

Norwich PC Solar Siting Subcommittee Special Meeting – April 30, 2024 6:30pm

To be held via Zoom only:

Topic: Solar Siting Subcommittee Special Meeting

Time: April 30, 2024 06:30 PM Eastern Time (US and Canada)

Join Zoom Meeting

<https://us02web.zoom.us/j/84630975380>

Meeting ID: 846 3097 5380

888 475 4499 US Toll-free

1. Approve Agenda
2. Public comment for items not on agenda
3. Correspondence
[email with Kevin Geiger, TRORC]
[Lamperti / Eanet TRORC letter]
4. Town plan updates for solar siting [town plan edits]
5. PUC Upper Loveland Order [PUC 4/26/24 order Case No. 21-3587-NMP]
6. Approve minutes April 16, 2024 [packet]
7. Public comment
8. Adjourn

From: Jaan Laaspere <laaspere.planning@gmail.com>
Sent: Monday, April 29, 2024 10:05 AM
To: Pam Mullen <PMullen@norwich.vt.us>
Subject: Fwd: Solar project tree clearing guideline

Pam,
Please include this email thread in the solar siting subcommittee packet for April 30th.
Jaan

----- Forwarded message -----

From: Jaan Laaspere <laaspere.planning@gmail.com>
Date: Tue, Apr 16, 2024 at 12:50 PM
Subject: Re: Solar project tree clearing guideline
To: Kevin Geiger <kgeiger@trorc.org>
Cc: Peter G. Gregory <pgregory@trorc.org>, Harry Falconer <hfalconer@trorc.org>

Thank you, Kevin
This is very helpful. I will share with our solar siting subcommittee.

Jaan

On Tue, Apr 16, 2024 at 10:47 AM Kevin Geiger <kgeiger@trorc.org> wrote:

Jaan,

Yes, this does mean that solar projects must be put on land that is largely not forested as at least a priority forest block. Virtually all forest east of New Boston Road is not covered by our definition of forest blocks.

Depending on nameplate generation for the array, a site would generally not be clearing more than a third of the needed land to meet the max 2 acres cleared/MW (since roughly 6 acres is needed per MW).

Our standard is not used statewide. Not all forests are created equal in our review though, so clearing of lands mapped as forest blocks or in our Forest Based Resource Area is especially problematic. We do not view transitional lands as forested, nor lands logged unrelated to the project. Forest clearing does get tricky in that people can log an area without a permit, and we have had cases where a previous owner logged a site, but a next

owner then applied for solar on the site and the developments were not related. Having the same landowner log a site for a potential house site, and then decide to put solar there instead gets problematic in that we must trust that was never the intention in the first place. It is best if we just need different owners.

The state definition is very loose in that only 10% canopy is required by live trees of any size, or had such trees and is still in a logged over state. And they need at least 1 acre of forest, so many “forests” outside the forest block area we look at count for them.

The PUC rule is essentially a stop on clearing over 3 acres, what they define as “significant forest clearing” regardless of the power output.

We at the region do not have a preclusion of solar on ag land, since the land is still there and the site could be decommissioned and returned to ag use. Also, there are some limited ag uses that can take place in arrays. We also do not have a preclusion on solar in floodplains, only floodways. TRORC also does not have any scenic restrictions on solar, though we often comment on ways to lessen visual impact. This understands that the array will still be visible.

Meeting the 16 MW target would require less than 100 acres of land in town. Many parcels could provide the needed land by themselves.

Kevin

Kevin Geiger, AICP CFM

Chief Planner

Two Rivers-Ottawaquechee Regional Commission

802-457-3188 ext. 3003

www.trorc.org

This email is a public record. It is not intended as legal advice.

From: Jaan Laaspere <laaspere.planning@gmail.com>
Sent: Tuesday, April 16, 2024 9:06 AM
To: Kevin Geiger <kgeiger@trorc.org>; Peter G. Gregory <pgregory@trorc.org>
Subject: Solar project tree clearing guideline

Kevin,

In your recent letter denying the preferred siting letter for the Lamperti 150kW PV project, you used a ratio of tree clearing to PV rated capacity. The number you use, 2 acres per MW, is considerably smaller than the size of the solar array itself, meaning solar projects must be put on mostly unforested land. Given scenic, wetlands and prime agricultural restrictions, the possible locations for solar become very small.

How do you justify the 2 acres per MW number?

Where does it come from?

Is it used statewide?

How does it relate to the new definition of substantial land clearing in 5.100?

I'm not advocating for the Lamperti project. Rather I am exploring the more general question of how Norwich can possibly meet its renewable generation goals. Norwich's target for the next stage of energy planning is 16MW of installed PV. That requires dozens of 150kW projects and/or many at 500kW, similar to the Upper Loveland project that is 2+ years old and still not permitted.

As Norwich revisits its energy plan I'm having a hard time seeing how we create a credible plan to meet the renewable energy targets given the limitations and the realities of siting.

I would be very interested to hear your thoughts or any insights from other town's experiences.

Best regards,

Jaan Laaspere

Chair, Norwich Planning Commission

[Please note that this email message, along with any response or reply, is considered a public record, and thus subject to disclosure under the Vermont Public Records Law (1 V.S.A. §§ 315-320)]

April 12, 2024

Mr. Aaron Lamperti
557 New Boston Road,
Norwich, VT 05055

Re: Preferred Siting Designation – Lamperti/Eanet, Norwich

Dear Mr. Aaron Lamperti & Mrs. Franny Eanet,

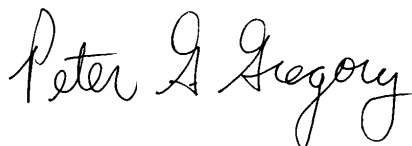
After further review of the better detailed project area of the proposed 150Kw solar project to be located at 557 New Boston Road in Norwich, Vermont (approximate latitude and longitude of 43.75639° N, 72.31352° W) we are still unable to provide concurrence for preferred site status for the project.

We still find that the project is located entirely within a designated highest priority forest block mapped on the ANR BioFinder 4, as well as within the regional Forest Based Resources land use area. The project is also entirely located within a deer wintering yard as mapped on the ANR Natural Resources Atlas. We understand that there has been some clearing of this site by you, so the forest status is no longer actually intact. However, that clearing cannot be taken into account as we have no way to ascertain if was done in anticipation of this project or not.

We have reviewed the additional map you provided. The project would still involve forest clearing out of proportion (2+ acres) to the power generation potential. TRORC has taken a position in PUC rulemaking that clearing should not exceed 2 acres per MW of nameplate generation capacity. A 150 Kw project can thus have a maximum clearing of 0.3 acres associated with it, especially if that forest was in the above mentioned areas.

Please note that at this time we take no position on the project's compliance with other policies of the regional plan, and any requirement of Rule 5.100 or of other applicable provisions of Vermont law.

Sincerely,

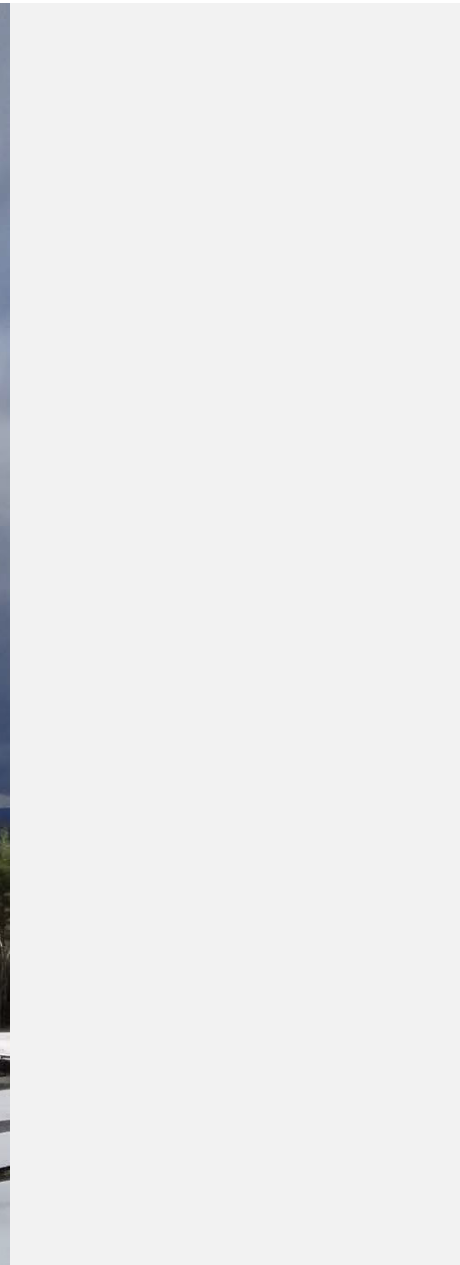


Peter G. Gregory, Executive Director
CC: Brennan Duffy, Jaan Laaspere

norwich town plan

PLANNING COMMISSION PUBLIC HEARING DRAFT

9 DECEMBER 2019



Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

– Brundtland Commission, 1987

DRAFT

Norwich Planning Commission

Jaci Allen, Chair
Susan Brink
Ernie Ciccotelli
Jeff Goodrich
Melissa Horwitz
Brian Loeb
Jeff Lubell
Leah Romano
Steve Thoms

1 | Introduction 1

- 1.1 Purpose 1
- 1.2 Authority 1
- 1.3 Planning Process 1
- 1.4 Using the Plan 2
- 1.5 state Planning Goals 2

2 | Land Use 4

- 2.1 objectives 4
- 2.2 Policies 5
- 2.3 Actions 5
- 2.4 Current Land Use 6
- 2.5 Future Land Use 7
- 2.6 Forest Blocks and Habitat Connectors 9
- 2.7 Village Center Designation 10
- 2.8 Compatibility 10

3 | Energy 21

- 3.1 objectives 21
- 3.2 Policies 21
- 3.3 Actions 22
- 3.4 overview 22
- 3.5 Current energy Use 23
- 3.6 Renewable energy Resources 24
- 3.7 Energy Conservation and Efficiency 27
- 3.8 Future Generation, Use and Conservation 28

4 | Housing 30

- 4.1 objectives 30
- 4.2 Policies 31
- 4.3 Actions 31

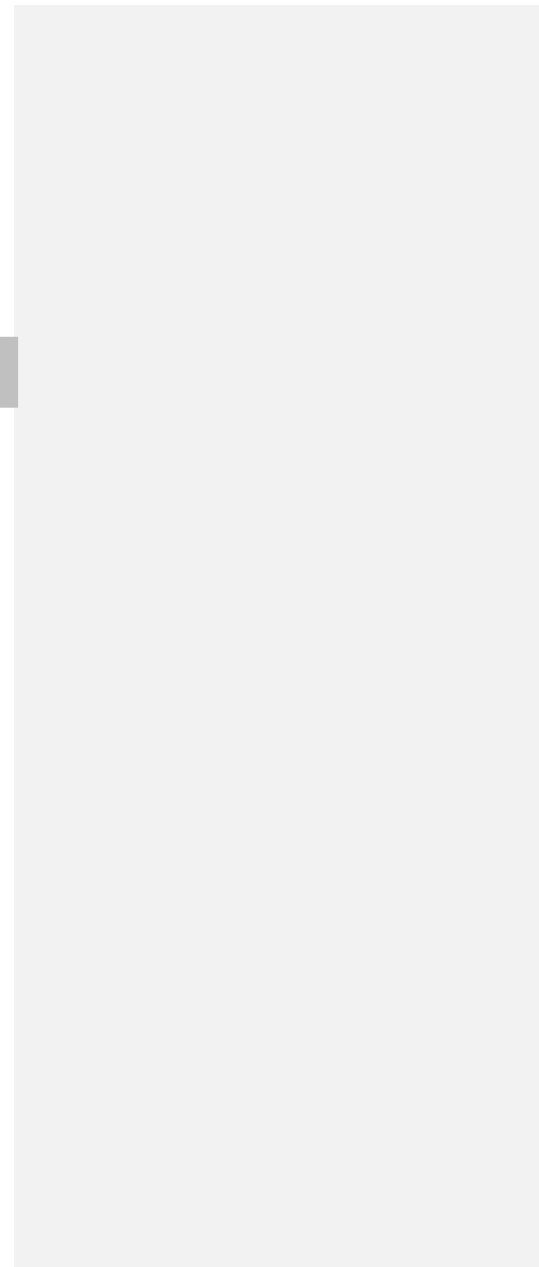
5 | Economic Development 37

- 5.1 objectives 37
- 5.2 Policies 37
- 5.3 Actions 38
- 5.4 Background 38
- 5.5 Barriers to economic Growth 39

6 | Transportation 40

- 6.1 40
- 4.5 Local Housing stock Characteristics 32
- 4.6 Affordability 33

Cor



DRAFT

objectives	40	7.5 Water supply Infrastructure	46
6.2 Policies	40	7.6 electricity Infrastructure	47
6.3 Actions	41	7.7 telecommunications Infrastructure	47
6.4 Roads In norwich	41	7.8 stormwater Infrastructure	47
6.5 Regional transportation Planning Issues	43	7.9 Wastewater Provision	47
		7.10 solid Waste Facilities and services	48
7.1 objectives	45	7 Facilities and Services	45
7.2 Policies	45	7.11 transit	48
7.3 Actions	46	7.12 educational Facilities	48
7.4 town Government Facilities	46	7.13 Childcare	49
		7.14 Recreation	49

8 Resilience	53
8.1 objectives	53
8.2 Policies	53
8.3 Actions	54
8.4 Floodplains	54
8.5 Mitigation Plans	55
9 Implementation Program	56
10 Appendices	61
A. Affordable Housing strategy	61
B. tRoRC Act 174 supplement	61
C. town Plan outreach and Research	61

Figures	
Figure 1. Future Land Use Recommendations	11
Figure 2. Current Land Use Map	12
Figure 3. Current Land Use Map (Village Detail)	13
Figure 4. Housing Location Map	14
Figure 5. Protected Lands Map	15
Figure 6. Protected Lands Map (Village)	16
Figure 7. Water Resources Map	17
Figure 8. Forest Block and Habitat Connector Map	18
Figure 9. Future Land Use Map	19
Figure 10. Future Land Use Map (Village Detail)	20
Figure 11. energy Use and Goals by sector	23
Figure 12. norwich energy targets	24
Figure 13. Year Housing Unit Built	32
Figure 14. Change in Housing Units 1940 — 2018	33
Figure 15. Change in Household Income 2000-2017	34
Figure 16. single-Family Home sales in norwich by Price	34
Figure 17. establishments, employees and Wages	38
Figure 18. Commuting Patterns 2017	39
Figure 19. Estimated Average Daily Traffic Counts	41
Figure 20. transportation Map	44
Figure 21. Community Facilities Map	51
Figure 22. Community Facilities Map (Village Detail)	52

1 | INTRODUCTION

IntRoDUctIon

1.1 Purpose

the norwich town Plan states the town's objectives, policies and actions for guiding future land use and development in the community. this plan is a policy statement guiding future land use and municipal decision-making. It also contains policies directing the deliberations of the selectboard, Planning Commission, Development Review Board and other town and state boards and commissions in reviewing development proposals. This plans identifies current conditions and gathers public input as a resource for future public spending on community facilities, housing assistance and other municipal programs and services.

both *process* and *planning content*. the process goals are to ensure that there is coordination across all levels of government, the development of the plan involves

1.2 Authority

Under the Vermont Municipal and Regional Planning and Development Act (24 VsA Chapter 117), the Planning Commission has the duty to make and approve a town Plan and then recommend its adoption to the selectboard. state Law requires that a town Plan be composed of several interrelated elements that address the following areas: land use, transportation, energy, economic development, utilities and facilities, educational facilities, natural areas, and plan implementation. the Act also requires that town plans promote goals set forth by the legislature related to

Deleted: n

Deleted:

Deleted: guide for

Deleted:

Deleted:

citizens, the plan considers the consequences of growth, and the plan encourages towns to work together. the

14 planning goals help to ensure that all town plans are coordinated and reflect the legislature's vision for how land in Vermont will be developed.

Finally, the Act requires that a town plan study present conditions and trends, anticipate future internal and external influences that will affect the town, and formulate policies and actions that will ensure the health of the town in the coming years. through the Act plans must also be compatible with the regional plan — two Rivers ottauquechee Regional Planning Commission (tRoRC) Regional Plan. once adopted the norwich Plan remains in effect for eight years.

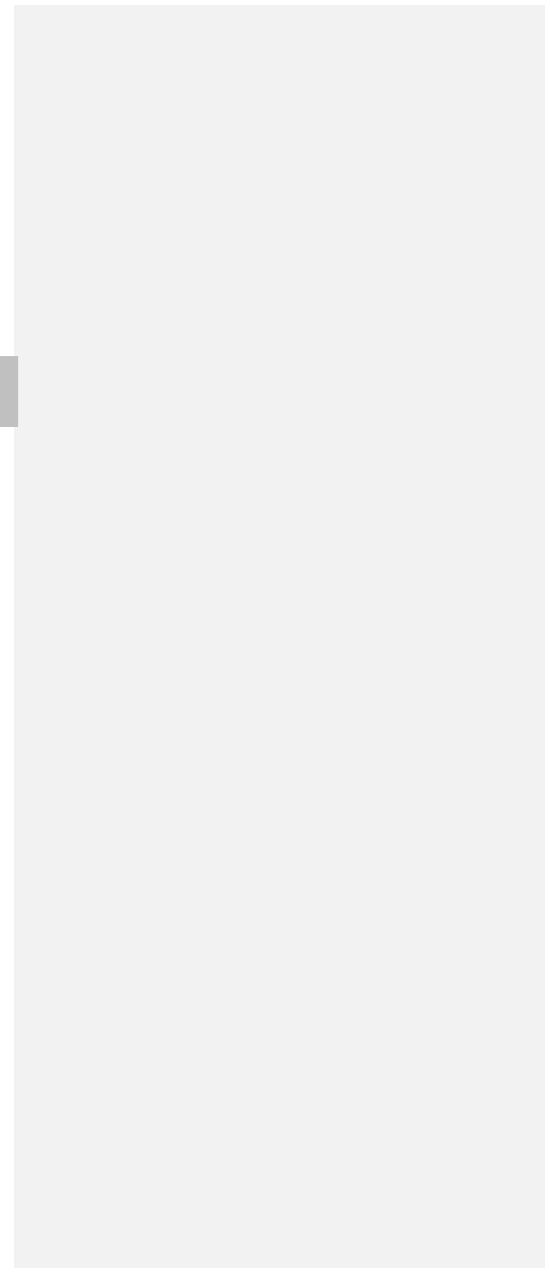
Having a duly adopted and approved plan will allow norwich to reapply for Village Center Designation and seek support from the state for future planning studies and projects.

1.3 Planning Process

Norwich first adopted a town plan in 1968. The plan has been regularly updated and re-adopted since. this plan is a major change over the previous three plans adopted in norwich. this plan includes input from an on-line survey conducted under the auspices of the selectboard in 2018, a postcard survey in 2019 and numerous workshops and meetings spanning ten months where residents discussed:

- w how to respond to the climate crisis;
- w how to continue protecting important natural resources;

DRAFT



- w how to increase housing stock, including the variety and type;
- w preserving rural character and vibrant village life.

the Vermont Planning and Development Act establishes the process by which town plans must be adopted, which includes public hearings by both the Planning Commission and selectboard. that process has been followed in the re-adoption of this 2020 plan.

1.4 Using the Plan

the norwich town Plan conveys a vision for thoughtful stewardship of rich cultural and natural resources, a commitment to address the climate crisis and fostering housing development that is appropriate in scale and responsive to community needs. the plan policies and recommendations will be implemented over time through many distinct actions, including capital improvements, land use regulation amendments, and changes to other municipal regulations and documents. the plan provides the policy platform for the integration and coordination of these decisions and actions. this plan also provides guidance on how the town's land use development regulations should be updated and enhanced to facilitate plan implementation. Vermont state statute requires that the town's land use regulations be consistent with the adopted plan.

When using this plan for a regulatory purpose, the objectives, policies and actions must be specific policies and land conservation measures. Norwich (like any

community) has competing objectives that must be

Formatted: Highlight

Deleted: found throughout

Deleted: considered in context as part of a whole rather than individual statements meant to stand alone...

Deleted: n

weighed carefully when applied on an individual basis. this plan is a guide for such decisions.

the plan is organized into seven subject area chapters. each chapter opens with objectives, policies and actions.

- w Objectives are attainable outcomes accomplishing one or more goals (see [State Planning Goals](#)). Where possible they should be specific and quantifiable so that the community can determine when they have been met.
- w Policies are principles that guide progress to achieving one or more objectives. They guide all relevant decision-making by town government, and in those circumstances where the plan is intended to influence regional or state decision-making.
- w Actions are the concrete activities or programs intended to achieve (or contribute to) one or more objectives that town government will implement during the life of the plan (eight years).

this plan incorporates the state planning goals as norwich's planning goals. the objectives and policies of each chapter are formulated to further these goals.

1.5 State Planning Goals

the 2020 norwich town Plan is consistent with the 14 state planning goals listed in the Vermont Development Act as demonstrated below. to be 'consistent with a goal' requires that one or more objectives identified in this plan will result in norwich making substantial progress towards attaining the stated goal. this plan incorporates the state's planning goals as norwich's planning goals. the table below includes each goal and identifies the related objectives and policies established in this plan.

State Planning Goal	Chapter
1 To plan development so as to maintain the historic settlement pattern of compact downtowns and village centers separated by rural countryside.	Land Use, page 4 Economic Development, page 37 Housing, page 30
2 To provide a strong and diverse economy that provides satisfying and rewarding job opportunities and that maintains high environmental standards, and to expand economic opportunities in areas with high unemployment or low per capita incomes.	Economic Development, page 37
3 To broaden access to educational and vocational training opportunities sufficient to ensure the full realization of the abilities of all Vermonters.	Economic Development, page 37 Facilities and Services, page 45
4 To provide for safe, convenient, economic, and energy efficient transportation systems that respect the integrity of the natural environment, including public transit options and paths for pedestrians and bicyclers.	Transportation, page 40 Energy, page 21
5 To identify, protect, and preserve important natural and historic features of the Vermont landscape.	Land Use, page 4
6 To maintain and improve the quality of air, water, wildlife, forests, and other land resources.	Land Use, page 4 Transportation, page 40
7 To make efficient use of energy, provide for the development of renewable energy resources, and reduce emissions of greenhouse gases.	Energy, page 21 Transportation, page 40
8 To maintain and enhance recreational opportunities for Vermont residents and visitors.	Land Use, page 4
9 To encourage and strengthen agricultural and forest industries.	Land Use, page 4 Economic Development, page 37
10 To provide for the wise and efficient use of Vermont's natural resources and to facilitate the appropriate extraction of earth resources and the proper restoration and preservation of the aesthetic qualities of the area.	Land Use, page 4 Economic Development, page 37
11 To ensure the availability of safe and affordable housing for all Vermonters.	Housing, page 30 Land Use, page 4
12 To plan for, finance, and provide an efficient system of public facilities and services to meet future needs.	Facilities and Services, page 45 Land Use, page 4
13 To ensure the availability of safe and affordable child care and to integrate child care issues into the planning process, including child care financing, infrastructure, business assistance for child care providers, and child care work force development.	Facilities and Services, page 45 Land Use, page 4

DRAFT

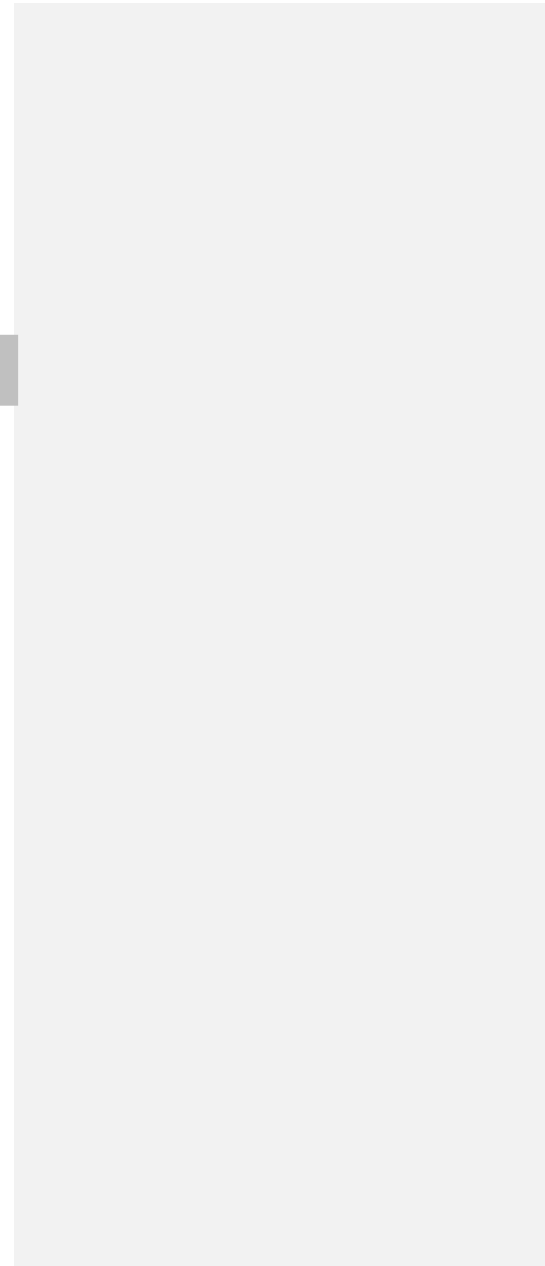




Photo: Martin van Exel

2 | LAND USE

2.1 Objectives

- 2-1.a Plan development to maintain the historic settlement pattern of compact downtowns and village centers separated by rural countryside (24 VSA §4302 (c) (1)).
- 2-1.b Increase the diversity and total stock of housing in Norwich by directing more intensive residential development to areas in, or adjacent to, the village while discouraging strip development along highways (24 VSA §4302 (c) (1) (A)).
- 2-1.c Preserve rural character and working lands throughout the existing rural areas of town by developing in accordance with smart growth principles (24 VSA §4302 (c) (1) (D)).
- 2-1.d Identify, protect, and preserve important natural and historic features of the Norwich landscape, including: significant natural and fragile areas, outstanding water resources (including rivers, aquifers, shorelands and wetlands), significant roads, waterways and views, important historic structures, sites or districts (including archaeological sites) (24 VSA §4302 (c) (5)).
- 2-1.e Encourage and strengthen Norwich forestlands by maintaining and improving forest blocks and habitat connectors (24 VSA §4302 (c) (6) (C), (9)).
- 2-1.f Interconnect the existing system of trails for access to nature for Norwich residents and visitors (24 VSA §4302 (c) (1) (D) (4), (8) (B)).
- 2-1.g Revise Norwich Zoning and Subdivision Regulations [and guide development through specific policies in this plan](#) informed by the climate crisis, **specifically the ability of existing forest cover to provide ecosystem services such as carbon absorption and sequestration.**

Formatted: Highlight

2.2 Policies

- 2-2.a Increase the resilience of Norwich by avoiding, minimizing and mitigating conflict between land development and natural riparian functions along streams and rivers.
- 2-2.b ~~Protect forest blocks and riparian wildlife connectivity.~~ Guide development away from priority forest blocks and discourage fragmentation or subdivision of land within those blocks.
- 2-2.c ~~Development shall not be permitted on~~ visually prominent locations on ridgelines and hills as viewed from **public vantage points.** ~~(need to define or change).~~ **Add list of town roads with scenic views and add map with specific sections of roads with scenic views.**
- 2-2.d **Conserve** of primary agricultural soils for current and future agricultural use.
- 2-2.e Guide development away from steep slopes and require appropriate erosion control and stormwater management practices to protect water quality and avoid increased downstream flooding. ~~Development shall not be permitted on slopes greater than 25 degrees.~~
- 2-2.f Guide residential development **in accordance with the objectives, policies and actions and specific policies and land conservation measures of this plan.**
- 2-2.g Encourage use of conservation subdivision design and low-impact development practices in the rural areas of town in order to protect and conserve natural resources, open space and rural character.
- 2-2.h Encourage and support continued permanent conservation of farmland, forest land and natural areas.
- 2-2.i Encourage landowners to maintain or establish riparian buffers with native woody plants.
- 2-2.j Support the work of the Norwich Historical Society and Historic Preservation Commission to help inform land use decisions.

2.3 Actions

- 2-3.a Implement the recommendations made in this chapter (see Figure 1) and throughout this plan when revising the Norwich Zoning and Subdivision Regulations to:

Deleted: remote p

Deleted: ion

Deleted: of

Deleted: that would adversely impact natural resource values, including absorption and sequestration of carbon dioxide.

Deleted: Guide development away

Deleted: from

Formatted: Highlight

Deleted: Encourage c

Deleted: ation

Formatted: Highlight

Formatted: Highlight

- i. Maintain the rural character of Norwich by preserving working lands and forests
 - ii. Recognize the important ecosystem services performed by forests
 - iii. Facilitate appropriate scale mixed-use development in areas currently zoned commercial-industrial
- 2-3.b Participate in state, federal and other efforts to protect the Connecticut River, including basin plans provided for under 10 VSA §1253.
- 2-3.c Develop a plan to address any potential conflicts between existing or proposed development on the edge of the village and mapped forest blocks.
- 2-3.d Continue to advocate for the preservation and adaptive reuse

of historic Lewiston.

- 2-3.e Consider how to address barriers to development related to limitations on septic capacity, including a review of the findings of the 2005 study conducted by the Norwich Sewer Committee in light of current challenges and changes in wastewater management.
- 2-3.f Consider incentive programs to encourage adaptive reuse of historic structures.
- 2-3.g Update the inventory of barns at risk, and support owners in obtaining state grants to offset rehabilitation costs.
- 2-3.h Ensure the participation of the Historic Preservation Commission in any study of improving bike-ability and walkability in the village.

DRAFT

2.4 Current Land Use

norwich's current land use pattern ([Figure 2](#), [Figure 3](#)) includes a densely settled village with a commercial core in the southeast corner with low density residential development accounting for the remainder. Union Village in the north and a few other hamlets hint at an earlier agrarian settlement pattern. There are significant areas of conserved land, Appalachian trail lands along the southern border, riverine lands on the ompomponoosuc River and higher elevation forest lands along the western border with sharon (see [Figure 5](#), [Figure 6](#)). outside of the village there is some commercial development along Route 5 south. An expanse of conserved woodlands along the Connecticut River associated with the Montshire Museum gives way to school playing fields on the border with Hartford to the south.

since the 1970s the predominant pattern of development has been subdivision of farm/forest tracts into lots for residential use some distance from the village. the rate of development has slowed significantly since the 1990s (see [Figure 4](#)). the rural character (wooded hillsides and hayfields) has largely been maintained, despite the continued loss of productive farms. there has been a recent resurgence in small-scale farming and rural enterprise.

norwich has limited commercial development, dominated by small retail, banking and professional services in the village, and retail oriented to tourists and passing traffic

on Route 5 south. the towns of Hanover, Lebanon and

FAIT

are major employment and commercial centers for households.

CONCLUSION. the current settlement pattern is predicated on use of personal car use. norwich currently supports transit to service the village and Route 5 south on a fixed schedule. It is not feasible to extend transit routes or change the schedule because of the low population density in the village. norwich devotes considerable resources to maintenance and repair, and low-density residential development increases these costs without significantly increasing the tax base to fund them. Increased commitments to transit and vehicular commuting would be needed to support a settlement pattern in the future.

COMMUNITY FACILITIES & SERVICES. the existing complement of facilities and services could accommodate modest growth, particularly if it occurs in or near the village.

Key Findings

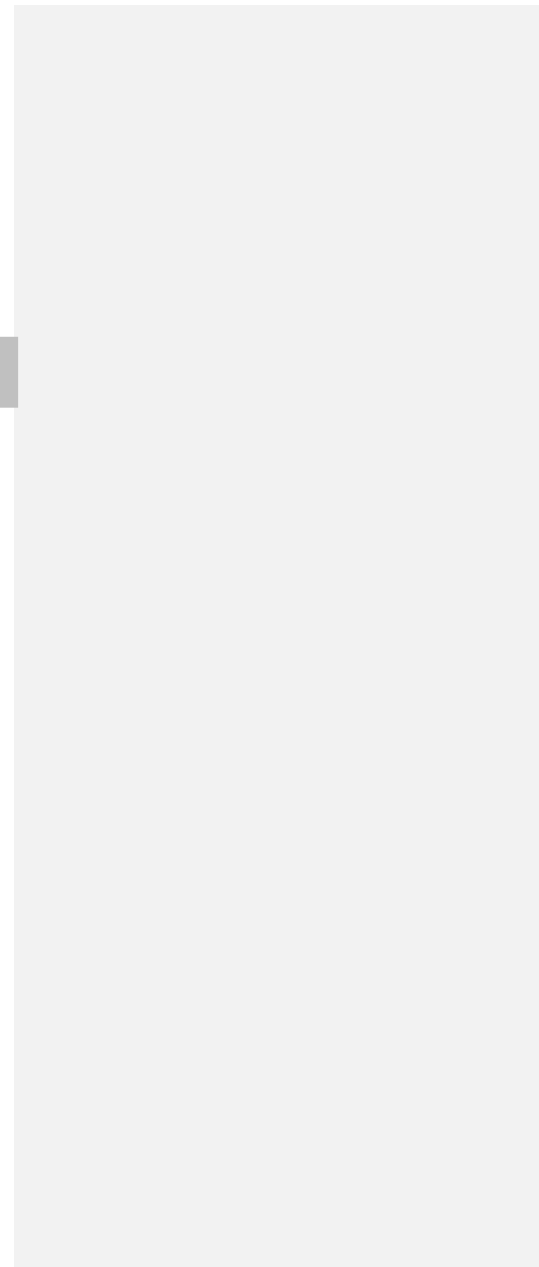
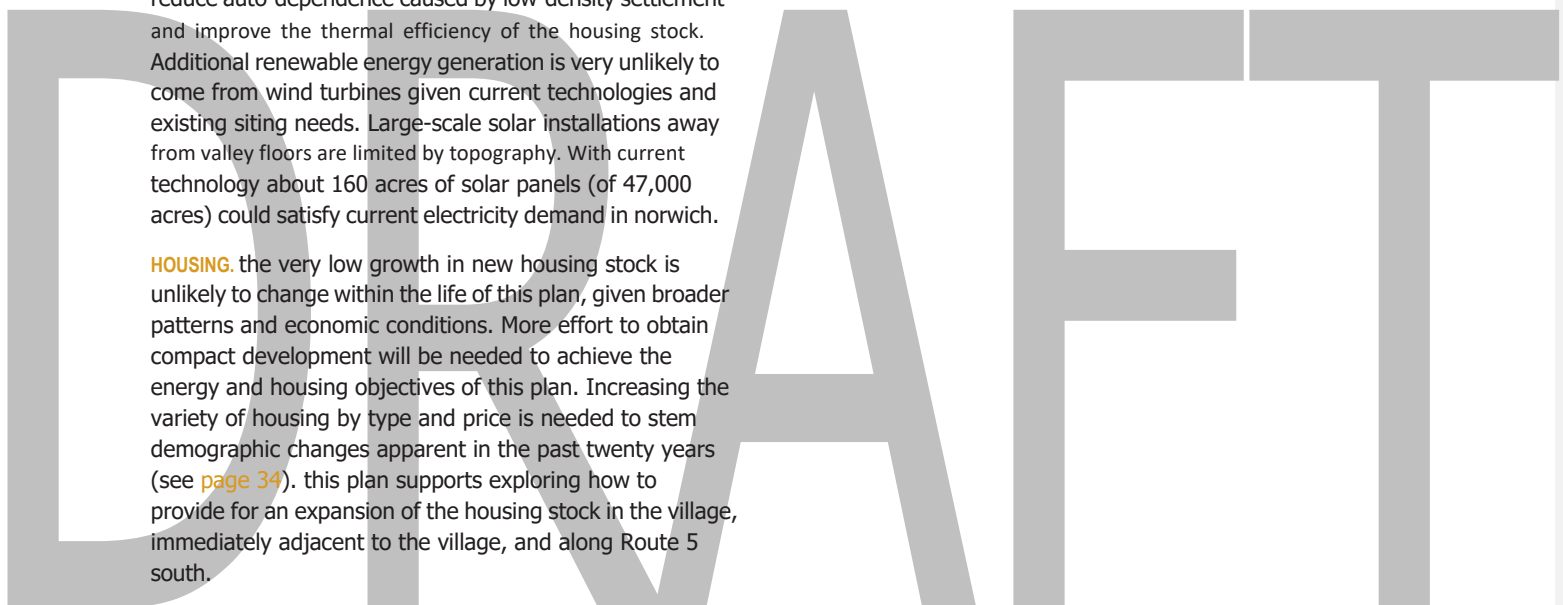
Marion Cross school has some capacity for additional students and is an asset for the community, although wastewater management is an unresolved problem. Childcare is in short supply and limited, however. Potable water is supplied to homes and businesses in the village. Extensive recreation facilities including playing fields and a trail network for hiking and mountain biking support an active community. Absence of a wastewater system limits growth and expansion of the village and established commercial districts (Route 5 south) and imposes costs and constraints on existing property owners.

ENERGY. Current state energy goals, intended as a response to the climate crisis, require norwich to dramatically reduce auto-dependence caused by low-density settlement and improve the thermal efficiency of the housing stock. Additional renewable energy generation is very unlikely to come from wind turbines given current technologies and existing siting needs. Large-scale solar installations away from valley floors are limited by topography. With current technology about 160 acres of solar panels (of 47,000 acres) could satisfy current electricity demand in norwich.

HOUSING. the very low growth in new housing stock is unlikely to change within the life of this plan, given broader patterns and economic conditions. More effort to obtain compact development will be needed to achieve the energy and housing objectives of this plan. Increasing the variety of housing by type and price is needed to stem demographic changes apparent in the past twenty years (see [page 34](#)). this plan supports exploring how to provide for an expansion of the housing stock in the village, immediately adjacent to the village, and along Route 5 south.

ECONOMIC DEVELOPMENT. norwich has a very small commercial base, which limits the number of in-town jobs. the existing commercial-industrial district is well-served by road, electricity infrastructure and transit, but requires on-site water and wastewater for development. the existing land use controls allow for traditional highway strip development and need to be amended to better reflect

community values and standards. Growing employment opportunities in town can be a strategy for reducing auto-



dependence. Diversifying the tax base can also contribute to offsetting the residential property tax burden. Lastly, a broader range of economic development can encourage a more diverse community.

2.5 Future Land Use

LAND CAPABILITY. A key principle of land use planning is to guide development towards land best suited to the purpose and discourage and prevent uses inappropriate to the landscape. Capability assessments identify landform attributes which can constrain future development. the following attributes influence future land use decisions in norwich.

STEEP SLOPES are poorly suited to development and development on slopes greater than 25%XX.

shall be prohibited. The landform of norwich is dominated by narrow valleys and steep slopes. As severe weather events increase in frequency and intensity, reviewing land use regulations as they pertain to development on steep slopes will be needed.

SOIL TYPE is a major determinant of development in the absence of municipal wastewater systems. norwich does not operate a municipal wastewater system. norwich provides potable water in the village through the Fire District, accessing aquifers to the north of the village, which allows for denser settlement.

RIPARIAN AREAS (INCLUDING FLOODPLAINS) are sensitive environments often subject to flooding. Development in these shall be prohibited. (Refer to map where these specific areas identified)Historically these areas have been used for agriculture (fertile silt deposits

LAND Use

Deleted: tected.

Deleted: t

NORWICH 2020 TOWN PLAN
PLANNING COMMISSION HEARING DRAFT 9 DEC 2019

Deleted: degrees

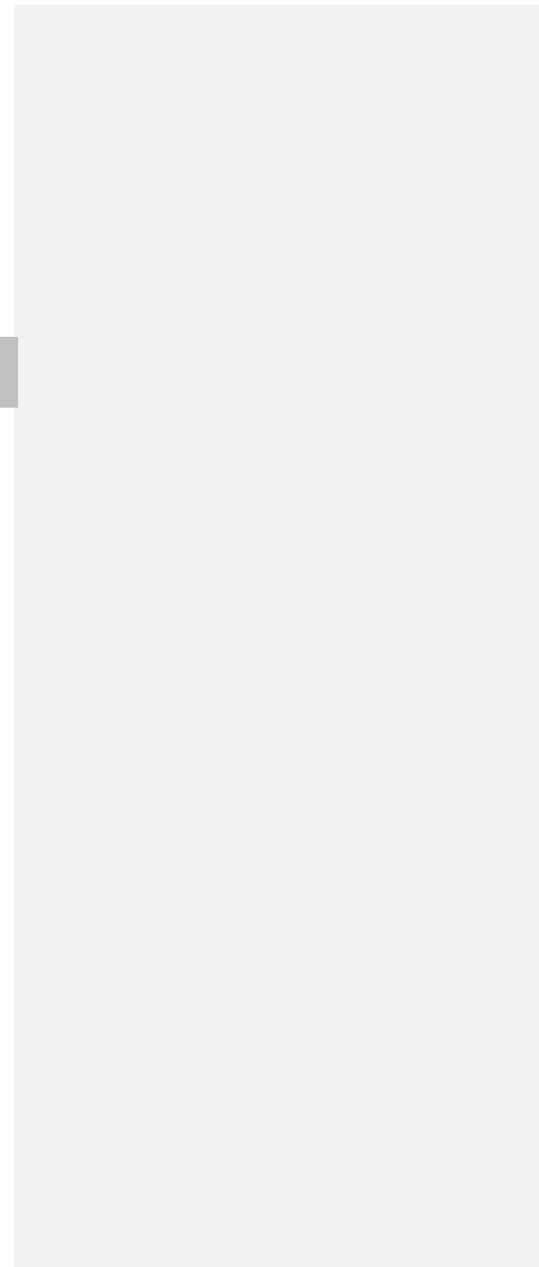
from stream action) and industrial power generation (for mills prior to the advent of electricity). today, repeated private property and public infrastructure losses due to flooding and erosion from severe storms is best resolved by avoiding continued development in these areas.

Future Land Use Map

the Future Land Use Map illustrates norwich's desired future land use pattern by identifying Planning Areas. these areas are not intended to align with the current zoning district boundaries, nor represent the boundaries of any future zoning districts. Rather, they graphically depict the direction land development will likely take in response to the objectives, policies and actions established in this plan, which will inform any proposed changes to the town's zoning districts.

THE VILLAGE PLANNING AREA encompasses norwich's historic village with a settlement pattern and architecture typical of 19th century Vermont. It is characterized by a mix of residential, commercial and civic land uses at higher densities. Buildings are set close to the street with pedestrian access and circulation. there is a concentration of commercial activity in the core surrounded by predominately residential land uses. Potential future growth is limited by physical constraints, commitment to the traditional village scale and form, and absence of wastewater infrastructure (the village is served by municipal water). the intent of the Village Planning Area

is to maintain the historic village settlement pattern, architectural character and mix of uses.



MIXED USE PLANNING AREA includes land in two areas of the area in Lewiston reflects the remnants of an earlier development pattern focused around the railroad depot (the railroad continues to own a portion of the property from local regulation).

Future changes in its use are anticipated during the life of the other area is on the east side of Route 5 south. This area has evolved and developed in response to the transportation corridor it is bounded by (Route 5 and I-91). It is developed with a mix of commercial, institutional and residential land uses. While the land is developed, the current land use pattern is low density. The intent of the Mixed Use Planning Area is to reflect the development pattern and recognize that there may be potential for some mixed use infill with small businesses and services over time, if constraints posed by the lack of

infrastructure and institutional ownership of these lands are addressed.

THE RESIDENTIAL PLANNING AREA is composed of lands already developed into residential lots at moderate densities or suitable for such development due to their proximity to the village, access to transportation, and relatively few natural resource constraints. It is the intent of the Residential Planning Area to accommodate future residential development at densities similar or somewhat higher than currently exist in the area — as feasible — given the availability of infrastructure to support it.

THE RURAL PLANNING AREA includes lands outside the village that retain their rural character, although largely subdivided into residential lots. The settlement pattern is

irregular in response to natural features and terrain. Much of the roadscape remains dominated by views of open meadows and wooded hillsides. the intent of the Rural Planning Area is to protect the rural character and maintain a low overall density of development in these areas which are further from the village and major transportation corridors.

THE RESOURCE PROTECTION PLANNING AREA is composed of lands with resource constraints or hazards that significantly limit their potential for future development, and lands not available for future development due to public ownership or private conservation easements. Despite the constraints, most of this land is part of a residential lot, albeit at extremely low densities. the intent of the Resource Protection Planning Area is to recognize the constraints and limitations that exist on a large portion of the land in norwich. Little change in the use or development of these lands is anticipated and this plan discourages further disturbance or fragmentation of the remaining undeveloped portions of these lands through incremental, large-lot residential development. the high and medium priority forest blocks have been mapped and can form a basis for future decision-making. [\(suggest being more specific about what is desired for the Resource Protection Planning Area\)](#)

Industrial Area – do we identify areas where industrial development may occur?

2.6 Forest Blocks and Habitat Connectors

The Vermont Agency of natural Resources (ANR) has mapped and assessed the habitat value of forest blocks in Norwich as part of a state-wide exercise. since 2018 municipal plans have been required by state statute (Act

Deleted: t

Deleted: n

Deleted: n

171) to identify forest blocks and habitat connectors, and to plan for land development in these areas to [assure there is no undue adverse impact on forest fragmentation and wildlife habitat](#), and to promote forest health and ecological function.

The mature trees on these forest lands perform critical ecosystem services including absorbing and sequestering carbon dioxide — a greenhouse gas. Data gathered by the [Us energy Information Administration](#) tracks annual carbon dioxide emission by state, which shows that each Vermonter produces approximately 10.6 tons of carbon dioxide per year. Based on [research](#) by the University of Massachusetts, Amherst this

individual carbon dioxide load could be offset by approximately 3.7 acres of healthy forest. the combined area of the mapped forest blocks in the resource protection area is 17,202 acres. therefore, mapped forest blocks can offset the carbon dioxide load of up to 4,650 residents. there is also considerably more forested land in other areas of town.

the impact of proposed development on forest blocks may be considered during state regulatory processes. [the boundaries of priority forest blocks are delineated based on a site-level assessment.](#) See the mapped priority forest blocks [that occur in the rural residential district.](#) [\(Map #x\) norwich subdivision regulations already consider natural resources, including steep slopes and forest cover.](#) [\(consider importing some of that language into this plan\).](#) nevertheless,

LAND Use

NORWICH 2020 TOWN PLAN
PLANNING COMMISSION HEARING DRAFT 9 DEC 2019

Deleted: minimize

Deleted: t

Deleted: this plan and any implementing regulations treat mapped forest blocks in norwich of 500 acres or more in area as shown in Figure 8 as priorities for protection.

Formatted: Highlight

Formatted: Right: 0.65", Space Before: 8.95 pt

Deleted: Due to the scale of the state forest block mapping,

Deleted: should be

Deleted: more precisely

Deleted: before being used for regulatory purposes by the town or state.

Formatted: Highlight

alternative approaches could be explored. this could include a new resource protection zoning district with a significantly higher minimum parcel size to better protect against fragmentation of forest blocks. other key areas to review include the development density algorithm to ensure development in forest lands is minimized.

2.7 Village Center Designation

norwich's village center designation expired in 2018 (see [Figure 10](#)). It cannot be renewed until norwich has a duly adopted plan subsequently approved by tRoRC.

Village center designation supports the town's land use policies preserving the historic scale and pattern of development, while encouraging private investment in historic buildings. Participation in the designation program promotes infill and improves the walkability of the village. the program offers both the town and property owners within the designated area benefits including:

- w Owners of income-producing buildings can access tax credits for eligible improvements;
- w Land in or within ¼ mile of the village center could be eligible for the state's Neighborhood Development Area program;
- w The town is more competitive when seeking state grant funding for projects in the village center.

2.8 Compatibility

norwich is part of the Claremont-Lebanon micropolitan area (as defined by the US Census Bureau) which takes

and sullivan counties in new Hampshire and orange
or counties in Vermont. the town is a member of the
ottauquechee Regional Planning Commission (tRoRC)
prises 30 towns in orange and Windsor counties in
he history of norwich is tied closely with Hanover and
nH. norwich is part of a bi-state school district, and
sidents depend on Hanover, Lebanon and Hartford for
nt opportunities and access to retail and service

ning issues including housing supply and transportation
bike-pedestrian accommodations) will involve a regional

G TOWNS. there are no proposed changes to
ricts or land use policies that will affect the
g towns of thetford or sharon. this plan

identifies constraints to development in the Route 5 South
Commercial-Industrial district, which borders Hartford to
the south, caused by the need for on-site potable water
and wastewater systems. the development potential of this
district could change if municipal wastewater was provided.
this plan is recommending that wastewater options for
the village, adjacent areas and the commercial-industrial
district be explored.

TRORC LAND USE AREAS. In previous regional plans the area
east of I-91 (Lewiston neighborhood and lands to the east
of Route 5 South) were identified as an 'interchange area'.
In the 2019 tRoRC **regional plan**, this designation has
been dropped for norwich and been replaced with mixed
use and rural land use areas. other adjustments were
made, including defining principal retail, and allowing for

mixed use development with some retail when combined with housing. these amendments followed discussion with norwich. there is now a greater degree of compatibility between this plan and the regional plan. norwich appreciates the greater flexibility and an application of regional land use areas that more closely resembles current land use patterns.

Figure 1. Future Land Use Recommendations

Land Use Type	Recommendation
Village	1 Reapply for Village Designation
	2 Assess Current Wastewater conditions
	3 Improve public infrastructure to enhance walkability, access management and stormwater management
Mixed Use	1 Explore changing Commercial-Industrial to a mixed use zoning district with performance and design standards governing scale of development, site plan etc. to mitigate impact
	2 Ensure adequate provision for housing is made in this new district
Residential	1 Assess Current Wastewater conditions
	2 Explore creating a new residential zoning district (dependent on wastewater assessment)
Rural	1 Review effectiveness of subdivision regulations in limiting rural sprawl
Resource Protection	1 Explore creation of a new zoning district that would take in lands with forest blocks of 500 acres or more to reduce possibility of fragmentation

0207
DN HEA

CURRENT LAND USE
TOWN OF NORWICH, VERMONT

DRAFT

SHARON

BEAVES MEADOW

NEW BOSTON RD

WALK ST

HANOVER

UNIONVILLE RD

THETFORD

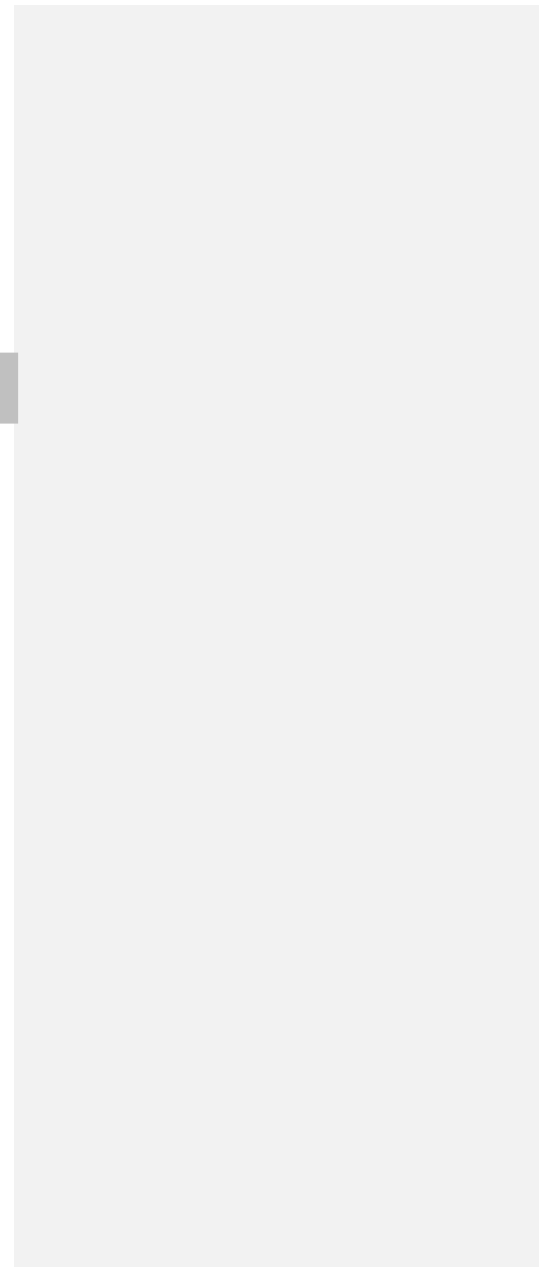
MAP KEY

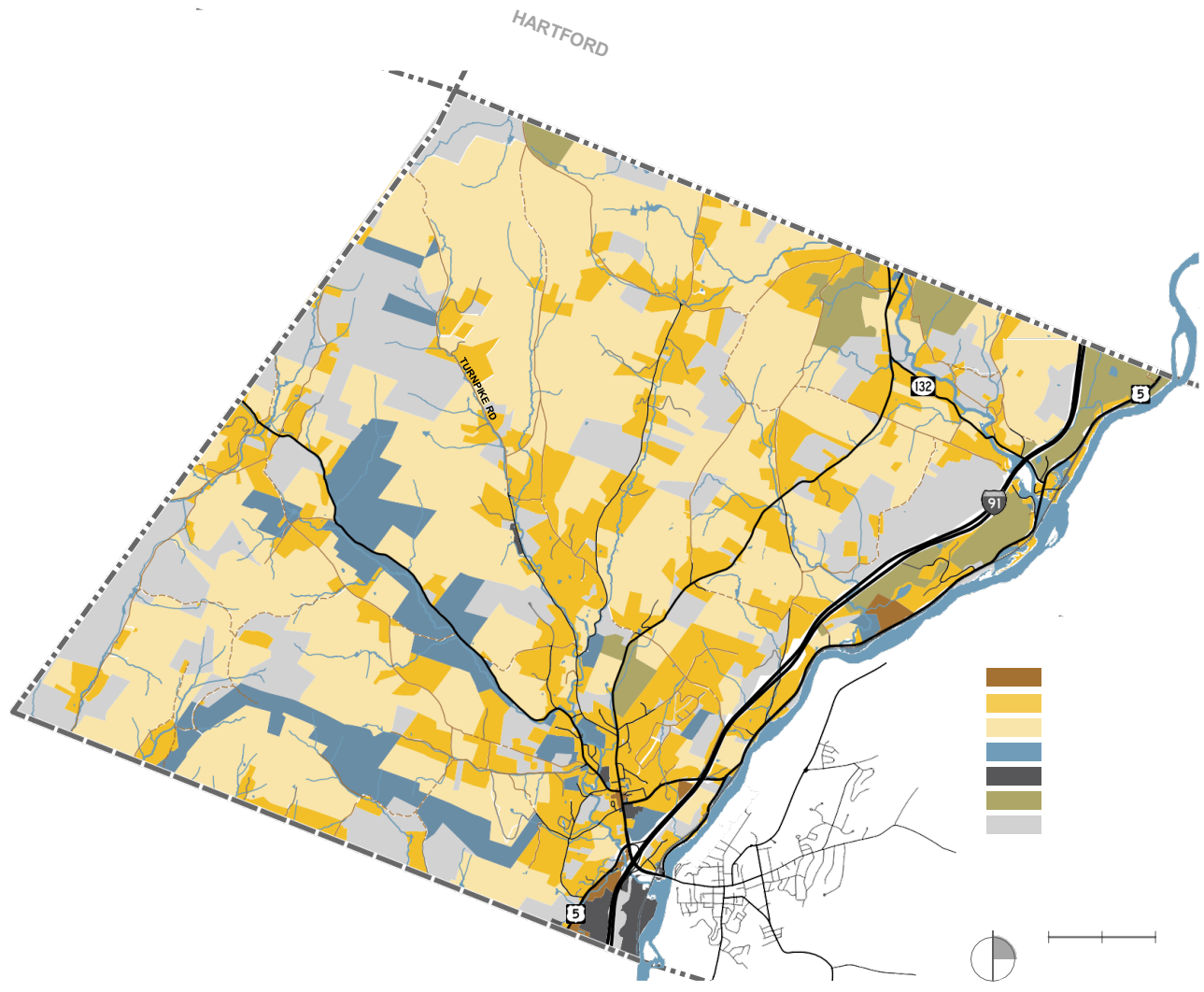
Current Land Use Category

- Commercial and Industrial
- Residential (<25 acres)
- Residential (>25 acres)
- Government
- Institutional
- Farm
- Undeveloped

Sources
2017 Norwich Grandlist and Parcel Maps

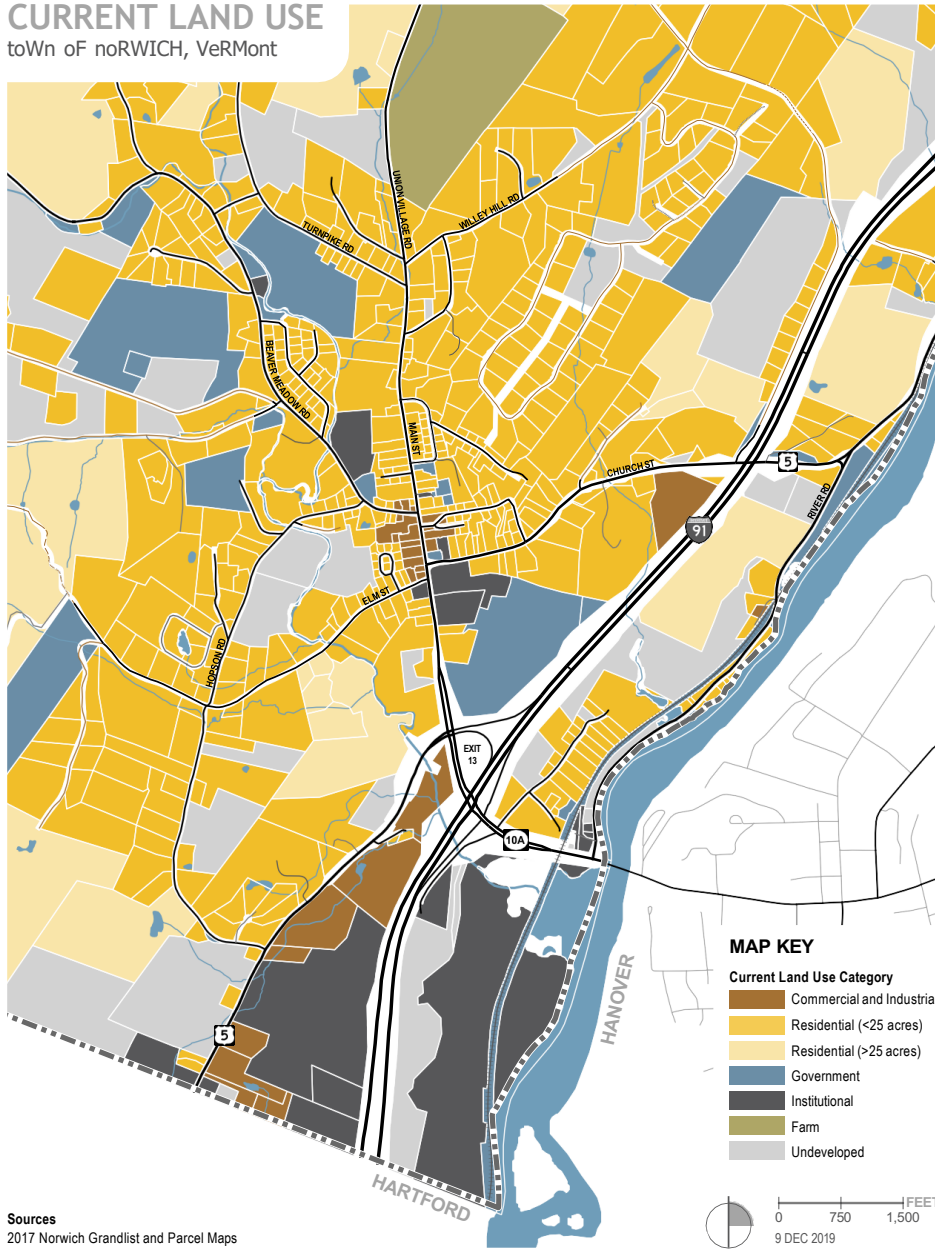
0 1/2 1
MILES
9 DEC 2019





CURRENT LAND USE

toWn oF noRWICH, VeRMont



Sources
2017 Norwich Grandlist and Parcel Maps

DRAFT

HOUSING
Figure 4. Housing Location Map
toWn of noRWICH, VeRMont



3 COMMISSION HEARING DRAFT 9 DEC 2019

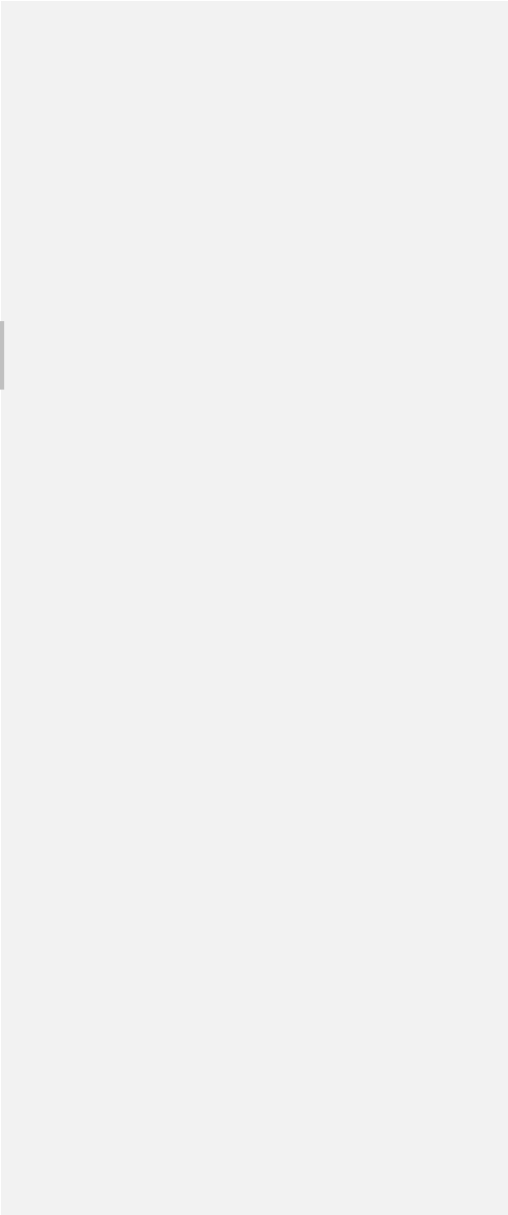
MAP KEY

Housing by Date Built
Before 2010
2010-2018

Notes

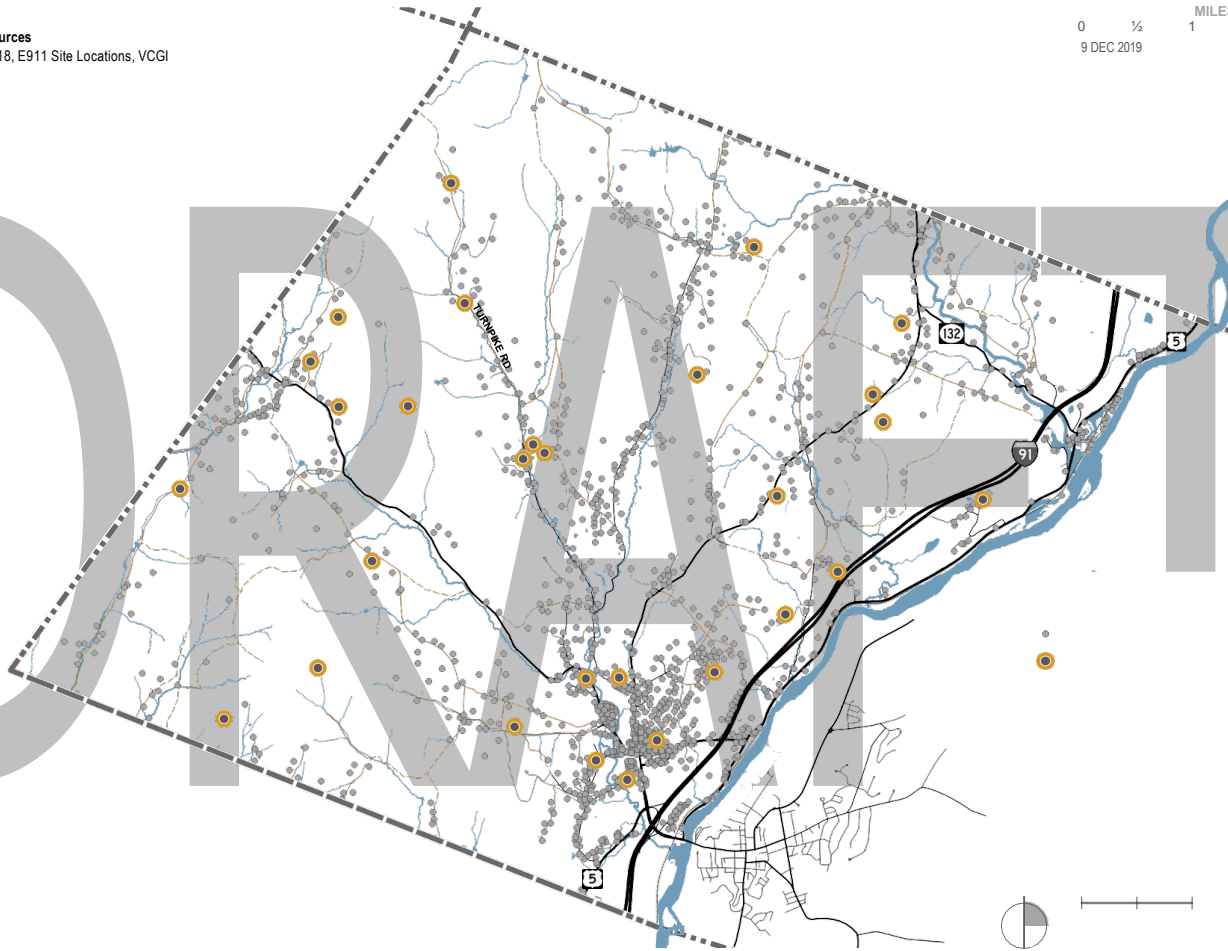
Construction date is estimated based on date each residential address was added to the E911 database.

29 residential addresses were added between 2010 and 2018.

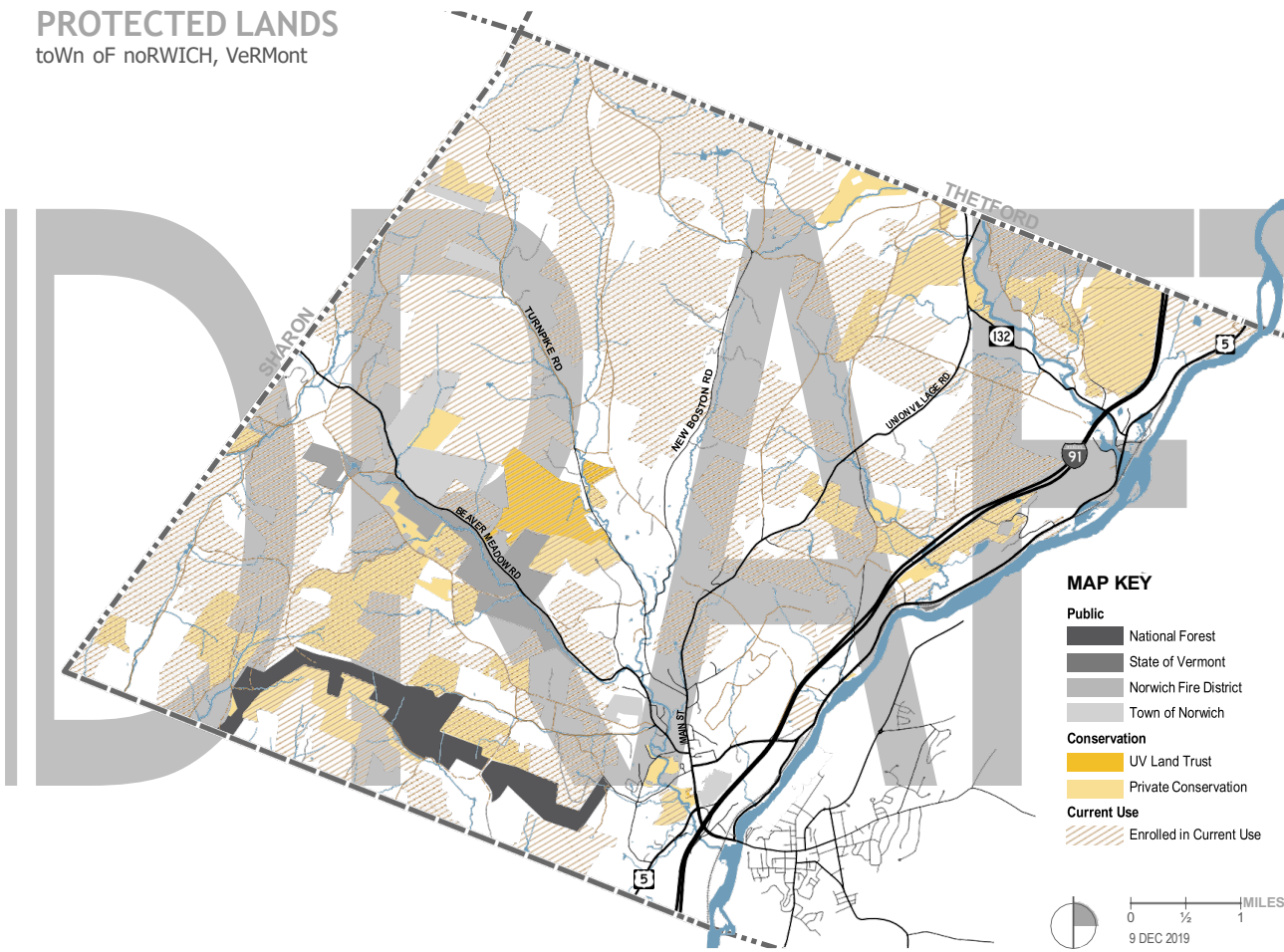


Sources
2018, E911 Site Locations, VCGI

0 1/2 1 MILES
9 DEC 2019



PROTECTED LANDS
toWn of noRWICH, VeRMont



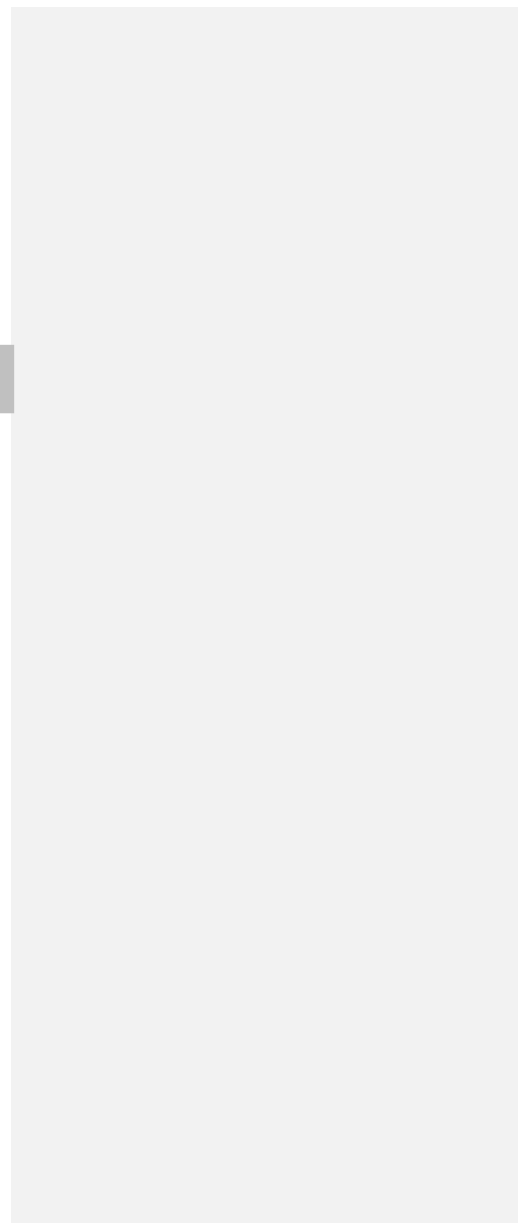
LAND Use

HANOVER

HARTFORD

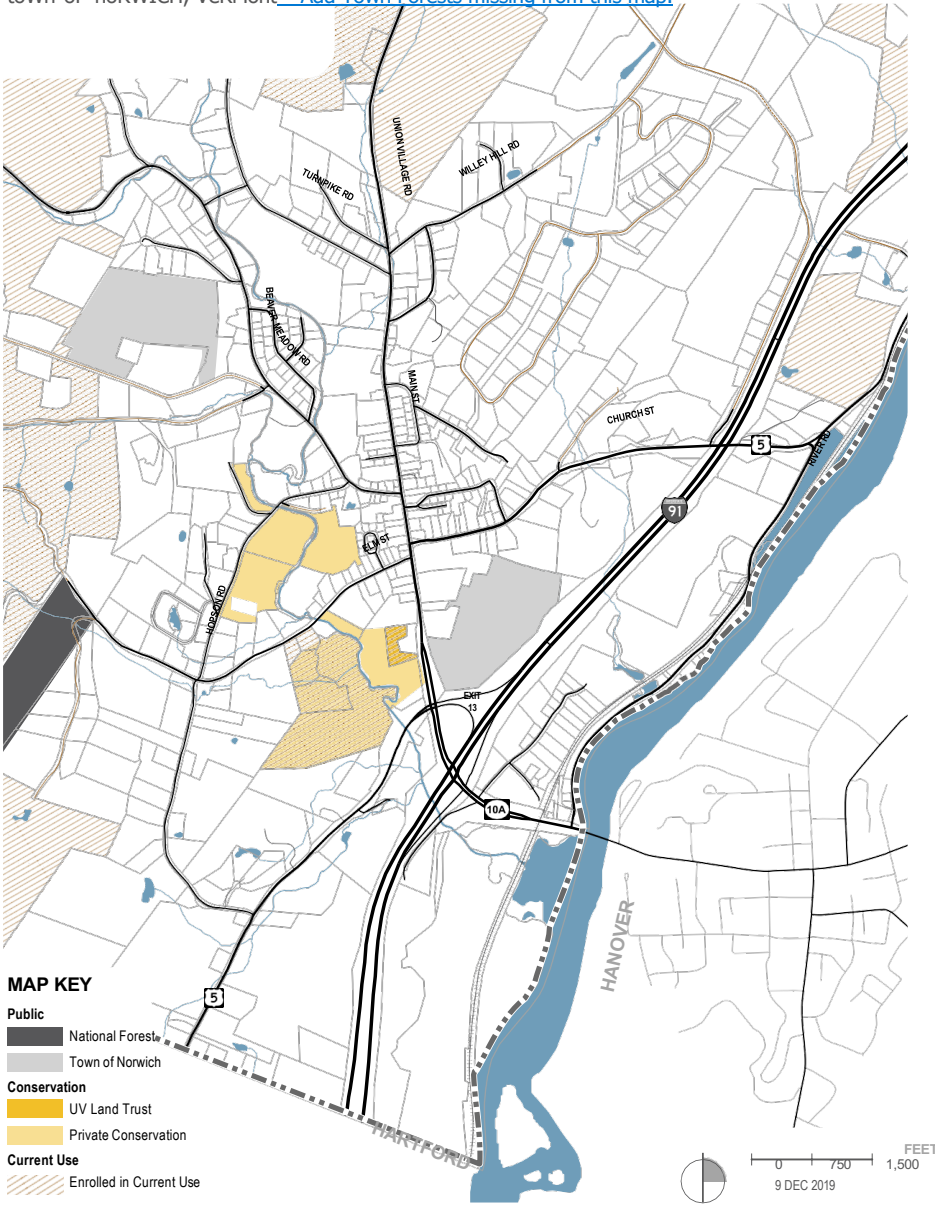
15

DRAFT



PROTECTED LAND

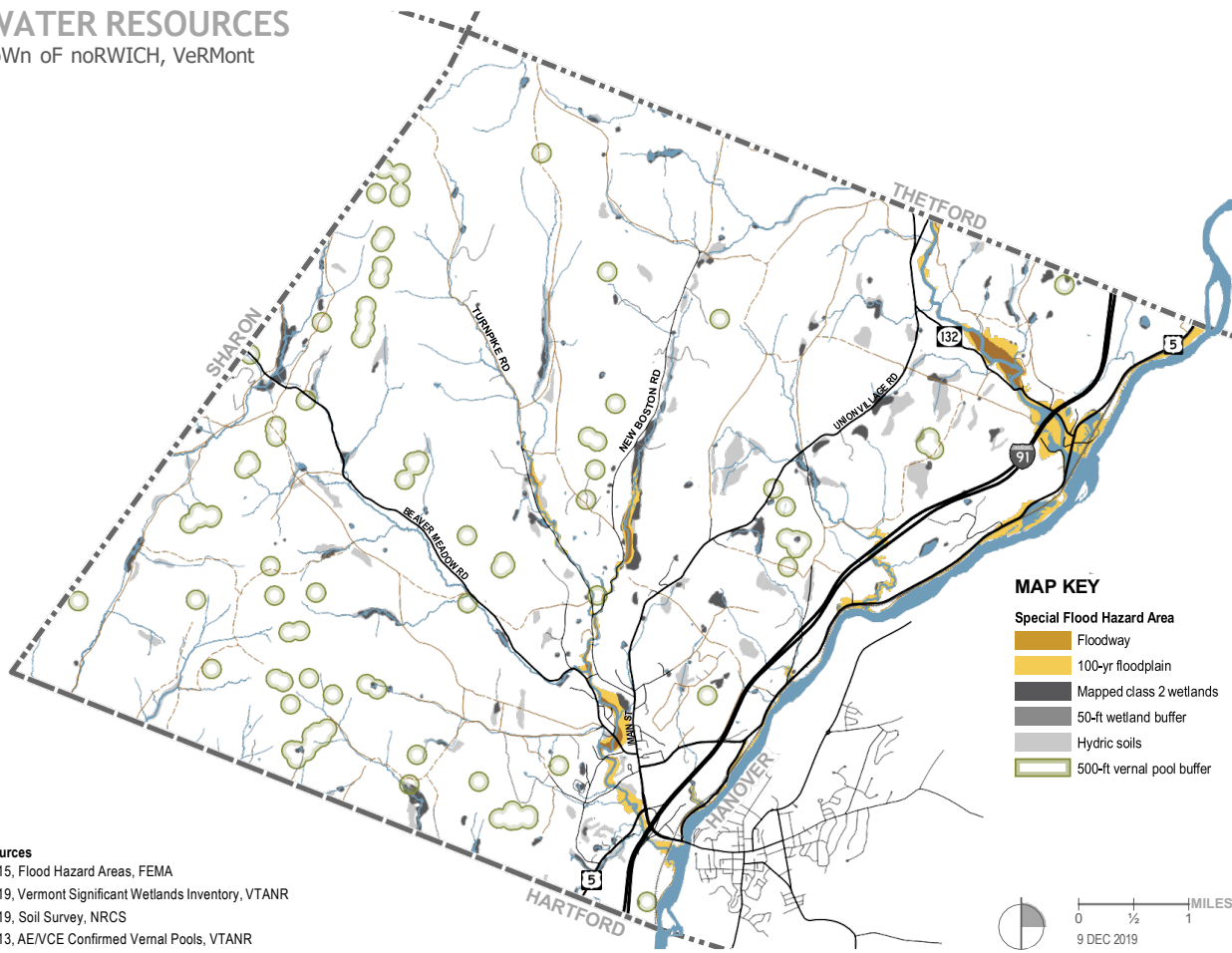
toWn of noRWICH, VeRMont – [Add Town Forests missing from this map.](#)



DRAFT

WATER RESOURCES

to Wn of noRWICH, VeRMont

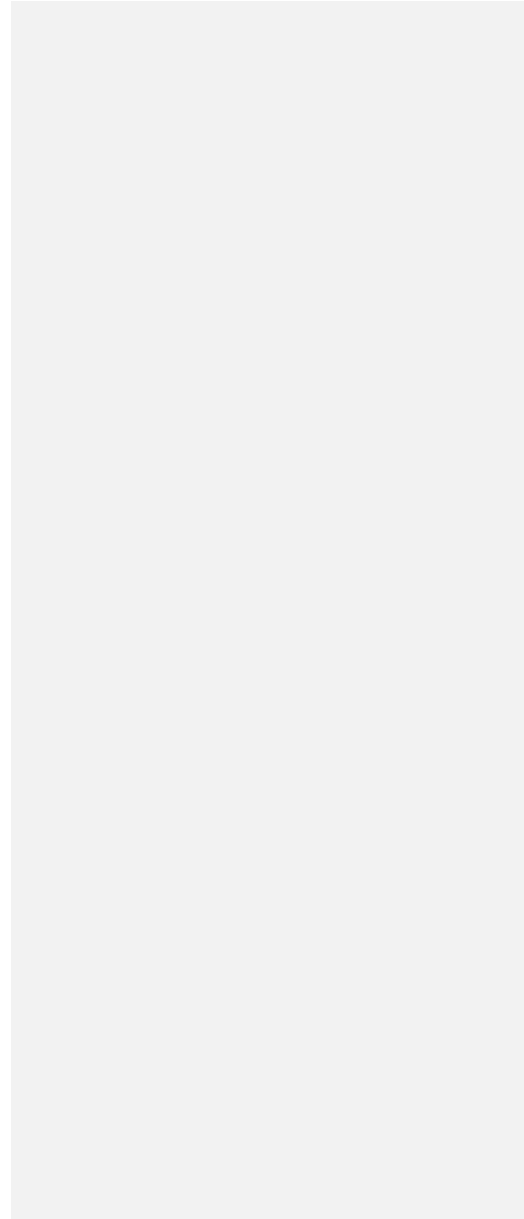


Sources
 2015, Flood Hazard Areas, FEMA
 2019, Vermont Significant Wetlands Inventory, VTANR
 2019, Soil Survey, NRCS
 2013, AE/VCE Confirmed Vernal Pools, VTANR

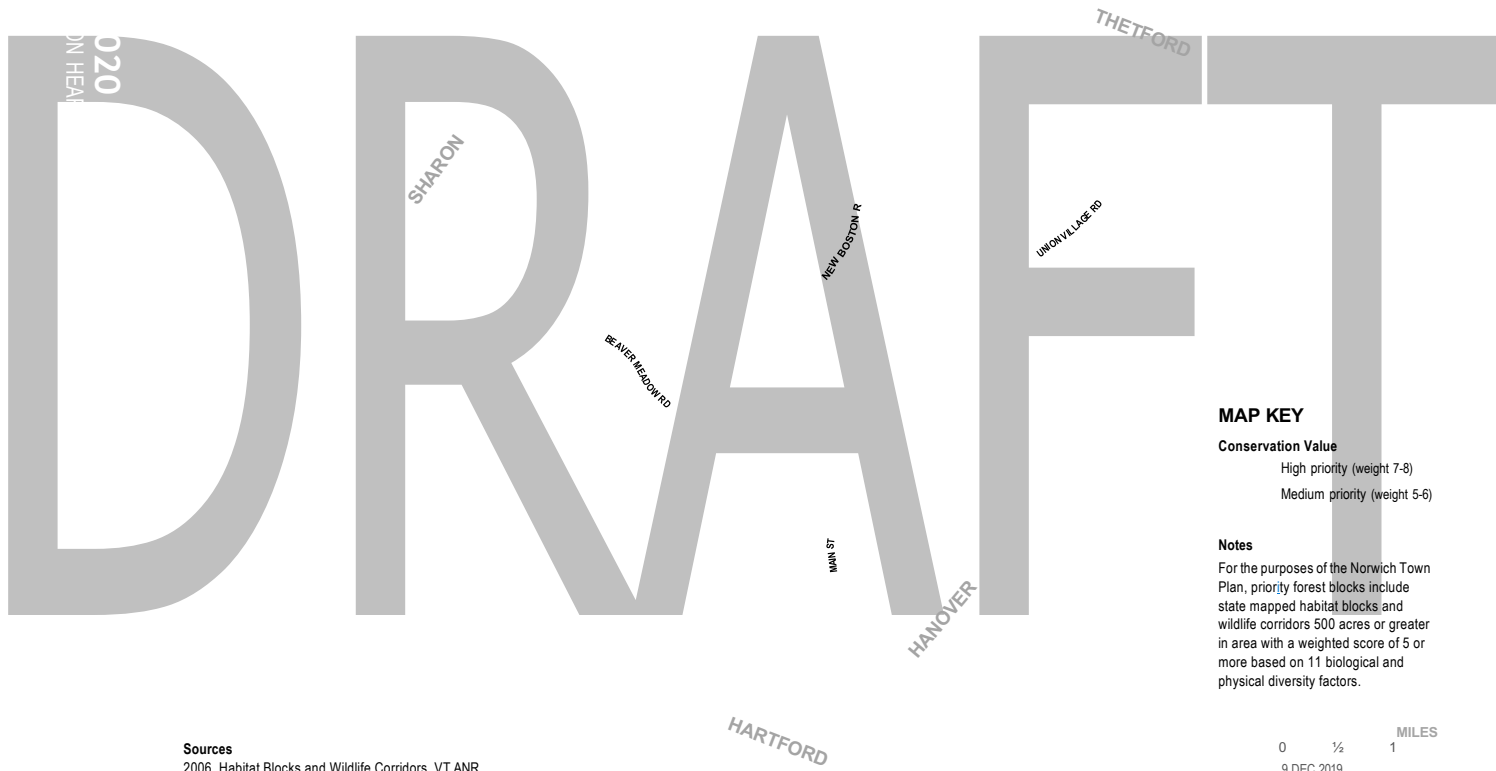
LAND Use

NORWICH 2020 TOWN PLAN
 PLANNING COMMISSION HEARING DRAFT 9 DEC 2019

DRAFT



FOREST BLOCKS
Figure 8 Forest Block and Habitat Connector Map
toWn of noRWICH, VeRMont



MAP KEY

Conservation Value

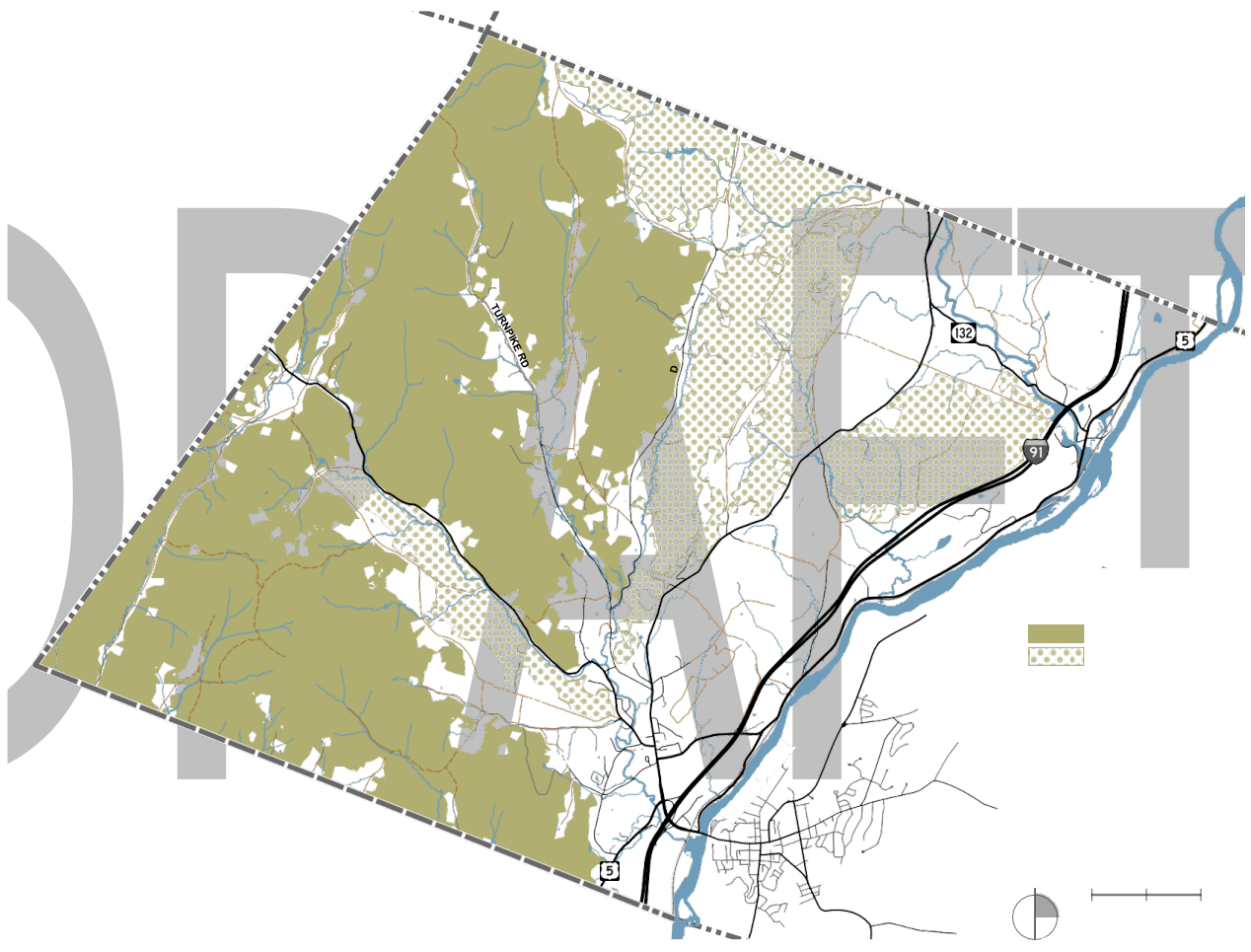
- High priority (weight 7-8)
- Medium priority (weight 5-6)

Notes

For the purposes of the Norwich Town Plan, priority forest blocks include state mapped habitat blocks and wildlife corridors 500 acres or greater in area with a weighted score of 5 or more based on 11 biological and physical diversity factors.

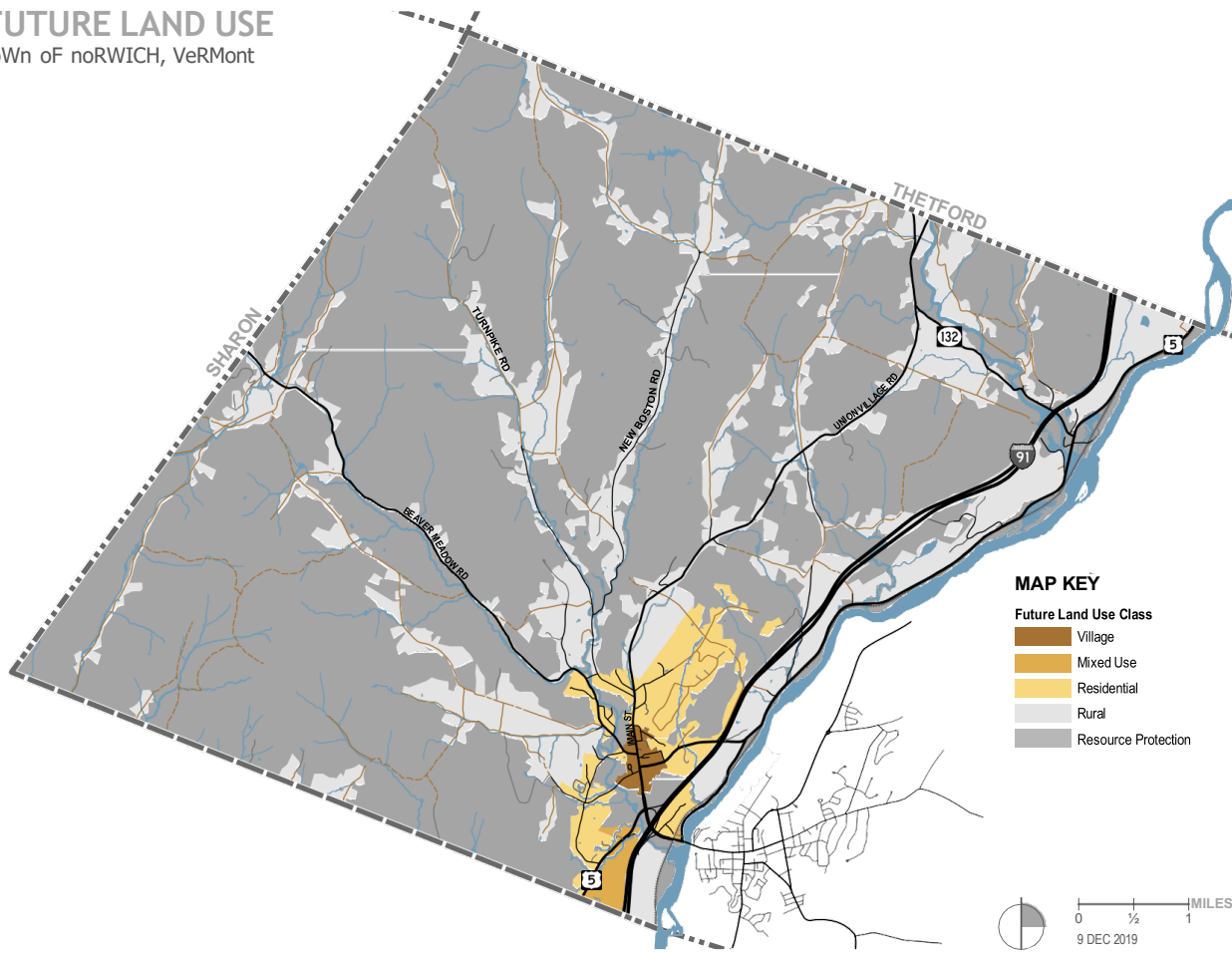


Sources
2006, Habitat Blocks and Wildlife Corridors, VT ANR



FUTURE LAND USE

toWn of noRWICH, VeRMont



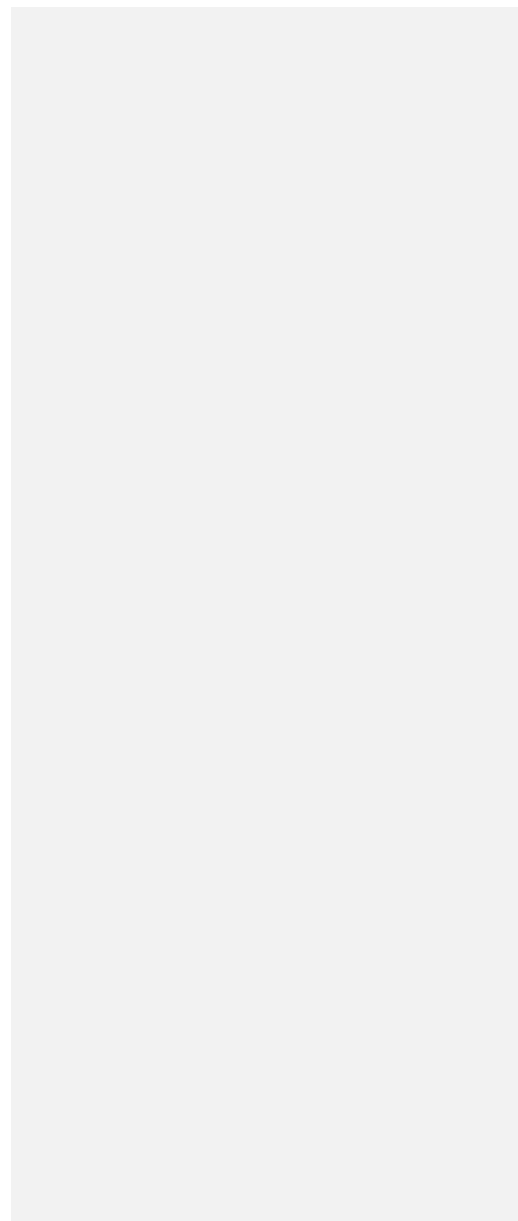
LAND Use

HANOVER

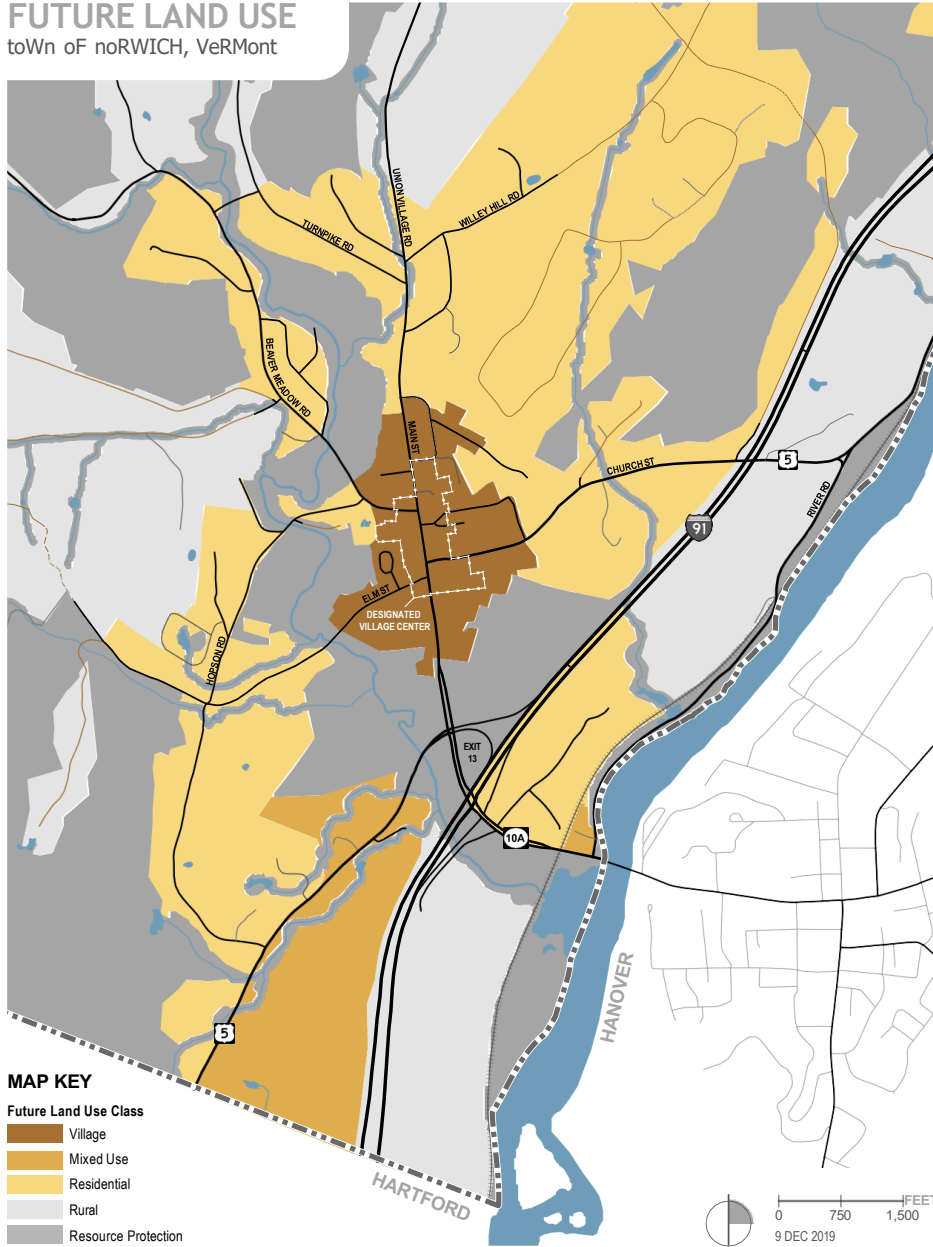
HARTFORD

19

DRAFT



FUTURE LAND USE
toWn of noRWICH, VeRMont



DRAFT

3 | ENERGY

3.1 Objectives

- 3-1.a Reduce greenhouse gas emissions from Norwich municipal operations, businesses and residents (24 VSA §4302 (c) (7)).
- 3-1.b Reduce overall energy use in Norwich (24 VSA §4302 (c) (7)).

Increase carbon capture by retaining forest blocs

- 3-1.c Shift energy use in Norwich from non-renewable to renewable sources (24 VSA §4302 (c) (7) (A)).
- 3-1.d Increase the amount of renewable energy being produced in Norwich in a manner that is consistent with the goals, objectives and policies of this plan (24 VSA §4302 (c) (7) (A)).
- 3-1.e Pursue strategies identifies in the State Energy Plan (30 VSA §§202, 202b).

3.2 Policies

- 3-2.a Establish a mechanism to collect and appropriate funds to support projects that further the objectives of this Energy Plan.
- 3-2.b Ensure that the review of the Norwich Zoning and Subdivision Regulations is informed by the link between changing land use patterns and reducing fossil fuel use, including, but not limited to, consideration of increasing density adjacent to the existing village district, and the creation of new zoning districts.
- 3-2.c Promote bike and pedestrian as non-vehicular transport modes using best practices for traffic engineering such as sidewalks, bike lanes and dedicated trails.
- 3-2.d Consider lifecycle costs when planning to construct or upgrade municipal



Photo: Pill-Maharam Architects

energy

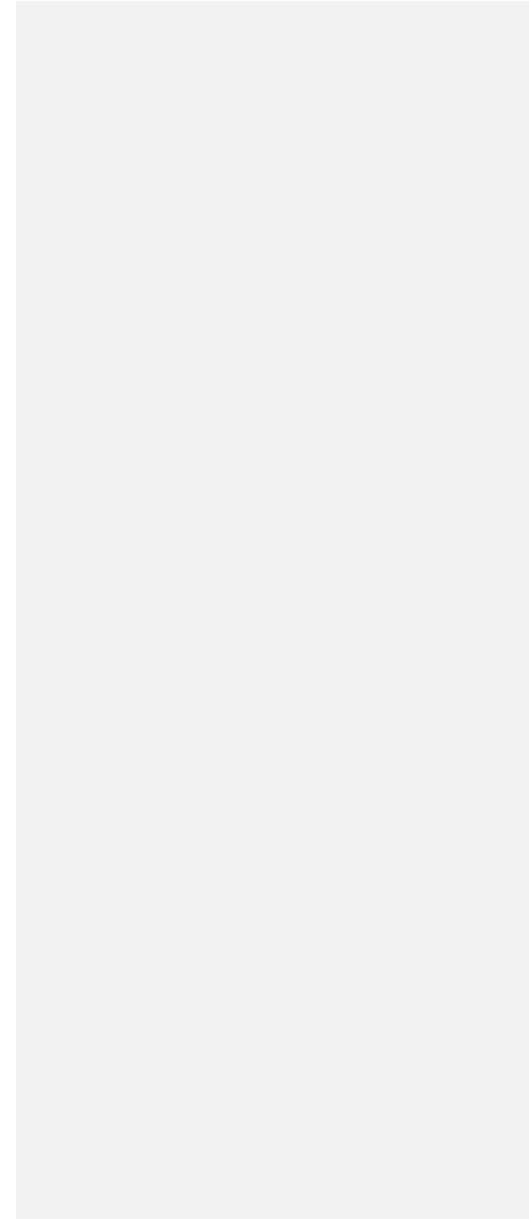
NORWICH 2020 TOWN PLAN
PLANNING COMMISSION HEARING DRAFT 9 DEC 2019

Deleted: large

facilities.

3-2.e Develop programs that assist low-income households with weatherizing and improving the efficiency of existing dwelling units.

DRAFT



3-2.f Expand the authority of the Zoning Administrator to require the issuance of a Certificate of Compliance on all new construction over 800-sq ft ensuring that such work meets the VT Residential Building Standards (VT-RBES).

3-2.g Require large-scale commercial and institutional development to install solar panels on roofs and over any parking lots where feasible.

3-2.h solar generation projects sized from 15kW to 500kW meets the Public Utility Commission definition of 'preferred site' and be located in the commercial/industrial zone. They must not be located in the Ridgeline Protection Overlay Area, Shoreline Protection Overlay Area, the historic village district, and forest blocks as identified in the Norwich Land Use Regulations and identified on Map x. (incorporate a map)

Solar generation projects greater than 500 kW – what do you want to set as specific policies for those size projects?

3-2.i Support Advanced Transit in providing a range of commuter services to Norwich, providing connections with locations where residents attend school, work and shop.

3.3 Actions

3-3.a Advocate before VTrans on behalf of non-vehicular road users for improved accommodations on state highways.

3-3.b Review hybrid and electric options for any municipal vehicle purchase or replacement.

3-3.c Consider how to address barriers to development related to limitations on wastewater capacity, including a review of the findings of the 2005 study conducted by the Norwich Sewer Committee in light of current challenges and changes in wastewater management.

3-3.d Encourage development projects to install solar collectors on rooftops and parking lots.

3-3.e Participate in the Section 248 process before the Public Utility Commission to make decisions that further the goals, objectives, and policies of this

plan.

3-3.f Implement to the best of our abilities the (non-binding) Article 36 from the Town of Norwich 2019 ballot, which was passed by voters:

Shall the voters of Norwich direct all Town officials to take immediate and sustained efforts to gradually and continually

Deleted: For

Deleted:

Deleted: the presumption

Deleted: is that all of Norwich

Deleted: when

Deleted: .

Deleted: , notwithstanding the existing areas of local concern including ...

Deleted: and

Deleted: large

Deleted: ¶

Formatted: Line spacing: Exactly 12.45 pt

Reduce the Town's direct use of fossil fuels, beginning at a rate of less than 5 percent per year starting in the 2019-20 fiscal year and continuing until they are eliminated entirely, and shall the Town Manager be charged with monitoring such efforts and reporting them each year in the annual Town Report, and no capital expenditures shall be made that contradict or undermine this section, absent a majority vote of the Selectboard?

that the Zoning Administrator or their designee has the training and resources to both enforce state Residential Building Energy Standards and Certificates of Compliance on development projects greater than

residents with information on:

and climate heat pumps, and other non-fossil fuel heat sources in new construction and in existing homes and buildings;

replacing fossil fuels powered vehicles with electric vehicles;

managing forest land for long-term, sustainable harvesting of wood.

climate crisis and energy awareness.

with community groups and others to support non-vehicular

transportation options in Norwich.

Support the conservation of forests given their efficiency in carbon sequestration

AGREE UPON "SCENIC ROADS"

3.4 Overview

We have understood for at least fifty years that human dependence on fossil fuels is not sustainable. Only now are we beginning to grapple with the climate crisis resulting from burning fossil fuels. We also need to develop community resiliency to better withstand the disruptions caused by the changing climate. There is an active grassroots effort in Vermont and around the world to act locally in addressing the climate crisis and in building resiliency.

This chapter details an energy plan for [48orwich](#) residents, businesses, and town government in the context of Vermont's "90 percent renewable by 2050" energy goal. Policies and objectives focus on those decisions directly within the control of the town, assuming the current regulatory scope and commitment of resources. Opportunities for promoting changes in residential energy consumption with existing town volunteer resources are also identified. Assumptions made in the Vermont 2016 Comprehensive energy Plan (CeP) and the shortcomings in available data are noted to encourage more rigorous planning at the state level, where the vast majority of decisions regarding energy markets (fossil fuel and renewable) are made.

3.5 Current Energy Use

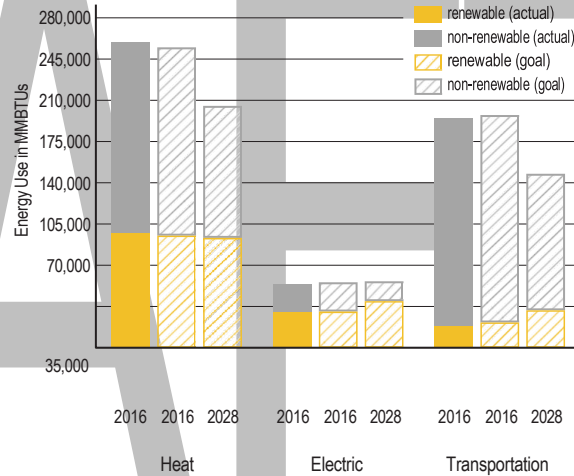
According to the 2018 Progress Report by the energy

Action network, Vermont greenhouse gas emissions have been increasing despite significant reduction commitments. Transportation and thermal energy (heating and cooling) are the largest contributors to the state's greenhouse gas emissions. This plan assumes that this state-level analysis applies to [48orwich](#) as well.

The accepted estimate of the total amount of energy

11). Energy use in Norwich reflects the settlement pattern, which is dominated by low density residential lots, and little or no industrial or commercial activity.

Figure 11. Energy Use and Goals by Sector



being used in [48orwich](#) is from the energy Action network Community (eAn energy Dashboard). This source suggests that in 2016 (the latest year actual use figures are available) [48orwich](#) consumed 508,115 MMBtUs (million BtUs) for electricity, thermal, and transportation (see [Figure](#)

Deleted: norwich

Deleted: norwich

Deleted: norwich

Deleted: norwich

Source: Brighter Vermont Community Energy Dashboard

In developing this chapter, the town relied upon:

- w 2017 Two Rivers Ottauquechee Regional Commission (TRORC) regional energy planning
- w The EAN Energy Dashboard which tracks the progress of each Vermont community towards the state's goal of meeting 90 percent of local energy needs through efficiency and renewable

energy by 2050. [\(check this reference, I'm not sure that's what the EAN Energy Dashboard does anymore. It tracks how many heat pumps and EVs are in town, but the renewable energy sites no longer are on the map\)](#)

- w The Act174 Supplement prepared for Norwich by TRORC is incorporated into this plan and included in Appendix B.

Data on electricity consumption is specific to Norwich and up-to-date because Green Mountain Power (GMP) as a

DRAFT

utility regulated by the Vt Public Utilities Commission (PUC) provides detailed statistics about electricity generation and use as part of their license to operate. Approximately 60 percent of the **GMP portfolio** is made up of renewable energy, predominantly hydro-electric from Quebec. Current commercial transportation energy use and future trends were not assessed by tRoRC as part of their Act 174 energy planning. The published figures for thermal and transportation energy are rough estimates, based on statewide averages and Census data. More reliable and accurate data is needed for town energy planning to be meaningful and effective.

3.6 Renewable Energy Resources

Vermont's Renewable Energy Goals

Greenhouse gas (GHG) emissions caused from human activities are driving the global climate crisis. In 2011 Vermont adopted a goal to obtain 90 percent of the total energy used in the state (primarily electricity, thermal, and transportation) from renewable sources by 2050. Advisory 2050 targets have been set for each Vermont municipality. The energy and conservation targets for **50orwich** are shown in **Figure 12**. Specific targets for renewable energy generation are included in **Appendix B**, energy targets and Conservation Goals.

Figure 12. Norwich Energy Targets

Year	Renewable	Nonrenewable	Efficiency	Total
2014 (baseline)	144.3	380.1	0	524.4
2016 (actual)	145.4	362.7	8.7	508.1
2025 (target)	160.1	273.8	47.9	434.0
2035 (target)	174.5	177.2	91.5	351.7
2050 (target)	196.1	32.3	156.8	228.4

All values expressed in thousand MMBTUs.

Source: Energy Action Network 2050 Energy Pathway Analysis

town-level efforts to meet the state's '90 by 50' goal will focus on redirecting energy demand to renewable electric sources. These efforts will be challenged by the limited authority of municipalities to affect energy use outcomes. Energy products (including efficiency and renewables) are allocated via markets which are regulated by state and Us governments. Municipalities are best understood as institutional consumers who have no jurisdiction over the structure and operation of energy markets. In the case of **50orwich**, the town is a very small consumer, even compared to local school districts and larger regional employers.

Municipalities do have the authority to regulate land use (an authority granted to municipalities by state statute and case law). Because land use patterns in **50orwich** have been consistent for many decades, and the rate of development is exceedingly slow, changing land use patterns will not play a major role in achieving the targets within the timeframes identified by the VT CEP.

Nevertheless, Norwich will use this opportunity to review the

Deleted: `

Deleted: norwich

Deleted: norwich

Deleted: norwich

and subdivision regulations to encourage future
development patterns that reduce energy use and

preserve forest and agricultural lands for

DRAFT

ecosystem services. These concerns are addressed in more detail in the Land Use, Housing and transportation chapters.

Fifty seven percent of the electricity consumed in 52orwich is from renewable sources (based on the GMP renewable portfolio and local generation), 0.5 percent below the 2016 eAn Dashboard target. Converting current electricity use to renewable sources has been relatively straightforward in response to state policies such as the Renewable energy standard, which required utilities to procure 55 percent of their electricity from renewable sources in 2017. That figure will increase incrementally to 75 percent by 2032. Conversion of transportation and thermal energy (most of the energy used in 52orwich) to renewable sources are beyond the regulatory scope of the municipality, and thus the Town can only influence the outcome at the margins.

In summary, it is important to acknowledge that the town's ability to meet the ambitious and necessary state energy goals is limited. It falls primarily in 1) land use regulation, 2) modeling the adoption of energy conservation and renewable energy in town facilities and equipment, and 3) ensuring local regulations are not a barrier to necessary change. 52orwich is, nevertheless, determined to take concerted action to make progress.

Act 174 Maps. As required by the state under Act 174, tRoRC has mapped areas of 52orwich that have potential for renewable energy generation (see Appendix B).

Renewable Energy Generation Potential

Deleted: norwich

Formatted: Highlight

Formatted: Highlight

Formatted: Highlight

Deleted: norwich

Deleted: norwich

Deleted: Norwich

the maps for solar potential rely heavily on analyzing aspect (south-facing landforms are most suitable for solar generation). The maps do not correct for features that will limit uptake of solar projects including: current land use and lot boundaries, extent of forest cover, proximity to roads, and distance to electric distribution (particularly 3-phase power and transmission infrastructure). Each of these factors presents serious limitations to utility scale (> 500 kW) solar energy development.

At present, the most salient factors for determining where non-residential renewable energy projects may feasibly be located is proximity to the existing power grid (3-phase power and

transmission lines) and the capacity of the grid to accommodate additional load. As of 2019, the GMP solar Map 2.0 indicated that there were system limitations on the circuit along the 53orwich53-norwich border and to the far west of 53orwich near the 53orwic town-line. 53orwich operates on circuit 71G1 of the Wilder substation, which the utility lists as having 72 percent of its capacity remaining (approximately 10.2 MW). Three-phase power lines currently run along Main street as far as Willey Hill Road, Route 5 south, and Route 5 north (to just south of Farrell Farm Road). Beyond these areas infrastructure upgrades would be required for larger projects.

SOLAR POWER. The EAN Dashboard identifies [\(not anymore\)](#) 190 small PV sites in 53orwich, with a total capacity of almost 1,800 kW (approximately 11 percent of the generation goal). The 53orwich energy Committee tracks solar installations, including households that have purchased shares of solar

energy

Deleted: thetford

Deleted: norwich

Deleted: sharon

Deleted: Norwich

Deleted: Therefore, installation of numerous 150kW solar arrays is feasible

Deleted: norwich

Deleted: norwich

projects located in other towns. This count tallies 283 residences, businesses, or churches that have “gone solar” — more projects of this scale and type are likely. The eAn Dashboard ranks **54orwich** 12th out of 250 towns in Vermont for the number of solar electric sites.

While large scale development of solar energy will require proximity to a substation and three phase power, the utility grid in norwich is well-suited for projects of about 150kW or smaller. Using the Act 174 mapping methodology 6,341 acres out of a total 28, 620 acres in norwich has solar potential (southern facing slopes). But, 22,116 acres (or 77 percent) of **54orwich** is forested. About 67 percent of the area identified as having solar potential is currently under forest. Aside from the economic cost of clearing, the release of carbon from cleared lands would diminish the climate benefits of solar development on these sites. The mapping of solar potential also includes the Right-of-Way (RoW) for interstate 1-91 and other lands not available for development.

About 16 MW of installed solar would be needed for **54orwich** to meet its renewable energy generation target of about 20,000 MWh per year (Appendix B, table 1Q). this is the town share of projected statewide energy demand in 2050, in proportion to its population. Based on current solar technology. 16 MW of solar generation would require about 160 acres total, or about 0.5 percent of the towns total land area. Assuming that solar panels continue to increase in efficiency, the area needed to meet

Norwich energy demand will decrease as a result. **Advances in thin-film solar technology could be a game changer soon.** Today 150kW solar arrays typically require about of a third of an acre. To

Formatted: Highlight

Formatted: Highlight

Formatted: Highlight

Deleted: norwich

Formatted: Highlight

Deleted: norwich

Deleted: norwich

that homes and businesses take up roof and installations the need for larger ground-based s will be reduced.

is not known how much wood is harvested for 55orwich on an annual basis. Wood is a renewable thermal energy and technological improvements y increased the efficiency and reduced the ssociated with burning wood. A large percentage n 55orwich use wood as either a primary or heating source. The state of Vermont is g schools and municipal facilities to install high wood pellet or woodchip heating systems. More artmouth College (in neighboring Hanover, nH) ering a proposal for a biomass plant to replace

existing fossil fuel fired heat system, due to concerns about the risk of increasing greenhouse gas emissions (including the impact of trucking woodchips) and local air quality effects. While the climate benefits of burning wood for heat are being reassessed 55orwich will promote the clear path of solar electricity and switching to electric heat and transportation.

GEOHERMAL. There is one ground source heat pump installed at a residential property in 55orwich, according to the eAn Dashboard. The feasibility of installing geothermal systems needs to be assessed on a site-by-site basis. As of 2019, the town is considering geothermal heat pumps for three town buildings (tracy Hall, the Fire Department apparatus bay, and the town Garage).

Deleted: norwich

Deleted: norwich

Deleted: norwich

Deleted: norwich

HYDRO POWER. There are no hydropower facilities currently located in [56orwich](#) according to the energy Dashboard. Small, run-of-the-river generators would be the only likely future hydro generation, given current state and federal regulations regarding the damming of waterways. However, just over 60 percent of GMP electricity is provided by contracts with Hydro-Quebec, a public utility.

WIND POWER. According to the energy Dashboard there are no wind energy projects installed in [56orwich](#) as of 2018. There is no meaningful potential for utility- or community-scale wind generation in [56orwich](#) given current turbine technology, which generally requires an average wind speed of at least 6 meters per second. Only two locations in Norwich are identified through the Act 174 mapping process with wind speeds at 6 meters per second or above (accessed via turbines set between 50 and 70 meters high). Both are off Chapel Hill Rd along the [56orwic](#) town-line. These sites are not currently accessible from roads suitable for this scale of development, nor to a power transmission line. [Therefore, Norwich does not support utility-scale wind development at any location in town.](#)

[Residential-scale properly sited for visual and noise impact may be considered.](#)

shows that by 2050 norwich will need to use a total of 296 MMBtUs of energy less than it did in the baseline year of 2014. Under the Us and Vermont constitutions, the town has no role in shaping or regulating the market provision of energy conservation or efficiency products and

Deleted: norwich

Deleted: norwich

Deleted: norwich

Deleted: sharon

3.7 Energy Conservation and Efficiency

STRUCTURES. The scenario for meeting the state's renewable energy goal presented on the eAn Dashboard

services. In addition, the annual rate of new construction, or even substantial improvement, is very low. Nevertheless, the town can still play a role by encouraging energy code compliance, modeling energy-efficiency in municipal facilities, supporting outreach and information-sharing with residents, and investigating how it could take on inspection and enforcement.

TRANSPORTATION. Of note here is the assumption that the town's total energy use for transportation will go from 205,793 MMBtUs in the baseline year of 2014 to

56,348 MMBtUs in 2050 (see [EAN Dashboard, regional energy planning](#)). That is, the town's transportation energy use in 2050 will be 27 percent of what it was in 2014. It is also expected that fully 90 percent of the 2050 transportation energy budget will be provided from renewable sources. This is a major change from the town's current modes of transportation and entirely outside the control of (existing) municipal decision-making. Land-use policy, a clear area of town authority, will play an important role, as will town support for regional public transit and town infrastructure for walking, biking, and electric vehicles. Land use policy can help support reductions in the number and length of car trips — and thus greenhouse gas emissions — by encouraging future development to be located close to job and retail centers and public transit lines, and creating walkable neighborhoods.

DRAFT

3.8 Future Generation, Use and Conservation

Energy Targets

Future targets for energy generation, use and conservation have been set for all Vermont municipalities as part of the state's enhanced energy planning under Act 174 (see [Figure 12](#)). The planning scenario presented on the [EAN Dashboard](#) envisions that total energy consumption of [58orwich](#) will decrease from the 2014 baseline consumption of 524,400 MMBtUs to 228,400 MMBtUs in 2050. A

reduction to 44 percent of 2014 levels. Moreover, only 32,300 MMBtUs (or 14 percent of the total) will be from non-renewable sources. This reduction will primarily rely on the efficiencies of weatherization and electric transportation.

This plan's land use, housing and transportation objectives and policies call for new housing and economic development to be focused in and adjacent to the village and mixed use areas. This is where people can live close to employment, shopping and services. Such proximity allows walking, biking and public transit, all of which reduce transportation energy use. Encouraging such a development pattern through the town's land use regulations and public infrastructure are the most effective and direct measures [58orwich](#) government can take to move towards meeting the state's energy goals.

the 2017 tRoRC energy Plan recognizes that [58orwich](#)

is currently generating 2.2 GWh/year of electricity from solar and sets a target for a total of 20GWh/year of renewable energy generation by 2050. This is based on

Deleted: norwich

Deleted: norwich

Deleted: norwich

59orwich's fraction of the regional population. The portfolio of renewable energy generating sources includes both rooftop and ground-mounted solar, wind, and hydropower. The tRoRC energy plan suggests that there is 81 times more 'suitable land' than is needed to host such renewable energy projects (primarily for solar) in 59orwich.

Deleted: norwich

NEEDS MORE WORK

This plan supports renewable energy production in 59orwich. For this policy to continue with broad community support it must be balanced with this plan's policies related to:

Deleted: norwich

- w Protecting natural resources, environmental quality, scenic resources and rural character
- w Maintaining viable farms and the working lands needed to sustain them
- w Focusing development in those areas of town already served by existing public infrastructure
- w Preserving cultural resources within Norwich village
- w The recreational and natural value of those lands identified in the Ridgeline Protection Overlay Area and Shoreline Protection Overlay Area must be preserved.
- w Increasing the supply, diversity and affordability of housing in Norwich

Deleted: norwich

this plan calls upon the Public Utility Commission to issue Certificates of Public Good for projects between 15kW and 500kW in the commercial/industrial district and the 'preferred site criteria', must not include projects mapped as Ridgeline Protection overlay Area, the shoreline Protection overlay Area, the designated

Deleted: Preserving the

Formatted: Font color: Custom Color(RGB(35,31,32))

Deleted: based on the presumption that lands in norwich meet the so-called

Deleted: zone

Deleted: except in areas already

Deleted: and

Renewable Energy Project Siting Standards

village center, forest blocks and steep slopes (in excess of 25 degrees). Renewable energy projects in norwich are further conditioned on the following standards:

- w For individual or group net metered renewable energy projects, the property owner must take reasonable measures to site and/or screen the installations to minimize any visual or noise impacts beyond the property line, particularly on sites where there are neighboring homes in close proximity. Solar arrays of all sizes must not produce glare that reflects on neighboring properties.
- w Projects larger than 150kW must meet existing standards for setbacks, site design (landscaping, screening, lighting, stormwater, etc.) as laid out in the Norwich Zoning and Subdivision Regulations. (move those standards into this plan or adopt a separate Solar Screening ordinance and refer to it in this plan)
- w Projects larger than 150 kW must have a funded management and decommissioning plan that will ensure the land will be returned to its prior condition when no longer actively used for renewable energy generation. Wherever feasible, the energy generation use must be combined with continued agricultural use of the land or habitat management, such that soil health and fertility is maintained.
- w Projects larger than 150kW must not clear more than three acres of forest.

NOTE – INCLUDE COMMENT ABOUT EQUITY/PRIVILEGE AND ACCESSIBILITY. Want to be sure that sites do not privilege only the wealthy i

energy

NORWICH 2020 TOWN PLAN
PLANNING COMMISSION HEARING DRAFT 9 DEC 2019

Deleted: XX

Formatted: Highlight

Formatted: Font color: Custom Color(RGB(35,31,32))

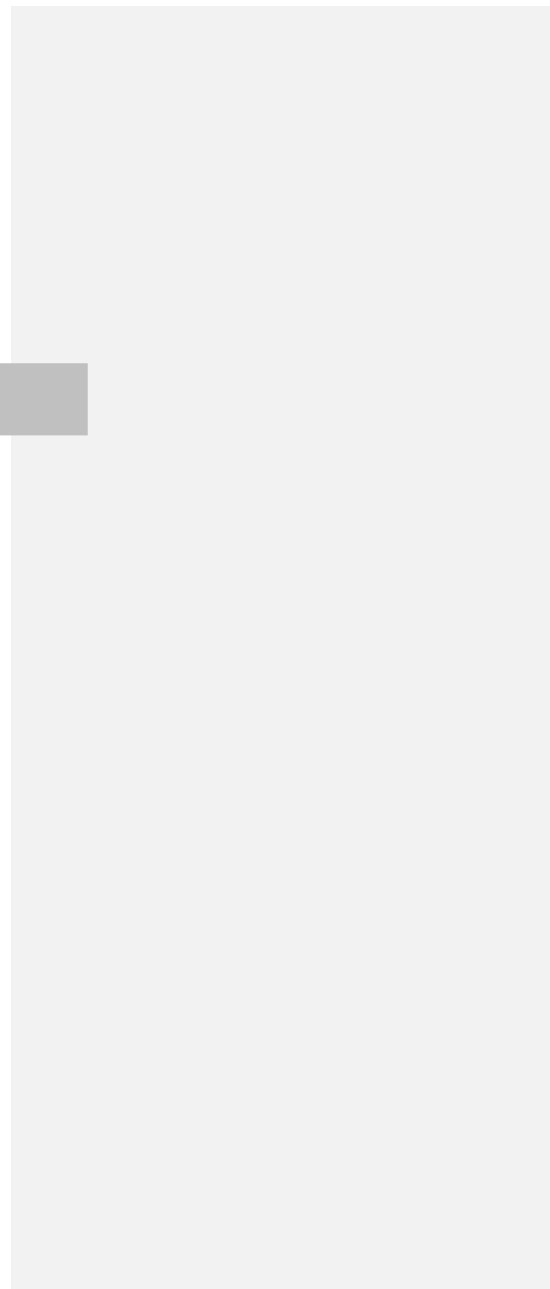
Deleted: 500

Deleted: 500kW

Deleted: land

Deleted: land within a mapped forest block (see Figure 8) unless there is a management and decommissioning plan that will ensure the land will be re-forested and managed in accordance with a forest management plan, when no longer actively used for renewable energy generation.

DRAFT



STATE OF VERMONT
PUBLIC UTILITY COMMISSION

Case No. 21-3587-NMP

Petition of Norwich Upper Loveland Solar, LLC. for a certificate of public good, pursuant to 30 V.S.A. §§ 248 and 8010, authorizing the installation and operation of a 500 kW (AC) group net-metering solar electric generation system in Norwich, Vermont	
---	--

Order entered: 04/26/2024

**ORDER REQUIRING CONFIRMATION OF TOWN SUPPORT AND
CONFIRMATION THAT NO ORAL ARGUMENT IS REQUESTED**

This case involves an application filed with the Vermont Public Utility Commission (“Commission”) by Norwich Upper Loveland Solar, LLC (“Applicant”) for a certificate of public good (“CPG”) to construct and operate a 500 kW solar electric generation project in Norwich, Vermont (the proposed “Facility”). In this Order, we direct the Applicant to provide the Commission with confirmation from the Norwich Planning Commission and the Norwich Selectboard (“Municipal Entities”) that the Municipal Entities have reviewed the final site plan and continue to support the final Facility layout. We also ask Intervenors Stephen Gorman, John and Heather Benson, Jayoung Joo and Samin Kim, Dan & Jenn Goulet, Larry Ufford, and Joy Kenseth (“Intervenors”) to confirm that they are not requesting an oral argument.

On March 27, 2024, the hearing officer circulated a proposal for decision recommending that the Commission approve the Facility and issue a CPG.

On April 12, 2024, the Vermont Department of Public Service, the Vermont Agency of Natural Resources, and the Intervenors filed comments on the proposal for decision.

We have reviewed the proposal for decision, the parties’ comments, and some portions of the evidence referenced in the parties’ comments.

Intervenors’ Request for Site Visit and to Reopen Evidentiary Record

In their comments, the Intervenors request that the Commission conduct a second site visit. The Intervenors also request that the evidentiary record be reopened to further investigate the potential for increased stormwater runoff and flooding due to tree clearing on the steep slopes

along and below the ridgeline within the limits of disturbance of the Facility. The Intervenor did not request an oral argument.

We do not grant the Intervenor's request for a second site visit. We also decline to reopen the record to address stormwater runoff concerns as requested by the Intervenor at this time. The parties have submitted a large volume of evidence addressing the issues in this case. We will review the parties' comments, briefing, the proposal for decision, and the existing evidentiary record as needed.¹ To the extent we conclude that further input from any party is required, we will request it at that time.

We also ask that the **Intervenor** confirm that they are not requesting oral argument on the proposal for decision by **May 10, 2024**.

Confirmation of Preferred Site from Norwich Municipal Entities Required

The Intervenor challenge the hearing officer's findings and conclusions regarding the preferred-site letter process that took place before the Municipal Entities. We are concerned that there are ambiguities in the record related to whether the Norwich Planning Commission and the Norwich Selectboard intend their preferred-site letter to apply to the Facility as finally proposed and currently before the Commission.

The Applicant presented the Facility to the Norwich Planning Commission at a meeting on July 13, 2021. During the presentation, the Applicant described the Facility as occupying approximately six acres with approximately 500 feet of screening, and explained that "the array would not be visible from any public roads or houses so it maintains the ridgeline protection viewshed." The Norwich Planning Commission explained that its responsibility was to "make sure that the installation isn't impinging on any ridgeline scenic view" and to ensure "that there is no ridgeline impact of this project."² The Planning Commission was told by the Town Manager at that time that "if the area of impact for the proposed project changes dramatically as a consequence of the wetland scientist's input, then the applicant is obligated to come back to the planning commission and notify them of those changes."³ The Applicant also told the Planning Commission that it would be "happy to come back and present" on any changes that occurred.⁴

¹ To clarify, a site visit is not part of the evidentiary record in a case.

² Intervenor's Comments at 21 (citing exh. NN-JK-21 at 6, 8).

³ Exh. NN-JK-21 at 7.

⁴ *Id.*

The Applicant's July 13, 2021, presentation to the Norwich Planning Commission was based on a site plan that the proposal for decision refers to as the second Facility layout. The final site plan that the Applicant filed with the Commission and that is under review in this case represents a fourth proposed layout that differs from the second Facility layout in significant respects:

- The limit of disturbance, including tree clearing, increased from approximately 6 acres to 8.2 acres.
- The current proposal reduces the 500 feet of screening described to the Norwich Planning Commission to approximately 250 feet of screening between the array and the nearest residence on Upper Loveland Road.
- The Facility will now clear the trees on the ridgeline, and the clearing will extend down the upper one-third of the eastern slope facing Upper Loveland Road and Interstate 91.
- The tree clearing on the ridgeline and eastern slope will likely be visible from Upper Loveland Road and Interstate 91, particularly during seasons when the remaining trees do not have leaves.

Because of the significant changes to the Facility's site plan, which now proposes clearing the ridgeline and eastern slope; the Planning Commission's statements regarding its duty to ensure no impact on the ridgeline; the statements to the Planning Commission that the Applicant would return to the Planning Commission to present any changes; and the uncertainty surrounding whether the Applicant did return and notify the Municipal Entities of the Facility changes and whether the Municipal Entities reviewed a Facility layout that included the full extent of the proposed ridgeline clearing, we find that confirmation of the Municipal Entities' support is warranted here.⁵ We do not reopen the evidentiary record beyond this clarification.

We direct the Applicant to file evidence demonstrating that the Norwich Planning Commission and Norwich Selectboard have considered the Facility as currently proposed and as presented to the Commission in the fourth site plan,⁶ including the limits of clearing extending

⁵ The timing of the Applicant's presentation of the second Facility layout to the Norwich Planning Commission on July 13, 2021, and release of the third Facility layout the next day also raises concerns that the Applicant did not present the Municipal Entities with the most current site plan and information regarding the clearing for the Facility. The Applicant has an obligation to provide forthright information both to the Commission and to municipal and regional entities when seeking a preferred-site letter or providing any evidence on which its applications are based.


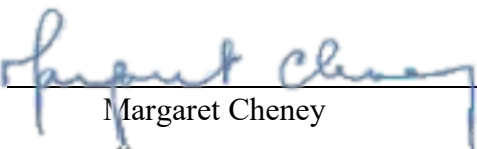
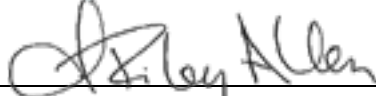
⁶ Exh. NUL-MS-2 (rev. 4/26/23).

over the ridgeline, and continue to support a determination that the proposed Facility location is a preferred site. We recognized that the Applicant's response will require coordination with the Municipal Entities and will be subject to the Municipal Entities' schedules. For that reason, we have not set a deadline by which the Applicant must file its response.

We are also sending a copy of this Order and the current site plan directly to the Norwich Planning Commission and the Norwich Selectboard.


SO ORDERED.

Dated at Montpelier, Vermont, this 26th day of April, 2024.

 _____)) PUBLIC UTILITY
Edward McNamara)	
_____)	
 _____)) COMMISSION
Margaret Cheney)	
_____)	
 _____)) OF VERMONT
J. Riley Allen)	

OFFICE OF THE CLERK

Filed: April 26, 2024

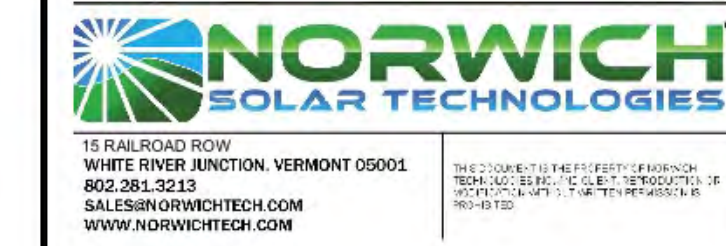
Attest: 

 Clerk of the Commission

Notice to Readers: This decision is subject to revision of technical errors. Readers are requested to notify the Clerk of the Commission (by e-mail, telephone, or in writing) of any apparent errors, in order that any necessary corrections may be made. (E-mail address: puc.clerk@vermont.gov)

Norwich Upper Loveland Solar LLC

201 Upper Loveland Road
Norwich, Vermont



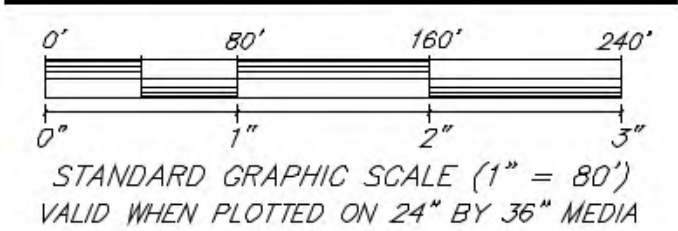
ISSUED FOR PERMIT REVIEW
NOT FOR CONSTRUCTION

SOURCE DATA LEGEND

MAPPING SOURCE DATA USED FOR PLAN COMPILATION
Electrical Design:
Norwich Solar Technologies
15 Railroad Row
White River Junction, Vermont 05001

Civil Engineering:
Krebs and Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, Vermont 05446

Environmental:
Arrowwood Environmental
950 Bart White Rd
Huntington, Vermont 05462



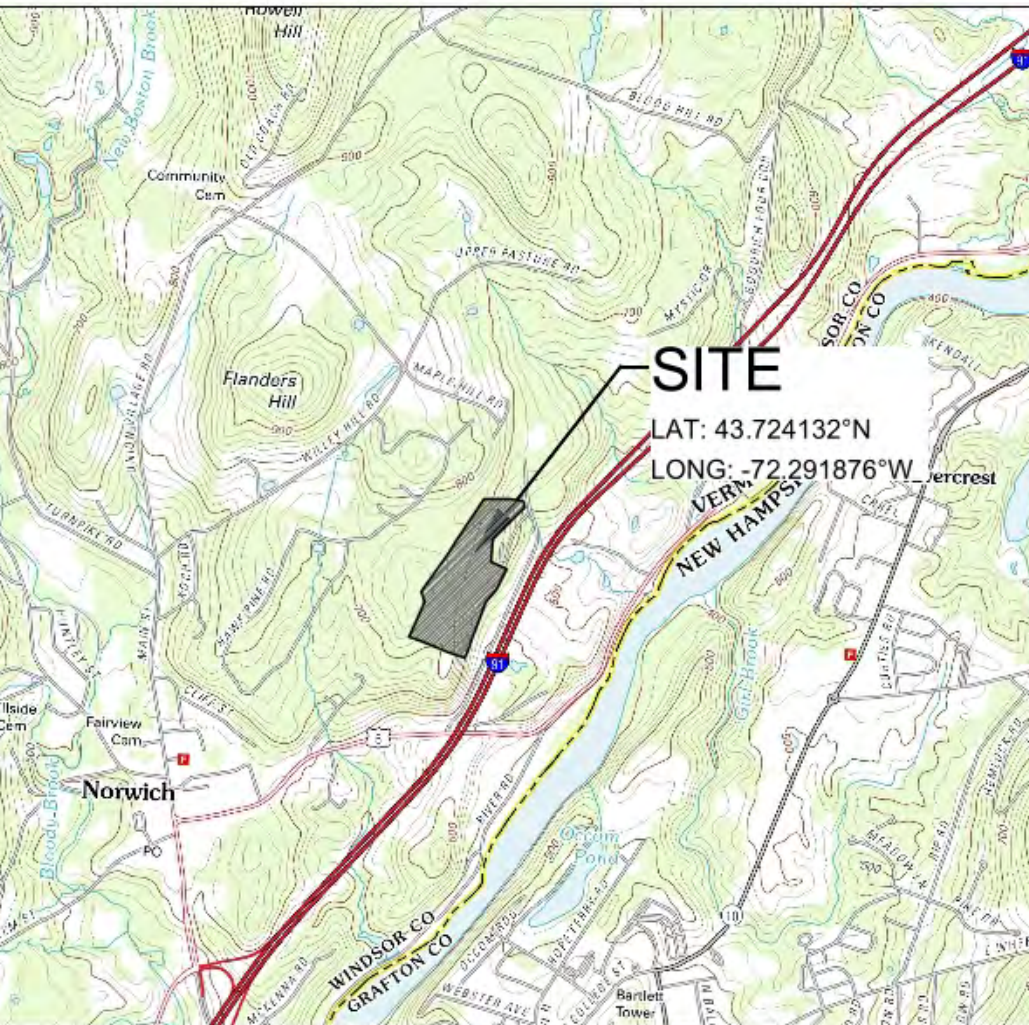
Proposed Solar Array

REV	REVISIONS/COMMENTS	DATE
1	Revised Impervious area in Impact Area Table	01-17-23

Drawing Title:
PRELIMINARY SITE PLAN
DATE of Issue: 8/27/2021
Drawn by: JBC Checked by: JBC
Project No.: 21298 Scale: 1" = 80'
Drawing No.: Rev No.:

C-100

- LEGEND:**
- EXISTING / PROPOSED POWER POLE
 - EXISTING GRADE CONTOUR LINES (10 FOOT INTERVALS)
 - EXISTING GRADE CONTOUR LINES (2 FOOT INTERVALS)
 - EXISTING OVERHEAD POWER LINES
 - APPROXIMATE PROPERTY LINES
 - SETBACKS TO SOLAR PANEL RACKING
 - WETLANDS (LOCATED BY AE)
 - WETLAND BUFFER
 - VERNAL POOL (LOCATED BY AE)
 - VERNAL POOL BUFFER
 - MAPPED SOIL BOUNDARY (VCGI)
 - STREAM (LOCATED BY AE)
 - STREAM TOP OF BANK (LOCATED BY AE)
 - RIPARIAN BUFFER
 - PROPOSED 12' GRAVEL ACCESS ROAD
 - PROPOSED UNDERGROUND POWER
 - PROPOSED OVERHEAD POWER
 - PROPOSED PERIMETER FENCE
 - PROPOSED FIXED SOLAR PANEL RACKING
 - PROPOSED STAGING AREA
 - PROPOSED CLEARING AND LIMIT OF DISTURBANCE (LOD)



SETBACK DISTANCES

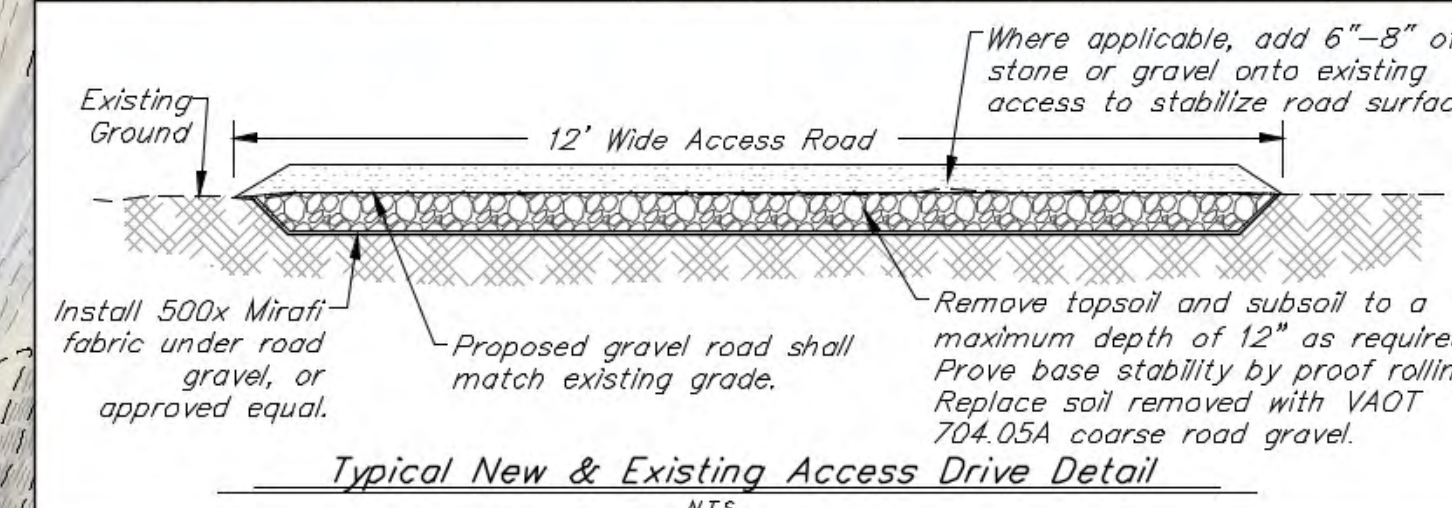
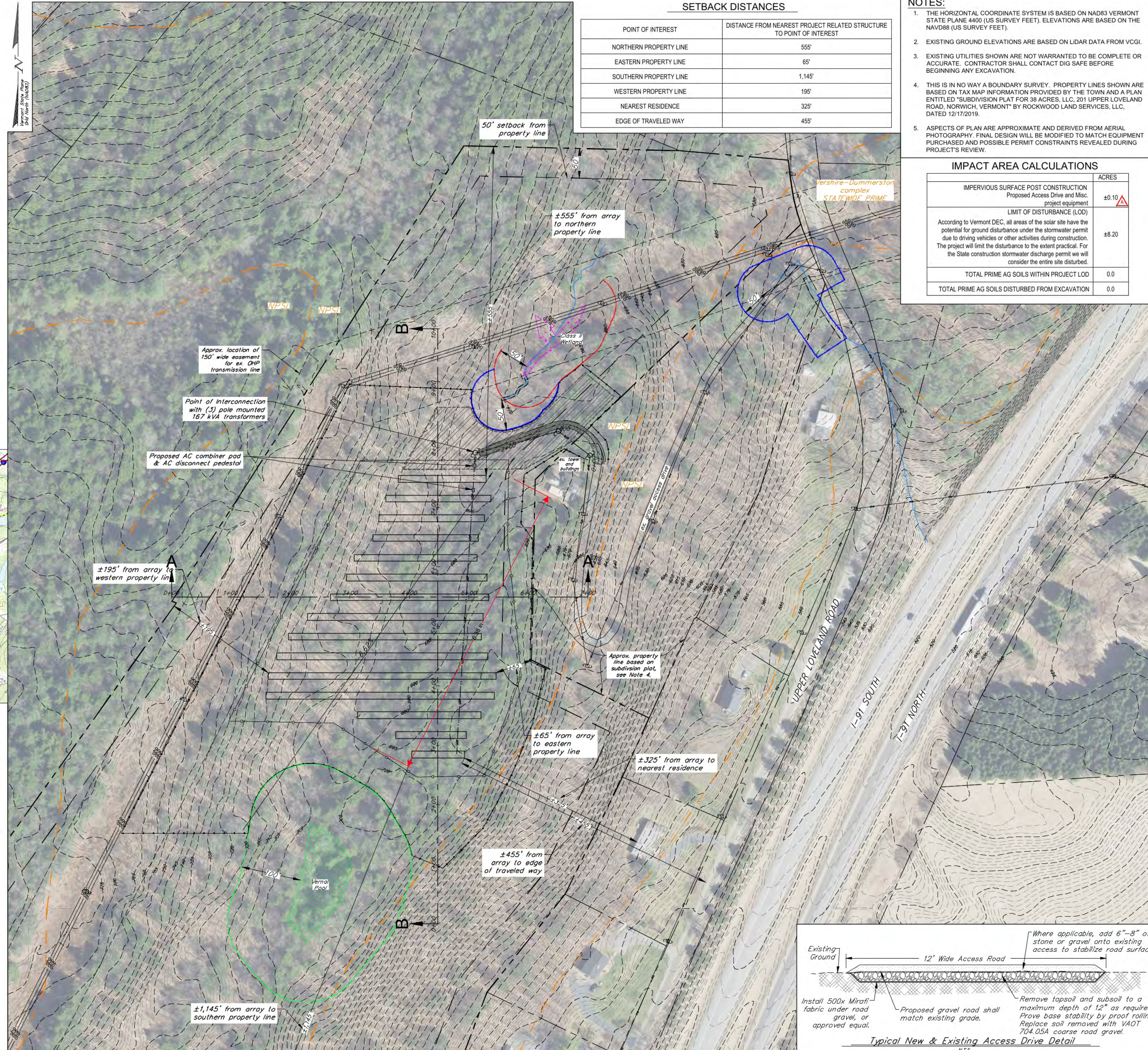
POINT OF INTEREST	DISTANCE FROM NEAREST PROJECT RELATED STRUCTURE TO POINT OF INTEREST
NORTHERN PROPERTY LINE	555'
EASTERN PROPERTY LINE	65'
SOUTHERN PROPERTY LINE	1,145'
WESTERN PROPERTY LINE	195'
NEAREST RESIDENCE	325'
EDGE OF TRAVELED WAY	455'

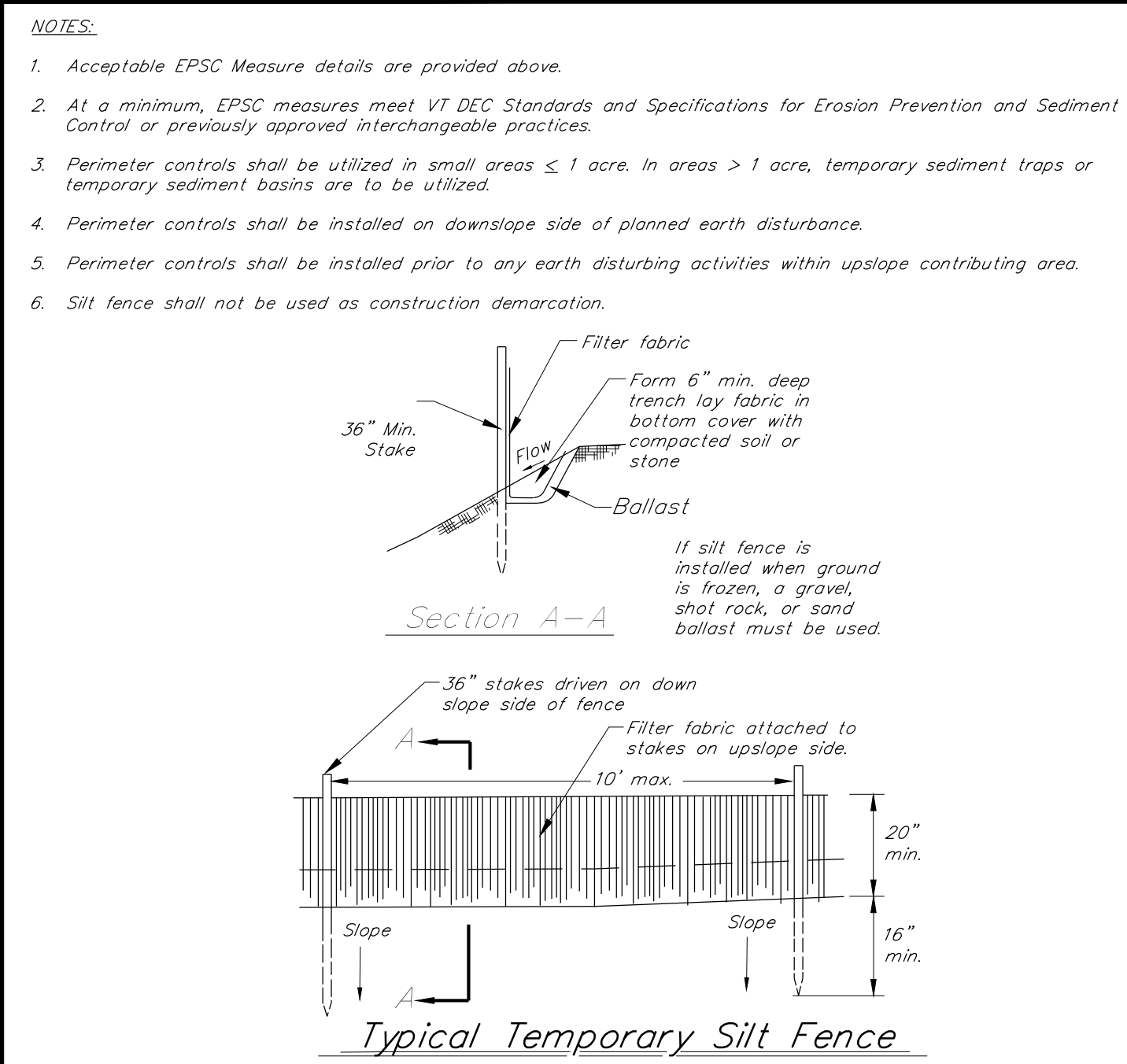
NOTES:

- THE HORIZONTAL COORDINATE SYSTEM IS BASED ON NAD83 VERMONT STATE PLANE 4400 (US SURVEY FEET). ELEVATIONS ARE BASED ON THE NAVD88 (US SURVEY FEET).
- EXISTING GROUND ELEVATIONS ARE BASED ON LIDAR DATA FROM VCGI.
- EXISTING UTILITIES SHOWN ARE NOT WARRANTED TO BE COMPLETE OR ACCURATE. CONTRACTOR SHALL CONTACT DIG SAFE BEFORE BEGINNING ANY EXCAVATION.
- THIS IS IN NO WAY A BOUNDARY SURVEY. PROPERTY LINES SHOWN ARE BASED ON TAX MAP INFORMATION PROVIDED BY THE TOWN AND A PLAN ENTITLED "SUBDIVISION PLAT FOR 38 ACRES, LLC, 201 UPPER LOVELAND ROAD, NORWICH, VERMONT" BY ROCKWOOD LAND SERVICES, LLC, DATED 12/17/2019.
- ASPECTS OF PLAN ARE APPROXIMATE AND DERIVED FROM AERIAL PHOTOGRAPHY. FINAL DESIGN WILL BE MODIFIED TO MATCH EQUIPMENT PURCHASED AND POSSIBLE PERMIT CONSTRAINTS REVEALED DURING PROJECT'S REVIEW.

IMPACT AREA CALCULATIONS

	ACRES
IMPERVIOUS SURFACE POST CONSTRUCTION Proposed Access Drive and Misc. project equipment	±0.10
LIMIT OF DISTURBANCE (LOD)	±8.20
TOTAL PRIME AG SOILS WITHIN PROJECT LOD	0.0
TOTAL PRIME AG SOILS DISTURBED FROM EXCAVATION	0.0



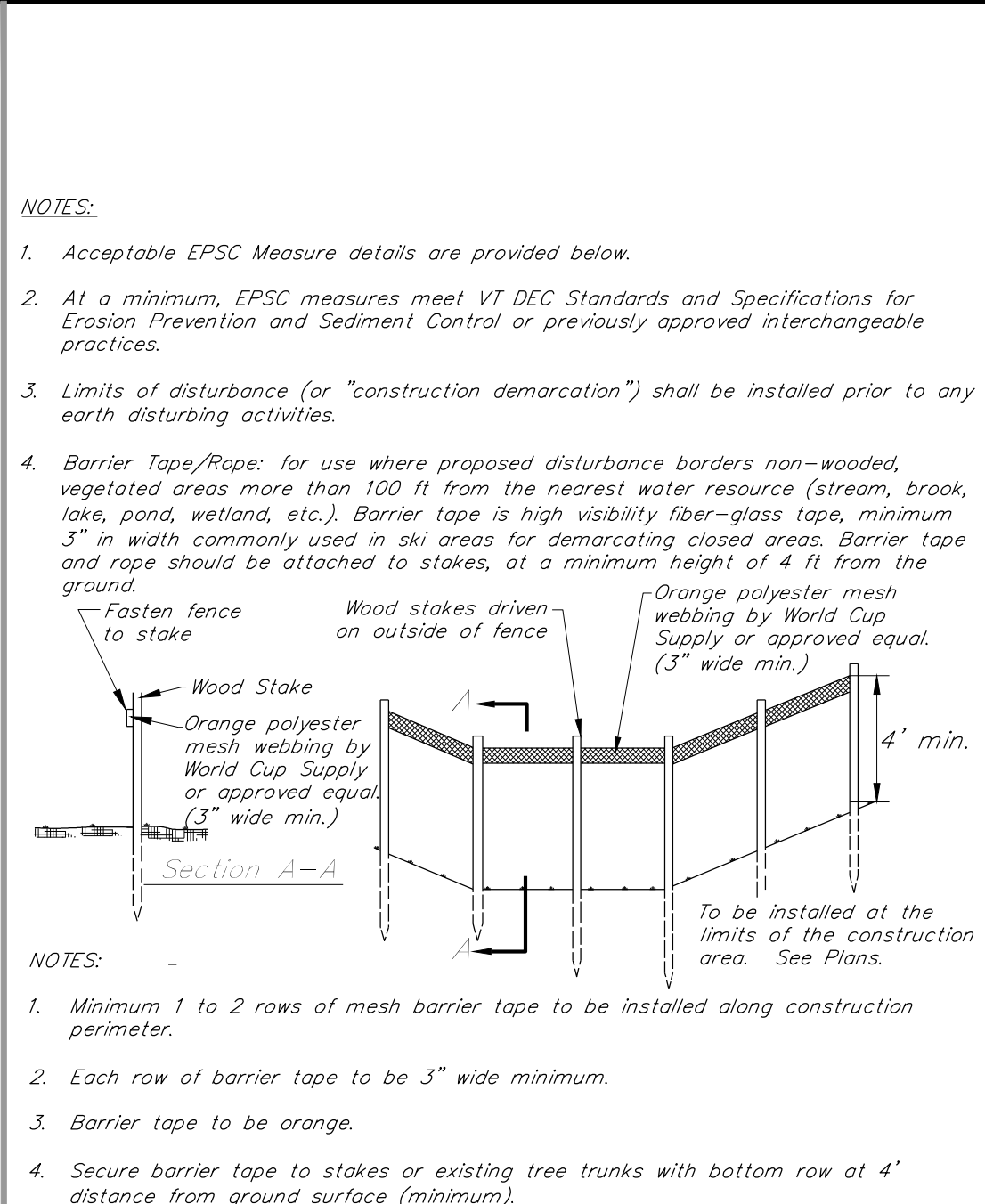


CONSTRUCTION STORMWATER DISCHARGE PERMIT INFORMATION

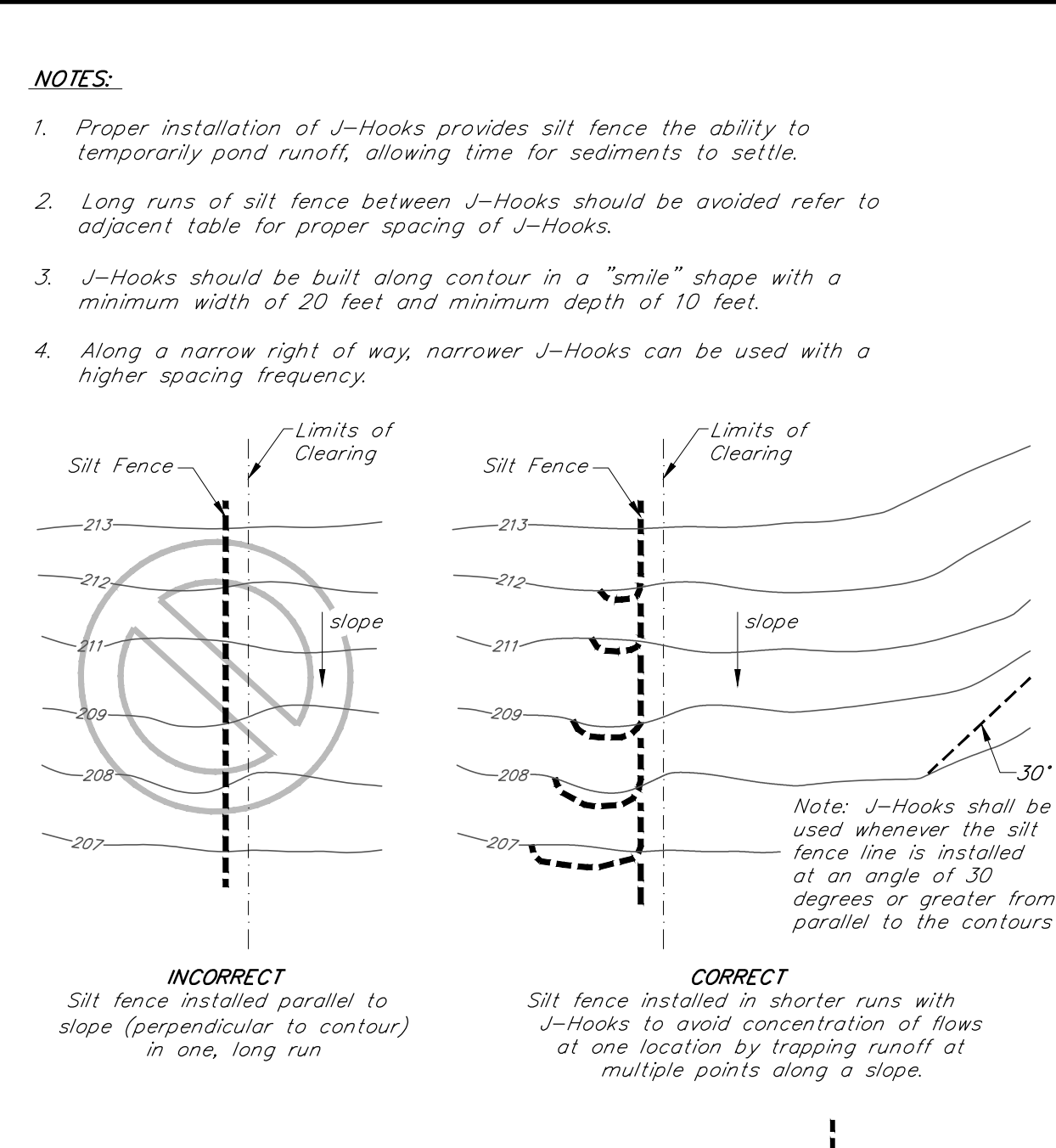
- This Project proposes greater than 1 acre of soil disturbance on site. The Project will apply for a Construction General Permit 3-9020.
- The proposed Project has been scored using the State of Vermont Appendix-A Risk Evaluation. The Project is scored "Low Risk" based on the evaluations criteria.
- The maximum area of earth disturbance at any one time shall not exceed 5 acres.
- All areas of earth disturbance associated with this project must be stabilized within 14 days of initial disturbance. After this initial 14-day period, all earth disturbance areas associated must be stabilized on a daily basis, with the following exceptions:
 - Stabilization is not required if work is to continue within 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 (i.e., no outlet for stormwater) with a depth of 2 feet or greater (e.g., underground line installation).
- Project does not propose winter construction.
- All temporary EPSC measures shall be removed within 30 days after final site stabilization or after the temporary EPSC measures are no longer needed, unless otherwise authorized and approved in writing by the Owner.
- Soil stabilization shall be achieved by seed and mulch, hydrosowing, with mulch tackifier, soil, stone, and/or rolled erosion control products (e.g., erosion control blanket). Mulch shall be comprised of straw, hay, compost, woodchips, wood stump grindings, and/or erosion control mix.
- Appropriate seed mix shall be applied to designated areas per this EPSC Plan and seed specifications.

Silt fence spacing chart

Slope	silt fence spacing
5% to 10%	50 ft. or less
10% to 20%	25 ft. or less
> 20%	15 ft. or less

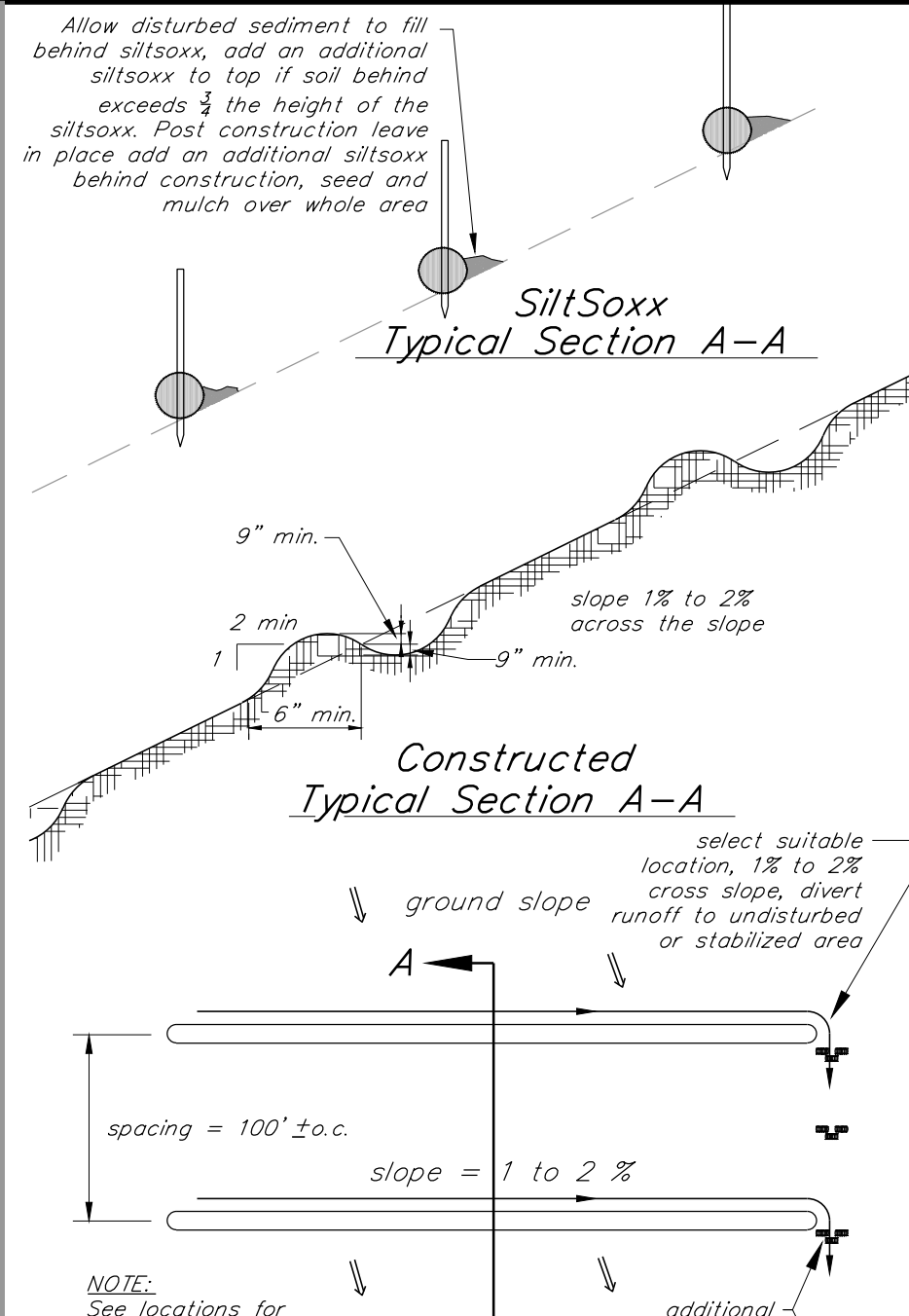
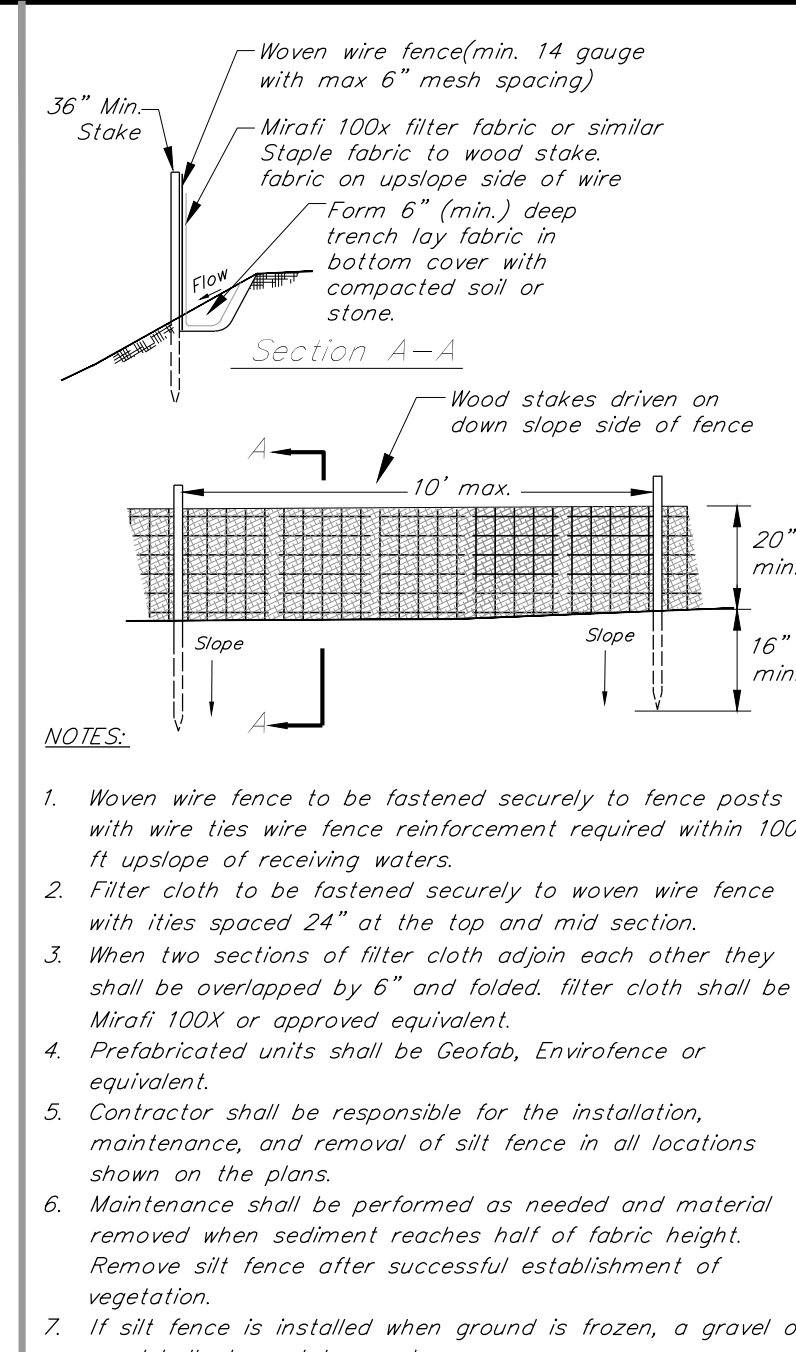


- NOTES:**
- Minimum 1 to 2 rows of mesh barrier tape to be installed along construction perimeter.
 - Each row of barrier tape to be 3" wide minimum.
 - Barrier tape to be orange.
 - Secure barrier tape to stakes or existing tree trunks with bottom row at 4' distance from ground surface (minimum).
 - Maintain and replace as needed. Remove at completion of project per OSPC.
 - In event the OSPC determines barrier tape is not sufficient, replace with orange construction fence or snow fence.



Slope Steepness	Maximum spacing between silt fence J-Hooks (ft.)
2:1 Slope (50%)	25
3:1 Slope (33%)	50
4:1 Slope (25%)	75
5:1 Slope or Flatter (50%)	100

Typical Temporary Reinforced Silt Fence
N.T.S.

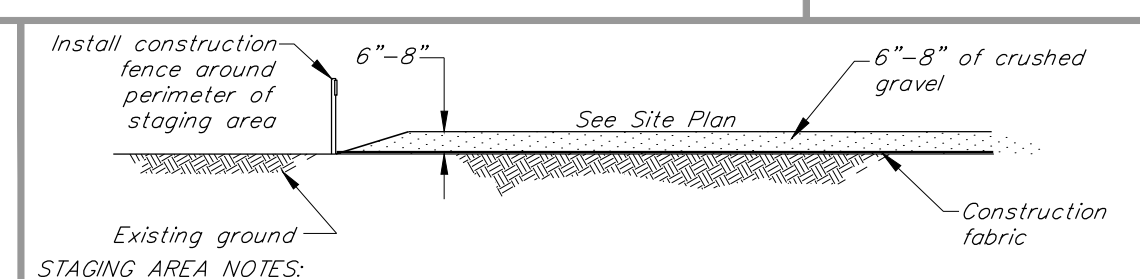


EPSC CONSTRUCTION NOTES

- Existing vegetation shall be protected and maintained to the extent practicable.
- A vegetated buffer shall be maintained for water bodies where feasible (e.g., wetlands and streams).
- To the extent practicable, surface flow shall be diverted away from exposed soils via diversion berms, earth dikes, perimeter dikes/swales, temporary swales, water bars, and/or check dams.
- Resource areas (e.g., wetlands, streams, RTE plant species) shall be flagged prior to any construction related activities occurring within close proximity to those areas.
- Effluent from dewatering operations shall be filtered or passed through an approved sediment trapping device, or both, and discharged in a manner that does not violate water quality standards or contribute to erosion. Dewatering details shall be reviewed and approved by OSPC prior to use.
- Concentrated runoff shall not flow down steep slopes unless contained within an adequate temporary or permanent channel (see details), flume, or slope drain structure.
- Underground utility lines shall be installed in accordance with the following standards in addition to other applicable criteria:
 - No more than 500 linear feet of trench may be opened at one time.
 - Excavated material shall be placed on the uphill side of trenches, where feasible, but not in resource areas.
- Where feasible, all sediment removed from sediment control practices as part of maintenance shall be disposed of in an area that is at least one of the following, with immediate stabilization following disposal of material:
 - Less than 5% slope
 - At least 100 feet from any down slope water body or conveyance to a water body, including a ditch
 - Vegetated
- Disturbed areas bordering or draining to existing roads shall have an appropriate sediment barrier (e.g., silt fence) spanning the edge of the disturbance to prevent washing of sediment onto roadways or into road ditches.
- In advance of predicted rainfall or snowmelt, all EPSC measures that are located in active areas of earth disturbance shall be inspected and repaired, as needed. If necessary, this shall include temporary stabilization of all disturbed soils on the site in advance of the anticipated runoff period.
- Dust control shall be handled via water application to roadways and other areas where dust may be generated.

EPSC GENERAL NOTES

- Erosion prevention and sediment control (EPSC) practices shall be implemented in all areas where there is an increased risk of erosion, and where there is potential for discharge of stormwater runoff (either direct or indirect) to a water body.
- EPSC measures shall be installed prior to any earth disturbing activities within a given drainage area with the exception of land disturbance that may result from accessing the area(s) with equipment in which EPSC measures are to be installed. This exception includes land disturbance that may result from access of equipment that is needed for: logging (See note #5), exploration and/or EPSC measure installation phases of the project. Temporary sediment basins, temporary sediment traps, perimeter dikes, temporary sediment barriers, and other temporary measures intended to trap sediment shall be constructed as a first step in any land disturbing activity and shall be made functional before upslope land disturbance takes place with the exception of those activities stated above. Earth disturbance includes stumping and grubbing of cleared areas.
- Where applicable, EPSC measures shall be installed pursuant to the construction phase stormwater discharge permit for the project, this EPSC Plan, the Vermont Standards and Specifications for Erosion Prevention and Sediment Control (2020), Vermont Erosion Prevention and Sediment Control Field Guide (2020), and any other relevant project permits.
- Where applicable, all proposed changes shall be approved by the On-Site Plan Coordinator (OSPC) or his/her designee prior to implementation.
- Permission must be granted by VT DEC prior to use of any support activities occurring outside of the approved project boundaries.
- All parties associated with construction activities who meet either of the following two criteria of "Principal Operator" must obtain coverage under the construction stormwater discharge permit for the project prior to commencement of construction activities by that operator:
 - The party has operational control over construction plans and specification, including but not limited to the ability to make modifications to those plans and specifications; or
 - The party has continuous day-to-day operational control of those activities at the project that are necessary to ensure compliance with an EPSC Plan for the site or other permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the EPSC Plan or comply with other permit conditions).

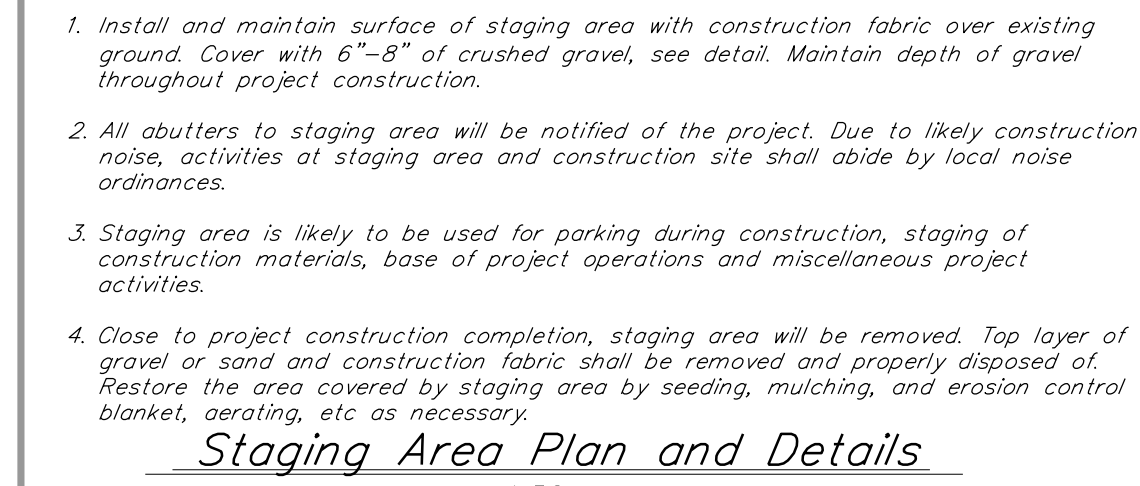


Seeding Specifications

Seed	% Weight	% Germination
Red Fescue	50%	85 Min.
Sheep Fescue	25%	80 Min.
Red Top	5%	90 Min.
White Clover	10%	90 Min.
Annual Rye	10%	90 Min.

Temporary Seed Mix shall be used between 9/16 and 5/14 and shall meet the following criteria:

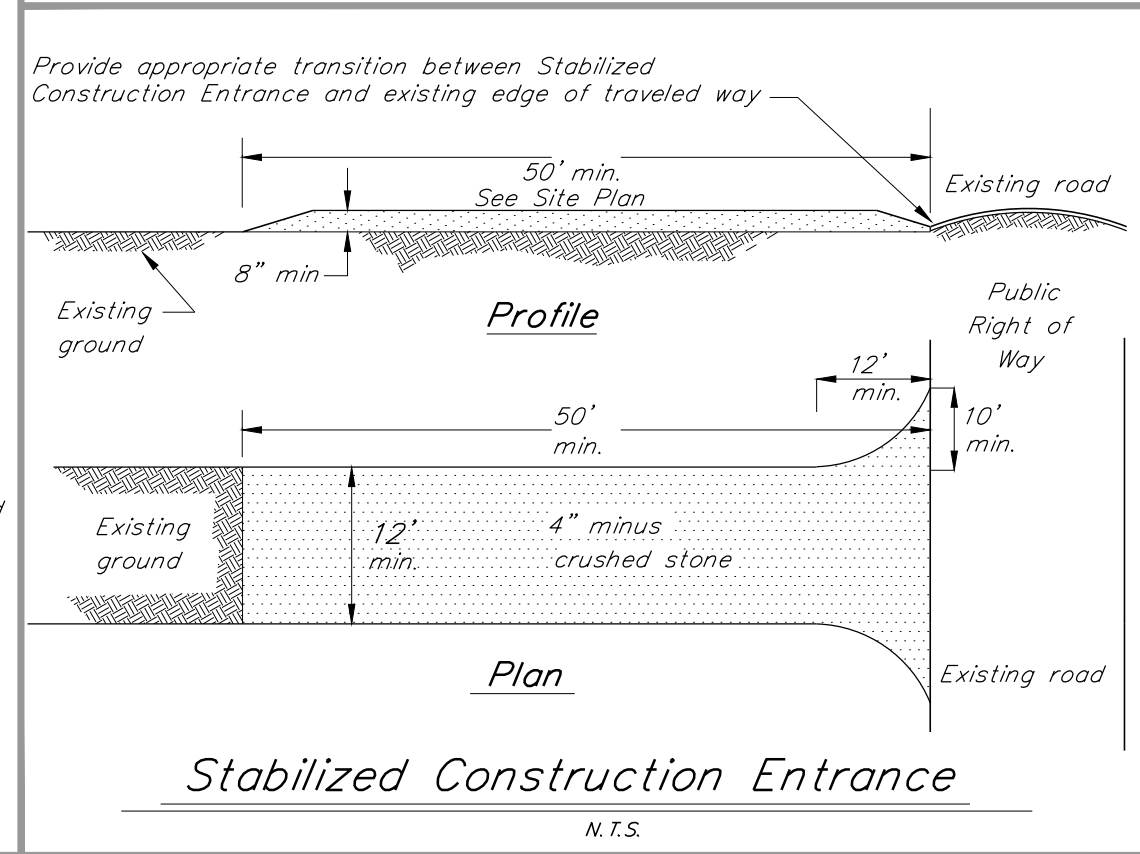
Seed	% Weight	% Germination
Winter Rye	80% Minimum	85 Min.
Red Fescue (Creeping)	4 Min.	80 Min.
Perennial Rye Grass	3 Min.	90 Min.
Red Clover	3 Min.	90 Min.
Other Grass	0.5 Max.	
Noxious Weed Seed	0.5 Max.	
Inert Matter	1.0 Max.	



Seeding Specifications
N.T.S.

Notes:

- Contractor shall stabilize construction entrance as required to prevent tracking of sediment off-site.
- Contractor to use Mirafi 500x under stone for temporary construction roads.
- Crushed stone shall be added or replaced when 80% of the voids are filled with sediment.
- Stone size shall be 1-4".
- All surface water flowing or diverted toward construction entrance shall be piped beneath entrance. If piping is impractical, a mountable berm with 5:1 slopes is allowed.

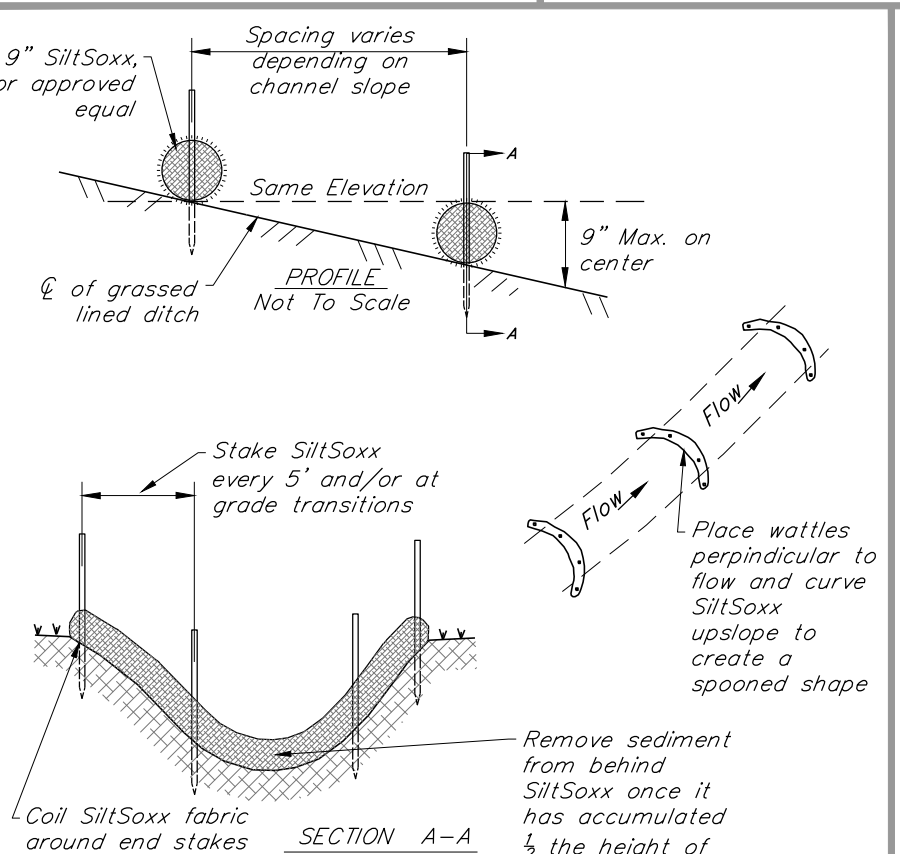
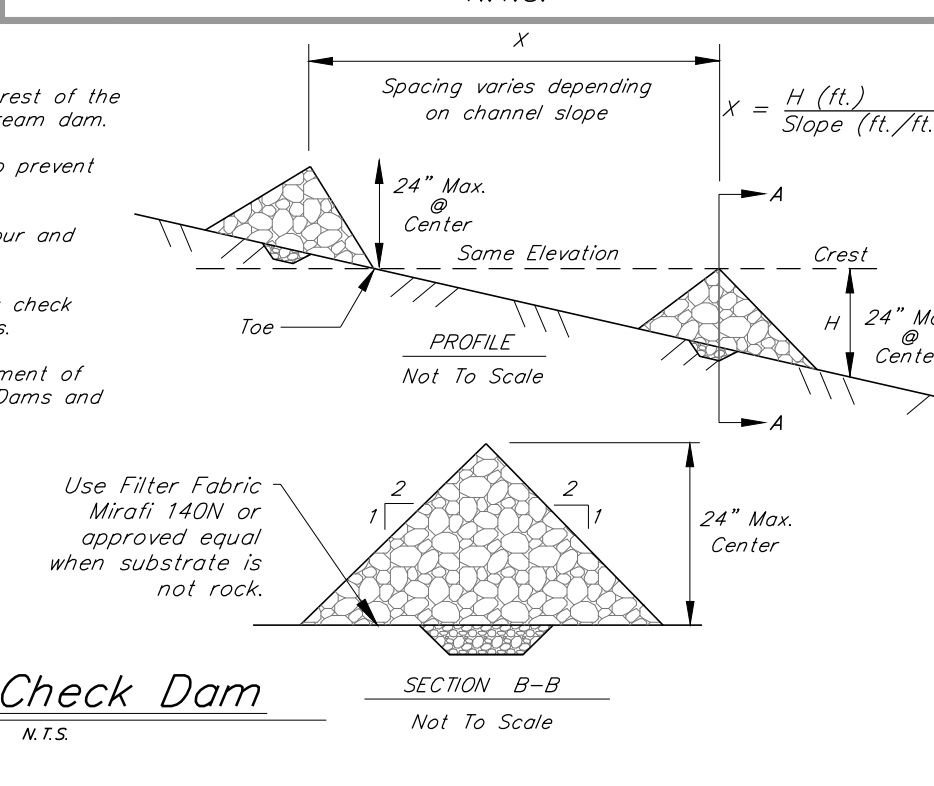


Guide to Mulch Materials, Rates, and Uses

Quality Standards	Per 1000 sq. ft.	Per Acre	Depth of Application	Remarks	
Wood chips or shavings	Air-dried. Free of objectionable coarse material	500-900 lbs	10-20 tons	2 - 7"	Used primarily around shrub and tree plantings and recreation trails to inhibit weed competition. Resistant to wind blowing. Decomposes slowly.
Wood fiber cellulose (partly digested wood fibers)	Made from natural wood usually with green dye and dispersing agent	50 lbs	2,000 lbs.	-	Apply with hydramulcher. No tie down required. Less erosion control provided than 2 tons of hay or straw.
Gravel, Crushed Stone or Slog	Washed: Size 20 or 34 - 1/2"	9 cu. yds.	405 cu. yds.	3"	Excellent mulch for short slopes and around plants and ornaments. Use 2B where subject to traffic. (Approximately 2,000 lbs./cu. yd.). Frequently used over filter fabric for better weed control.
Hay or Straw	Air-dried; free of undesirable seeds & coarse materials	90-100 lbs	2-3 bales (100-120 bales)	2 tons	Cover about 90% surface. Use small grain straw where mulch is maintained for more than three months. Subject to wind blowing unless anchored. Most commonly used mulching material. Provides the best micro-environmental for germinating seeds.
Compost	Up to 3" pieces, moderately to highly stable	3-9 cu. yds	134-402 cu. yds.	1 - 3"	Coarser textured mulches may be more effective in reducing weed growth and wind erosion.
Erosion Control Mix	Well-graded mixture of particle sizes. Organic content between 80-100% dry weight. Particle size shall pass 6" screen (100%)				Composed of shredded bark, stump grindings, composted bark, or acceptable manufactured products. May contain rock < 4" in diameter. Organics shall be fibrous and elongated. No large portions of silts, clays or fine sands.

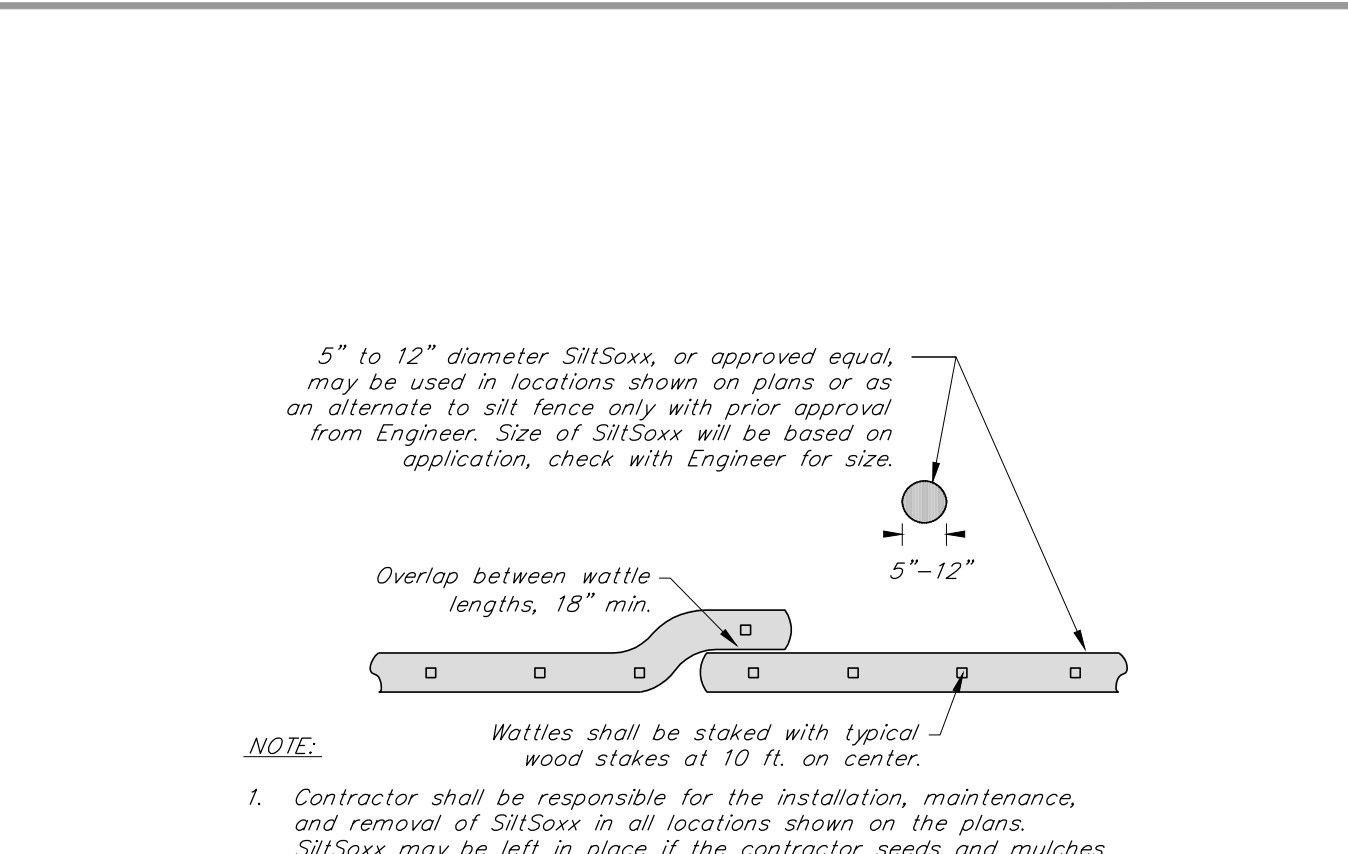
CONSTRUCTION SPECIFICATIONS

- Set spacing of check dams to assume that the elevations of the crest of the downstream dam is of the same elevation of the toe of the upstream dam.
 - Extend the stone a minimum of 1.5 feet beyond the ditch banks to prevent cutting around the dam.
 - Protect the channel downstream of the lowest check dam from scour and erosion with stone or erosion control matting as appropriate.
 - Ensure that channel appurtenances such as culvert entrances below check dams are not subject to damage or blockage from displaced stones.
 - Stone Check Dams may be left in place or removed after establishment of permanent vegetative cover along swales adjacent to Stone Check Dams and at the direction of the Owner.
-
- Section A-A**
- Stone Check Dam**
N.T.S.



SiltSoxx Check Dam
N.T.S.

- Notes:**
- Contractor shall be responsible for the installation, maintenance, and removal of SiltSoxx in all locations shown on the plans. SiltSoxx may be left in place if the contractor seeds and mulches wattle for growth post construction.
 - Maintenance shall be performed as needed and additional SiltSoxx will be added when sediment reaches half of product height.
 - When installing lengths of SiltSoxx, lengths will overlap by minimum 18" when transitioning to a new length of SiltSoxx.
 - Contractor shall refer to all manufactures specifications and details.
 - SiltSoxx can only be used in a grass lined swale, may not be used in stone lined swales.
 - SiltSoxx check dam can only be used in channels with slopes less than 5%.
 - SiltSoxx is a specific manufacturer, other manufacturers with equal products may be used if approved by Engineer.

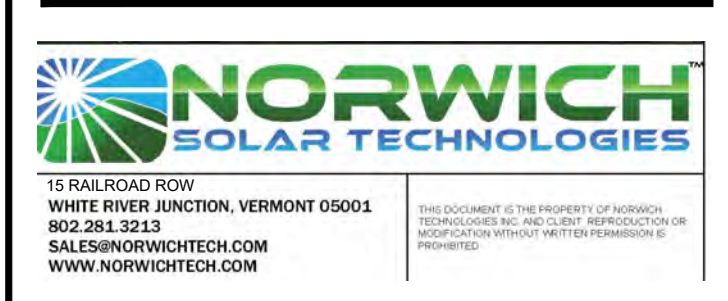


Typical SiltSoxx Sediment Control
N.T.S.

- Notes:**
- Contractor shall be responsible for the installation, maintenance, and removal of SiltSoxx in all locations shown on the plans. SiltSoxx may be left in place if the contractor seeds and mulches wattle for growth post construction.
 - Maintenance shall be performed as needed and additional SiltSoxx will be added when sediment reaches half of product height.
 - When installing lengths of SiltSoxx, lengths will overlap by minimum 18" when transitioning to a new length of SiltSoxx.
 - Contractor shall refer to all manufactures specifications and details.
 - SiltSoxx can only be used in a grass lined swale, may not be used in stone lined swales.
 - SiltSoxx is a specific manufacturer, other manufacturers with equal products may be used if approved by Engineer.

Norwich Upper Loveland Solar LLC

201 Upper Loveland Road
Norwich, Vermont



KREBS & LANSING CONSULTING ENGINEERS
164 Main Street, Suite 201
Colchester, Vermont 05446
P: (802) 878-0375
www.krebsandlansing.com

ISSUED FOR PERMIT REVIEW NOT FOR CONSTRUCTION

SOURCE DATA LEGEND

MAPPING SOURCE DATA USED FOR PLAN COMPILATION

Electrical Design:
Norwich Solar Technologies
15 Railroad Row
White River Junction, Vermont 05001

Civil Engineering:
Krebs and Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, Vermont 05446

Environmental:
Arrowood Environmental
950 Bert White Rd
Huntington, Vermont 05462

Proposed Solar Array

REV	REVISIONS/COMMENTS	DATE

Drawing Title:

EROSION PREVENTION AND SEDIMENT CONTROL DETAILS

DATE of Issue: 8/27/2021
 Drawn by: JBC Checked by: JBC
 Project No.: 21298 Scale: NTS
 Drawing No.: Rev No.:

PUC Case No. 21-3587-NMP - SERVICE LIST

Parties:

Benjamin Civiletti (for Vermont Department of Public Service)
Department of Public Service
112 State Street
Montpelier, VT 05620
benjamin.civiletti@vermont.gov

*Alison Stone, General Counsel (for Vermont Natural Resources Board)
Vermont Natural Resources Board
nrb.comments@vermont.gov

L. Brooke Dingleline, Esq. (for Stephen CN Gorman) (for Laurence and Shelley Ufford) (for Dan & Jenn Goulet) (for Joy Kenseth) (for Jayoung Joo) (for John and Heather Benson) (for Samin Kim)
Valsangiacomo, Detora & McQuesten, P.C.
P.O. Box 625
Barre, VT 05641
lbrooke@vdmlaw.com

Donald J. Einhorn, Esq. (for Vermont Agency of Natural Resources)
Vermont Agency of Natural Resources
1 National Life Drive, Davis 2
Montpelier, VT 05602-3901
donald.einhorn@vermont.gov

Kimberly K. Hayden, Esq. (for Norwich Upper Loveland Solar LLC)
Paul Frank + Collins PC
One Church Street 05402
P.O. Box 1307
Burlington, VT 05401
khayden@pfclaw.com

Kelly Hughes (for Vermont Agency of Natural Resources)
Vermont Agency of Natural Resources
1 National Life Drive
Davis 2
Montpelier, VT 05620
Kelly.Hughes@vermont.gov

Aaron Lamperti, *pro se*
557 New Boston Rd
Norwich, VT 05055
aaron.lamperti@gmail.com

John C. Lewis, *pro se*
346 Palm Street
Hollywood, FL 33019
jlewis6577@aol.com

James McTaggart, *pro se*
71 Upper Loveland Road
Norwich, VT 05055-9417
mctagjim@aol.com

Other Entities Receiving Copy of Order via
email outside ePUC:

Norwich Selectboard
selectboard@norwich.vt.us

Norwich Planning Commission
planner@norwich.vt.us

Norwich PC Solar Siting Subcommittee & Planning Commission

April 16, 2024 Minutes

DRAFT

Subcommittee members present: Ernie Ciccotelli, Kris Clement, Mary Gorman, Jaan Laaspere

Public attending: Annette Smith, Kathleen Shepherd, Linda Gray, Zara Reeves, Joy Kenseth, Mary Albert, Jim Antal, Alice Werbel, Amy Stringer, Elizabeth Spencer, Rob Gere, Stephen Gorman, Dan Goulet, Susan Barrett, Bob Pape

Meeting started at 6:35

1. Approved Agenda

2. Public comment for items not on the agenda - none

3. Correspondence

24 V.S.A §4385

24 V.S.A §4382

Vermont Act 59

4. Town plan amendment discussion

Related packet material – Norwich solar and wind maps

We had a guest speaker to provide guidance on enhanced energy planning and the relationship between town plans and state processes, including 30 V.S.A Section 248 and Act 250.

Annette Smith, Executive Director for Vermonters for a Clean Environment, presented an immense amount of very helpful and relevant information. A link to her presentation is included at the end these minutes, along with many useful links to maps, example town plans and other resources. The subcommittee is extremely grateful to Annette for sharing her knowledge and experience.

The minutes record a very small portion of the discussion. Please refer the meeting video and the references at the end of this document for much more detail.

Possible initial steps for updating Norwich energy plan

Annette agreed that upgrading our energy section to qualify as an enhanced energy plan would not be a great deal of additional work.

We could start with generating town input into two sides of the siting topic:

- Identify what places, views, etc. people want to protect. One element of this could be an updated scenic inventory.
- Identify potential locations that could be candidates for preferred sites for renewable generation.

Creating a preferred site map is one method of specifying potential solar sites. It can also be done with specific criteria, locations and definitions.

Possible town plan improvements for specificity and increased influence

To be useful in the state processes of Section 248 and Act 250 our plan needs an overall shift from an aspirational, high-level document to a include a specific set of goals and guidelines that can be used in a stand-alone document for regulatory purposes.

Use the word “must” to have regulatory weight.

Districts specified in a plan can be useful, if allowable development for these districts is well defined. This could include our historic district and resource protection district.

5. Preferred Site Letter process

Annette gave her interpretation on the roles of the three bodies involved in preferred site review:

Planning Commission – Reviews whether the project complies with town plan

Selectboard – Can look at a broader array of topics, including economic or any criteria of Section 248 GHG emissions

Regional Planning Commission - TRORC – Reviews regional criteria

She thought TRORC had a standard form for evaluating preferred siting letters. We will ask and get a copy if such a document exists.

In her opinion the Planning Commission can use its judgment when reviewing a preferred siting request. We compare the project to the town plan and can consider topics referenced in the plan such as steep slopes, forest blocks, etc., not just scenic.

Mary volunteered to be the liaison with Annette and funnel people’s questions and requests to her. We discussed how we might benefit from Annette’s expertise going forward. Mary will check with her about options.

6. Approved minutes of March 26, 2024 - Unanimous

7. Adjourned at 8:40

Our next meeting will be April 30, 2024

Minutes submitted by Jaan Laaspere

Resources from Annette Smith, VTCE

Presentation to Norwich Solar Siting Subcommittee

http://vtce.org/Norwich_EnhancedEnergyPlanning_16April2024.pdf

Vermont Town Enhanced Energy Plan Preferred Sites Maps/Addison & Bennington Regions

http://vtce.org/EnhancedEnergyPlans_PREFERREDsites_23Feb2024.pdf

Google Earth Overlays — these links will download .kmz files.

Instructions about how to open them in Google Earth are on p. 10 of the presentation.

Norwich Solar Resources with Constraints Map

<http://vtce.org/Norwich%20Solar%20Resource.kmz>

Norwich Forest Blocks

<http://vtce.org/Norwich%20Forest%20Blocks.kmz>

GMP Solar Map

<https://gmp.maps.arcgis.com/apps/webappviewer/index.html?id=4eaec2b58c4c4820b24c408a95ee8956>

Norwich Town Energy Committee Solar Map

<https://norwichenergycommittee.weebly.com/norwich-solar-map.html>

GMP 3-phase Map

<https://greenmountainpower.com/help/3-phase-service-vermont/>

GMP Conductor Sizing Map

<https://www.arcgis.com/home/webmap/viewer.html?webmap=51f68dfd7d3145868287849e628eb3e4&extent=-75.2659,42.7068,-68.7949,45.1318>

Vermont Energy Dashboard — heat pumps, EVs, etc.

<https://eanvt.org/vermont-energy-dashboard/>

Act 174 Constraints Map Layers

<https://vcgi.maps.arcgis.com/home/webmap/viewer.html?layers=bbbff1931ade4391aa19281e5d2bdaae>

Vermont Energy Planning Atlas Act 174 constraints (with other options of maps for planners including historic resources)

<https://maps.vermont.gov/ACCD/Html5Viewer/index.html?viewer=PlanningAtlas>

Example of Solar Siting By-law, Salisbury, Vermont

https://www.townofsalisbury.org/vertical/sites/%7B59D8C83C-9968-4A65-BB2B-00DE19899066%7D/uploads/Solar_siting_bylaws_012616.pdf

Vermont Natural Resources Atlas
<https://anrmaps.vermont.gov/websites/anra5/>

Vermont Biofinder
<https://anrmaps.vermont.gov/websites/BioFinder/>

Vermont Interactive Map Viewer
<https://maps.vermont.gov/vcgi/html5viewer/?viewer=vtmapviewer>

Vermont Center for Geographic Information — List of Maps with Links to all available maps

<https://vcgi.vermont.gov/maps/partner-agency-maps>

Norwich Town Plan
https://norwich.vt.us/wp-content/uploads/2012/06/Norwich_Plan_2020-ADOPTED-Ir-.pdf

TRORC page for Norwich with plans, by-laws, maps
<https://www.trorc.org/towns/norwich/>

Department of Public Service page for Act 174 Recommendations and Determinations <https://publicservice.vermont.gov/about-us/publications-and-resources/energy-resources/act-174-recommendations-and-determination>

— 2024 Guidance

Document https://publicservice.vermont.gov/sites/dps/files/documents/2024%20Guidance%20for%20Regional%20%26%20Municipal%20Enhanced%20Energy%20Planning%20Standards_0.pdf

— Generation Scenarios Planning Tool

<https://publicservice.vermont.gov/document/generation-scenarios-planning-tool>

Statute governing energy generation projects

<https://legislature.vermont.gov/statutes/section/30/005/00248>

See (b)(1) for the language about (A) due consideration and (C) substantial deference

Statute enabling homeowner renewable

energy <https://legislature.vermont.gov/statutes/section/27/005/00544>