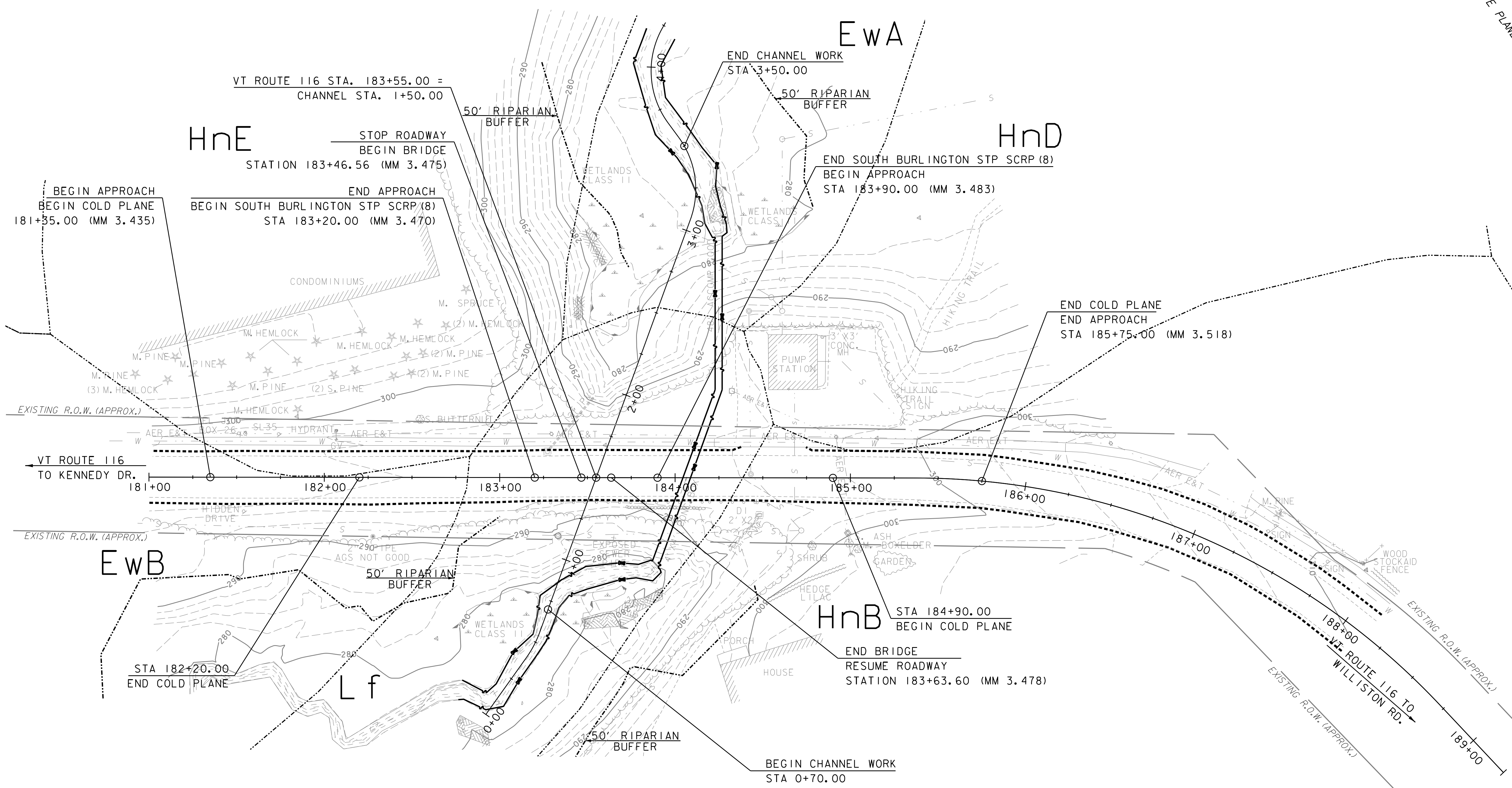
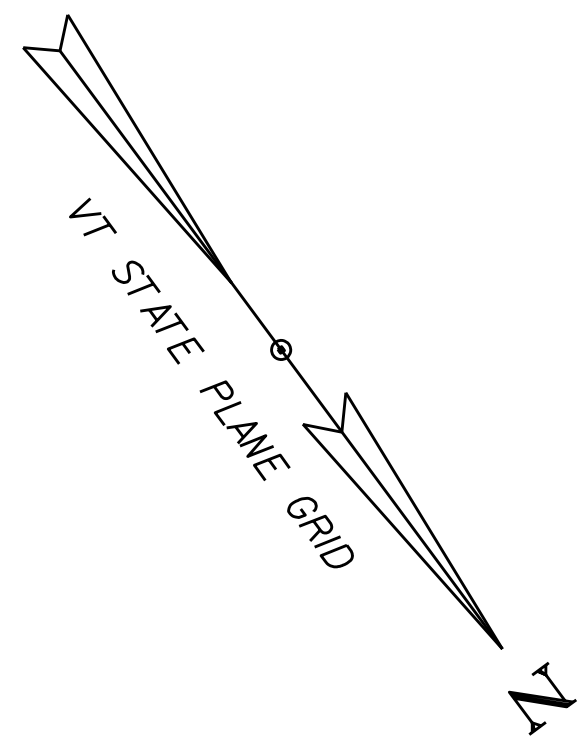
EPSC NARRATIVE

PLOT DATE: 4/12/2016

DRAWN BY: M. BRADLEY

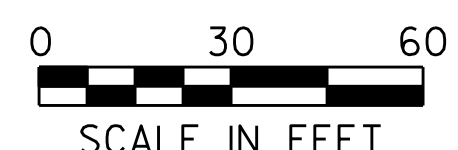
CHECKED BY: M. BRADLEY

SHEET 25 OF 58



**NOTES:**

1. SEE EPSC DETAIL SHEETS FOR LEGEND OF SYMBOLS AND CONSTRUCTION DETAILS.
2. SEE THE EPSC NARRATIVE FOR ADDITIONAL REQUIREMENTS.
3. ALL SEDIMENT AND EROSION PREVENTION CONTROL MEASURES SHALL BE COMPLETED AND IN PLACE BEFORE THE BEGINNING OF WORK.



SOIL LEGEND	HYDROLOGIC SOIL GROUP CLASSIFICATION	SOIL ERODIBILITY COEFFICIENTS (K)
HnB = HINESBURG FINE SANDY LOAM, 3% TO 8% SLOPES	A	0.17
HnD = HINESBURG FINE SANDY LOAM, 15% TO 25% SLOPES	C/D	0.17
HnE = HINESBURG FINE SANDY LOAM, 25% TO 60% SLOPES	A	0.17
EwA = ENOSBURG AND WHATELY SOILS, 0% TO 3% SLOPES	A	0.24
EwB = ENOSBURG AND WHATELY SOILS, 3% TO 8% SLOPES	B/D	0.24
Lf = LIMERICK SILT LOAM, VERY WET	C/D	0.43

PROJECT NAME: SOUTH BURLINGTON	
PROJECT NUMBER: STP SCR(8)	
FILE NAME: z1b220erobdr.dgn	PLOT DATE: 4/12/2016
PROJECT LEADER: E. ATKINS	DRAWN BY: M. BRADLEY
DESIGNED BY: M. BRADLEY	CHECKED BY: M. BRADLEY
EPSC EXISTING CONDITIONS PLAN SHEET	SHEET 26 OF 58

**GEOTEXTILE FOR SILT, FENCE**  
**WOVEN WIRE REINFORCED**  
 181+24.9 RT - 182+94.2 RT  
 182+83.6 RT - 182+94.3 RT  
 182+91.0 RT - 183+01.7 RT  
 183+09.9 RT - 183+20.3 RT  
 183+34.0 LT - 183+43.6 LT  
 183+41.7 LT - 183+49.0 LT  
 183+48.1 LT - 183+54.0 LT  
 184+11.4 RT - 184+20.6 RT  
 184+16.9 RT - 184+26.6 RT  
 184+22.6 RT - 184+30.9 RT  
 184+28.6 LT - 184+39.4 LT  
 184+24.8 LT - 184+37.3 LT  
 184+23.5 LT - 184+39.6 LT  
 184+90.0 LT - 185+75.0 LT

**SEED, WINTER RYE**  
 181+38.5 RT - 185+75.0 RT  
 181+35.0 LT - 185+75.0 LT

**FERTILIZER**  
 181+38.5 RT - 185+75.0 RT  
 181+35.0 LT - 185+75.0 LT

**AGRICULTURAL LIMESTONE**  
 181+38.5 RT - 185+75.0 RT  
 181+35.0 LT - 185+75.0 LT

**HAY MULCH**  
 181+38.5 RT - 185+75.0 RT  
 181+35.0 LT - 185+75.0 LT

**TOPSOIL**  
 181+38.5 RT - 185+75.0 RT  
 181+35.0 LT - 185+75.0 LT

**GRUBBING MATERIAL**  
 0+70.0 LT/RT - 1+00.0 LT/RT  
 2+21.8 LT/RT - 3+50.0 LT/RT

**TEMPORARY EROSION MATTING**  
 182+94.3 RT - 184+22.1 RT  
 183+33.9 LT - 184+37.0 LT

**VEHICLE TRACKING PAD**  
 184+19.6 LT  
 184+06.6 RT

**INLET PROTECTION DEVICE, TYPE 1**  
 183+27.2 LT 184+42.8 LT  
 184+48.1 RT 184+42.8 RT

**PROJECT DEMARCATION FENCE**  
 181+35.0 LT - 182+20.0 LT  
 182+20.0 LT - 183+23.6 LT  
 184+90.0 LT - 185+75.0 LT  
 181+35.0 RT - 182+84.3 RT  
 184+46.1 RT - 185+75.0 RT

**SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM)**  
 1+10.3 RT  
 3+06.2 RT

**SEED (RURAL AREA MIX)**  
 181+35.0 RT - 185+75.0 RT  
 181+35.0 LT - 185+75.0 LT

**BEGIN APPROACH**  
**BEGIN COLD PLANE**  
 181+35.00 (MM 3.435)

**HnE**

**STOP ROADWAY**  
**BEGIN BRIDGE**  
 STATION 183+46.56 (MM 3.475)

**END APPROACH**  
**BEGIN SOUTH BURLINGTON STP SCR(8)**  
 STA 183+20.00 (MM 3.470)

**BARRIER FENCE**  
 182+84.3 RT - 183+20.4 RT  
 183+23.6 LT - 183+91.4 LT  
 183+29.3 RT - 184+46.1 RT  
 184+06.2 LT - 184+35.5 LT

**TEMPORARY STONE CHECK DAM, TYPE 1**  
 3+41.6 LT/RT

**EWA**

**END CHANNEL WORK**  
 STA 3+50.00

**50' RIPARIAN BUFFER**

**PROPOSED LOCATION FOR DEWATERING**

**HnD**

**END SOUTH BURLINGTON STP SCR(8)**  
**BEGIN APPROACH**  
 STA 183+90.00 (MM 3.483)

**END COLD PLANE**  
**END APPROACH**  
 STA 185+75.00 (MM 3.518)

**HnB**

**STA 184+90.00**  
**BEGIN COLD PLANE**

**END BRIDGE**  
**RESUME ROADWAY**  
 STATION 183+63.60 (MM 3.478)

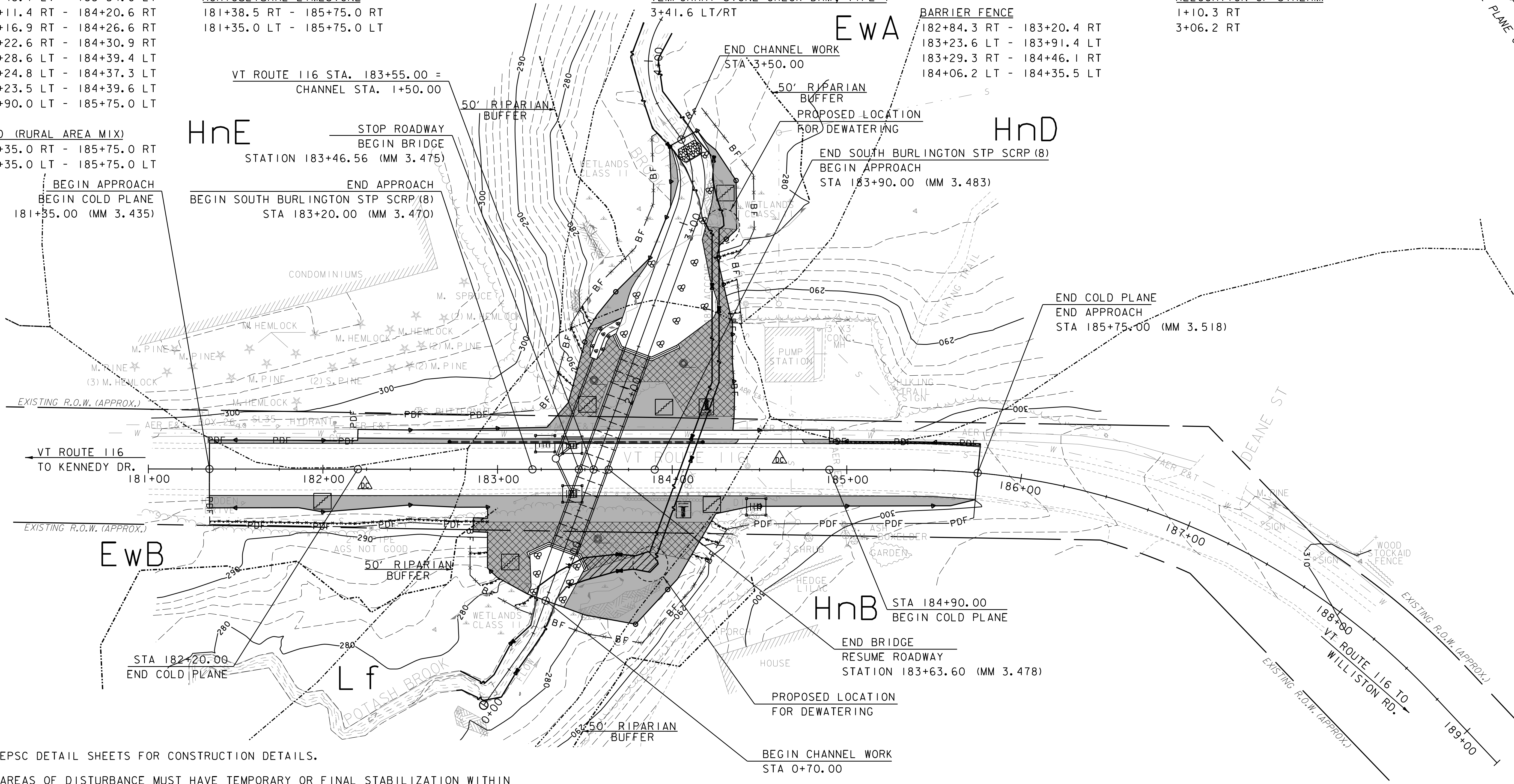
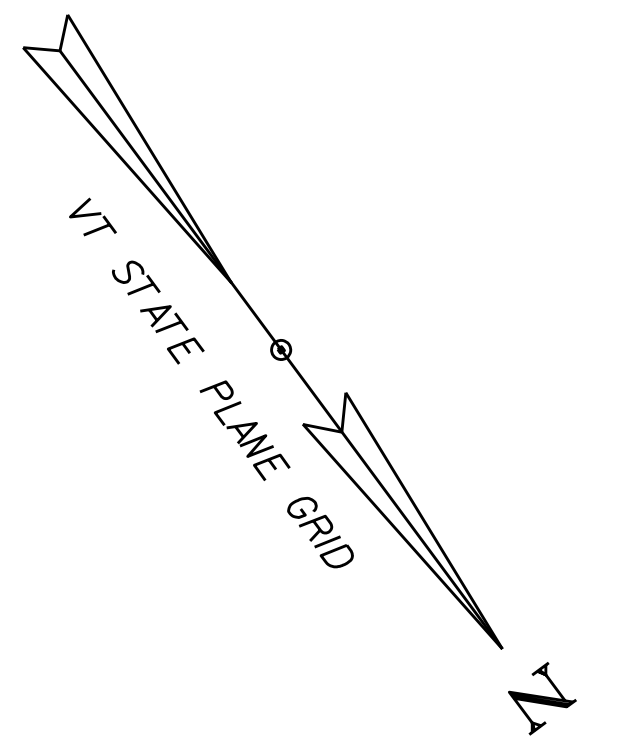
**STA 182+20.00**  
**END COLD PLANE**

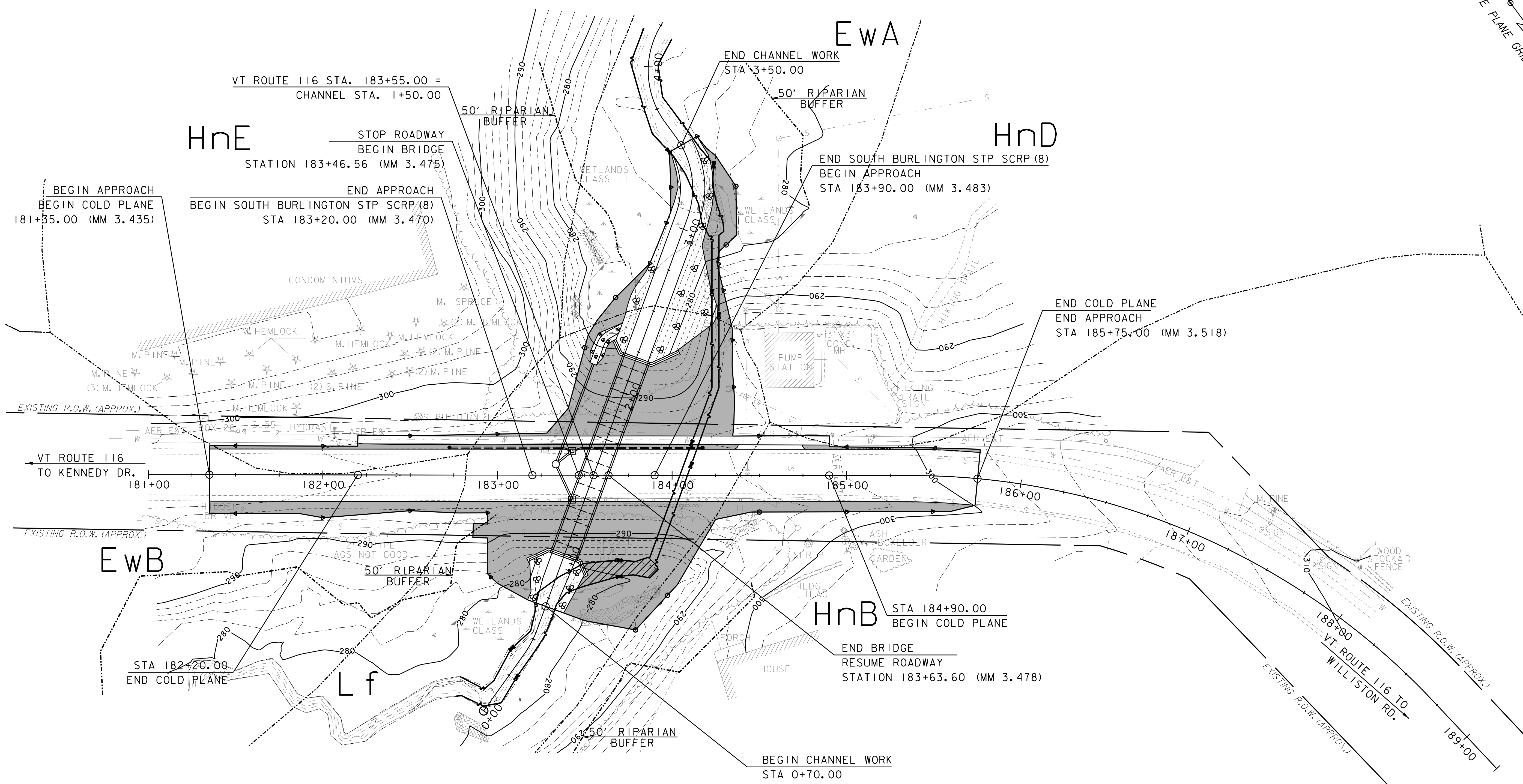
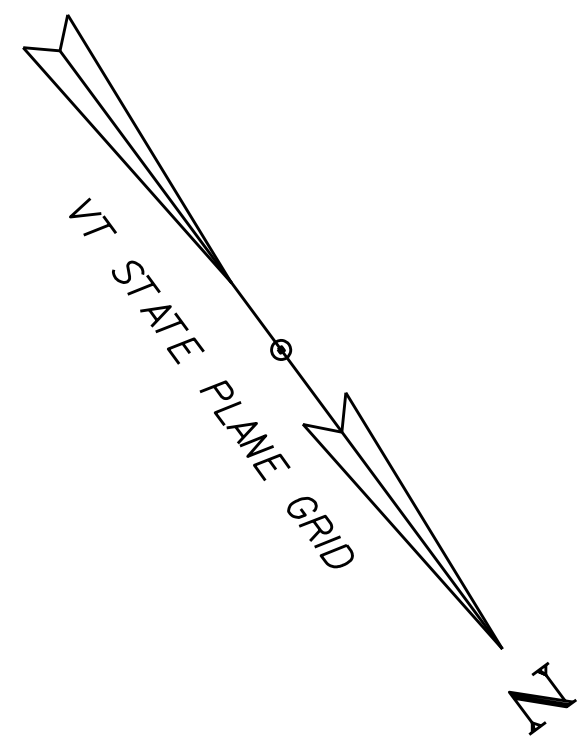
- NOTES:**
- SEE EPSC DETAIL SHEETS FOR CONSTRUCTION DETAILS.
  - ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY OR FINAL STABILIZATION WITHIN 14 DAYS OF THE INITIAL DISTURBANCE. AFTER THIS TIME, ANY DISTURBANCE IN THE AREA MUST BE STABILIZED AT THE END OF EACH WORK DAY. THE FOLLOWING EXCEPTIONS APPLY:
    - STABILIZATION IS NOT REQUIRED IF WORK IS TO CONTINUE IN THE AREA WITHIN THE NEXT 24 HOURS AND THERE IS NO PRECIPITATION FORECAST FOR THE NEXT 24 HOURS.
    - STABILIZATION IS NOT REQUIRED IF THE WORK IS OCCURRING IN A SELF CONTAINED EXCAVATION WITH A DEPTH OF 2 FEET OR GREATER.
  - THE CONTRACTOR SHALL MINIMIZE ANY SOIL DISTURBANCES BETWEEN OCTOBER 15 THROUGH APRIL 15 TO ASSURE A VIGOROUS CATCH OF VEGETATIVE COVER, SEEDING AND MULCHING SHALL BE COMPLETED BY SEPTEMBER 15 TO THE EXTENT POSSIBLE, OR AS DIRECTED BY THE ENGINEER.
  - THE CONTRACTOR SHALL IMMEDIATELY ROUGHEN ALL DISTURBED SOIL SURFACES TO THE SATISFACTION OF THE ENGINEER BY THE USE OF TRACK DRIVEN BULLDOZERS, SHEEPSFOOT ROLLERS OR OTHER APPROVED METHODS.
  - THE CONTRACTOR SHALL APPLY DUST CONTROL MEASURES OVER EXPOSED SURFACES NOT INTENDED TO BE VEGETATED.
  - THE CONTRACTOR SHALL INSTALL PERMANENT EROSION CONTROL MEASURES (I.E. CHECKDAMS, EROSION MATTING, STONE FILL FOR SLOPES AND DITCHES) IMMEDIATELY UPON COMPLETION OF GRADING.
  - THE LOCATIONS OF THE VEHICLE TRACKING PADS ARE SUGGESTED ONLY. THE CONTRACTOR SHALL DETERMINE ACTUAL LOCATIONS OF VEHICLE TRACKING PADS NEEDED TO PERFORM THE WORK.
  - SEE EPSC FINAL CONDITIONS PLAN SHEET FOR PROPOSED GRADING.



GREEN INTERNATIONAL AFFILIATES, INC.  
 CIVIL AND STRUCTURAL ENGINEERS

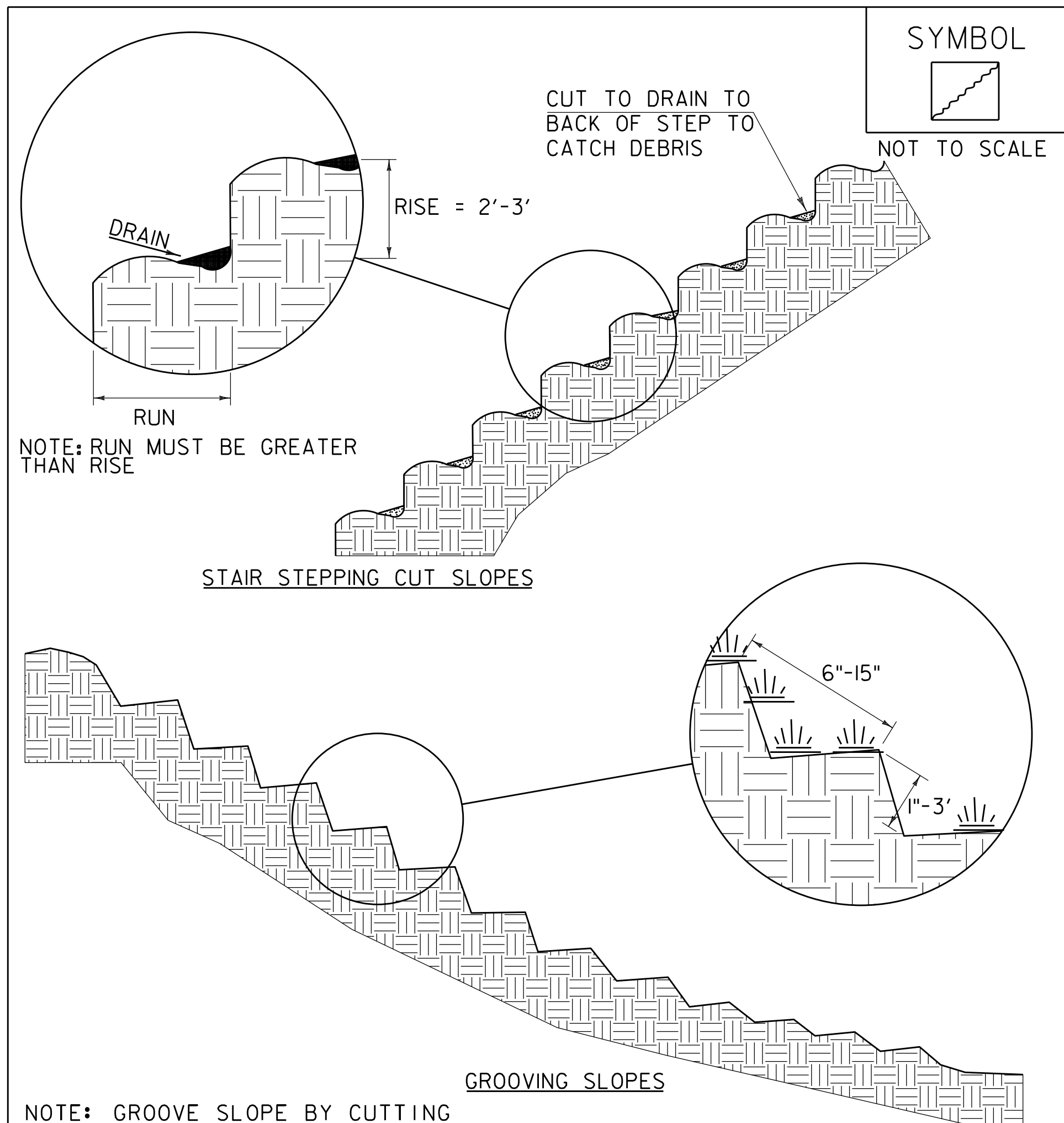
PROJECT NAME:	SOUTH BURLINGTON	PLOT DATE:	4/12/2016
PROJECT NUMBER:	STP SCR(8)	DRAWN BY:	M. BRADLEY
FILE NAME:	z1b220erobdr.dgn	CHECKED BY:	M. BRADLEY
PROJECT LEADER:	E. ATKINS	SHEET	27 OF 58
DESIGNED BY:	M. BRADLEY		
EPSC CONSTRUCTION PLAN SHEET			





GREEN INTERNATIONAL AFFILIATES, INC.  
 CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME:	SOUTH BURLINGTON	PLOT DATE:	4/12/2016
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FILE NAME:	z1lb220erobdr.dgn	CHECKED BY:	M. BRADLEY
PROJECT LEADER:	E. ATKINS	EPSC FINAL CONDITIONS PLAN SHEET	SHEET 28 OF 58
DESIGNED BY:	M. BRADLEY		



NOTE: GROOVE SLOPE BY CUTTING FURROWS ALONG THE CONTOUR. IRREGULARITIES IN THE SOIL SURFACE CATCH RAINWATER AND RETAIN LIME, FERTILIZER AND SEED.

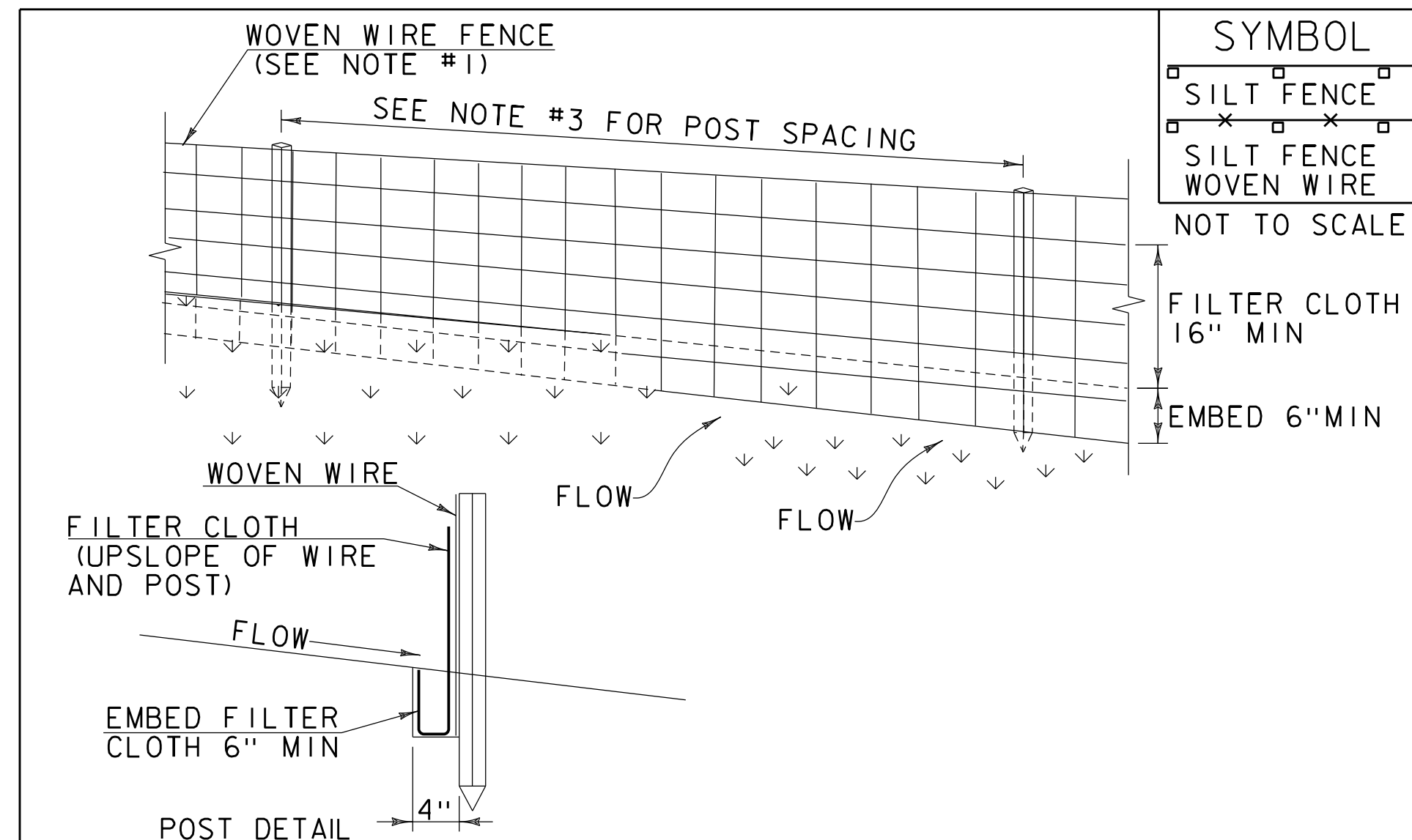
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC  
ORIGINALLY DEVELOPED BY USDA-NRCS  
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

**SURFACE ROUGHENING**

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

THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT

REVISIONS	
APRIL 1, 2008	WHF
JANUARY 13, 2009	WHF



**CONSTRUCTION SPECIFICATIONS**

1. WOVEN WIRE REINFORCED FENCE IS REQUIRED WITHIN 100' UPSLOPE OF RECEIVING WATERS WHEN THE PROJECT FALLS UNDER A CONSTRUCTION STORMWATER PERMIT. WOVEN WIRE SHALL BE A MIN. 14 GAUGE WITH A 6" MAX. MESH OPENING.
2. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAF1100X, STABILINKA T140N OR APPROVED EQUIVALENT.
3. POST SPACING FOR WIRE-BACKED FENCE SHALL BE 10' MAXIMUM. FOR FILTER-CLOTH FENCE, WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4' AND WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6'.
4. WOVEN WIRE FENCE IS TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES. FILTER CLOTH IS TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY 6" AND FOLDED.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.

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

**SILT FENCE**

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

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 AND AS SHOWN IN THE PLANS FOR GEOTEXTILE FOR SILT FENCE (PAY ITEM 649.51) OR GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED (PAY ITEM 649.515).

REVISIONS	
MARCH 21, 2008	WHF
DECEMBER 11, 2008	WHF
JANUARY 13, 2009	WHF

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

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

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

**CONSTRUCTION GUIDANCE**

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

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES

**TURF ESTABLISHMENT**

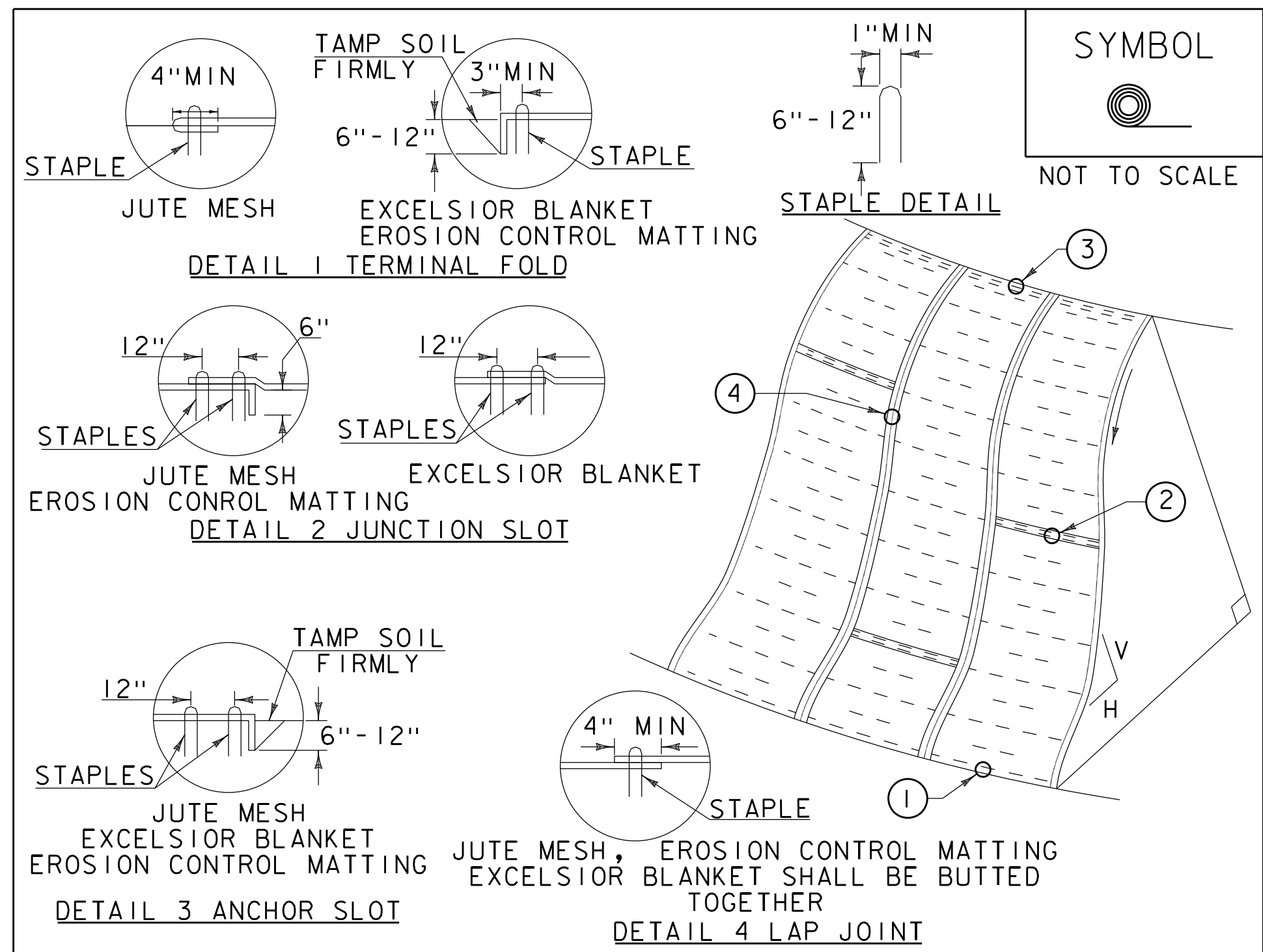
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 651 FOR SEED (PAY ITEM 651.15)

REVISIONS	
JANUARY 12, 2015	WHF

PROJECT NAME: SOUTH BURLINGTON  
PROJECT NUMBER: STP SCR(8)

FILE NAME: z1lb220erode+.dgn  
PROJECT LEADER: E. ATKINS  
DESIGNED BY: M. BRADLEY  
EPSC DETAIL SHEET 1

PLOT DATE: 4/12/2016  
DRAWN BY: M. BRADLEY  
CHECKED BY: M. BRADLEY  
SHEET 29 OF 58



**CONSTRUCTION SPECIFICATIONS**

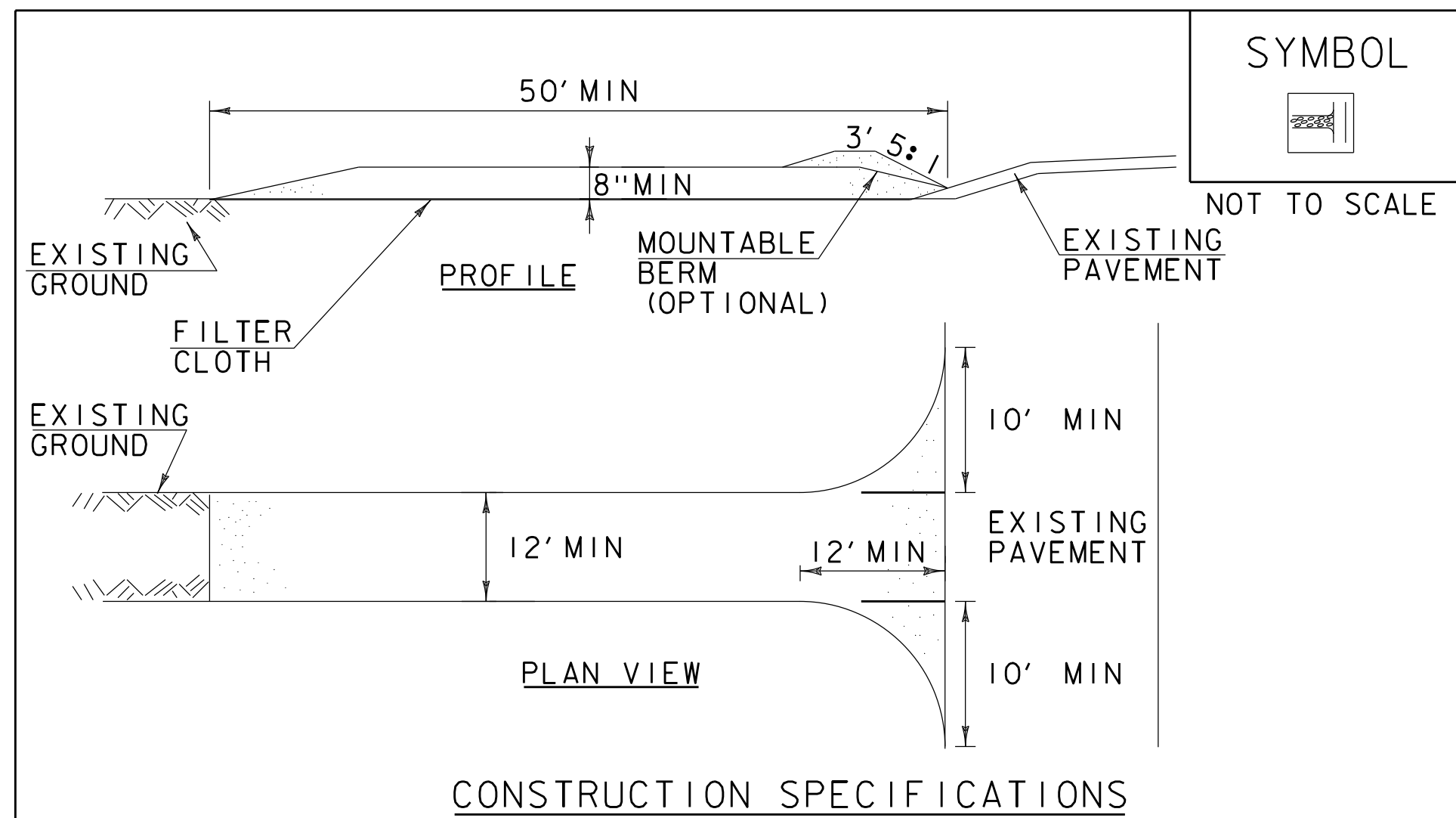
1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.
2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.
3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4' X 225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4' X 150' ROLL OF MATERIAL.
4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

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

**ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE**

NOTES:  
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.  
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM 653.20) OR PERMANENT EROSION MATTING (PAY ITEM 653.21).

REVISIONS		
APRIL 16, 2007	JMF	
JANUARY 13, 2009	WHF	



**CONSTRUCTION SPECIFICATIONS**

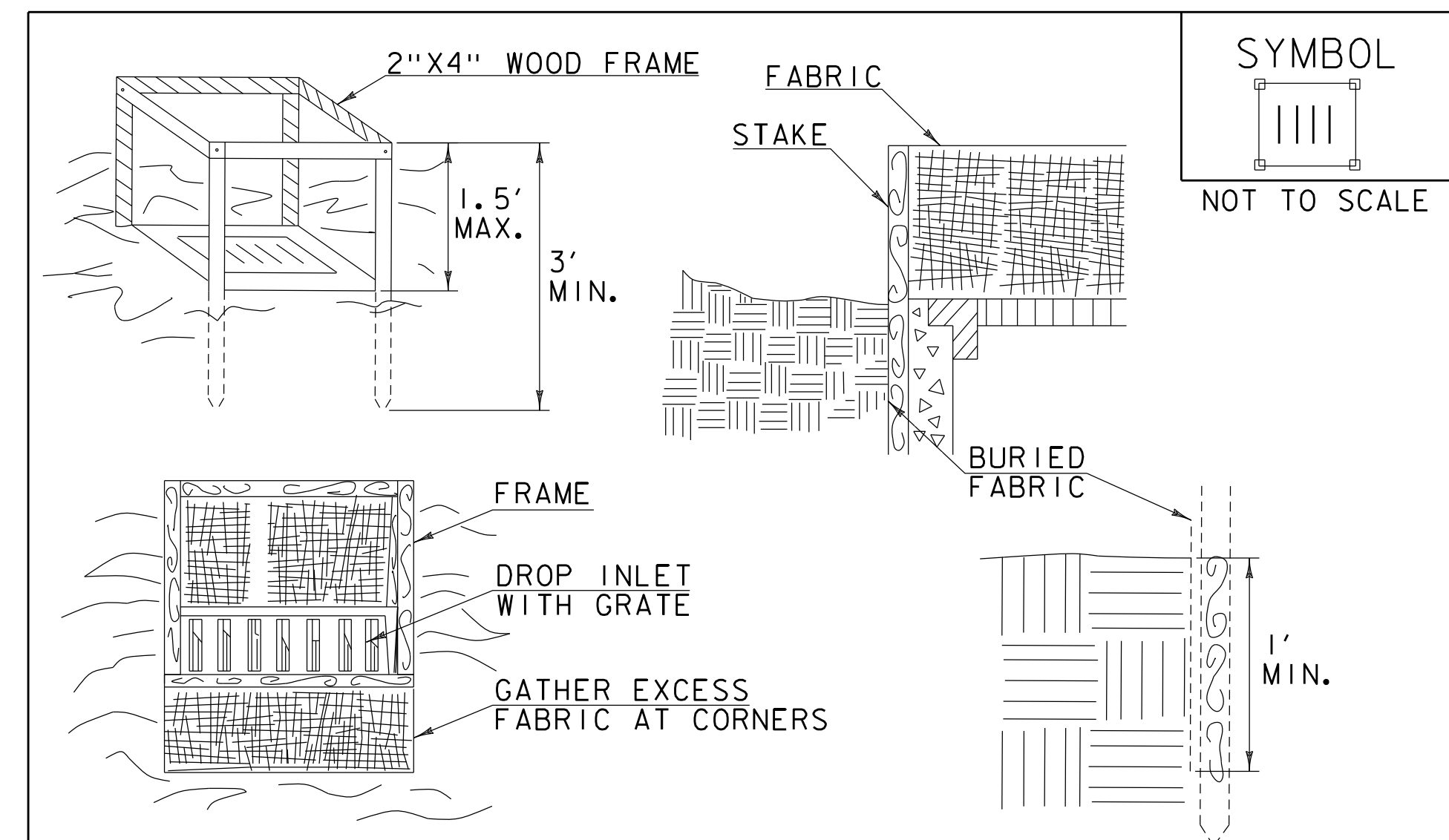
1. STONE SIZE- USE 1-4" STONE, RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH- NOT LESS THAN 50' (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH APPLIES).
3. THICKNESS- NOT LESS THAN 8".
4. WIDTH- 12' MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24' IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE MUST BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
6. SURFACE WATER- ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED ACCORDING TO PERMIT REQUIREMENTS.

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

**STABILIZED CONSTRUCTION ENTRANCE**

NOTES:  
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.  
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR VEHICLE TRACKING PAD (PAY ITEM 653.35) OR AS SPECIFIED IN THE CONTRACT.

REVISIONS		
MARCH 24, 2008	WHF	
JANUARY 13, 2009	WHF	



**CONSTRUCTION SPECIFICATIONS**

1. FILTER FABRIC SHALL HAVE AN APPARENT OPENING SIZE OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2"x 4" WOOD OR EQUIVALENT METAL WITH A MINIMUM LENGTH OF 3'.
4. SPACE STAKES EVENLY AROUND INLET 3' APART AND DRIVE A MINIMUM 18" DEEP. SPANS GREATER THAN 3' MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1' MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.
7. MAXIMUM DRAINAGE AREA 1 ACRE

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

**FILTER FABRIC DROP INLET PROTECTION**

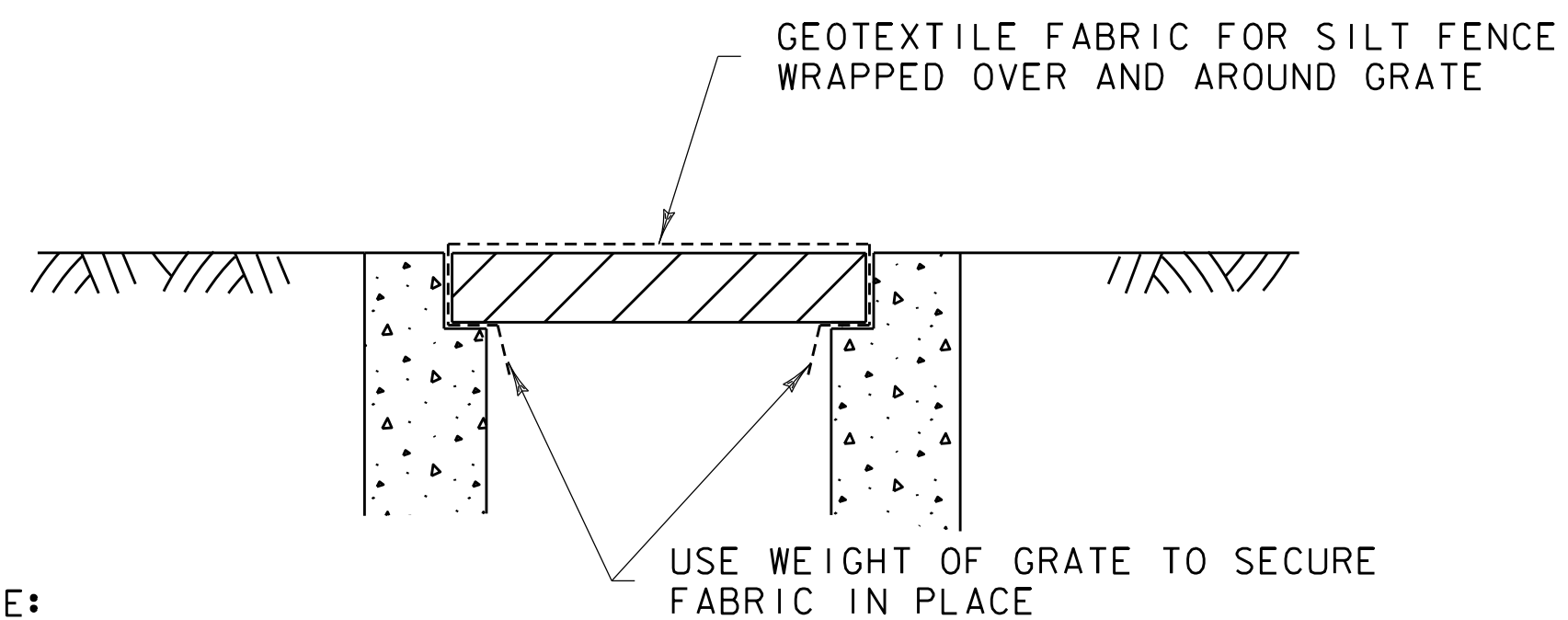
NOTES:  
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.  
THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR INLET PROTECTION DEVICE, TYPE I (PAY ITEM 653.40).

REVISIONS		
MARCH 7, 2008	WHF	
JANUARY 13, 2009	WHF	

PROJECT NAME: SOUTH BURLINGTON  
PROJECT NUMBER: STP SCR(8)

FILE NAME: z1b220erode+.dgn  
PROJECT LEADER: E. ATKINS  
DESIGNED BY: M. BRADLEY  
EPSC DETAIL SHEET 2

PLOT DATE: 4/12/2016  
DRAWN BY: M. BRADLEY  
CHECKED BY: M. BRADLEY  
SHEET 30 OF 58



**NOTE:**

THE CONTRACTOR SHALL INSPECT ALL INSTALLATIONS DAILY AND REPAIR/REPLACE FABRIC AS REQUIRED OR REMOVE AND DISPOSE OF COLLECTED DEBRIS. NO DEBRIS SHALL BE DISPOSED OF INTO INLETS.

## TYPICAL FILTER FABRIC INSTALLATION FOR INLET PROTECTION IN AREAS SUBJECT TO TRAFFIC

### INLET PROTECTION

**APPLICATION NOTES:**

- A. THE PRIMARY PURPOSE OF INLET PROTECTION IS TO PREVENT SEDIMENT FROM ENTERING A DRAINAGE STRUCTURE, WHILE STILL ALLOWING THE WATER TO DRAIN. THIS WORKS BY PONDING THE WATER, WHICH WILL ALLOW THE SEDIMENT TO FALL OUT OF SUSPENSION, BEFORE THE WATER ENTERS THE STRUCTURE.
- B. THESE EXAMPLES OF INLET PROTECTION ARE NOT INTENDED TO CAUSE STORMWATER TO BYPASS THE STRUCTURE AND CREATE ADDITIONAL EROSION OR FLOODING. IN THE CASE WERE THE INLET PROTECTION STRUCTURE HAS CAUSED WATER TO BYPASS THE DRAINAGE STRUCTURE, ADDITIONAL PROTECTION DEVICES WILL BE REQUIRED. POSSIBLE MODIFICATIONS MAY INCLUDE ADDING CHECK DAMS UPSTREAM OF THE INLET TO CREATE MORE PONDING AND TO SLOW VELOCITIES. A BERM DOWNSTREAM OF THE INLET TO CREATE ADDITIONAL PONDING MAY ALSO BE UTILIZED.
- C. DETAILS SHOWN SHALL BE USED FOR TEMPORARY INSTALLATION ONLY.
- D. USE OF PREFABRICATED INLET PROTECTION SHALL BE AS APPROVED IN THE EPSC PLAN.

**GENERAL NOTES:**

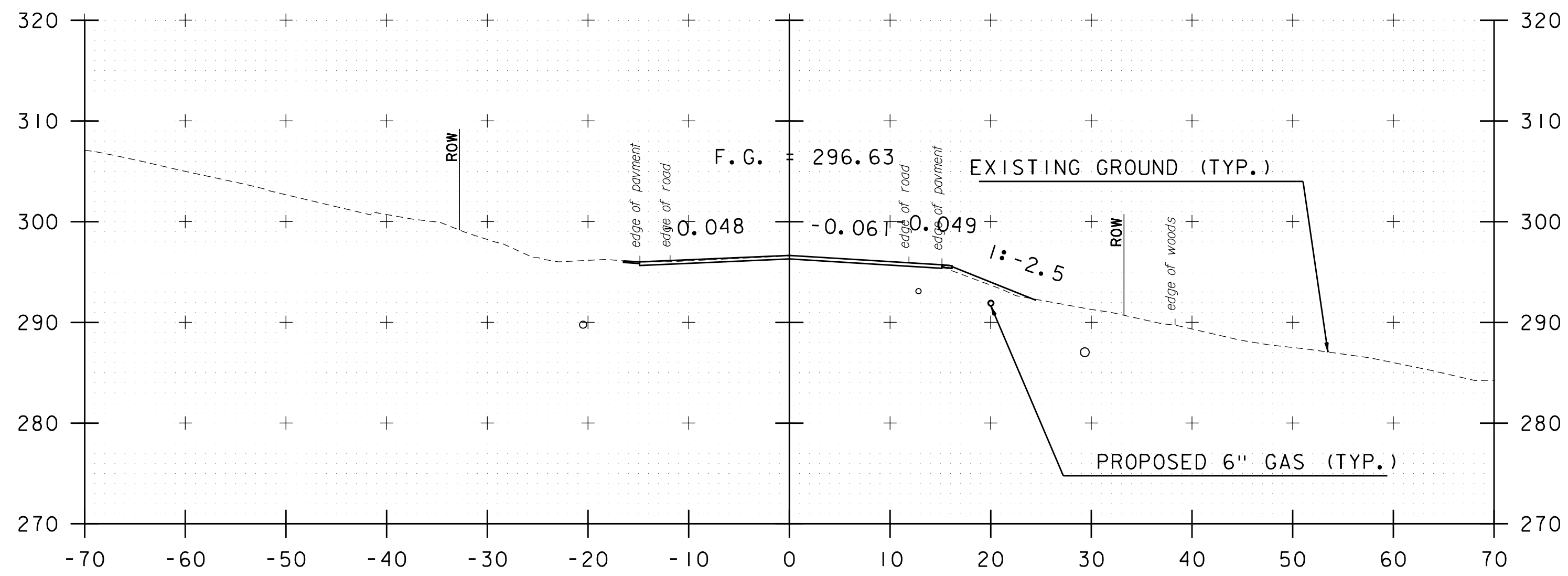
1. SILT FENCE GEOTEXTILE SHALL BE A SINGLE CONTINUOUS PIECE TO MINIMIZE UNNECESSARY JOINTS.
2. INLET PROTECTION SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT GREAT ENOUGH TO CAUSE STORMWATER TO LEAVE THE CONSTRUCTION SITE, UNLESS OTHERWISE INDICATED ON THIS SHEET.
3. INLET PROTECTION SHALL BE CLEANED AND REPAIRED AS NEEDED. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION REACHES ONE-HALF OF THE HEIGHT OR AS RECOMMENDED BY THE MANUFACTURER. SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED WASTE SITE.
4. PREFABRICATED INLET PROTECTION SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATION.
5. PAYMENT SHALL BE MADE UNDER CONTRACT ITEM 900.620 SPECIAL PROVISION (INLET PROTECTION, GEOTEXTILE FABRIC)

SPECIAL PROVISION  
(INLET PROTECTION, GEOTEXTILE FABRIC)  
NOT TO SCALE

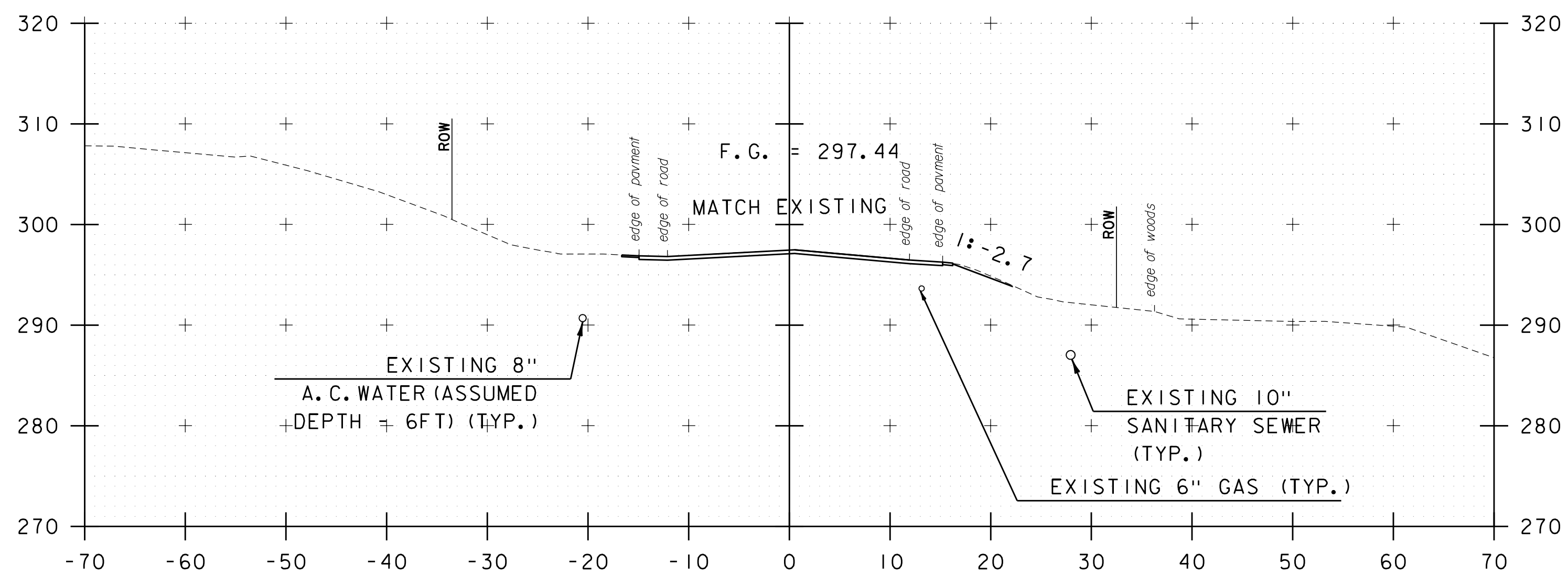
PROJECT NAME: SOUTH BURLINGTON  
PROJECT NUMBER: STP SCR(8)

FILE NAME: z1b220erode+.dgn  
PROJECT LEADER: E. ATKINS  
DESIGNED BY: M. BRADLEY  
EPSC DETAIL SHEET 3

PLOT DATE: 4/12/2016  
DRAWN BY: M. BRADLEY  
CHECKED BY: M. BRADLEY  
SHEET 31 OF 58

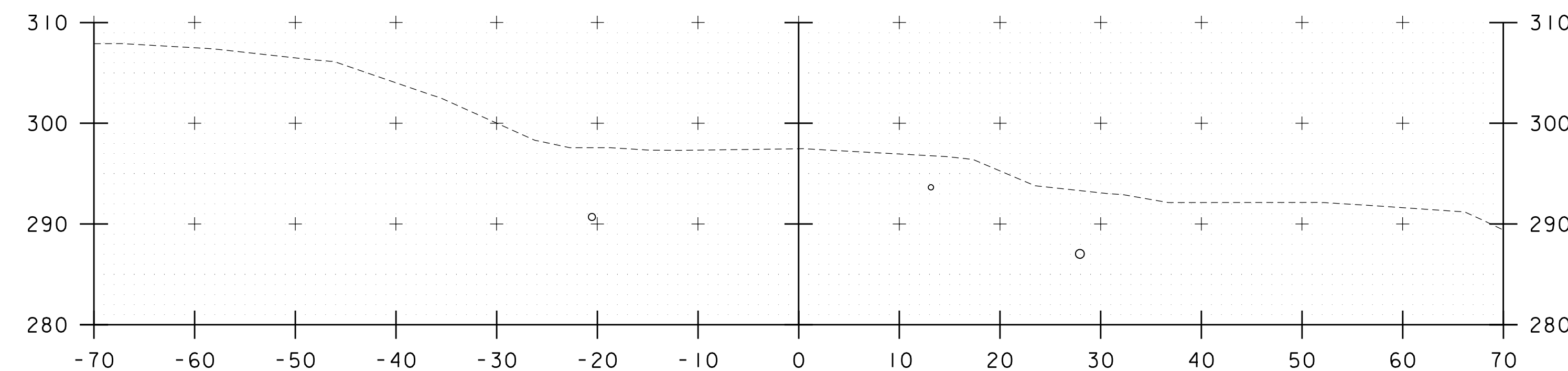


182+00

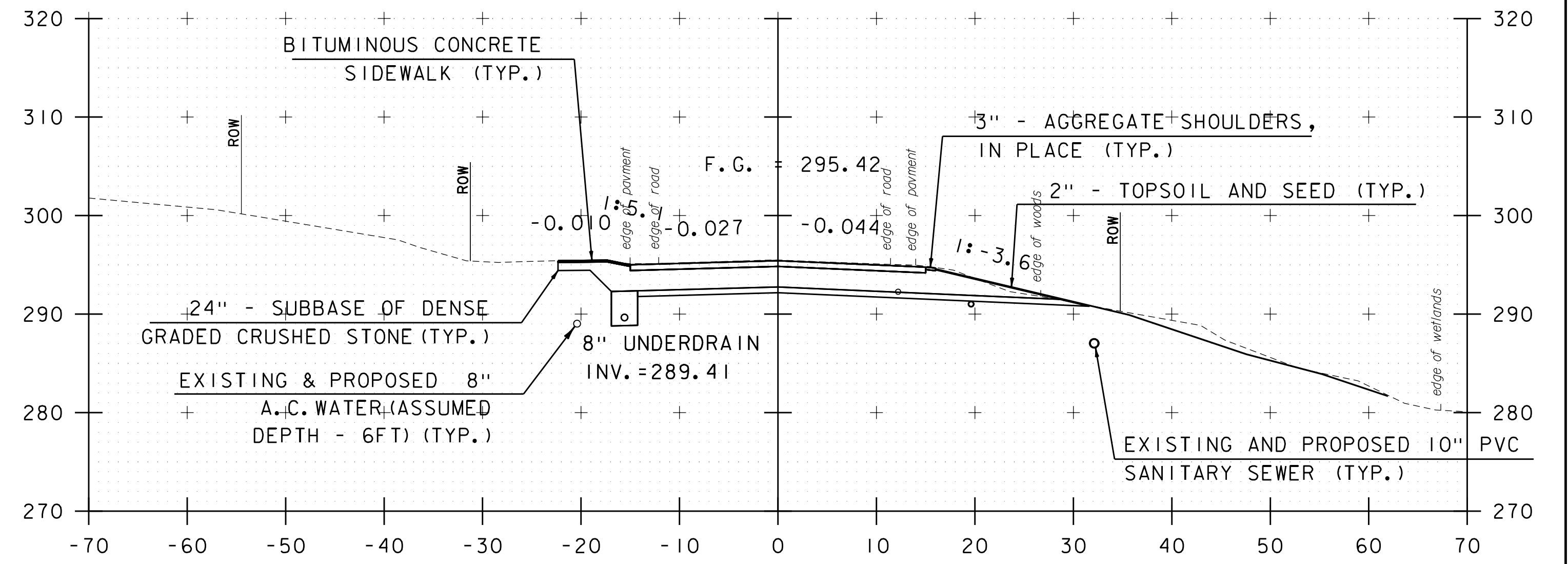


181+50

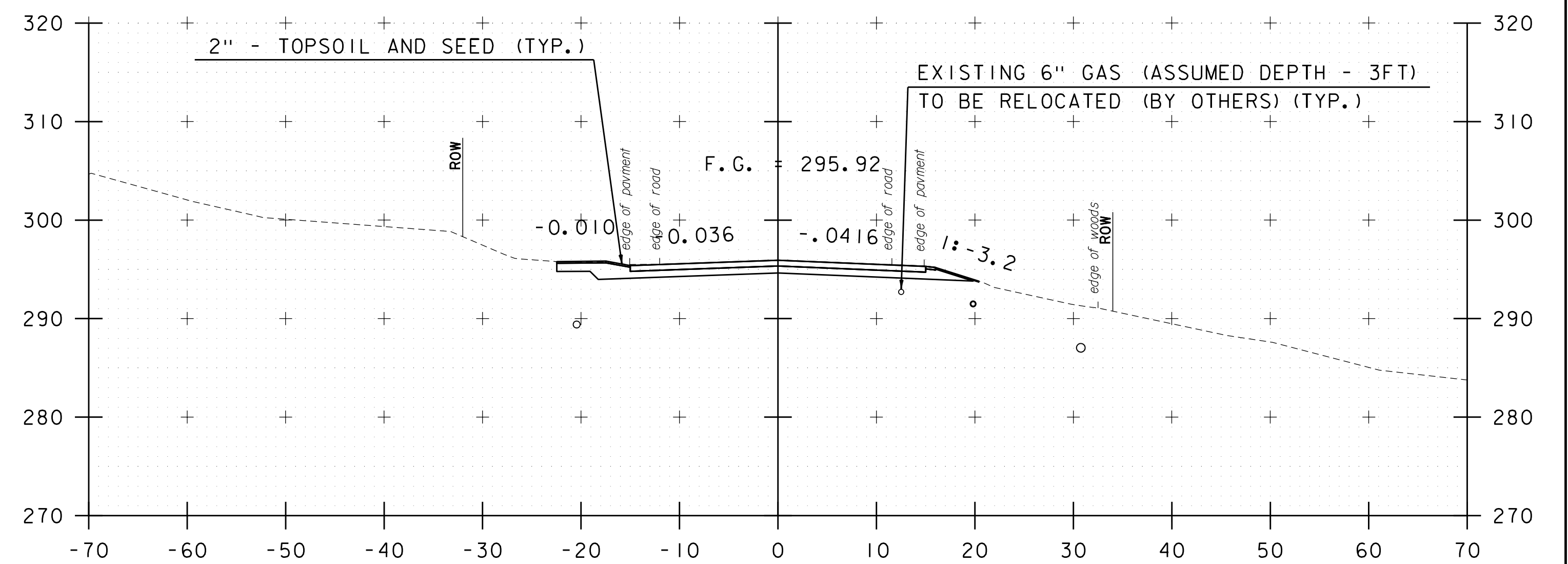
181+35 BEGIN APPROACH



181+25



183+00

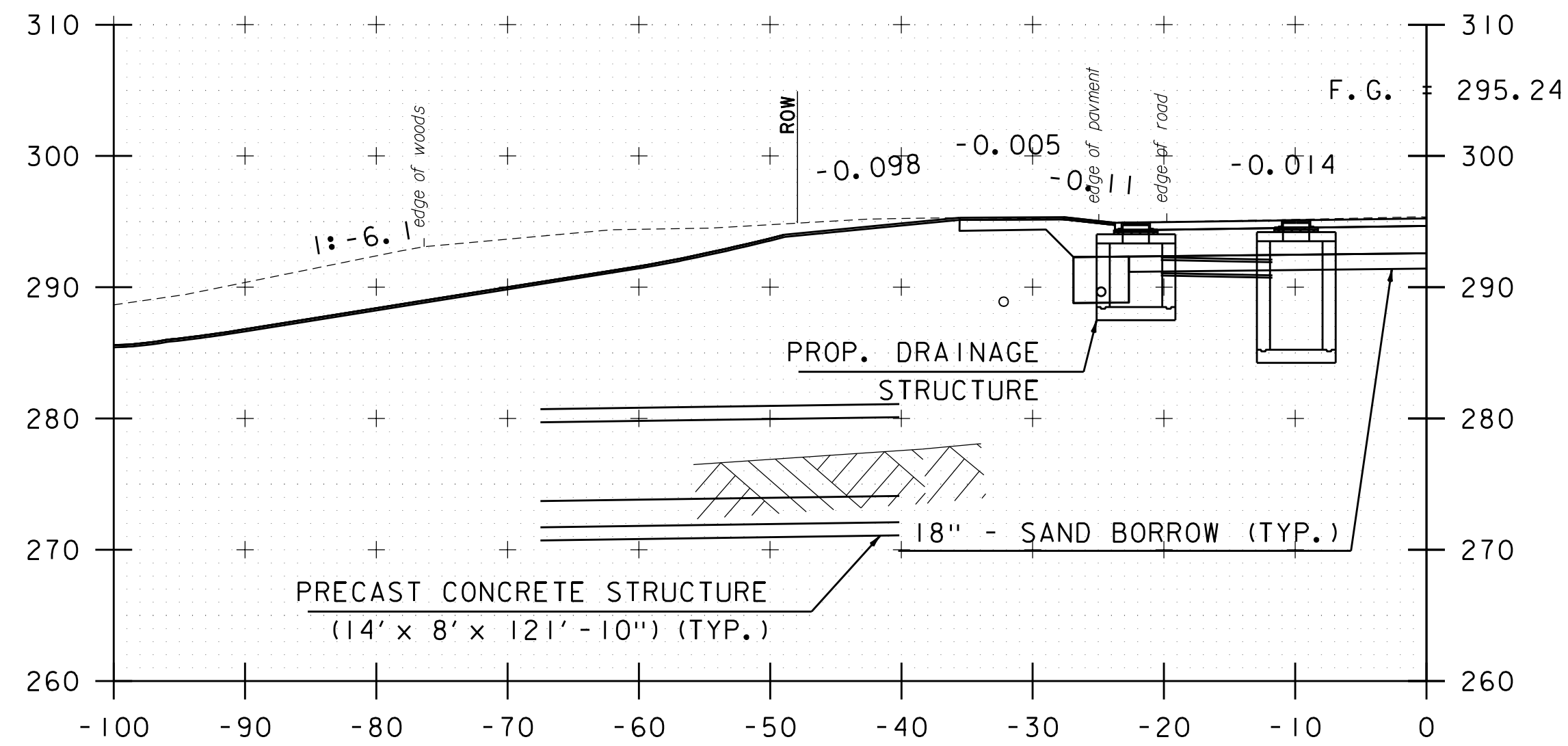


182+50

STA. 181+50.00 TO STA. 183+00.00

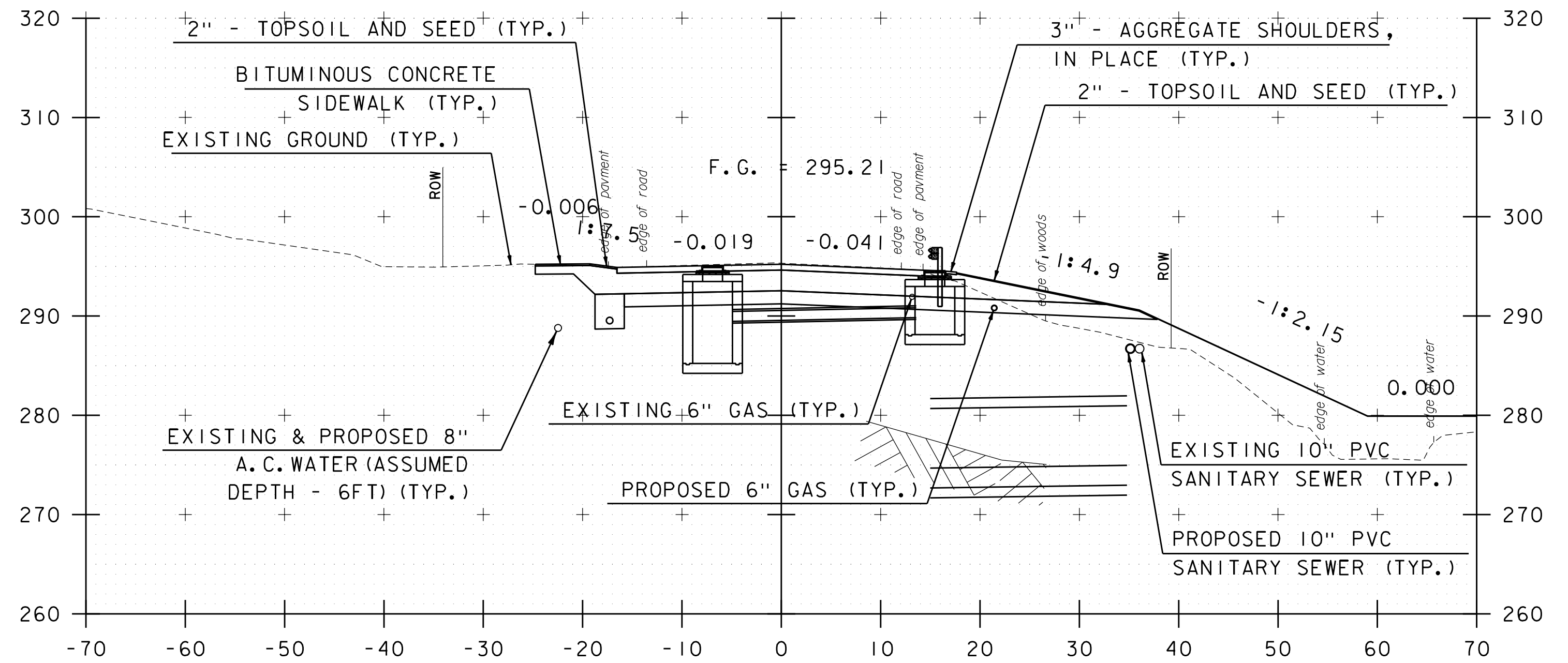
PROJECT NAME: SOUTH BURLINGTON	
PROJECT NUMBER: STP SCR(8)	
FILE NAME: z1b220xsl.dgn	PLOT DATE: 4/12/2016
PROJECT LEADER: E. ATKINS	DRAWN BY: D. VERTIYEV
DESIGNED BY: D. VERTIYEV	CHECKED BY: E. ATKINS
VT ROUTE 116 CROSS SECTION SHEET 1	SHEET 38 OF 58



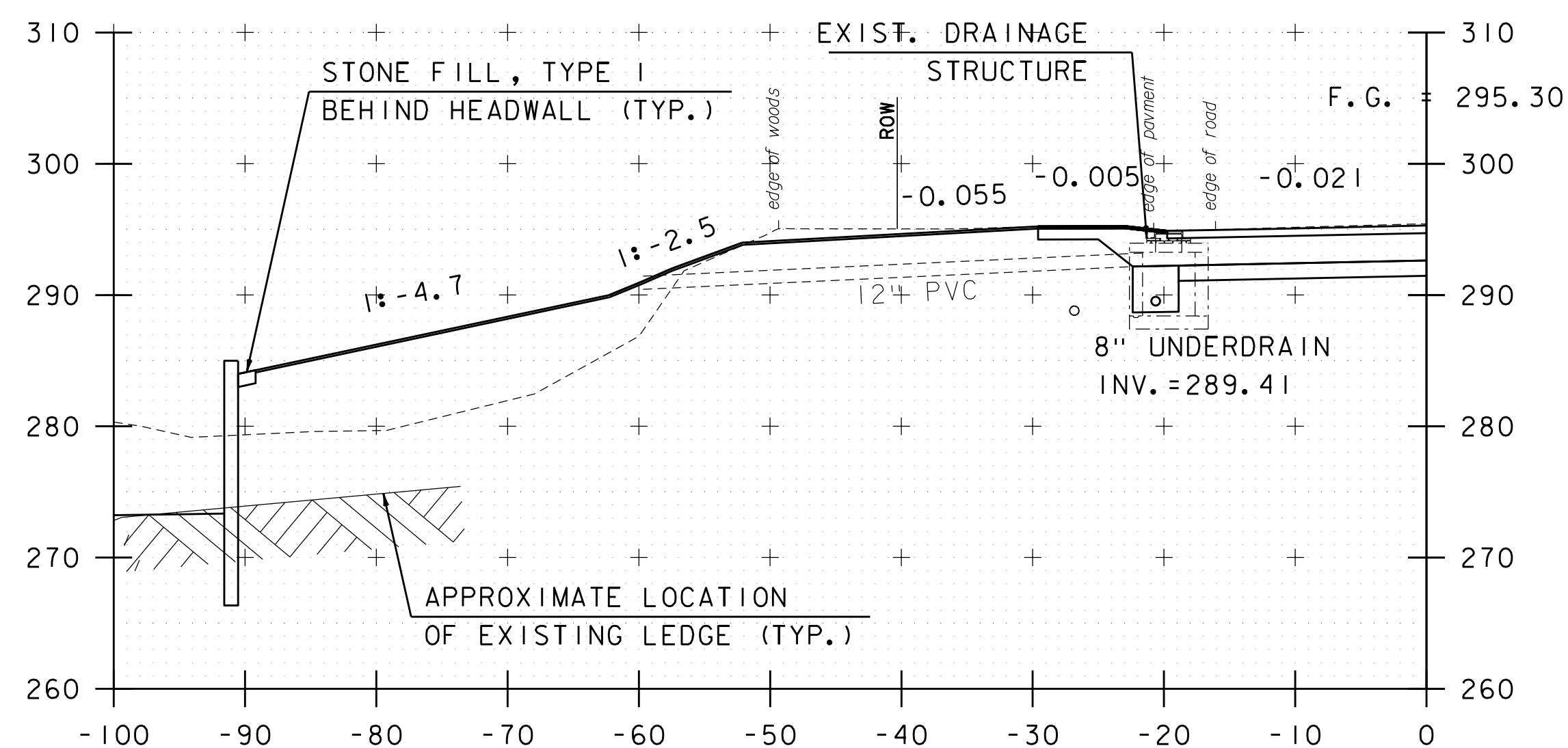


183+26.67 12" PIPE OPTION  
SKEWED AT 50°48'02.64" LT

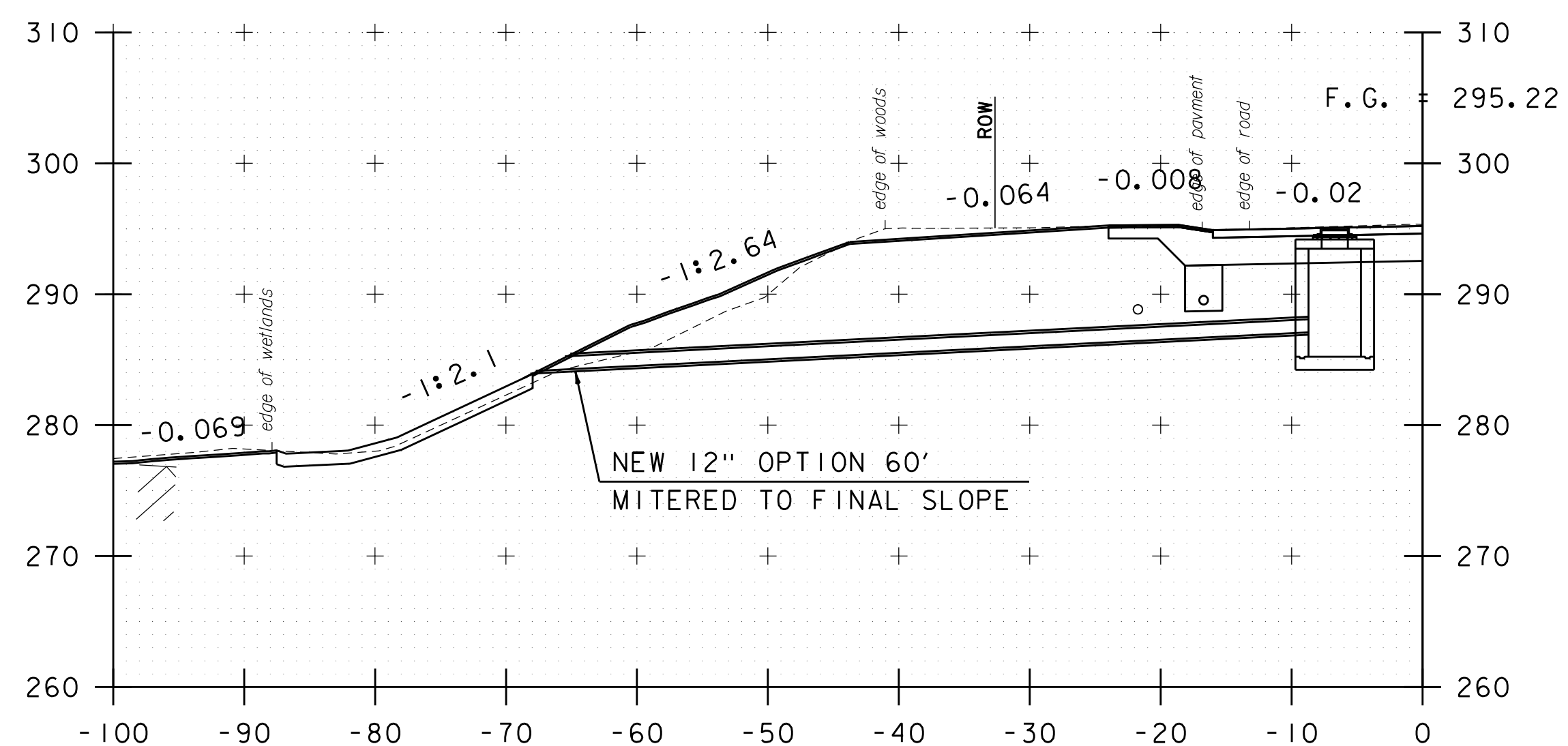
183+20.00 BEGIN SOUTH BURLINGTON STP SCR(8)



183+36.29 12" PIPE OPTION  
SKEWED AT 25°03'26.62" LT



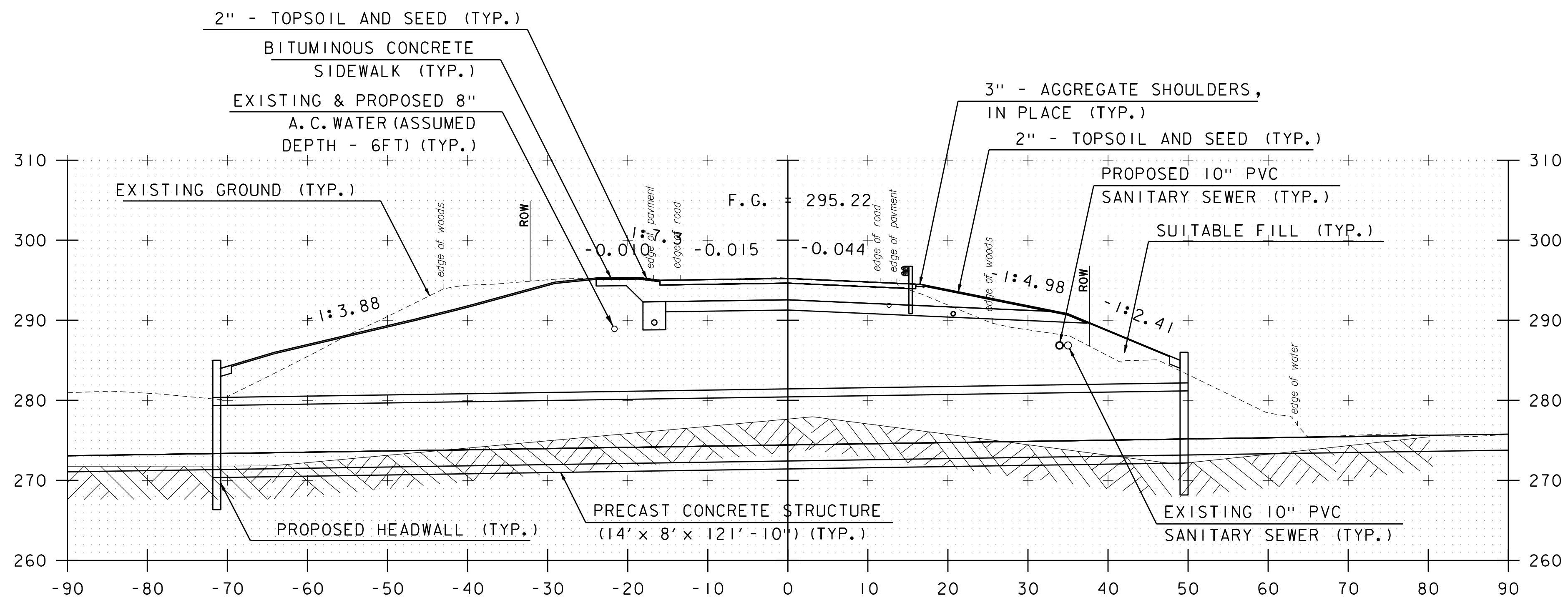
183+14.33 EXISTING D. I.  
SKEWED AT 49°35'08.69" LT



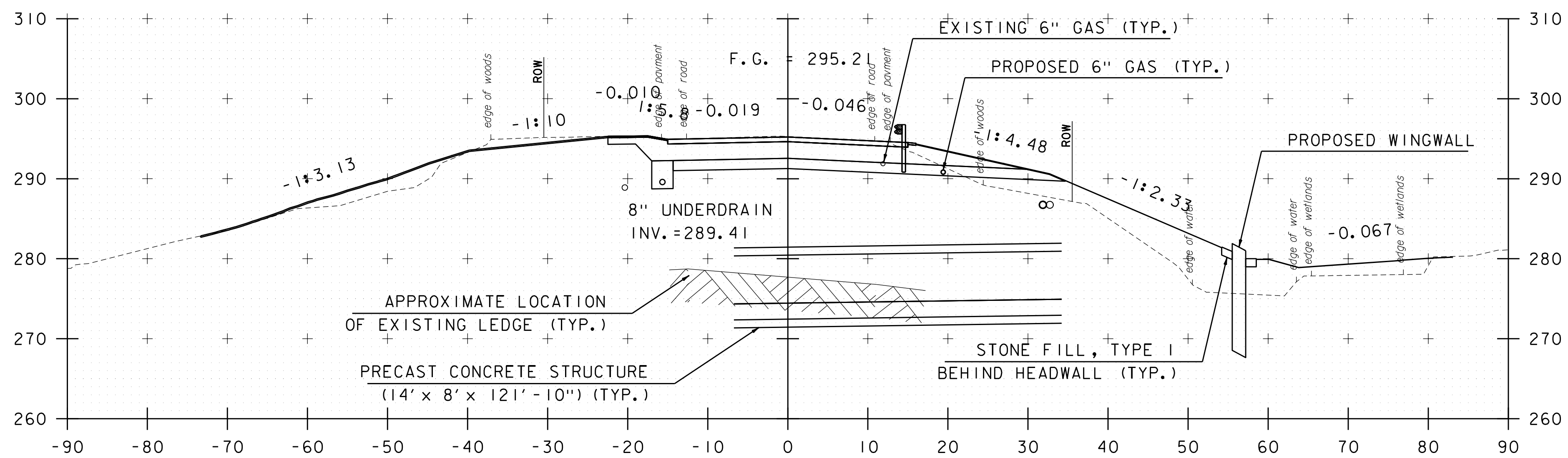
183+31.03 12" PIPE OPTION  
SKEWED AT 20°27'09.39" LT

STA. 183+14.33 TO STA. 183+36.29

PROJECT NAME: SOUTH BURLINGTON	
PROJECT NUMBER: STP SCR(8)	
FILE NAME: z1lb220xsl.dgn	PLOT DATE: 4/12/2016
PROJECT LEADER: E. ATKINS	DRAWN BY: D. VERTIYEV
DESIGNED BY: D. VERTIYEV	CHECKED BY: E. ATKINS
VT ROUTE 116 CROSS SECTION SHEET 2	SHEET 39 OF 58



183+55.00 14' x 8' BOX CULVERT  
SKEWED AT 20°00'00.00" LT



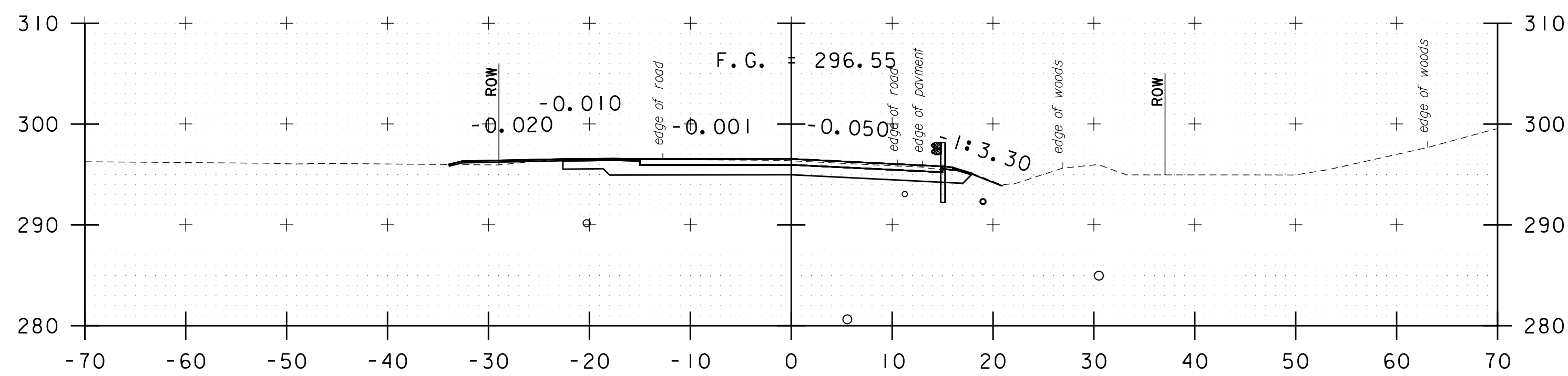
183+50  
183+46.56 STOP ROADWAY  
BEGIN BRIDGE

STA. 183+50.00 TO STA. 183+55.00

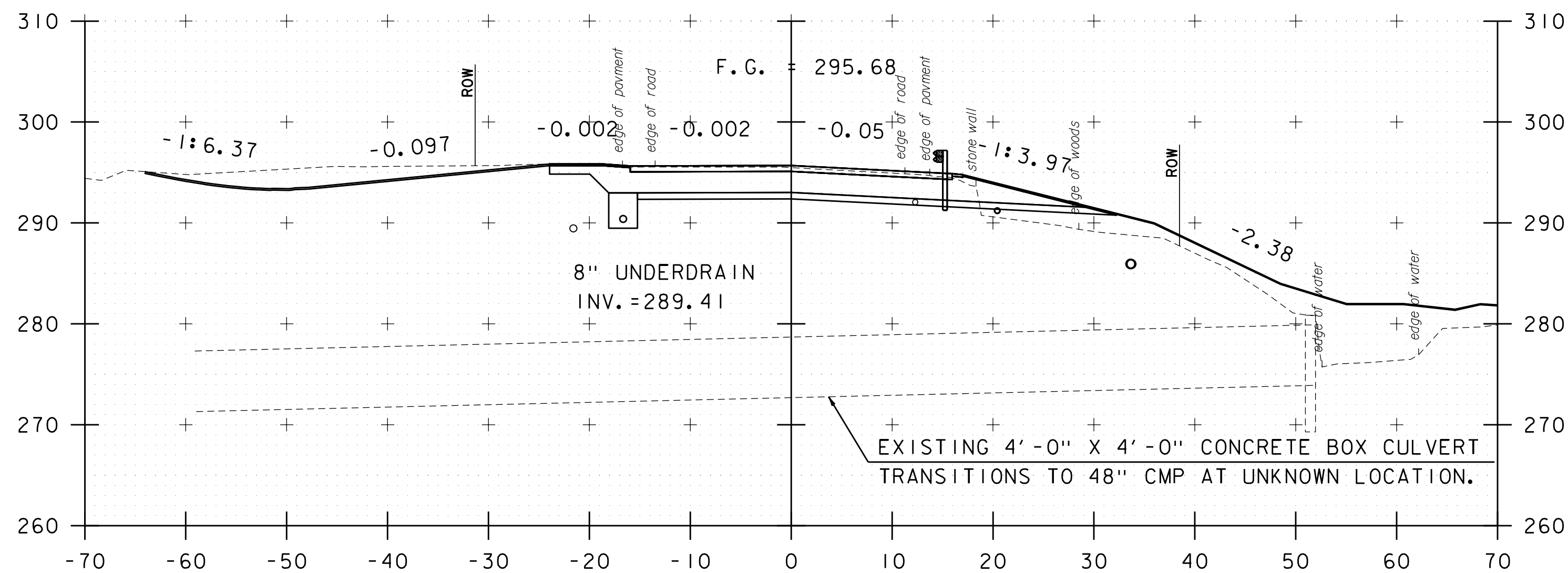
PROJECT NAME: SOUTH BURLINGTON  
PROJECT NUMBER: STP SCR(8)

FILE NAME: z1lb220xsl.dgn  
PROJECT LEADER: E. ATKINS  
DESIGNED BY: D. VERTIYEV  
VT ROUTE 116 CROSS SECTION SHEET 3

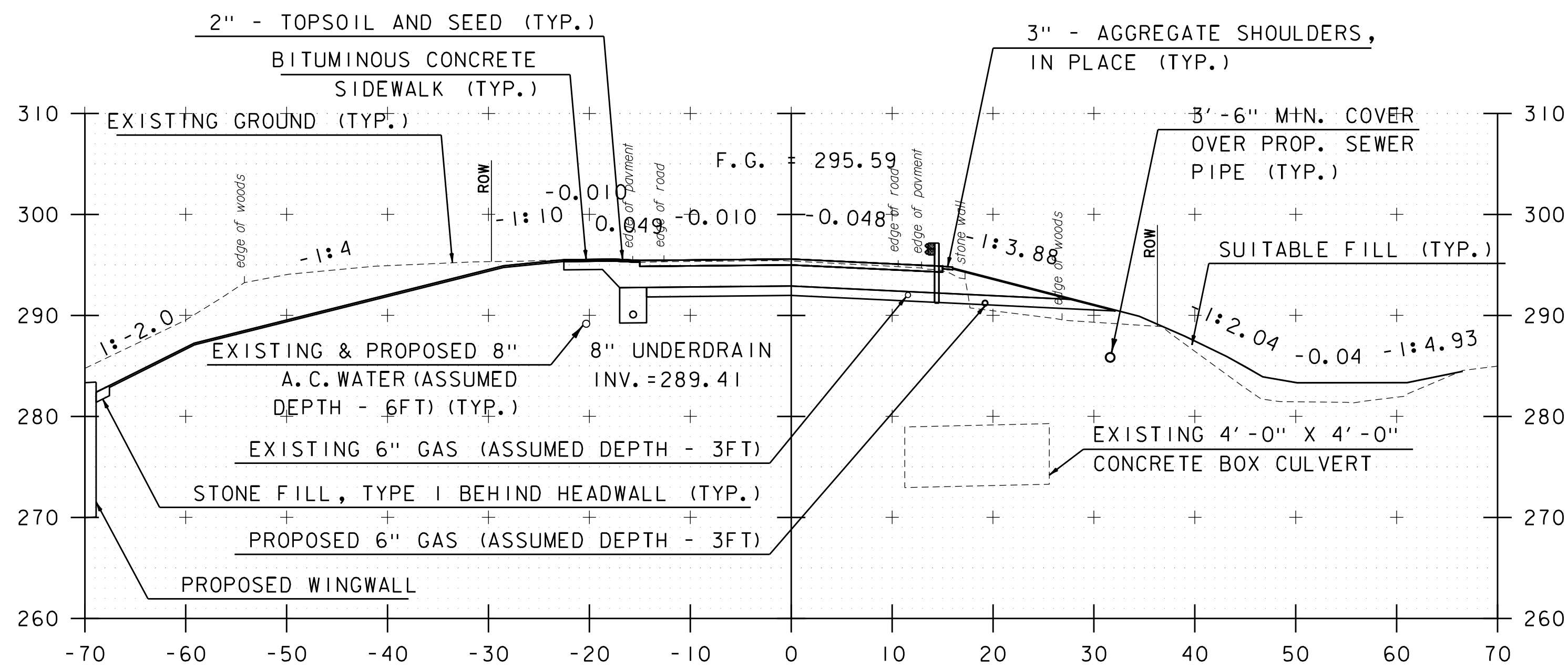
PLOT DATE: 4/12/2016  
DRAWN BY: D. VERTIYEV  
CHECKED BY: E. ATKINS  
SHEET 40 OF 58



184+50

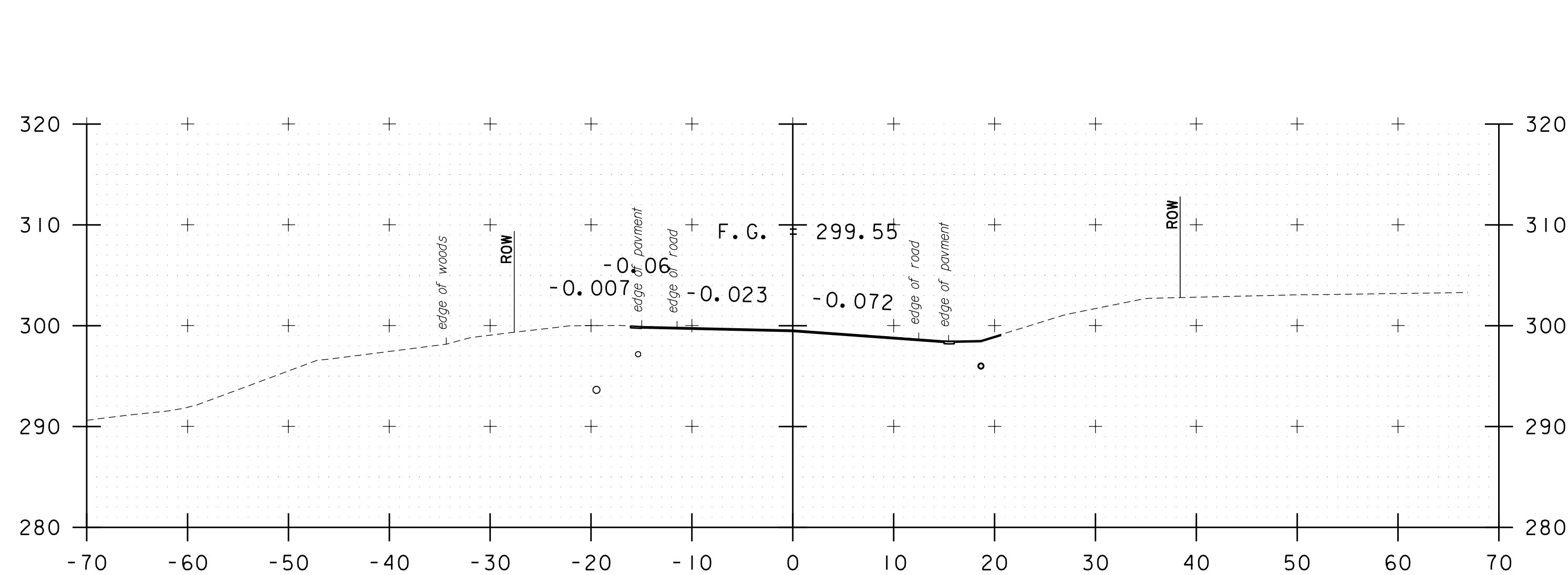


184+06.64 4' x 4' BOX CULVERT  
SKEWED AT 19° 52' 34.55" LT

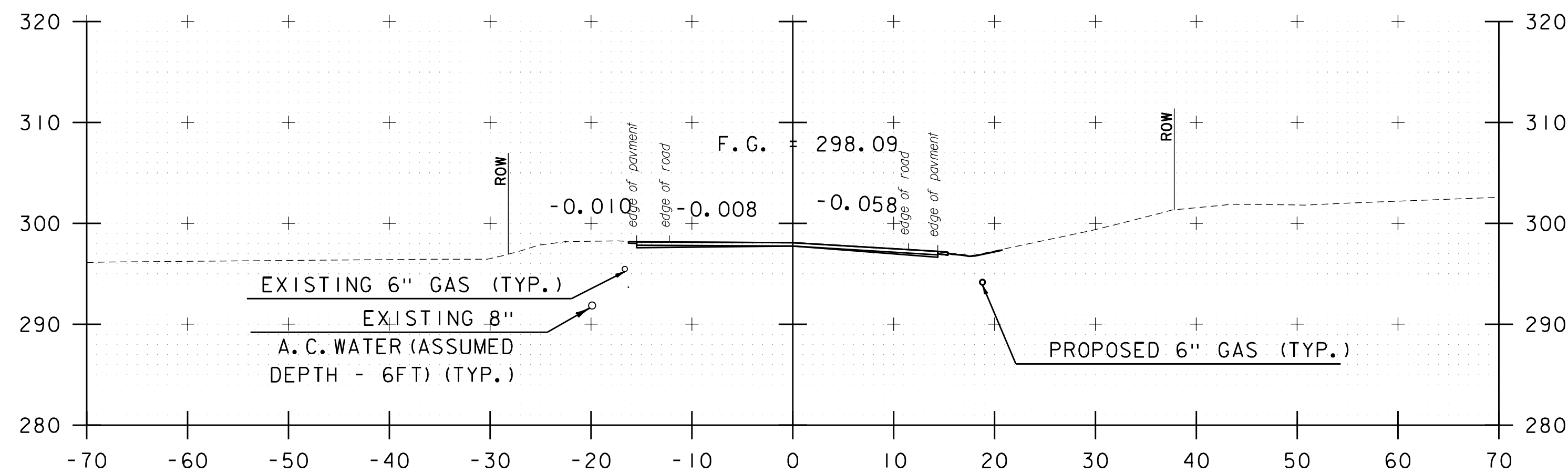


184+00

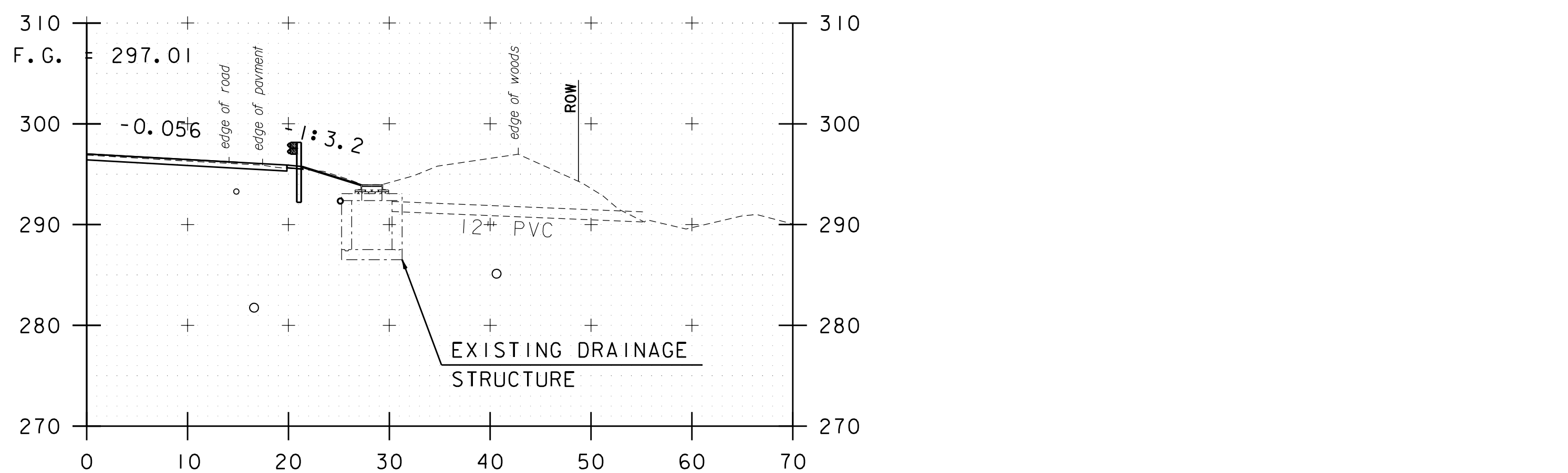
183+90.00 END SOUTH BURLINGTON STP SCR(8)  
183+63.60 END BRIDGE  
RESUME ROADWAY



PC 185+37.67



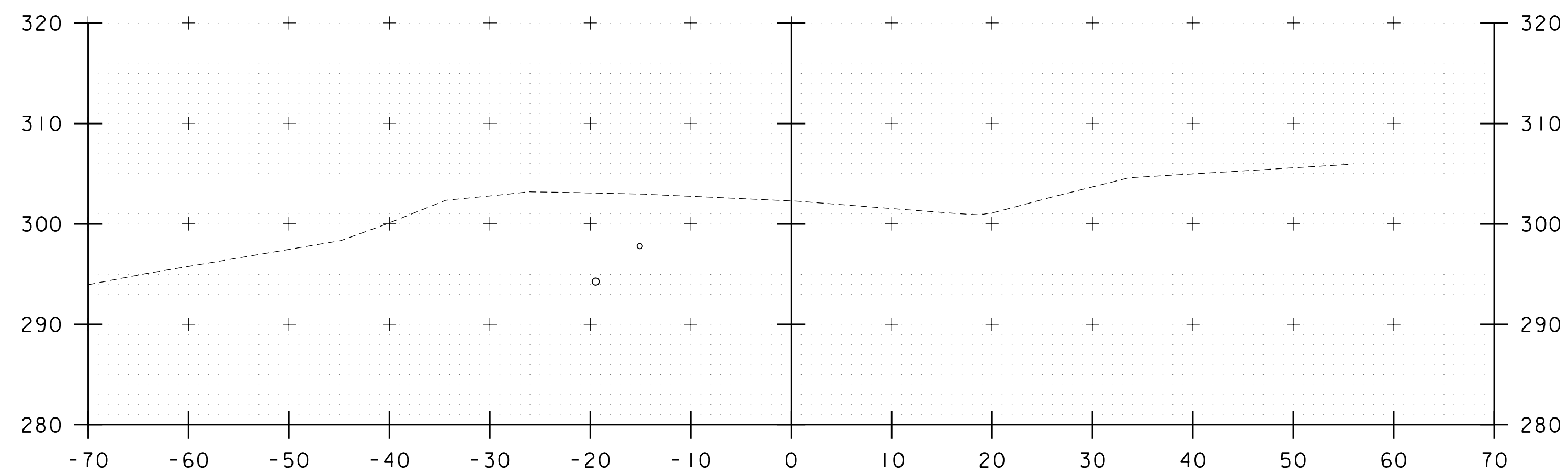
185+00



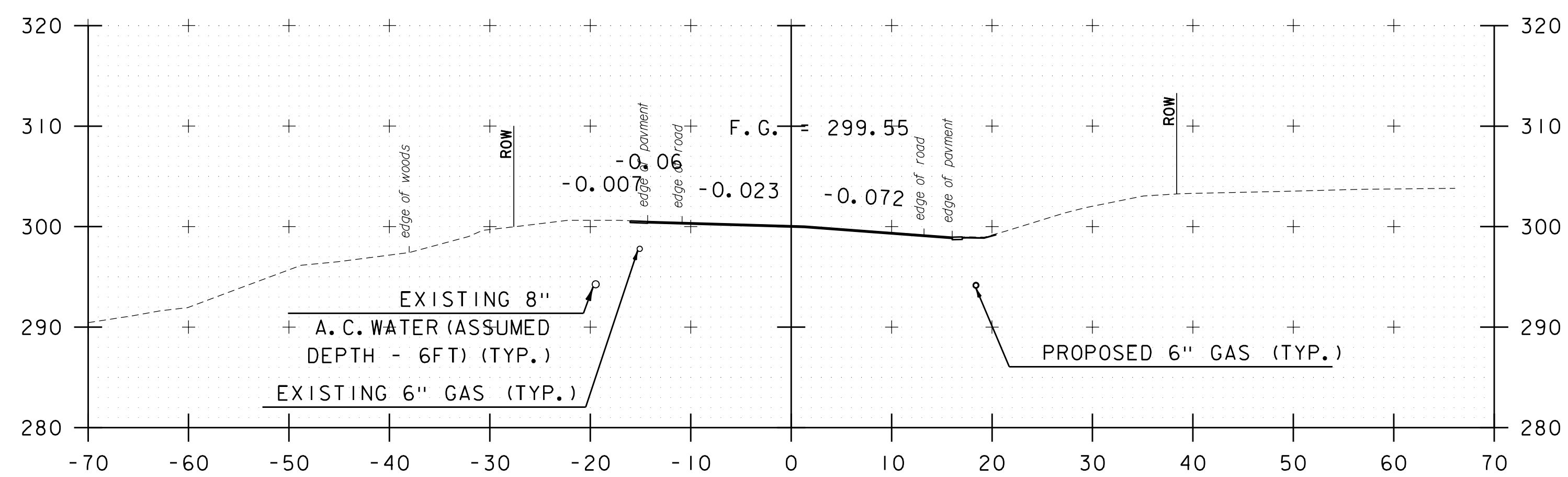
184+67.15 EXISTING D.I.  
SKEWED AT 40° 55' 17.67" RT

STA. 184+00.00 TO STA. 185+37.67

PROJECT NAME:	SOUTH BURLINGTON
PROJECT NUMBER:	STP SCR(8)
FILE NAME:	z1lb220xsl.dgn
PROJECT LEADER:	E. ATKINS
DESIGNED BY:	D. VERTIYEV
VT ROUTE 116 CROSS SECTION SHEET 4	
PLOT DATE:	4/12/2016
DRAWN BY:	D. VERTIYEV
CHECKED BY:	E. ATKINS
SHEET	41 OF 58



186+00  
185+75.00 END APPROACH



185+50

STA. 185+50.00 TO STA. 185+50.00

PROJECT NAME: SOUTH BURLINGTON  
PROJECT NUMBER: STP SCRP(8)

FILE NAME: z1lb220xsl.dgn  
PROJECT LEADER: E. ATKINS  
DESIGNED BY: D. VERTIYEV  
VT ROUTE 116 CROSS SECTION SHEET 5

PLOT DATE: 4/12/2016  
DRAWN BY: D. VERTIYEV  
CHECKED BY: E. ATKINS  
SHEET 42 OF 58

**WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region**

Project/Site: South Burlington STP SCRP (8) City/County: South Burlington, Chittenden Sampling Date: 9/11/13 & 5/10/16  
 Applicant/Owner: VTrans State: VT Sampling Point: wetland upstream  
 Investigator(s): Glenn Gingras Section, Township, Range: _____  
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave  
 Slope (%): < 1 % Lat: N 44 27'23.7512 Long: W 73 10' 8.2448" Datum: DMS  
 Soil Map Unit Name: Limerick very wet NWI classification: PFO/EM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/> If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.)   	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
<b>Field Observations:</b> Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Depth (inches): <u>20"</u> Saturation Present? (includes capillary fringe) Yes <input checked="" type="radio"/> No <input type="radio"/> Depth (inches): <u>7"</u>	Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  	
Remarks:   	

**SOIL**

Sampling Point: wetland upstream

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6"	10YR 2/2	98	10YR5/4	2	C	M	fsl	faint mottles
6"-20"	10YR 4/1	88	7.5YR4/4	10	C	M	fsl	distinct mottles
			10YR6/2	2	D	M		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

**Indicators for Problematic Hydric Soils³:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: _____  
 Depth (inches): _____

Hydric Soil Present? Yes  No

**Remarks:**

**VEGETATION – Use scientific names of plants.**

Sampling Point: wetland upstream

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Acer rubrum</u>	<u>20.5</u>	<u>Y</u>	<u>FAC</u>
2. <u>Pinus Strobus</u>	<u>20.5</u>	<u>Y</u>	<u>FACU</u>
3. <u>Ulmus americana</u>	<u>10.5</u>	<u>N</u>	<u>FACW</u>
4. <u>Tsuga canadensis</u>	<u>2.0</u>	<u>N</u>	<u>FACU</u>
5. <u>Betula papyrifera</u>	<u>2.0</u>	<u>N</u>	<u>FACU</u>
6. _____	_____	_____	_____
7. _____	_____	_____	_____
	<u>55.5</u> = Total Cover		

Sapling/Shrub Stratum (Plot size: <u>15'</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Alnus serrulata</u>	<u>20.5</u>	<u>Y</u>	<u>OBL</u>
2. <u>Pinus strobus</u>	<u>2.0</u>	<u>N</u>	<u>FACU</u>
3. <u>Prunus virginiana</u>	<u>2.0</u>	<u>N</u>	<u>FACU</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
	<u>24.5</u> = Total Cover		

Herb Stratum (Plot size: <u>5'</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Onoclea sensibilis</u>	<u>50.0</u>	<u>Y</u>	<u>FACW</u>
2. <u>Solidago spp?</u>	<u>10.5</u>		
3. <u>Lysimachia nummularia</u>	<u>20.5</u>	<u>Y</u>	<u>FACW</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____
	<u>81</u> = Total Cover		

Woody Vine Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
	<u>0</u> = Total Cover		

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 3.00 (A)

Total Number of Dominant Species Across All Strata: 4.00 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.75 (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species <u>20.50</u>	x 1 = <u>20.50</u>
FACW species <u>81.00</u>	x 2 = <u>162.00</u>
FAC species <u>20.50</u>	x 3 = <u>82.00</u>
FACU species <u>28.50</u>	x 4 = <u>114.00</u>
UPL species _____	x 5 = _____
Column Totals: <u>150.50</u> (A)	<u>378.50</u> (B)

Prevalence Index = B/A = 2.51

- Hydrophytic Vegetation Indicators:**
- Rapid Test for Hydrophytic Vegetation
  - Dominance Test is >50%
  - Prevalence Index is ≤3.0¹
  - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
  - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?** Yes  No

Remarks: (Include photo numbers here or on a separate sheet.)

**WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region**

Project/Site: South Burlington STP SCRP (8) City/County: South Burlington, Chittenden Sampling Date: 9/11/13 & 5/10/16  
 Applicant/Owner: VTrans State: VT Sampling Point: upland upstream  
 Investigator(s): Glenn Gingras Section, Township, Range: _____  
 Landform (hillslope, terrace, etc.): Road side slope Local relief (concave, convex, none): CONVEX  
 Slope (%): < 1 % Lat: N 44 27'23.7512 Long: W 73 10' 8.2448" Datum: DMS  
 Soil Map Unit Name: Hinesburg fine sandy loam NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/> If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.)   	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
<b>Field Observations:</b> Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  	
Remarks:	



**SOIL**

Sampling Point: upland upstream

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7"	10YR 3/2						fsl	
7"-23+"	10YR 5/3	93	7.5YR4/4	5	C	M	clay	faint mottles
			7.5YR3/2	2	D	M		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

**Indicators for Problematic Hydric Soils³:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: _____  
 Depth (inches): _____

Hydric Soil Present? Yes  No

Remarks:

**VEGETATION** – Use scientific names of plants.

Sampling Point: upland upstream

	Absolute % Cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (Plot size: <u>30'</u> )					
1. <u>Acer rubrum</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1.00</u> (A)  Total Number of Dominant Species Across All Strata: <u>8.00</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.125</u> (A/B)	
2. <u>Pinus Strobus</u>	<u>50</u>	<u>Y</u>	<u>FACU</u>		
3. <u>Fraxinus americana</u>	<u>40</u>	<u>Y</u>	<u>FACU</u>		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
	<u>100</u>	= Total Cover		<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species <u>20.50</u> x 3 = <u>61.50</u> FACU species <u>165.00</u> x 4 = <u>660.00</u> UPL species _____ x 5 = _____ Column Totals: <u>185.50</u> (A) <u>721.50</u> (B)  Prevalence Index = B/A = <u>0</u>	
<b>Sapling/Shrub Stratum</b> (Plot size: <u>15'</u> )					
1. <u>Prunus serotina</u>	<u>10.5</u>	<u>N</u>	<u>FACU</u>		
2. <u>Pinus strobus</u>	<u>30.0</u>	<u>Y</u>	<u>FACU</u>		
3. <u>Rhamus cathartica</u>	<u>10.5</u>	<u>N</u>	<u>FAC</u>		
4. <u>Fraxinus americana</u>	<u>30.0</u>	<u>Y</u>	<u>FACU</u>		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
	<u>81</u>	= Total Cover			
<b>Herb Stratum</b> (Plot size: <u>5'</u> )					
1. <u>Rhamus cathartica</u>	<u>5.0</u>	<u>Y</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
2. <u>Prunus virginiana</u>	<u>5.0</u>	<u>Y</u>	<u>FACU</u>		
3. <u>Taraxacum officinde</u>	<u>5.0</u>	<u>Y</u>	<u>FACU</u>		
4. <u>Potentilla simplex</u>	<u>5.0</u>	<u>Y</u>	<u>FACU</u>		
5. <u>Galium boreale spp?</u>	<u>trace</u>				
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
12. _____	_____	_____	_____		
	<u>20</u>	= Total Cover			
<b>Woody Vine Stratum</b> (Plot size: <u>30'</u> )					
1. _____	_____	_____	_____	<b>Definitions of Vegetation Strata:</b>  <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. •  <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.	
2. _____	_____	_____	_____		
3. _____	_____	_____	_____		
4. _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
Hydrophytic Vegetation Present?      Yes <input type="radio"/> No <input checked="" type="radio"/>					
Remarks: (Include photo numbers here or on a separate sheet.)					

**WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region**

*5/10/16 Follow-up*

Project/Site: South Burlington STP SCRP (8) City/County: South Burlington Sampling Date: 9/11/13  
 Applicant/Owner: VTrans State: VT Sampling Point: Wetland (downstream)  
 Investigator(s): Glenn Gingras--MFJ Inc original in 2007 Section, Township, Range: South Burlington  
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave  
 Slope (%): <1 Lat: 44.45634 N Long: 73.16837 W Datum: WGS 1984  
 Soil Map Unit Name: Enosburg and Whately soils poorly drained NWI classification: _____  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/> If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.)   	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
<b>Field Observations:</b> Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): <u>20"</u> Water Table Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Depth (inches): <u>9"</u> Saturation Present? (includes capillary fringe) Yes <input checked="" type="radio"/> No <input type="radio"/> Depth (inches): <u>9"</u>	Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  	
Remarks:	

**SOIL**

Sampling Point: wetland (downstream)

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4"	10YR3/2						fsl	
4-10"	10YR3/1		10YR5/2	10	D	M	fsl	
			10YR4/6	2	C	M		
10-20"	7.5YR 4/1		10YR4/6	10	C	M	fsl	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7) (LRR R, MLRA 149B)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

**Indicators for Problematic Hydric Soils³:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Dark Surface (S7) (LRR K, L)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: ledge  
 Depth (inches): 20"

Hydric Soil Present? Yes  No

Remarks:

**VEGETATION – Use scientific names of plants.**

Sampling Point: wetland (downstream)

Tree Stratum (Plot size: <u>30'</u> )		Absolute % Cover	Dominant Species?	Indicator Status
1.	<u>Juglans nigra</u>	<u>38</u>	<u>X</u>	<u>FACU</u>
2.	<u>Tilia americana</u>	<u>20.5</u>	<u>X</u>	<u>FACU</u>
3.	<u>Ulmus rubra</u>	<u>20.5</u>	<u>X</u>	<u>FAC</u>
4.	<u>Gleditsia triacanthos</u>	<u>10.5</u>		<u>FAC</u>
5.				
6.				
7.				
		<u>89.5</u>	<u>= Total Cover</u>	
Sapling/Shrub Stratum (Plot size: <u>15'</u> )				
1.	<u>Tilia americana</u>	<u>20.5</u>	<u>X</u>	<u>FACU</u>
2.	<u>Rhamnus cathartica</u>	<u>20.5</u>	<u>X</u>	<u>FAC</u>
3.				
4.				
5.				
6.				
7.				
		<u>41</u>	<u>= Total Cover</u>	
Herb Stratum (Plot size: <u>5'</u> )				
1.	<u>Impatiens capensis</u>	<u>63.0</u>	<u>X</u>	<u>FACW</u>
2.	<u>Onoclea sensibilis</u>	<u>20.5</u>		<u>FACW</u>
3.	<u>Urtica droica</u>	<u>63.0</u>	<u>X</u>	<u>FAC</u>
4.	<u>Phalaris arundinacea</u>	<u>38.0</u>	<u>X</u>	<u>FACW</u>
5.	<u>Carex spp. ?</u>	<u>20.5</u>		
6.				
7.				
8.				
9.				
10.				
11.				
12.				
		<u>205</u>	<u>= Total Cover</u>	
Woody Vine Stratum (Plot size: <u>30'</u> )				
1.	<u>Not present</u>			
2.				
3.				
4.				
			<u>= Total Cover</u>	

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 62% (A/B)

**Prevalence Index worksheet:**

Total % Cover of: _____ Multiply by: _____

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column Totals: 0 (A) 0 (B)

Prevalence Index = B/A = 0

- Hydrophytic Vegetation Indicators:**
- Rapid Test for Hydrophytic Vegetation
  - Dominance Test is >50%
  - Prevalence Index is ≤3.0¹
  - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
  - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

**Hydrophytic Vegetation Present?** Yes  No

Remarks: (Include photo numbers here or on a separate sheet.)

**WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region**

Project/Site: South Burlington STP SCRIP (8) City/County: South Burlington Sampling Date: 9/11/13  
 Applicant/Owner: VTrans State: VT Sampling Point: upland (downstream)  
 Investigator(s): Glenn Gingras--MFJ Inc original in 2007 Section, Township, Range: South Burlington  
 Landform (hillslope, terrace, etc.): fill slope Local relief (concave, convex, none): concave  
 Slope (%): <1 Lat: 44.45634 N Long: 73.16837 W Datum: WGS 1984  
 Soil Map Unit Name: Common Fill NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/> If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.)   	

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b> Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
<b>Field Observations:</b> Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  	
Remarks:   	

**SOIL**

Sampling Point: upland (downstream)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3"	10YR3/2		-				fsl	
3-8"	10YR4/4		-				fsl	
8-20" +	2.5Y5/4		-				sandy	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

<b>Hydric Soil Indicators:</b>			<b>Indicators for Problematic Hydric Soils³:</b>		
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, MLRA 149B)	<input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, MLRA 149B)			
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR R, MLRA 149B)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)			
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (LRR K, L)	<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)			
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L)			
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)			
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)			
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)			
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 149B)			
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Mesic Spodic (TA6) (MLRA 144A, 145, 149B)			
<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> Red Parent Material (TF2)			
<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Very Shallow Dark Surface (TF12)			
<input type="checkbox"/> Dark Surface (S7) (LRR R, MLRA 149B)		<input type="checkbox"/> Other (Explain in Remarks)			

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if observed):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes <input type="radio"/> No <input checked="" type="radio"/>
---------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------

Remarks:

**VEGETATION** – Use scientific names of plants.

Sampling Point: upland (downstream)

<u>Tree Stratum</u> (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>5</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>60%</u> (A/B)
1. <u>Fraxinus americana</u>	<u>10.5</u>		<u>FACU</u>	
2. <u>Tilia americana</u>	<u>20.5</u>	<u>X</u>	<u>FACU</u>	
3. <u>Gleditsia triacanthos</u>	<u>63.0</u>	<u>X</u>	<u>FAC</u>	
4. <u>Juglans nigra</u>	<u>10.5</u>		<u>FACU</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>104.5</u> = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>0</u> (A) <u>0</u> (B)  Prevalence Index = B/A = <u>0</u>
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Fraxinus americana</u>	<u>63.0</u>	<u>X</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>63</u> = Total Cover				
<u>Herb Stratum</u> (Plot size: <u>5'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)  ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Impatiens capensis</u>	<u>20.5</u>	<u>X</u>	<u>FACW</u>	
2. <u>Rhamnus cathartica</u>	<u>10.5</u>	<u>X</u>	<u>FAC</u>	
3. <u>Aster spp.?</u>	<u>10.5</u>			
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
<u>0</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Definitions of Vegetation Strata:</b>  <b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.  <b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.  <b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.  <b>Woody vines</b> – All woody vines greater than 3.28 ft in height.
1. <u>Not present</u>	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="radio"/> No <input type="radio"/>



## Gingras, Glenn

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**From:** Ferguson, Mark  
**Sent:** Friday, September 06, 2013 4:58 PM  
**To:** Gingras, Glenn; Chipman, Brian; Pientka, Bernie  
**Subject:** RE: South Burlington SPP SCRIP (8) Culvert Replacment

Glenn,

This occurrence is the Central Mudminnow, an uncommon species. A larger culvert would certainly help to better-connect this stream. Is there opportunity for a open bottom structure? This is a very long pipe for fish to move through.

Mark Ferguson  
Zoologist  
Natural Heritage Inventory  
Vermont Department of Fish & Wildlife  
(802)279-3422 (cell)

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**From:** Gingras, Glenn  
**Sent:** Friday, September 06, 2013 10:44 AM  
**To:** Ferguson, Mark; Chipman, Brian; Pientka, Bernie  
**Subject:** South Burlington SPP SCRIP (8) Culvert Replacment

Mark, Brian, and Bernie:

Attached are conceptual plans for a culvert replacement project in South Burlington under VT 116 on Potash Brook. I noticed there was a rare fish species present at this location. Could you folks take a look at the plans and offer an recommendations to accomadate this species or others in along this corridor? The proposed structure will be much larger and better match the channel characteristics.

Thanks.

Glenn Gingras  
VTrans Environmental Biologist

**State of Vermont**  
**Environmental Section**  
One National Life Drive  
Montpelier, VT 05633-5001  
[www.aot.state.vt.us](http://www.aot.state.vt.us)

*Agency of Transportation*

[phone] 802-279-0583  
[fax] 802-828-2334  
[ttd] 800-253-0191

August 9, 2016

*Sent Via Email*

RE: Response to 22-JULY-2016 letter from Tina Heath of the Vermont Wetlands Office  
Individual Wetland Permit Application # 2015-673

Dear Ms. Heath,

Thank you for your review of this project's permit application. The following response to the questions you asked in your 22-JULY-2016 letter, and I hope they address your concerns completely:

**Question No. 1:** According to the discussion in Section 20.1.2 of the permit application, it's stated that several alternatives were evaluated, and one of those alternatives was replacing the culvert on the existing alignment. This is generally what the Wetlands Program would prefer for replacement/repair projects since this usually results in minimized impacts to wetlands. Please elaborate more on why the current proposal was chosen versus replacing on the existing alignment in regards to wetland impacts- does the current proposal represent the most minimized impact plan? Include a more robust explanation in Section 20.1.2.

**Response No. 1:** On all projects, VTrans always assesses the replacement of an existing structure on its current alignment, but in this case, it was quickly determined that the replacement of this structure on alignment was not practical, as the existing structure has skew in it, which has caused a history of plugging underneath the roadway. As shown on the plans, the new structure has been designed with a larger hydraulic opening and better alignment with Potash Brook, and it is significantly shorter than the existing, which makes it more conducive to aquatic organism passage. And although it may not represent the alternative with the least amount of wetland impact, it does represent the most practical stream crossing solution at this location, when balancing the needs of the wetlands, aquatic organism passage, stream alterations, hydraulics, right-of-way, utilities, cost, constructability, long-term maintenance and overall disturbance during construction.

Following a field visit with VT Wetlands Section (11/17/2015), numerous design refinements were made to address concerns, and to further minimize wetland impacts, including a slight modification to the downstream channel alignment, and a modification of the proposed culvert's alignment to lessen wetland impacts. In addition, steep channel embankment slopes are proposed to further limit the disturbance areas and impacts to the surrounding wetland areas. The selected alternative has a number of benefits over using the existing the alignment as described above, and was permitted as the Least Damaging and Practical Alternative by the U.S. Army Corps of Engineers on 5-JULY-2015 (NAE-2016-01191).

**Question No. 2:** Site Plan titled "EPSC Construction Plan Sheet, sheet 27 of 58" shows a note that says "Proposed location for dewatering". Dewatering was not included in the construction sequence section (18.3) or discussed elsewhere in the permit application. Please describe the details of this stage of construction and how the wetland's hydrology will not be adversely affected.

**Response No. 2:** The location shown on Sheet 27 of 58 is conceptual only, as the means and methods of construction are left up to the Contractor. Just the same, as in-stream work is necessary, VTrans and its design consultant understand that in order to work in-the-dry, dewatering will be necessary. In all practical sense, the discharge of water from the work zone may occur anywhere between the limits of the new rip-rap at the inlet of the channel to the downstream most point of construction.

For the majority of construction, flows from Potash Brook will continue through the existing structure, but in order to install the headwalls at the new structure's inlet, the channel (upstream of the structure) will need to be pumped out, and dirty water will need to be filtered so as not to discharge sediment back to the stream. The dashed circle at the head of the existing structure represents a potential location as to where the clean water from dewatering activities could be discharged back to the stream.

Keep in mind, as VTrans can't dictate the actual means and methods of construction, it is conceivable that the Contractor will discharge the clean water at the most downstream point of the construction zone, near channel Station 3+50. Just the same, the Contractor's final dewatering plan must under be approved by the Project's Resident Engineer and the Agency's Construction Environmental Engineer prior to use.

The anticipated duration of this project's construction is four to six weeks, and work is scheduled to occur during the mid-later summer months of 2017, when flows are naturally at their lowest levels. The new structure has been designed with a larger hydraulic opening than the existing structure, and will more closely mimic a natural stream crossing than that which is currently present. Given the time of year and the short durational span of this project's construction and its dewatering needs, VTrans does not anticipate any long-term impacts on the wetlands in the vicinity of the project, aside from those directly impacted and reported in the application.

**Question No. 3:** In Section 12.1 (Subject Wetland Contribution to RTE habitat) it's stated that Mark Ferguson was consulted and determined that the new culvert will be a benefit to the RTE fish species *Umbra limi*. Please provide documentation of Mark's statement as a supporting material and attach to the updated permit application.

**Response No. 3:** See attached email dated 9/6/2013 from Mark Ferguson. He indicated a larger culvert would certainly benefit this species. The structure will be much larger than the existing structure and will be embedded to produce a more natural bottom.

**Question No. 4:** Regarding restoration of the wetlands and buffers it's unclear to me what exactly is being proposed. In Section 8.2 it's stated that stone fill will be used for stabilization before seeding and mulching. Section 20.3.3 states that "a woody vegetation landscape plan will be implemented closer to the stream and wetland". The Wetlands Program requires that a Landscaping Plan be submitted with the updated permit application. Stone armoring should not be used within the wetland and buffer and instead be replaced with planting native woody vegetation. In addition to seeding and mulching, any tree/shrub clearing for construction will need to be restored by planting woody native species. It is also unclear of what will be done with the old stream channel; it should not be filled in or armored. Only fill or plug at the point of diverting the stream to the new channel, and stabilize the old channel by seeding and mulching. Please include this in the Landscaping Plan as well.

**Response No. 4:** In Section 20.3.3 of the application, I inadvertently indicated that a woody vegetation plan would be implemented, but that is not the case. I apologize for this statement, but report that a woody vegetation is not proposed under this project. The proposed stone fill slopes with grubbing material are anticipated to support the growth of this material naturally, and in time, it is anticipated that woody shrubs and trees will establish on them.

During the construction of the new channel, the trench will be over excavated and then lined with Type II stone fill to a depth of 24". The stone fill is intended to provide long-term channel stability, and the size of

the stone was recommended based on the hydraulic analysis. Mixed within that layer will be a 12" layer of granular material (gravel) will be placed in accordance with a special provision. The special provision calls for the granular material to be placed in a manner which will fill the voids in the Type II stone, thereby giving the new channel the appearance and performance characteristics of a natural system. The new channel will be mostly 14' in width, but will taper down to 11' at the downstream end to tie into the existing channel. At its narrowest point, Potash Brook is currently conveyed in an 8' channel in this location.

The new channel has been designed to handle all anticipated flow conditions and has been sized base on a hydraulic analysis and recommendations of the River Management Engineer. At the inlet end, the existing channel must be filled in order to protection the integrity of the roadway. The filling of the channel at the downstream end is necessary to turn the new channel back to its original alignment. As for the existing culvert, that is to be abandoned in place and filled with a flowable fill since the structural integrity of the culvert is in question.

**Question No. 5:** While reviewing the Erosion Control Narrative in the site plan set I read the following under the section titled 1.2.3 Vegetation: "...upon project completion, the channel will be armored with stone fill and topped with grubbing material". Can stability and prevention of erosion be achieved by using a "softer" technique in the new channel, such as root wads and woody plantings? Please provide this discussion in Section 18.4 where the applicant talks about the EPSC plan.

**Response No. 5:** As mentioned above in response to No. 4, the stone fill in the channel is designed to provide long-term channel stability, and the size of the stone was recommended based on the hydraulic analysis. The flows in this area are "flashy" due to the fact that a large percentage of the Potash Brook is heavily developed above and below this location. With that said, it is believed that the 1.5:1 channel side slopes need to be treated with stone in order to hold the grubbing material in place and provide long-term channel stability. In other words, given the expected flows within Potash Brook in association with the surrounding development, hard armoring with stone is believed to be the best long-term solution in this location. Again, this design was reviewed and approved by both the ANR River Management Engineer and the U.S. Army Corps of Engineers. It should be noted that flatter slopes associated with this project will only receive seed and mulch, and not the hard armoring.

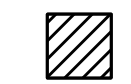

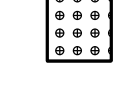
I hope this fully addresses your concerns, but if you have any additional questions, please call me at (802) 279-0583.

Respectfully,

Glenn Gingras  
Senior Transportation Biologist



**LEGEND:**

-  LIVE WILLOW STAKES
-  SEEDLING TREES
-  SHRUBS

SHRUBS - 66 SP - 10.0' BED, 2 GALLON PLANTS  
SPACED 3.0' ON CENTER IN 2 ALTERNATING ROWS

SHRUBS - 24 CS - 10.0' BED, 2 GALLON PLANTS  
SPACED 3.0' ON CENTER IN 2 ALTERNATING ROWS

SEEDLING TREES - 2 ROWS  
ALTERNATING, 12 PER ROW,  
SPACED 6.0' ON CENTER

(LS) - 4 ROWS ALTERNATING, SPACED  
AT 2.0' ON CENTER, PLANT IN 1.0'  
DEEP STONE FILL, TYPE I

(LF) - 110.0' LONG PARALLEL AND AT  
WATER'S EDGE, TOP OF FASCINE  
AT 100 YEAR FLOOD ELEVATION

SEEDLING TREES - 6 RED MAPLE, 2 LARCH,  
2 GREY BIRCH, SPACED AT 6.0' - 8.0'  
ON CENTER IN A RANDOM PATTERN

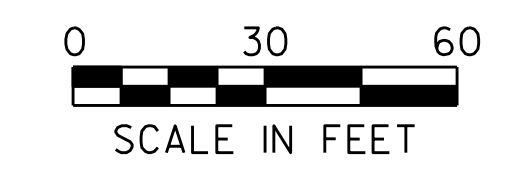
(LS) - 6 ROWS, SPACED AT 2.0' ON CENTER

(LS) - 6 ROWS, SPACED AT 2.0' ON CENTER

SEEDLING TREES - 6 RED MAPLE, 2 LARCH,  
2 GREY BIRCH, SPACED AT 6.0' - 8.0'  
ON CENTER IN A RANDOM PATTERN

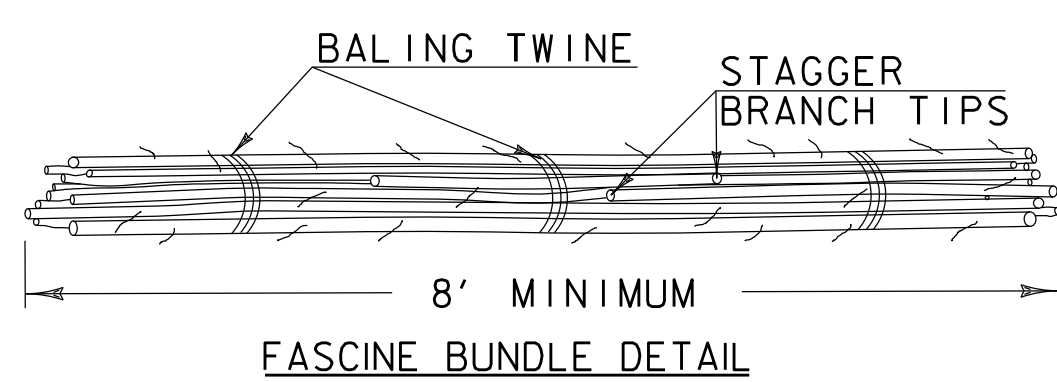
**SUPPLEMENTAL LANDSCAPE PLANS  
FOR WETLAND PERMIT 10/4/2016**

PLANT LIST					
QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING, REMARKS, ITEMS
<b>DECIDUOUS SEEDLINGS</b>					
24	ACER RUBRUM	RED MAPLE	5'-7" HEIGHT	CONTAINER 2 GALLON MIN.	ITEM NO. 656.16
10	BETULA POPULIFOLIA	GREY BIRCH	5'-7" HEIGHT	CONTAINER 2 GALLON MIN.	TO BE APPROVED BY ENGINEER
10	LARIX LARICINA	LARCH/ TAMARACK	5'-7" HEIGHT	CONTAINER 2 GALLON MIN.	
<b>DECIDUOUS SHRUBS</b>					
24	CORNUS SERICEA (CS)	RED STEMMED DOGWOOD	18" - 24" HEIGHT	CONTAINER 2 GALLON MIN	ITEM NO. 656.35
66	SALIX PETIOLARIS (SP)	MEADOW WILLOWS	18" - 24" HEIGHT	CONTAINER 2 GALLON MIN	
<b>LIVE STAKE</b>					
360	SALIX PURPUREA	NATIVE PUPLE OSIER WILLOWS	3'-4" MINIMUM	LIVE STAKES- DORMANT	ITEM NO. 653.70
<b>LIVE FASCINE</b>					
110' INSTALLED	SALIX PURPUREA	NATIVE PUPLE OSIER WILLOWS	SEE ECSP DETAIL	LIVE WILLOWS- DORMANT	ITEM NO. 653.65

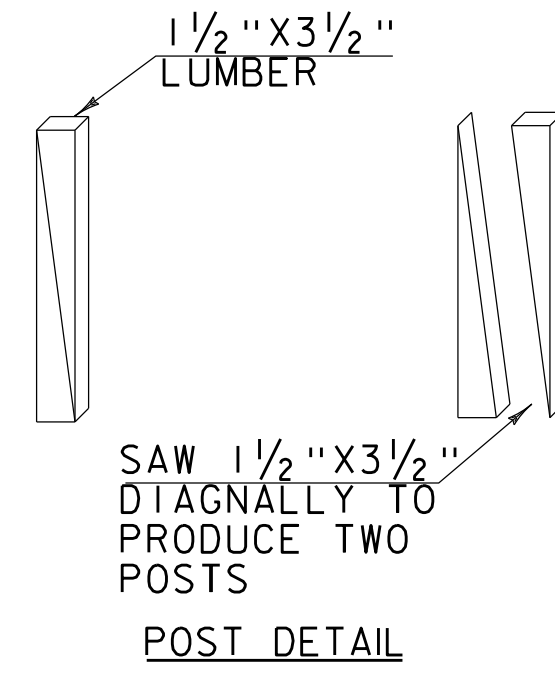
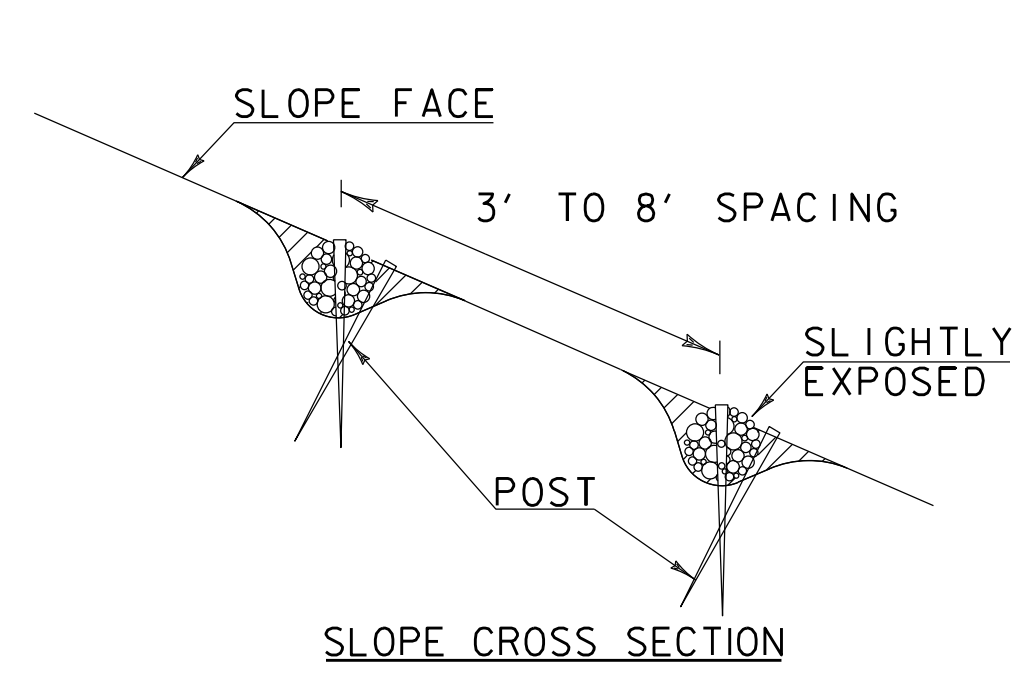


GREEN INTERNATIONAL AFFILIATES, INC.  
CIVIL AND STRUCTURAL ENGINEERS

PROJECT NAME: SOUTH BURLINGTON  
PROJECT NUMBER: STP SCR(8)  
FILE NAME: z1lb220landbdr.dgn  
PROJECT LEADER: E. ATKINS  
DESIGNED BY: M. BRADLEY  
LANDSCAPING PLAN SHEET  
PLOT DATE: 10/4/2016  
DRAWN BY: M. BRADLEY  
CHECKED BY: M. BRADLEY  
SHEET 26 OF 58



SYMBOL  
(LF)  
NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

1. LIVE FASCINES SHALL BE OBTAINED FROM SOURCES APPROVED BY THE ENGINEER. THEY SHALL BE PREPARED FROM FRESHLY CUT DORMANT PLANTS AND INSTALLED WITHIN 8 HOURS OF THE TIME THE MATERIAL IS HARVESTED, UNLESS PROPERLY STORED.
2. LIVE FASCINES SHALL BE PLACED AS INDICATED IN THE CONTRACT DOCUMENTS.
3. BEGINNING AT THE BASE OF THE SLOPE, A TRENCH SHALL BE DUG LARGE ENOUGH TO CONTAIN THE LIVE FASCINES. THE LIVE FASCINES SHALL BE PLACED IN THE TRENCH. WHERE ENDS MEET IN THE TRENCH, THE FASCINES SHALL OVERLAP 18".
4. WOOD POSTS SHALL BE INSTALLED FLUSH TO THE TOP OF THE FASCINE EVERY 18" ALONG THE LENGTH OF THE BUNDLES AS SHOWN ON THE CROSS SECTIONS. WHERE SPECIFIED LIVE STAKES MAY BE USED IN PLACE OF POSTS.
5. THE TRENCH SHALL BE BACKFILLED WITH MOIST SOIL AND HAND TAMPED. THE TOP OF THE FASCINE SHALL BE SLIGHTLY EXPOSED WHEN THE INSTALLATION IS COMPLETE AS SHOWN ON THE CROSS SECTION.
6. SEED OR OTHER EROSION CONTROL MATERIAL SHALL BE USED BETWEEN THE FASCINE ROWS, AS SPECIFIED IN THE CONTRACT DOCUMENTS.

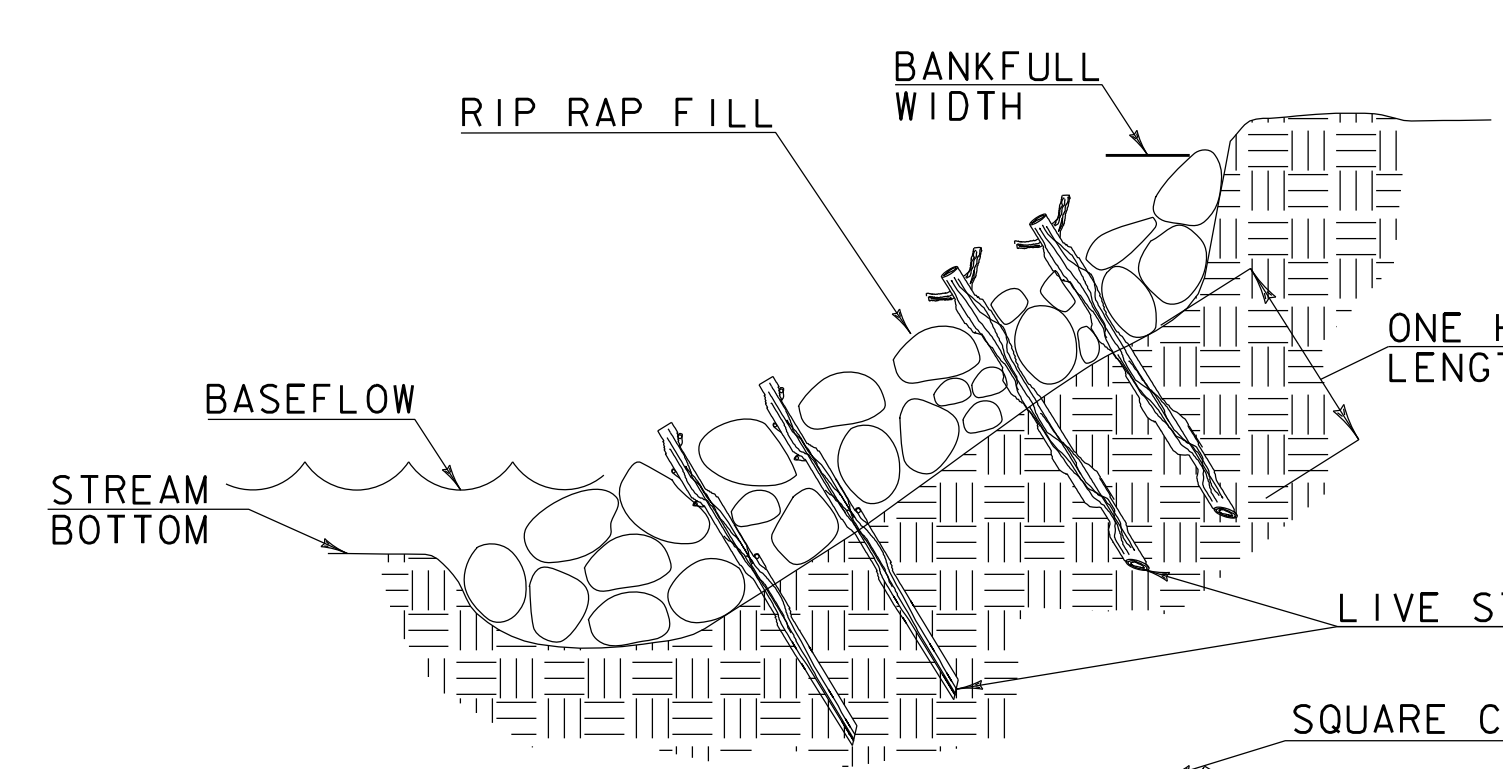
ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC  
ORIGINALLY DEVELOPED BY USDA-NRCS  
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

LIVE FASCINE

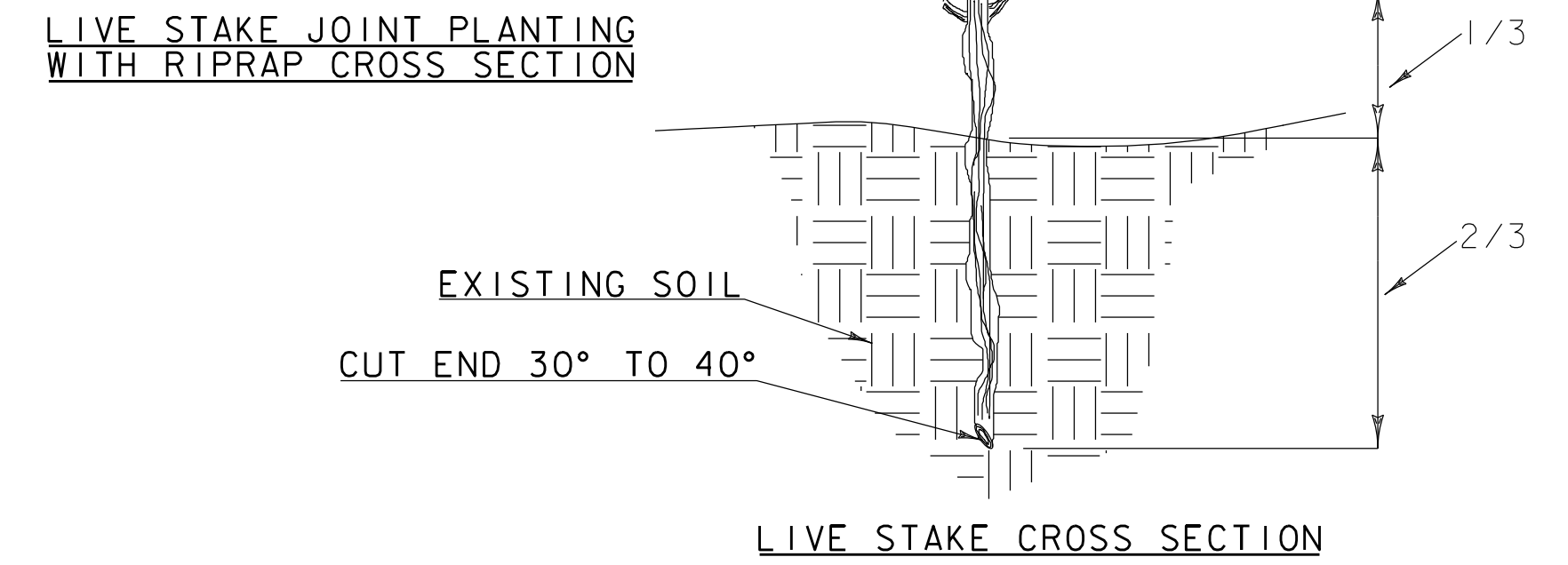
NOTES:  
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- "FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

REVISIONS	
MARCH 7, 2008	WHF
DECEMBER 9, 2008	WHF
JANUARY 13, 2009	WHF

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR LIVE FASCINE (PAY ITEM 653.65).



SYMBOL  
(LS)  
NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

1. LENGTH OF STAKE DEPENDS UPON APPLICATION
2. LIVE STAKES SHALL BE CUT TO A POINT ON THE BASAL END FOR INSERTION IN THE GROUND.
3. A DIBBLE, IRON BAR, OR SIMILAR TOOL SHALL BE USED TO MAKE A PILOT HOLE PRIOR TO INSERTING STAKE IN GROUND.
4. A MINIMUM OF 2" TO 4" AS WELL AS 2 LIVE BUDS SHALL BE EXPOSED ABOVE THE GROUND OR RIP RAP.
5. TAMP SOIL AROUND STAKE.
6. CARE SHALL BE TAKEN TO MINIMIZE DAMAGE TO STAKE. ANY DAMAGE SHALL BE TRIMMED BACK TO AN UNDAAGED CONDITION.

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

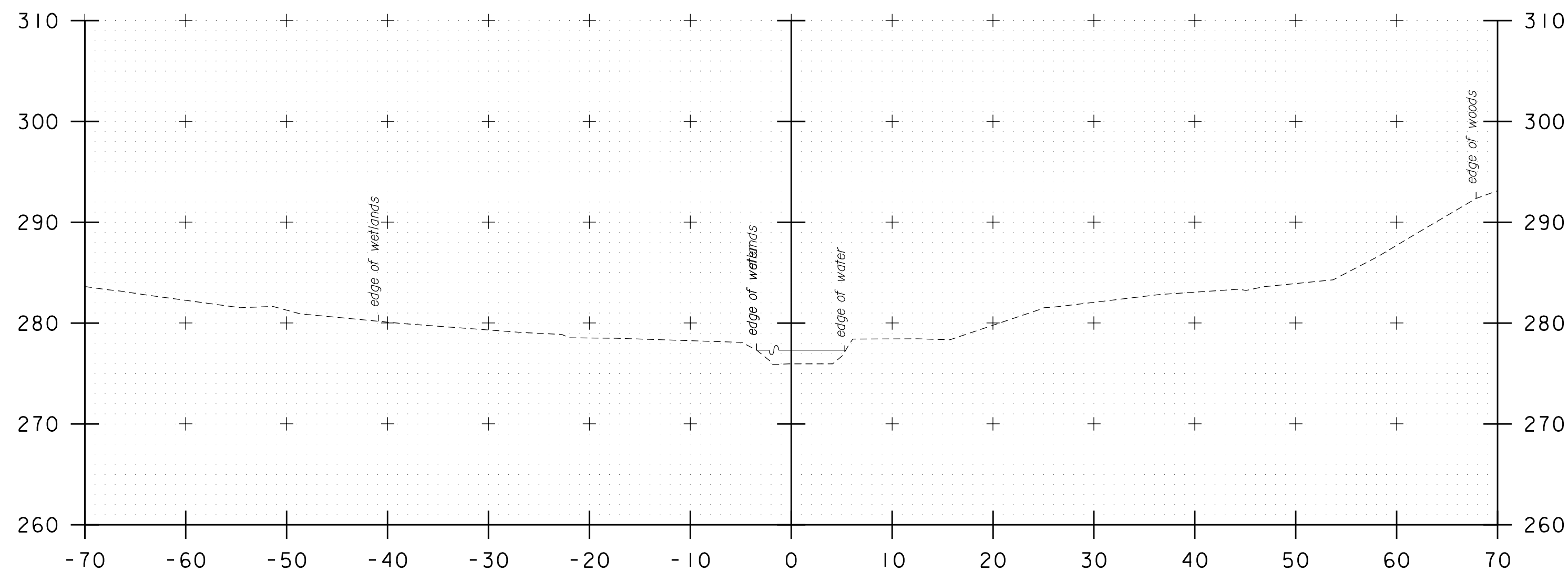
LIVE STAKE

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

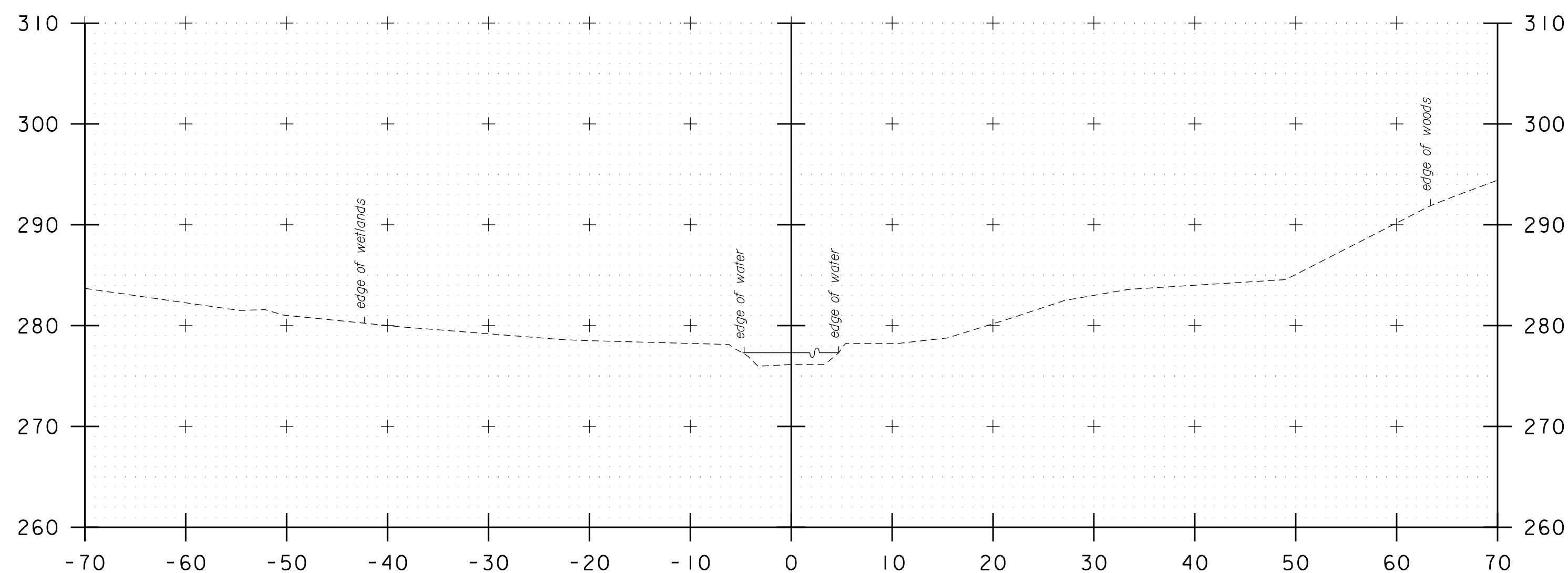
REVISIONS	
MARCH 21, 2008	WHF
JANUARY 27, 2009	WHF

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR LIVE STAKE (PAY ITEM 653.70)

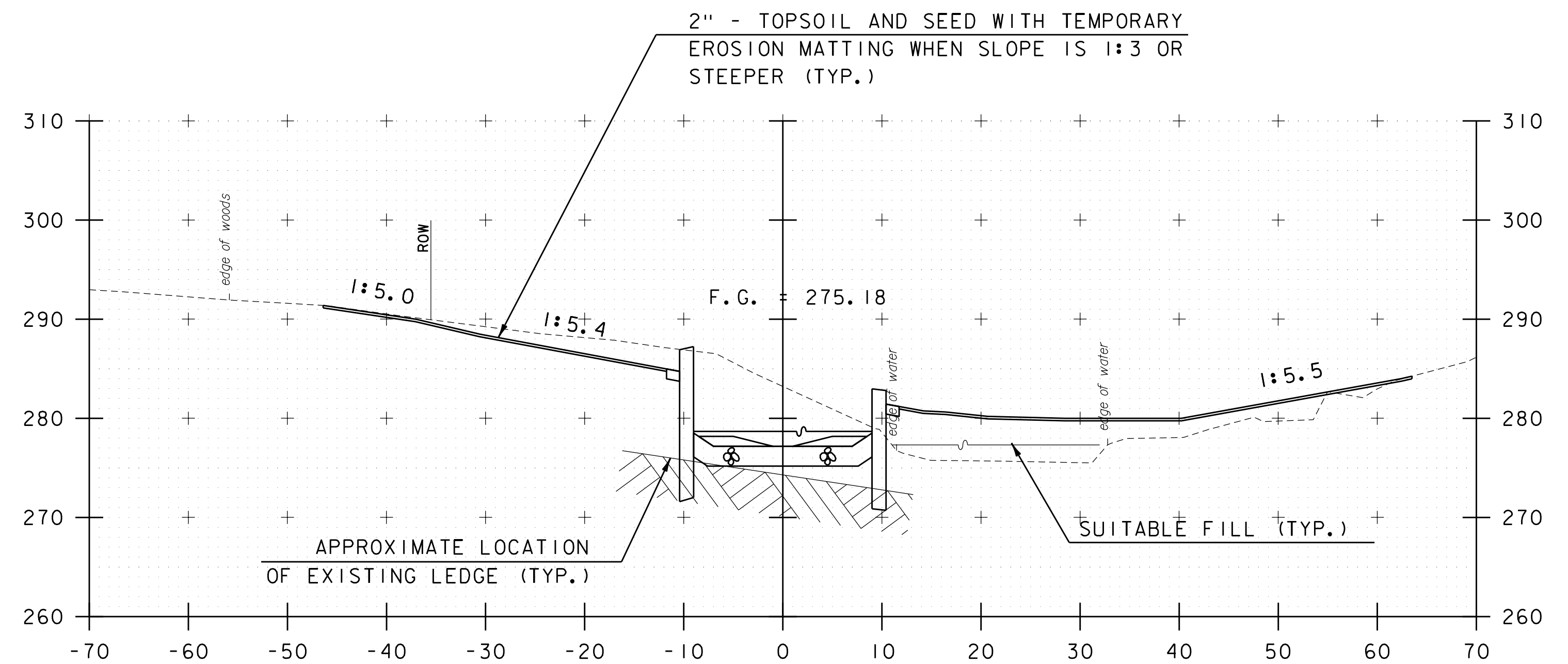
SUPPLEMENTAL LANDSCAPE PLANS  
FOR WETLAND PERMIT 10/4/2016



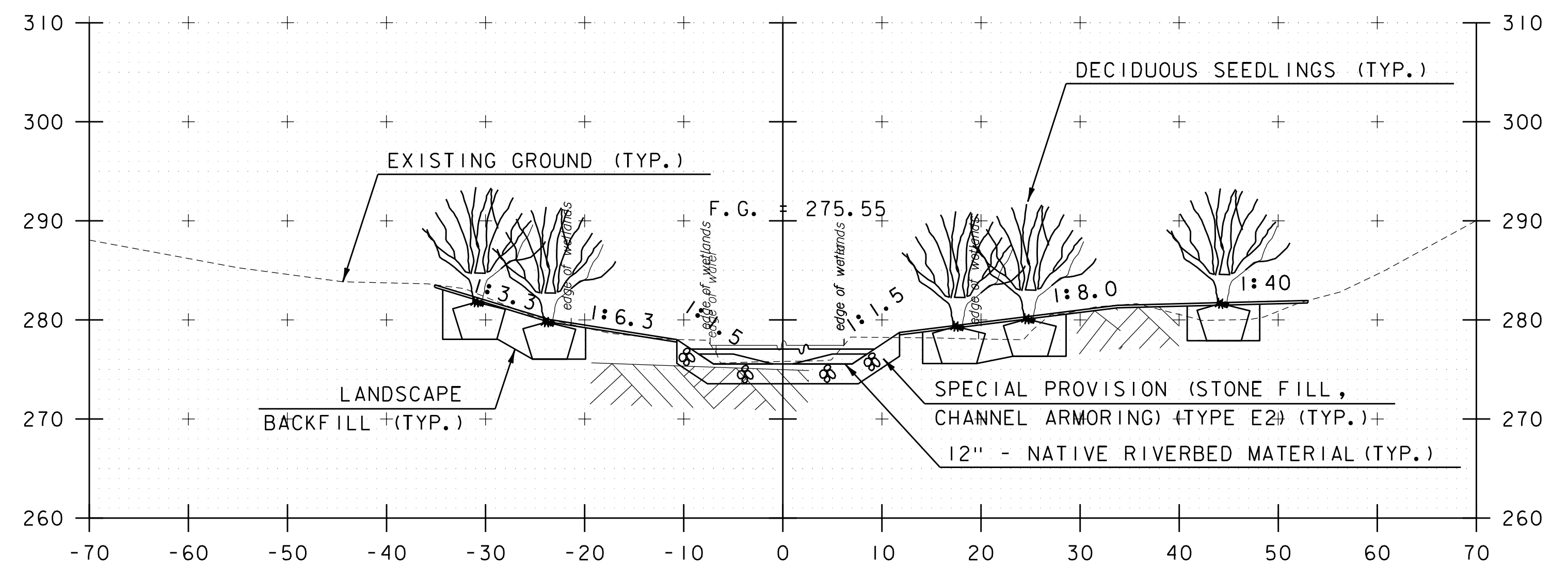
CHANNEL PT 0+55.96



0+50



1+00



0+75  
0+70 BEGIN CHANNEL WORK

NOTES:

1. IF LEDGE IS ENCOUNTERED DURING CHANNEL CONSTRUCTION, THE LEDGE SHALL BE GIVEN THE GENERAL SHAPE OF THE PROPOSED CHANNEL WITH SOME IRREGULARITY TO CREATE TURBULENCE.
2. LOCATION OF PLANTINGS ARE SHOWN AS GRAPHICAL REPRESENTATION ONLY. REFER TO LANDSCAPING PLAN SHEET FOR ACTUAL REQUIREMENTS

SUPPLEMENTAL LANDSCAPE PLANS  
FOR WETLAND PERMIT 10/4/2016

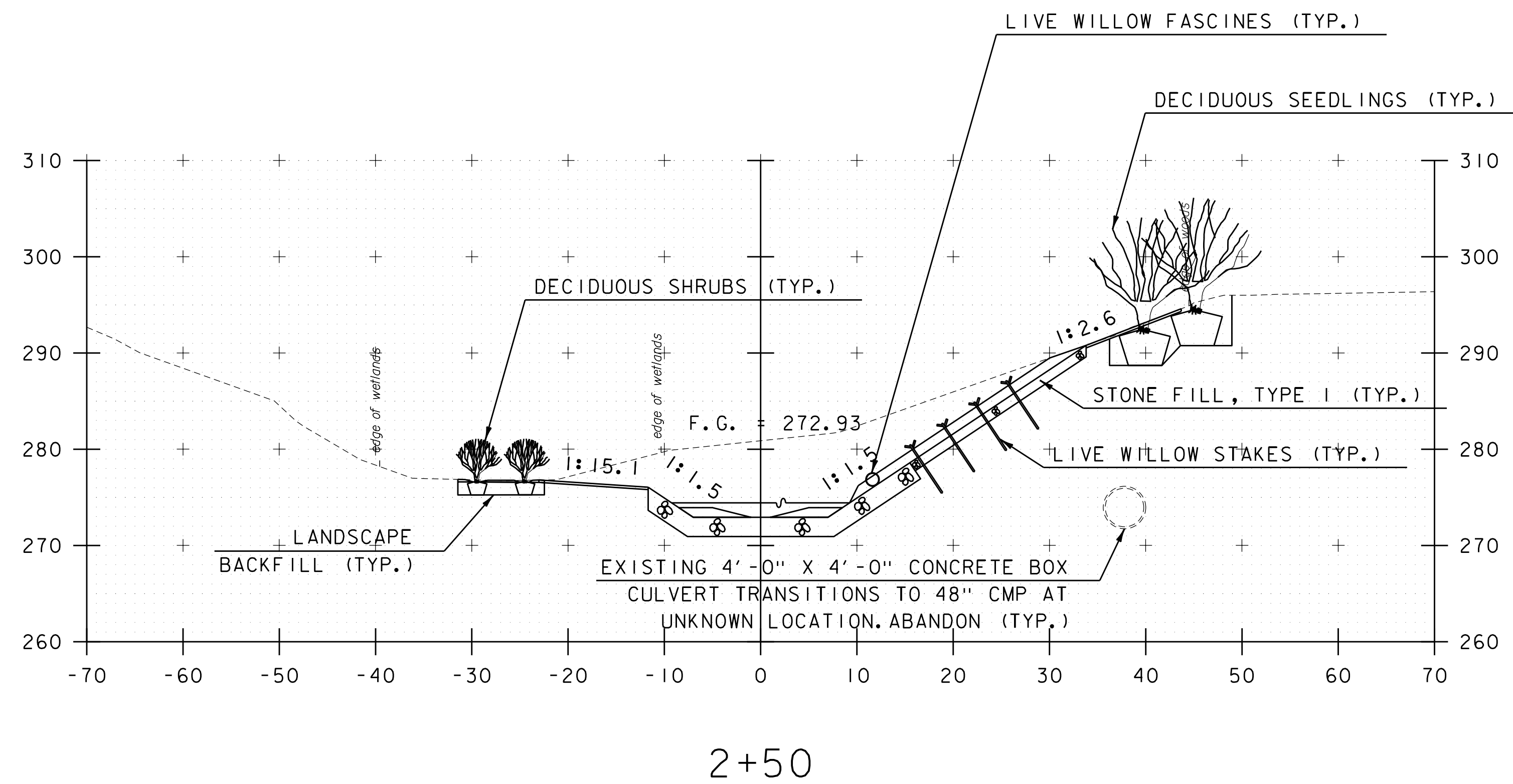
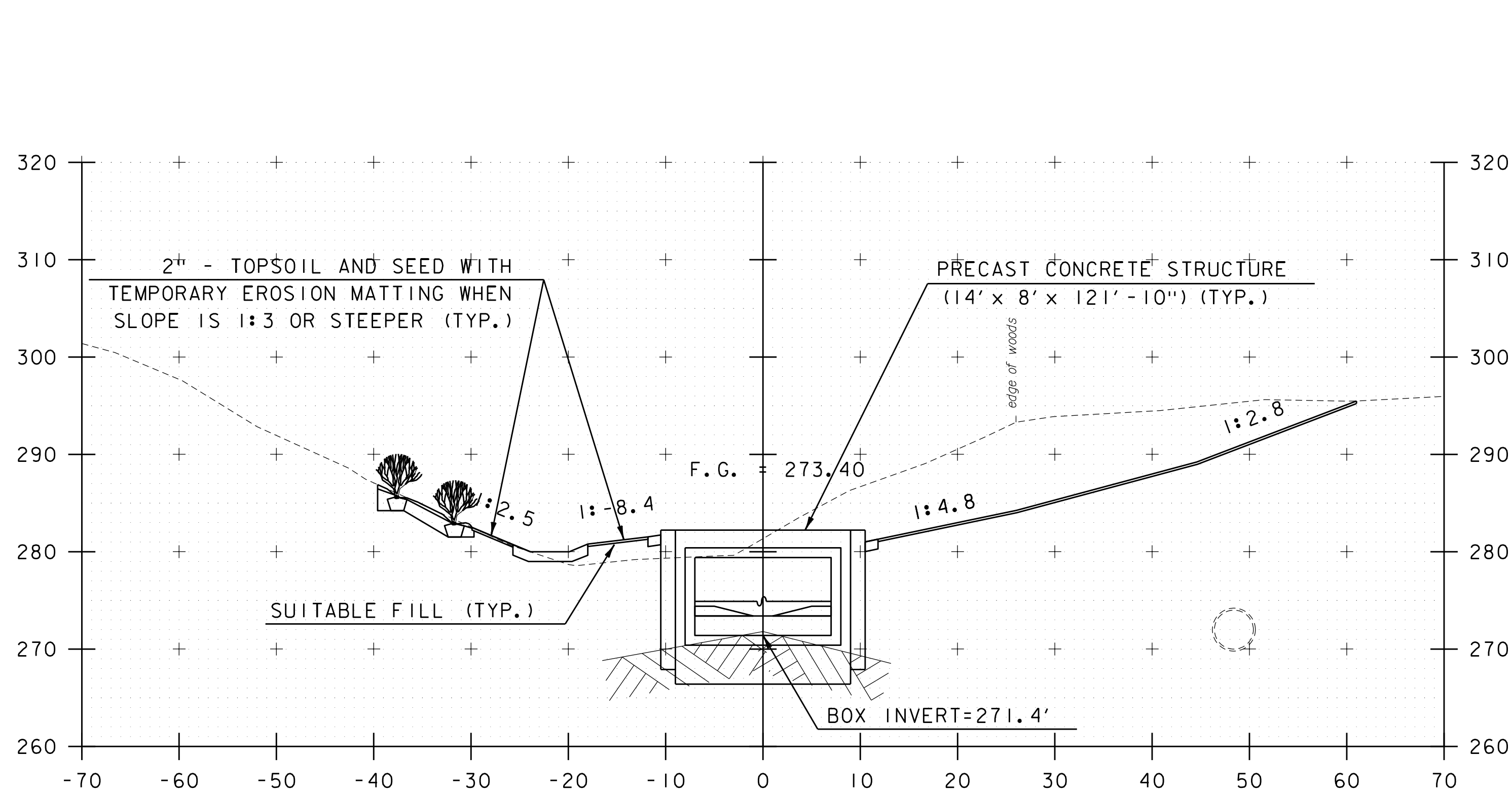
STA. 0+50 TO STA. 1+00

PROJECT NAME: SOUTH BURLINGTON  
PROJECT NUMBER: STP SCRP(8)

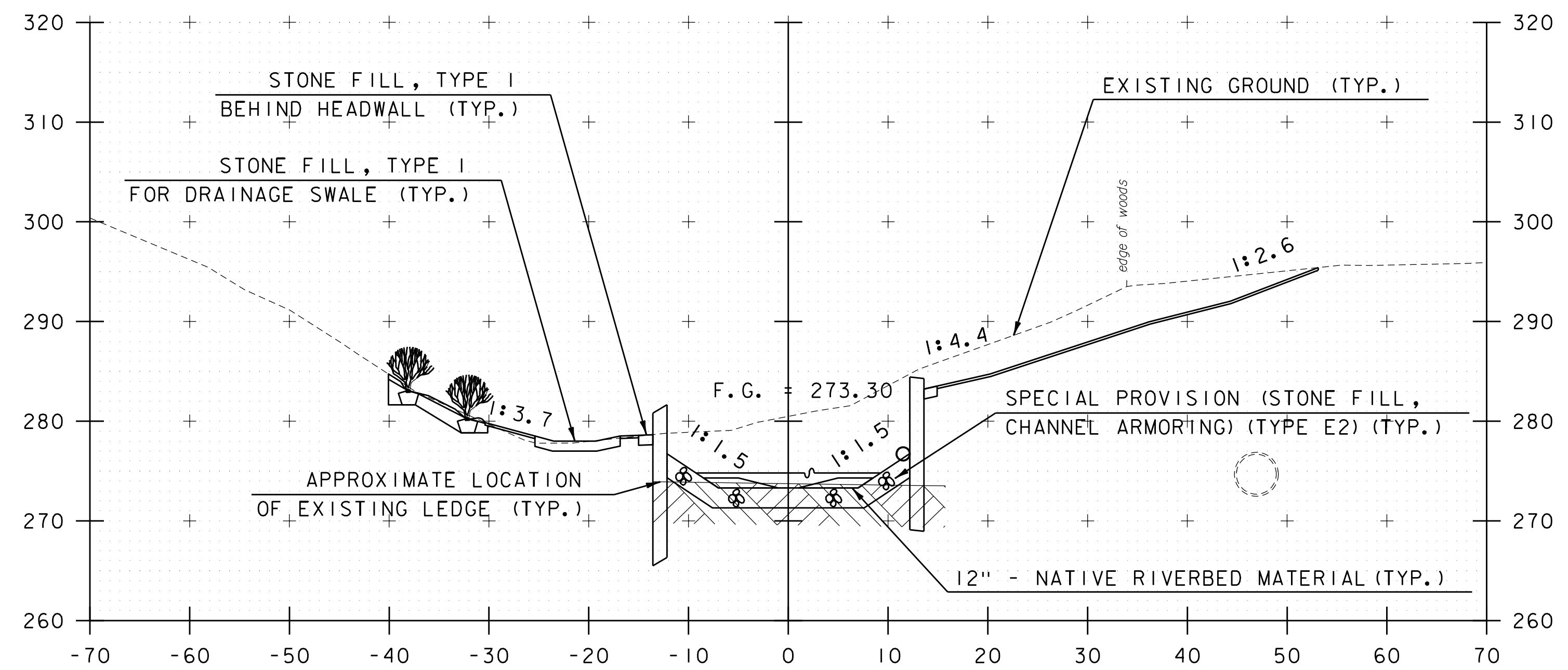
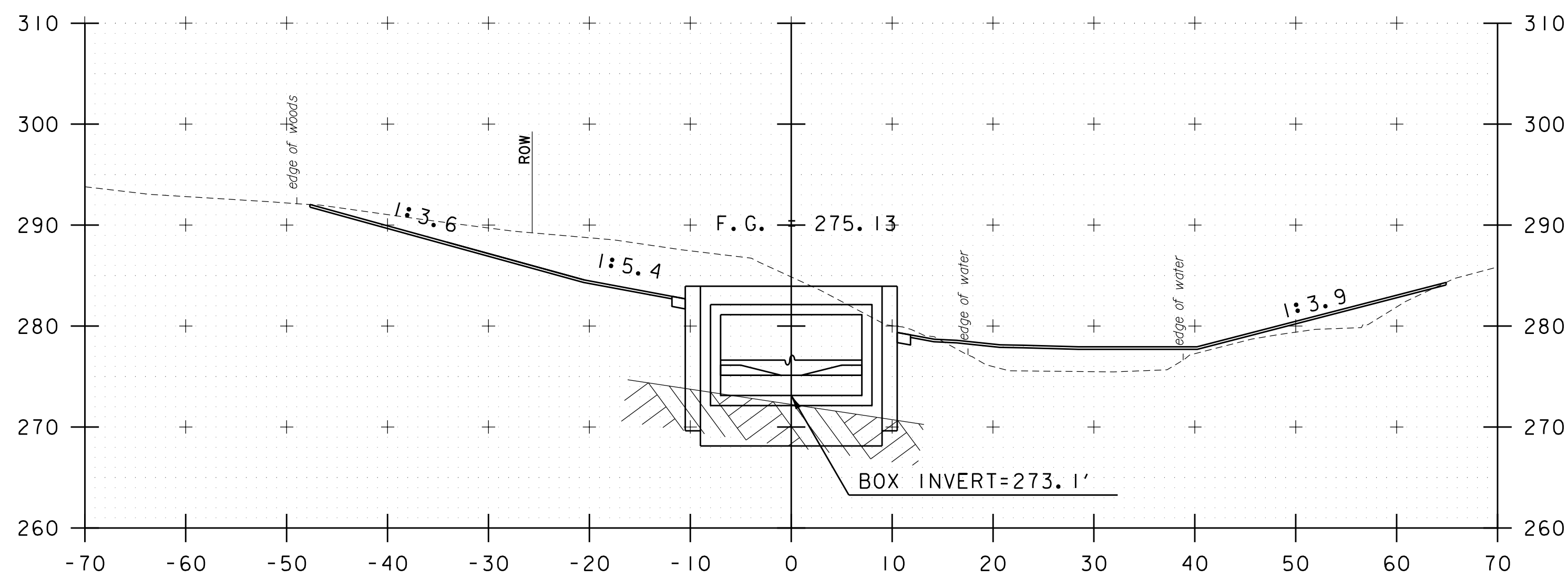
FILE NAME: z11b220xsl.dgn  
PROJECT LEADER: E. ATKINS  
DESIGNED BY: D. VERTIYEV  
CHANNEL CROSS SECTION SHEET 1

PLOT DATE: 10/4/2016  
DRAWN BY: D. VERTIYEV  
CHECKED BY: E. ATKINS  
SHEET 43 OF 58





DOWNSTREAM FACE OF CULVERT 2+18.24



UPSTREAM FACE OF CULVERT 1+03.42

NOTES:

- IF LEDGE IS ENCOUNTERED DURING CHANNEL CONSTRUCTION, THE LEDGE SHALL BE GIVEN THE GENERAL SHAPE OF THE PROPOSED CHANNEL WITH SOME IRREGULARITY TO CREATE TURBULENCE.
- LOCATION OF PLANTINGS ARE SHOWN AS GRAPHICAL REPRESENTATION ONLY. REFER TO LANDSCAPING PLAN SHEET FOR ACTUAL REQUIREMENTS

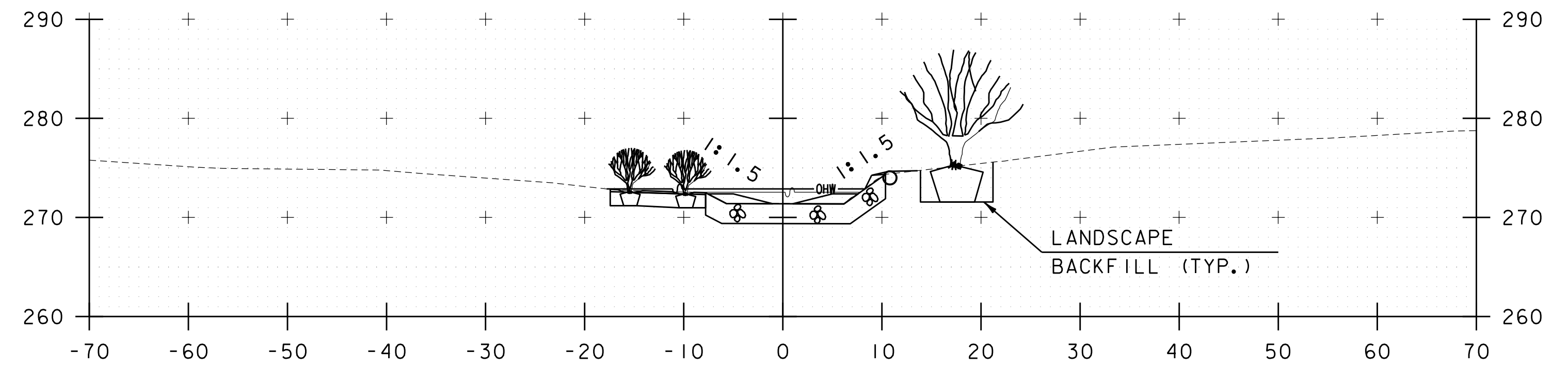
SUPPLEMENTAL LANDSCAPE PLANS  
FOR WETLAND PERMIT 10/4/2016

STA. 1+03.42 TO STA. 2+50

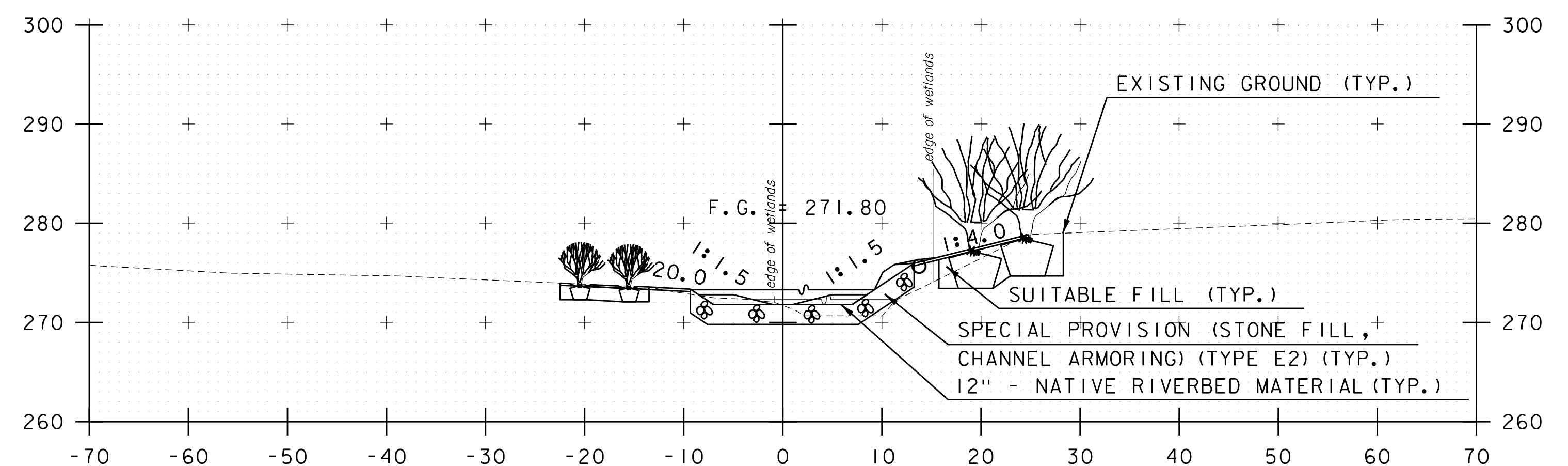
PROJECT NAME: SOUTH BURLINGTON  
PROJECT NUMBER: STP SCR(8)

FILE NAME: z1lb220xsl.dgn  
PROJECT LEADER: E. ATKINS  
DESIGNED BY: D. VERTIYEV  
CHANNEL CROSS SECTION SHEET 2

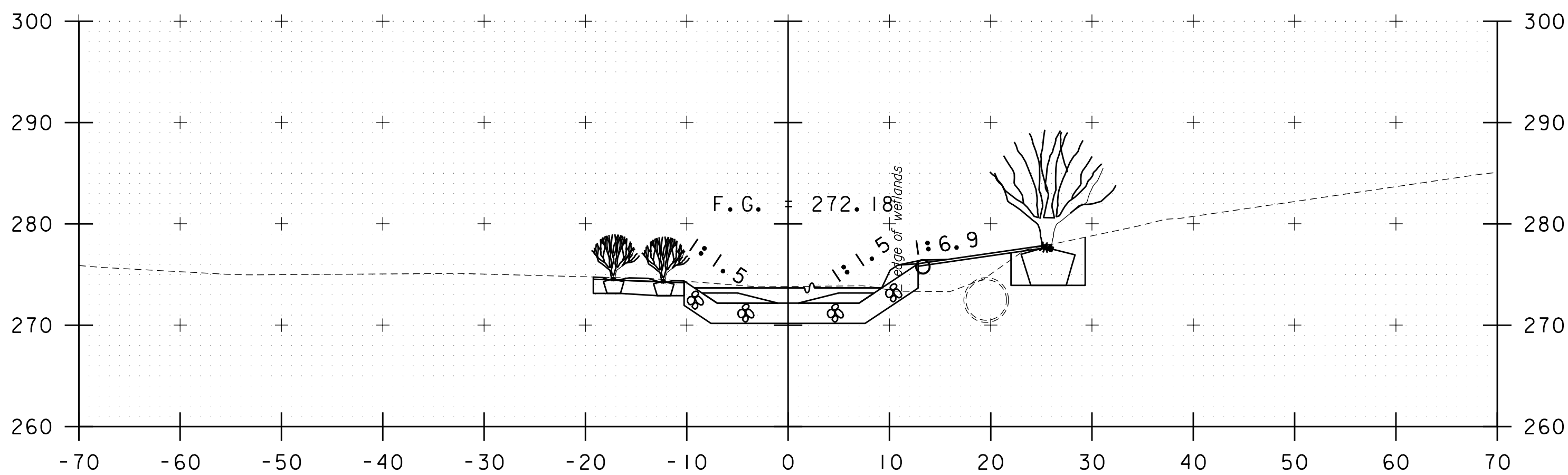
PLOT DATE: 10/4/2016  
DRAWN BY: D. VERTIYEV  
CHECKED BY: E. ATKINS  
SHEET 44 OF 58



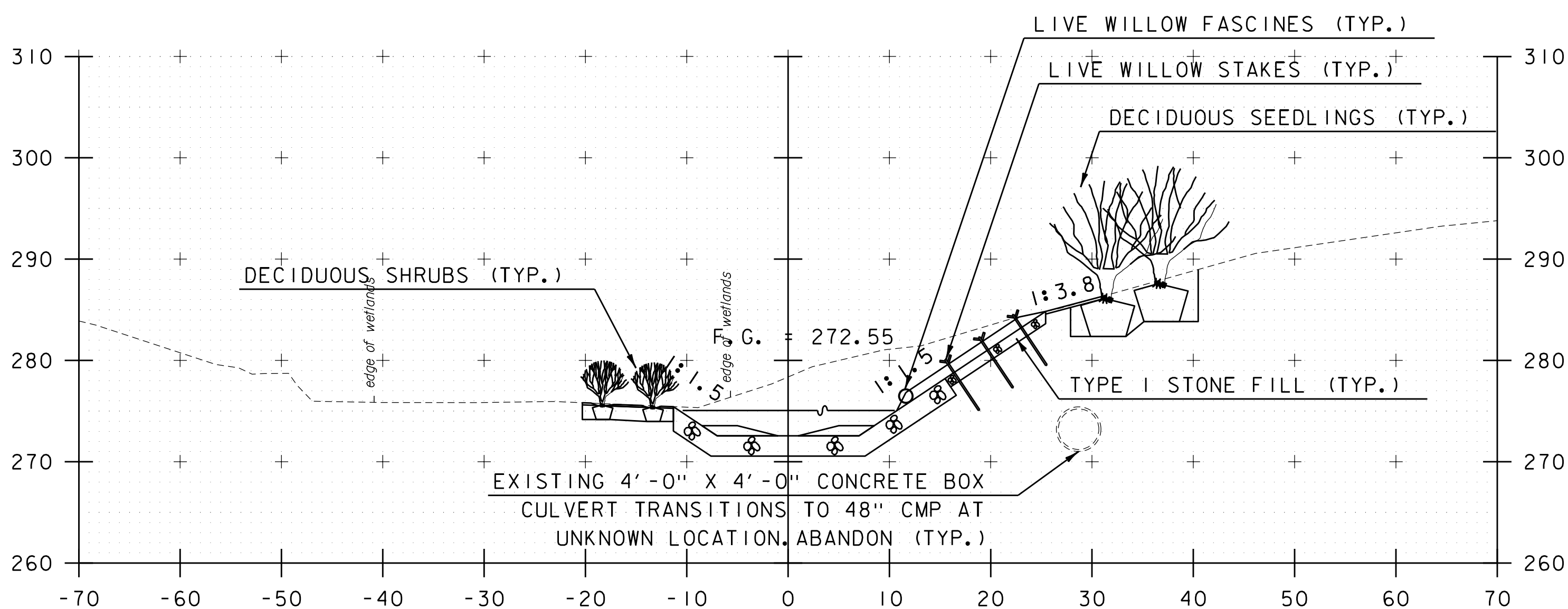
3+50 END CHANNEL WORK



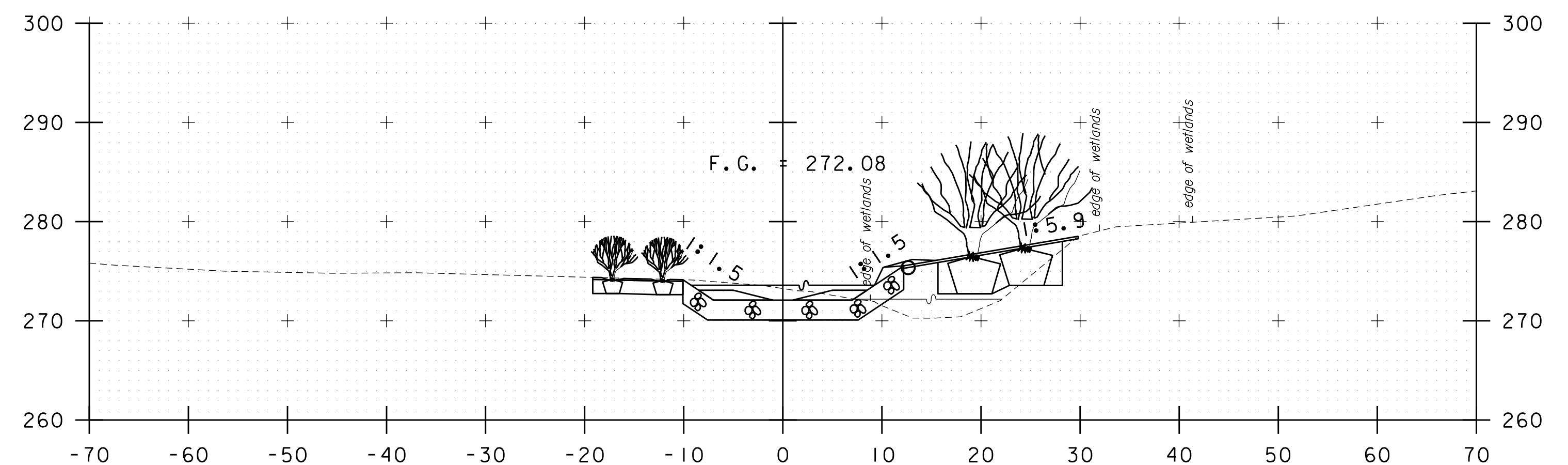
3+25



3+00



2+75



CHANNEL PC 3+06.67

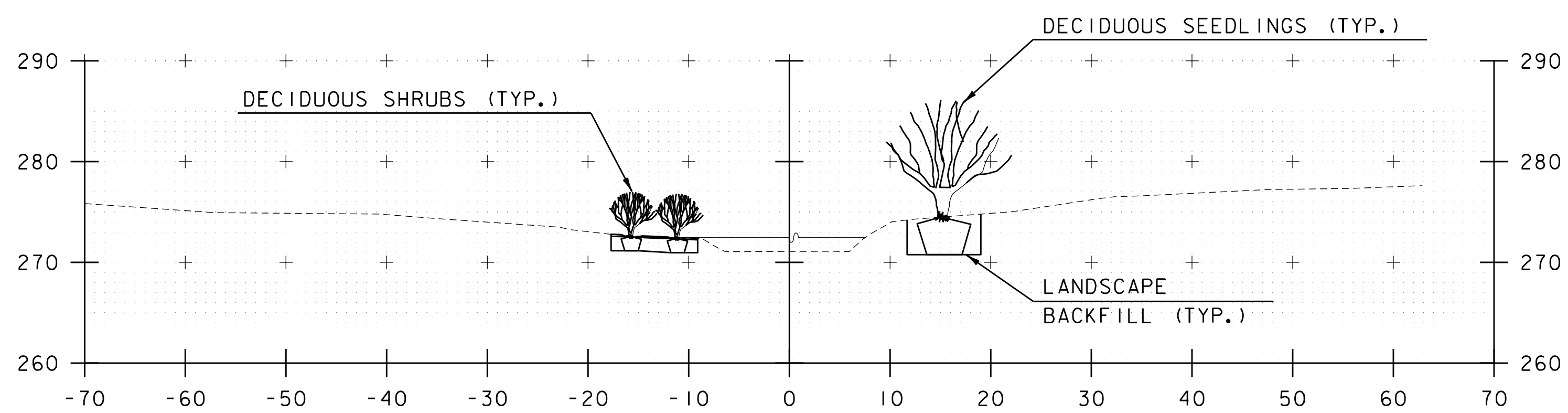
NOTES:

1. IF LEDGE IS ENCOUNTERED DURING CHANNEL CONSTRUCTION, THE LEDGE SHALL BE GIVEN THE GENERAL SHAPE OF THE PROPOSED CHANNEL WITH SOME IRREGULARITY TO CREATE TURBULENCE.
2. LOCATION OF PLANTINGS ARE SHOWN AS GRAPHICAL REPRESENTATION ONLY. REFER TO LANDSCAPING PLAN SHEET FOR ACTUAL REQUIREMENTS

SUPPLEMENTAL LANDSCAPE PLANS  
FOR WETLAND PERMIT 10/4/2016

STA. 2+75 TO STA. 3+50

PROJECT NAME:	SOUTH BURLINGTON	PLOT DATE:	10/4/2016
PROJECT NUMBER:	STP SCR(8)	DRAWN BY:	D. VERTIYEV
FILE NAME:	z1lb220xsl.dgn	DESIGNED BY:	D. VERTIYEV
PROJECT LEADER:	E. ATKINS	CHECKED BY:	E. ATKINS
CHANNEL CROSS SECTION SHEET 3		SHEET	45 OF 58



PT 3+55.87

NOTES:

1. IF LEDGE IS ENCOUNTERED DURING CHANNEL CONSTRUCTION, THE LEDGE SHALL BE GIVEN THE GENERAL SHAPE OF THE PROPOSED CHANNEL WITH SOME IRREGULARITY TO CREATE TURBULENCE.
2. LOCATION OF PLANTINGS ARE SHOWN AS GRAPHICAL REPRESENTATION ONLY. REFER TO LANDSCAPING PLAN SHEET FOR ACTUAL REQUIREMENTS

SUPPLEMENTAL LANDSCAPE PLANS  
FOR WETLAND PERMIT 10/4/2016

STA. 3+55.87

PROJECT NAME: SOUTH BURLINGTON  
PROJECT NUMBER: STP SCRP(8)

FILE NAME: z1lb220xsl.dgn	PLOT DATE: 10/4/2016
PROJECT LEADER: E. ATKINS	DRAWN BY: D. VERTIYEV
DESIGNED BY: D. VERTIYEV	CHECKED BY: E. ATKINS
CHANNEL CROSS SECTION SHEET 4	SHEET 45 OF 58