VTrans Fall 2023 Transportation Alternatives (TAP)
and
Municipal Highway and Stormwater Mitigation Program Grant (MHSMP)
Combined Application

Thoroughly read the TAP and MHSMP application guidebooks before you begin your application. It includes important program information and step-by-step instructions. Pay particular attention to the application process requirements. **Applications are due by e-mail by December 8, 2023.** Please e-mail the completed application to: Ross.gouin@vermont.gov and Scott.robertson@vermont.gov.

Town of Milton Public Works Facility Salt Shed
(Project Name/Title)

Don Turner, Jr.
(Municipality contact person responsible for the management of this project)

Milton
(Town)

05468
(Zip Code)

43 Bombardier Road
(Mailing Address)

802-893-6655
(Phone)

dturner@miltonvt.gov
(e-mail address)

$ 500,000
Amount of **Federal Funds requested** (no more than 80% of the project cost estimate).

$200,000 plus
Amount of Local Match. Example:
Federal Award = $600,000 (*80% of total*)
Local Match = $150,000 (*20% of total*)
Total Project Cost = $750,000 (*100% of the total*)

County: Chittenden

Town/Village/City: Milton

Specific location, street, or road 160 Public Works Way

Regional Planning Commission: Chittenden County Regional Planning Commission

If a linear project, what is the length in feet? N/A

Is the project on or intersecting to a State maintained highway? Yes ☐ No ☒

- *Note: If yes, be sure to include documentation that you have notified the VTrans District Transportation Administrator of the intent to apply for TA funding and have provided them with a brief (one paragraph) description of the proposed project.*

Project type being applied for: ☐ **Scoping** ☒ **Design/Construction**

The municipality understands that a typical construction project utilizing TAP or MHSMP Program funds will take roughly three years (min.) in the Design and ROW phases prior to going to construction (as pointed out in the TAP and MHSMP Application Guides)? Yes ☒ No ☐

Does this project have a previously completed scoping or feasibility study? Yes ☒ No ☐

Note:
Attach a map(s) of the project area and clearly show the limits of the project as well as surrounding benefits from the proposed improvement. If the project is within or adjacent to a designated downtown, village or growth center, clearly indicate the relationship of the proposed project to the boundary of the designated area. Color photos of the area are also recommended.

Fiscal Information:

Accounting System Automated ☐ Manual ☐ Combination ☒

SAM Unique Identifier # LXD5W1424WP3

Fiscal Year End Month June

Property Ownership:

If the proposed project is on private property that will need to be acquired by the Municipality through purchase, easement, or eminent domain (includes temporary construction rights) in accordance with the "Uniform Act", then the municipality is committed to exercising its right of ***eminent domain*** to acquire the rights to construct the project if necessary. Yes ☒ No ☐

Funding:
Does this project already have existing funding? If so, please describe. Yes ☒ No ☐
The voters of the Town of Milton approved a bond for $5,500,000 for the construction of a new public works campus on the 2022 Town Meeting Day ballot. The cost of construction has increased, and the Town of Milton does not have enough funding to complete a salt and sand shed. The Salt & Sand shed is now a separate project that the Town of Milton is looking to build on the new public works complex. There are funds for a local match to this grant but not enough to build the Salt/Sand shed.

Please note that existing projects will not be considered for additional funding without a current NEPA clearance and ROW clearance. Please provide date of clearances below:
Click here to enter text.

Will you accept an award less than you applied for? Yes ☒ No ☐

- If yes, please indicate whether local funds will be used to make up the shortfall, or if the project scope will be reduced. If the project scope is to be reduced, describe what part of the project (please be specific) you would accept partial funding for.

  Yes, the Town of Milton would need to look to sell current Town owned properties to fund the project if we to receive less than the requested amount.

A support letter from the governing body of the applicant municipality or organization and an acknowledgement and source of the local match and commitment to future maintenance responsibility for construction projects is required (must be dated within 1 year of the application). Is a letter of support attached?

Yes ☒ No ☐

Regional Planning Commission Letter of Support:
In order to apply, the project must have a letter of support from the regional planning commission. Is a letter of support attached?

Yes ☒ No ☐

PLEASE NOTE: If this application is for salt or sand shed funding, the applicant must read and understand the ***Municipal Assistance Section Salt Shed Application Guide***. All of the following scoring questions below must thoroughly convey an understanding of the salt and sand guidance provided.

Application Scoring Criteria:

1. **Please give a brief description of the project (be sure to indicate the primary facility type being applied for and be concise).**
   (10 points max.)
   The project consists of engineering design and construction of a 110 ft. x 130ft salt/sand shed. The salt/sand shed will hold up to 3,600 cubic yards of sand and 2,400 tons of salt. Milton has over 100 miles of road to maintain and plow in the winter, and this is the historical quantity of material needed to be stored for this effort. We currently can store only 400 tons of salt in a covered shed, and constructed a fabric covered temporary shed in the fall of 2019 to hold an additional 200 tons of salt. All sand is currently stockpiled outside, and not in a covered building. The proposed salt shed will have the proper capacity for our road maintenance needs and will be relocated farther from the Lamoille River, reducing the possibility of contaminated runoff entering the waterways.

2. **What is the feasibility of this project? Feasibility (or Scoping) study applications will not be scored on this criterion. Also, please describe the extent of project development to date.**
   (10 points max.)
   In late summer 2021, the Town of Milton Department of Public Works contracted Krebs & Lansing Engineering to conduct a scoping study and preliminary design for the project which included the full new DPW campus off Bombardier Drive. The Town of Milton was awarded funding in the fall 2021 round of TAP funding, however, with guidance from our engineering team and Derek Kenison from VTrans we were advised it would be best to return the TAP funding, which we did and reapply once construction was underway for the Public Works Garage. Had we moved forward with the original funding the whole new DPW campus would have fallen under NEPA and other funding guidelines delaying the projects and costing significantly more than the benefit of the grand dollars. We are now reapplying for the funds to build the salt and sand shed.

3. **Does this project address a need identified in a local or regional planning document? If so, please describe. (5 points max.)**

The Town of Milton created a Stormwater Master Plan (SMP) in 2019 to provide guidance in stormwater management and permit compliance. The SMP assisted in the creation of the Town's Phosphorus Control Plan (PCP), which identifies problem areas across town where stormwater management improvements are needed. The Salt Shed at the existing Highway Garage was identified by this plan as a problem area due to its proximity to the Lamoille River and its high potential for runoff contamination. Relocating the salt shed will divert significant amounts of potential contamination from the river and greatly assist the Town in compliance with our stormwater management goals.

4. **Does this project:**
   A. **Benefit a State Designated Center per the link below (i.e., downtowns, villages, or neighborhood growth centers recognized by the Vermont Department of Economic, Housing and Community Development?**
   Not applicable for Environmental Mitigation Categories **(5 points max.)**
   http://maps.vermont.gov/ACCD/PlanningAtlas/index.html?viewer=PlanningAtlas
   No

   B. **Benefit mobility for disadvantaged populations to include elderly, disabled, minorities, and low-income residents. Please describe this impact (if applicable) in detail. Supporting documentation, including recent data must be included.**
   Not applicable for Environmental Mitigation Categories **(10 points max.)**
   N/A

5. **Provide a project cost estimate below (project costs below include both federal dollars and local dollars). Projects will be scored based on whether the cost appears realistic for the size and scope of the project. For scoping studies, use PE and Local Project Management lines only.**
   Note: If you are applying for additional funds for an existing project, show the amount being requested for this grant in the PE, ROW, Construction, Construction Engineering, and Municipal Project Management rows below. Also, be clear regarding total project cost and other funding amounts and sources in the additional funding comments box below.
   (10 points max.)

Right-of-way / Acquisition (ROW) *(appraisals, land acquisition and legal fees)*	$ **0**
Construction *(construction costs with reasonable contingency)*	$ **1,065,500**
Construction Engineering *(cost to provide inspection during construction)*	$ **195,000**
Municipal Project Management Costs	

(minimum of 10% of total PE, ROW and Construction Phases). **$ 169,500**

Total Project Cost **$ 1,349,500**

Addition Funding Comments: (ex. Total and additional funding for existing projects)
The remainder of the project cost beyond the required match will be covered by the Town. Our cost estimate was compared to the cost of the salt shed recently constructed in St. Albans. The total cost was just under $1,000,000 for a 100' x 100' salt shed (see email from Town of St. Albans attached) Using a cost of $100/sq. ft. for a 110' x 130' shed validates that our given estimate is within reasonable range.

6. **Select the eligibility category below (A, B, C or D) that best fits your project and answer the corresponding questions for that category (choose only one category). 10 bonus points will be awarded to projects that are primarily Bicycle or Pedestrian facilities.**

☐ **A. Bicycle and Pedestrian Facilities (includes Safe Routes for Non-Drivers and Conversion of abandoned railroad corridors.**

(i) Will the project contribute to a system of pedestrian and/or bicycle facilities? **(10 points max.)**
Click here to enter text.

(ii) Will the project provide access to likely generators of pedestrian and/or bicyclist activity? **(10 points max.)**
Click here to enter text.

(iii) Will the project address a known, documented safety concern? **(10 points max.)**
Click here to enter text.

☐ **B. Community Improvement Activities:**

i. Explain how the project improves the economic wellbeing of the community and/or provide a benefit to state tourism? **(10 points max.)**
Click here to enter text.

ii. Describe the anticipated impact to the public; degree of visibility, public exposure and/or public use. **(10 points max.)**
Click here to enter text.

iii. Answer only one of the following based on the type of project:

a) Construction of turnouts, overlooks, and viewing areas as related to scenic or historic sites. *To what extent will the project provide a view of a highly unique and scenic area?*
b) **(10 points max.)**

Click here to enter text.

c) Preservation or rehabilitation of historic transportation facilities. *Describe the historic significance of the historic transportation facility and the importance of the facility to the state.* **(10 points max.)**
Click here to enter text.

d) Archeological planning and research related to impacts from a transportation project. *Describe the associated transportation project and benefit of the proposed activities.*
(10 points max.)
Click here to enter text.

e) Vegetation management in transportation rights of way to improve roadway safety, prevent invasive species, and provide erosion control. *Describe the extent of the current problem and the impact on the site and surrounding area.* **(10 points max.)**
Click here to enter text.

☒ **C. Environmental Mitigation Activity Related to Stormwater and Highways (Including Salt and Sand Sheds)**

i. Please describe how this application provides environmental mitigation relating to stormwater and highways. **(10 points max.)**

The current DPW Highway Facility and salt shed are located below Arrowhead Lake and adjacent to the dam, as well as being directly adjacent to the Lamoille River. The current salt shed is undersized, both from a quantity standpoint, and access. Sometimes it is difficult for trucks to get inside the shed to dump their entire load, and salt piles up outside the shed until the truck leaves, and our loader must scoop up the salt and push it into the shed. This allows the salt to mix with water, and flow across the parking lot, where it crosses a small grassy area, and can flow directly into the Lamoille River. MgCl is also stored in plastic tanks adjacent to the building, and the tanks have been hit by trucks in the past and discharged product across the parking lot and into the Lamoille River. Clearly this operation needs to be relocated to an area away from the river and any waterways. The new location is near the Milton municipal complex, and away from waterways. See attached maps to see the current and new locations.

ii. What information or data is provided to substantiate the current stormwater problem and associated environmental impacts? **(10 points max.)**
We have not collected any water quality data from the Lamoille River downstream of the existing DPW Highway Facility. The MgCl accident/release was reported to the Agency of Natural Resources, and the town was required to pay a fine. We have since surrounded the MgCl tanks with jersey barriers for protection, and plan on constructing a berm to impede dissolved salt from flowing across the parking lot and into the river. The recent DPW facility in Saint Albans Town was relocated away from Lake Champlain, as these types of facilities should not be near waterways.

iii. What substantiating data or information is provided to show that the proposed application is an effective and maintainable solution to the problem? **(10 points max.)**

With the location adjacent to the Lamoille River, there is the daily potential for contamination from stored materials to flow into the river. The salt storage shed's door opens facing the river, and liquid deicing agents are stored in large tanks adjacent to the building. The salt storage shed is too small to hold the amount of salt needed for a typical Vermont winter. The door is too low to allow salt delivery trucks to dump their entire salt load into the shed, it is common for the salt to be dumped at the edge of the door, and then pushed into the shed using a loader. This provides the opportunity for salt to dissolve in rain or snow, and flow downhill towards and into the river. Additionally, the liquid deicing tanks may leak, be accidentally punctured, and lose their product to the river. Jersey barriers currently protect the liquid deicing tanks. Relocating the entire DPW Highway Facility and operations away from the river is a positive, as the potential for river contamination decreases, and the ability to store materials safely improves, and the ability of DPW to better meet the needs of Milton residents is improved. The Town is currently building its new Public Works Garage which the voters approved a bond for in the spring of

2022. Funding the salt shed is the last hurdle to complete to move the full operations from its current site to a better site.

☐ **D. Environmental Mitigation Activity Related to Wildlife**

i. Please describe how this application will reduce vehicle-caused wildlife mortality or will restore and maintain connectivity among terrestrial or aquatic habitats. **(10 points max.)**
Click here to enter text.

ii. What information or data is provided to substantiate the current problem and associated environmental impacts? **(10 points max.)**
Click here to enter text.

iii. What substantiating data or information is provided to show that the proposed application is an effective and manageable solution to the problem? **(10 points max.)**
Click here to enter text.

CHITTENDEN COUNTY RPC
Communities Planning Together

110 West Canal Street, Suite 202
Winooski, VT 05404-2109
802-846-4490
www.ccrpcvt.org

November 7th, 2023

Lisa Schaeffler – Director, Department of Public Works – town of Milton, VT

Re: SFY 2024 VAOT Transportation Assistance Program (TAP) - Milton Municipal Salt Shed

Dear Lisa Schaeffler,

The Chittenden County Regional Planning Commission is pleased to support your proposal for a SFY24 Vermont AOT Transportation Alternatives (TAP) grant for the construction of a new salt/sand shed. This new appropriately sized facility will result in less runoff into Milton's waterways and will make the town's assets more resilient during severe weather events.

The project is consistent with Strategy #3.2.3 of the County's 2018 Regional Plan aka the *ECOS Plan*, which calls for actions to "improve the safety, water quality, and habitat of our rivers, streams, wetlands and lakes in each watershed."

The Town of Milton has been in a leader in the region in systematically identifying and fixing water quality concerns. This project, if brought to fruition, will add to this litany of the Town's achievements and most importantly, help to improve water quality and prevent future damage to impaired waterways.

Please let me know if there is anything else we can do to support this project. Please feel free to contact me should you have any questions.

Best regards,

Chris Dubin
Senior Transportation Planner

RESOLUTION
Town of Milton Selectboard

Resolution to support a Fall 2023 Transportation Alternatives Program and Municipal Highway and Stormwater Mitigation Program grant application from the Vermont Agency of Transportation

WHEREAS, the voters of the Town of Milton approved $5,500,000 to be borrowed to build a new Public Works garage on Town Meeting Day 2022 by a vote of 1,490 to 462; and

WHEREAS, the Town of Milton received $300,000 in Transportation Alternatives Program grant money from the Vermont Agency of Transportation for a new salt shed to be built in addition to the new Public Works garage but had to return the money because the Transportation Alternatives Program grant funding originated from federal funds and would require site work for the new Pubic Works facility to undergo the National Environmental Policy Act (NEPA) process, and those associated complexities would delay the construction of the Public Works garage a minimum of two, but most likely three, years; and

WHEREAS, the Town of Milton staff has been in contact with the Vermont Agency of Transportation and has been given reassurances that returning prior grant monies in no way negatively impacts the Town of Milton's chances of receiving the same grant for a future salt shed project; and

WHEREAS, the Town of Milton has begun the construction of the new Public Works Facility, and NEPA review would be constrained to just the Salt Shed portion of the project at this time; and

WHEREAS, the Town of Milton is an MS4 designated community and has a current salt shed too close to waters that impact Lake Champlain,

THEREFORE, BE IT RESOLVED, that the Town of Milton Selectboard supports the Town of Milton's Fall 2023 application for a Transportation Alternative Program and Municipal Highway and Stormwater Mitigation Program grants for up to $500,000.

Dated at Milton, Vermont this 6th day of November, 2023.

MILTON SELECTBOARD

Darren Adams, Chair

Michael Morgan, Vice Chair

Brenda Steady, Clerk

Brenda Steady, Clerk

Leland Morgan, Member

Chris Taylor, Member

Filed with the Milton Town Clerk's Office this 7th day of November, 2023

Attest: Kristi Beers

Town of Milton – Selectboard Meeting
43 Bombardier Road, Milton VT 05468
In Person and/or via Zoom – Community Room
Monday, November 6, 2023 at 6:00 p.m.

MINUTES

Selectboard Members Present: Darren Adams, Chair; Michael Morgan, Vice Chair; Brenda Steady, Clerk; Leland Morgan, Member; Chris Taylor, Member

Selectboard Members Absent: None

Staff Members Present: Don Turner Jr., Town Manager; John Bartlett, HR and Operations Director (remote); Brittany Tradup, Executive Assistant to the Town Manager; Michaela Foody, Public Safety Director; Amber N. Baker, Finance Director (remote); Jenna Tucker Eugair, Recreation Director; Lisa Schaeffler, Public Works Director

Others Present: Robert Lombard; Fran Tougas; Ben Frye; Diane Barrows (remote); Liz Curry, CommonLand Solutions, LLC (remote)

I. Call to Order

D. Adams called the meeting to order at 6:00 p.m.

II. Flag Salute

D. Adams led the attendees in the Pledge of Allegiance.

III. Agenda Review

Remove Item XII and add flood update just before the Manager's update.

IV. Public Forum

Robert Lombard made a public statement.

V. Approve Expenses Related to Catamount Waterline Project

Don Turner, Jr., Town Manager

D. Turner introduced this item, reviewing the history of the project, as per the following memo:

To: Milton Selectboard
Date: November 6, 2023
From: Don Turner, Town Manager
Re: The Town connected the 4" and 10" water distribution mains to upgrade service and increase capacity to the current and future users located in the Industrial Park.

Project update:

The projected was substantially completed in early January 2023. However, the upgrade reduced the mainline pressure, which negatively affected the fire suppression systems located in the Industrial Park.

We contracted with an engineer that specializes in fire suppression systems. Understanding this was a potential liability to the Town, we worked together to determine the most efficient and cost effective way to resolve this issue. The agreed upon resolution was to install a pressure reducing valve in any property that did not currently have the device and then restore the main line pressure to what existed prior to the upgrade. A Cooper Inc. completed the work in June 2023 and the entire system is functioning as designed as of late June 2023.

A Cooper Inc. emailed the invoice in June but we did not receive it. They notified us last week that it had not been paid. When processing the payment we realized that the amount exceeded the Town Managers purchasing authority. Therefore, we are seeking Selectboard authorization to make this payment.

Motion made by M. Morgan to authorize a payment of $15,880.58 from the water department budget to A. Cooper Mechanical Inc. for all labor and materials to install 16 pressure-reducing valves at properties served by the Town's upgraded water distribution system in the area of Catamount Industrial Park., with a second by L. Morgan. Motion approved unanimously.

VI. Consent Agenda

- **Approval of Selectboard Meeting Minutes of 10/16/2023**
- **Approval of Selectboard Special Meeting Minutes of 10/30/2023**
- **Approval of Warrant #8**

Motion made by B. Steady to approve the Consent Agenda, with a second by L. Morgan. Motion approved unanimously.

VII. Recreation Commission Appointment: Fran Tougas

Jenna Tucker Eugair, Recreation Director

Fran Tougas and Jenna Tucker Eugair responded to questions from the Selectboard.

Motion made by M. Morgan to appoint Fran Tougas to the Recreation Commission for a 3-year term, with a second by B. Steady. Motion approved unanimously.

VIII. Planning Commission Reappointment: Ben Frye

Cymone Bedford, Planning and DEI Director

Ben Frye responded to questions from the Selectboard.

Motion made by C. Taylor to reappoint Ben Frye to the Planning Commission for a 4-year term, with a second by L. Morgan. Motion approved unanimously.

IX. Vermont Community Development Program (VCDP) Grant

Liz Curry, CommonLand Solutions, LLC

- **Approve Additional $50,000**
- **Approve Subgrant Agreement for Milton Mobile Home Cooperative**
- **Approve Agreement for Grant Admin and Project Management Services for Milton Mobile Home Cooperative with CommonLand Solutions, LLC**

D. Turner introduced this item, recapping the history of the project and introducing Liz Curry. L. Curry provided additional information. D. Turner read the following resolution out loud.

RESOLUTION RELATING TO AMENDED GRANT AGREEMENT #07110-IG-2018-Milton-25

WHEREAS, the Town of Milton has applied for funding under the Vermont Community Development Program (VCDP), as provided for in 10 V.S.A. Ch. 29, and has received an award of funds under said provisions; and

WHEREAS, the Agency of Commerce and Community Development (ACCD) has tendered Grant Agreement #07110-IG-2018-Milton-25 (the "Grant Agreement") to the Town for said funding; and

WHEREAS, the Town previously approved the Grant Agreement; and

WHEREAS, ACCD has tendered a Reinstatement and First Amendment to Grant Agreement #07110-IG-2018-Milton-25 (the "Amended Grant Agreement") to the Town for said funding; and

WHEREAS, the Town has prepared a Subgrant Agreement with Milton Mobile Home Cooperative (the "Subgrantee") and a Contract for Administrative Services/Program Management Agreement (collectively, the "Additional Agreements" and together with the Amended Grant Agreement, the "Grant-related Agreements"); and

WHEREAS, the Town and the Subgrantee are discussing a mortgage deed from the Subgrantee to the Town.

Now, THEREFORE, BE IT RESOLVED as follows:

1) that the legislative body of the Town accepts and agrees to the terms and conditions of the Amended Grant Agreement, in substantially the form presented.

2) that the legislative body of the Town accepts and agrees to the terms and conditions of the Additional Agreements, subject to the satisfaction of the Town Manager after Town attorney review.

3) that, if the Town Manager deems it within the best interests of the Town, the Town may accept a mortgage deed from the Subgrantee, in a form satisfactory to the Town Manager after Town attorney review.

4) that Liz Curry of CommonLand Solutions, LLC is hereby designated as the person with overall Administrative responsibility for the VCDP activities related to this Amended Grant Agreement; and

5) that Don Turner, who is the Town Manager, is hereby designated as the Authorizing Official (AO) to execute the Grant-related Documents and other such documents as may be necessary to secure these funds and achieve the project objective.

Motion made by L. Morgan to authorize the Town Manager as it is written in #5 of the resolution, with a second by B. Steady. Motion approved unanimously.

X. Purchase Fire Department Rescue Tools

Chris Poirier, Fire Chief

C. Poirier introduced this item, as presented in the following resolution, and responded to questions from the Selectboard.

Authorization to Purchase Replacement Vehicle Extrication Tools

WHEREAS, the Milton Fire Department seeks authorization to purchase a set of replacement Holmatro extrication tools and necessary equipment; and

WHEREAS, the Department's current Holmatro extrication tools were purchased with a grant in 2004 and, due to their age and new car manufacturing, do not have the ability to produce the force needed for today's construction of vehicles; and

WHEREAS, the Milton Fire Department has tested multiple different manufacturers' extrication tools and determined Holmatro tools to be the best fit for the Department due to multiple factors, including the membership's familiarity with the use of Holmatro tools, weight of the tools, cutting force of the tools, and reliability of the manufacturer; and

WHEREAS, Industrial Protection Services, LLC is the sole distributor of Holmatro tools in Vermont; and

WHEREAS, the set of Holmatro tools and equipment will include a battery operated cutter, spreader, and ram, along with six associated batteries, three chargers, and five cords, for a total of $45,000.000; and

WHEREAS, there is $42,000.00 allocated in the FY24 Capital Improvement Plan, funded by the Fire and Rescue 3/4 Cent Fund, for Replacement Vehicle Extrication Tools, and the remaining $3,000.00 will be paid from the FY24 Fire Department General Fund Budget; and

WHEREAS, the current tools will be kept by the Milton Fire Department as back-up equipment.

NOW, THEREFORE, BE IT RESOLVED by the Milton Selectboard that the Town Manager, or his designee, is authorized to execute the necessary documents to purchase a set of Holmatro extrication tools and necessary equipment for a total cost not to exceed $45,000.00.

Motion made by M. Morgan to authorize the Town Manager, or his designee, to execute the necessary documents to purchase a set of Holmatro extrication tools and necessary equipment for a total cost not to exceed $45,000.00, with a second by L. Morgan. Motion approved unanimously.

XI. Approve VTrans TAP Grant and Stormwater Mitigation Grant for New Salt Shed

Corey Parent, Consultant

Corey Parent introduced this item as per the following resolution.

Resolution to support a Fall 2023 Transportation Alternatives Program and Municipal Highway and Stormwater Mitigation Program grant application from the Vermont Agency of Transportation

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WHEREAS, the Town of Milton staff has been in contact with the Vermont Agency of Transportation and has been given reassurances that returning prior grant monies in no way

negatively impacts the Town of Milton's chances of receiving the same grant for a future salt shed project; and

WHEREAS, the Town of Milton has begun the construction of the new Public Works Facility, and NEPA review would be constrained to just the Salt Shed portion of the project at this time; and

WHEREAS, the Town of Milton is an MS4 designated community and has a current salt shed too close to waters that impact Lake Champlain,

THEREFORE, BE IT RESOLVED, that the Town of Milton Selectboard supports the Town of Milton's Fall 2023 application for a Transportation Alternative Program and Municipal Highway and Stormwater Mitigation Program grants for up to $500,000.

Motion made by C. Taylor to allow the Town Manager or his designee to apply for a Transportation Alternative Program and Municipal Highway and Stormwater Mitigation Program grants for up to $500,000, with a second by L. Morgan. Motion approved unanimously.

XII. Award Contract to Stantec for 2024 Paving Plans

Lisa Schaeffler, Public Works Director

L. Schaeffler introduced this item. She provided information about timing and reasoning for recommending this action. There was discussion about the purchasing process. No action was taken.

XIII. Flood Update

Michaela Foody, Public Safety Director

M. Foody provided an update on the Town's application for FEMA public assistance with expenses related to the July flood event. She reviewed the process followed to date and provided an overview of the damage to Town property that is eligible for public assistance. In order to qualify for FEMA public assistance, each individual project would have to meet a minimum expense of $3,800. None of the projects outlined in the Town's application meet this minimum. Therefore, the Town is advised to withdraw its request for public assistance for the Vermont flood event DRVT 4720. This action will not have an impact on obtaining federal assistance for future disaster events, nor will it impact the Town's federal aid highway application for West Milton Rd. It will also not impact any resident's or business's ability to apply for a FEMA Individual Assistance. No action is required by the Selectboard.

Foody and L. Schaeffler responded to questions from the Selectboard and there was a brief discussion.

XIV. Update from Town Manager and Board Members

Don Turner, Jr., Town Manager

D. Turner provided the following updates:

- Fire, rescue and Police apparatus escorted the High School Girls' Soccer team back into Town on Saturday after they won the Division 2 State Championship.
- The Town received the permit for the solar array at the wastewater treatment plant on Monday, October 23. Lease details are being finalized now in anticipation of construction in the coming months.
- Hedge row behind Municipal building was trimmed for the first time.
- Work on the Town Forest continuing. The completion date was extended until November 15, 2023, due to the rain.

- Someone has illegally cut some limbs and branches in the Town Forest. The conservation commission will place some simple signs along the trails stating that visitors should not cut anything without authorization from the Town of Milton.
- The Conservation commission members and some volunteers replaced a 10' bridge washed away during the July flood on the Lamoille River Walk.
- Northwest FiberWorx 2023 Annual Report will be emailed to Board members this week.
- New public works facility contractors are beginning to mobilize on the site over the next two weeks.
- The Town has begun work on revising policies and will be bringing information to the Selectboard in the coming meetings. Turner will also be bringing forth a remote work policy for the Selectboard's consideration after numerous requests.
- The Town has been reviewing the data for westbound traffic on Main Street: 85% are traveling below 38 MPH and 50% are below the posted speed limit. These numbers appear good on the surface, however we will be setting up the device to survey eastbound traffic. The Town is also continuing with random speed enforcement to help address concerns. Interestingly, the speeds are highest between 10 pm and 2 am.
- The Town is working on the following proposed Selectboard budget meeting schedule: December 11, 12, 13, 18, 19, and, if necessary, Wednesday, December 20. With this schedule, the budget would be finalized for Town meeting on Tuesday, January 2, 2024.
- 250th Anniversary of the Declaration of Independence is coming. The Vermont Division of Historic Preservation will begin commemorations in 2025, with the capture of Fort Ticonderoga and Crown Point, and finish in 2027 with Vermont's signature anniversary year marking the founding of Vermont. They would like each Town to adopt a resolution and establish a liaison committee with the state committee. Turner will contact the Milton Historical Society to lead this effort.

D. Adams noted that, as part of the review of policies and the admin code, that all committees, boards and commissions of the Town should have a virtual meeting option, and should follow a standard process for the development and posting of agendas and minutes.

Brenda added that she has been attending Tai Chi at the Milton Grange Hall, and she offered a couple of suggestions: a seating option for changing shoes and a coat rack. There was a brief discussion with Turner regarding the maintenance plan for the floors.

XV. Adjournment

Motion made by L. Morgan to adjourn the meeting at 7:09 p.m., with a second by M. Morgan.
Motion approved unanimously.
Meeting adjourned by D. Adams.

All documents pertaining to this meeting may be viewed using the following link:
https://miltonvt.box.com/s/8zy4c5n0rdkmhhm3cfpk5wv060buabhi

A video recording of this meeting can be found at the following location:
https://miltonvt.box.com/s/0489ug1ncem50pe2gqfp5twysochtww0

Respectfully Submitted,

Brittany Tradup

APPROVED MINUTES:

Brenda Steady, Clerk Date: 11/20/23

Brenda Steady, Clerk

Filed with the Milton Town Clerk's Office on this 21st day of November, 2023.

ATTEST: Kristi Bean, Milton Town Clerk


Exisiting Salt Shed Locations
Existing Salt Shed 1
Existing Salt Shed 2
Ice Harvest Rd
Ice Harvest Rd
Ridge Ave
Ridge Ave
Arrowhead Lodge
Google Earth
© 2021 Google
N
300 ft


Proposed Salt Shed Location
Premier Tire & Automotive Inc
Jemisons Ct
Rick's Grill Milton
UVM Medical Center Family Medicine - Milton
Dollar General
Dunkin'
Milton Public Library Vermont
Rail Liquor & Beverage
Bombardier Park West
Champlain Valley Horseshoe Club
Bombardier Park East
Proposed Salt Shed Location
Proposed Public Works Facility Location
Subdivision Area
Google Earth
© 2021 Google
1000 ft
N


Exisiting and Proposed Salt Shed Locations
Existing Salt Shed 1
Existing Salt Shed 2
Milton
Milton
Limoges Road
Checkerberry Village
West View
Milton High School
Proposed Salt Shed Location
Bombardier Park West
Proposed Public Works Facility Location
Subdivision Area
Google Earth
N
2000 ft

Photo 1. Milton's DPW Highway Garage. Salt shed bay is the one on the far right, and also seen are the two MgCl tanks (yellow), and the fuel tank (blue) next to them and behind the truck and port-o-let.

Photos 2. Salt shed bay. Door is too small, resulting in the frame commonly getting hit. Delivery trucks can't get completely inside the shed. Fuel tank on the right, outside the building. This bay has a 400 ton capacity.

Photo 3. Salt shed bay door.

Photo 4. Fuel tank (blue), and MgCl tanks (yellow) behind jersey barriers.

Photo 5. Temporary, supplemental salt shed constructed in fall of 2019. 200 ton capacity.

Photo 6. Temporary salt shed on the left, uncovered winter sand pile in the back.

Photo 7. Inside the salt shed. Right side wall is bowed out due to weight of salt against it over time.

Photo 8. Inside of salt shed, left side.

Photo 9. Looking west out of salt shed. Mist/vapor is coming off the Lamoille River, immediately below the outfall from the Arrowhead Lake dam. The dam is on the right. The grade off the parking lot is toward the river.

Town of Milton
TAP & MHSMP Grant Application
Pictures of Current DPW Complex Under Construction
November 2023

Town of Milton
TAP & MHSMP Grant Application
Pictures of Current DPW Complex Under Construction
November 2023

Milton Department of Public Works Highway Garage Relocation Committee

Final Report

April 19, 2021

Prepared by:

Milton Highway Garage Relocation Committee

David Allerton, P.E., Director of Public Works
Eric Gallas, DPW Highway Superintendent
Bruce Trombly, DPW Senior Equipment Operator
Dana Maxfield, Former Select Board Member
Julianne Heisler, Milton Resident
Robert Ashton, Milton Resident

Contents

Project Background

The Milton Department of Public Works Highway Garage is located on Ice House Road, adjacent to the Arrowhead Lake Dam and Lamoille River. This location provides a centralized site to access the town for general maintenance and snow plowing, however, there are several drawbacks associated with the location and the garage itself.

With the location adjacent to the Lamoille River, there is the daily potential for contamination from stored materials to flow into the river. The salt storage shed's door opens facing the river, and liquid deicing agents are stored in large tanks adjacent to the building. The salt storage shed is too small to hold the amount of salt needed for a typical Vermont winter. The door is too low to allow salt delivery trucks to dump their entire salt load into the shed, it is common for the salt to be dumped at the edge of the door, and then pushed into the shed using a loader. This provides the opportunity for salt to dissolve in rain or snow, and flow downhill towards the river. In the late fall of 2019, the highway crew constructed a temporary salt shed in the back of the yard to hold an additional 200 tons of salt. Additionally, the liquid deicing tanks may leak, be accidentally punctured, and lose their product to the river. Jersey barriers currently protect the liquid deicing tanks.

The garage itself is too small to adequately protect the Town's investment in trucks and heavy equipment. There are two bay doors providing access to the garage. During the winter months, it is imperative to provide a covered and heated area to park the plow trucks and equipment overnight when not in use. With only two bay doors, and insufficient area inside the garage, the vehicles must go into the garage one at a time, and be moved back and forth several times in order to maximize the storage space and minimize the footprint of each vehicle. This process can take up to 45 minutes in the morning, and 45 minutes again at the end of the day's plowing efforts. Once the vehicles are in the garage, there is virtually no room for drivers to walk between vehicles safely. Additionally, there is not room for all of the equipment to get inside out of the cold, and the highway crew must choose which equipment is more important to get inside at the time. The loader, excavator, backhoe, grader, or sidewalk plows do not always get a place inside, making them more difficult to start on a cold winter morning. Being stored inside will prolong the life of all DPW equipment.

Photo 1. Proximity of vehicles stored during freezing overnight conditions. No room for staff to walk between vehicles.

Photo 2. Proximity of vehicles stored during freezing overnight conditions.

Photos 3 and 4. Plow wings within inches of the wall.

The current facility does not have a wash down bay for removing salt and dirt off the plow trucks. There is one floor drain in one of the bays, which leads to an oil water separator, prior to discharge. When washing a vehicle, water splashes everywhere, i.e., over the walls, tools, and other nearby equipment.

There are numerous reasons the current building and location are not sufficient for use as a DPW Highway Garage, thus the need to evaluate and identify alternative sites for the construction of a new highway garage facility. Additionally, the current garage location is leased from Green Mountain Power, and not owned by the Town.

Scope of Work

The Milton Select Board established the Department of Public Works Highway Garage Relocation Committee in the early summer of 2019. The committee included employees of the Milton Department of Public Works, a member of the Milton Select Board, and Milton Residents. The committee met every other week beginning in late July 2019. The committee worked through February 2020, when the Covid-19 pandemic began, and in person meetings were halted; this report was subsequently delayed.

The Committee's scope of work included the following items:

1. Identify potential locations for a new highway garage
2. Identify the needs of a new highway garage, i.e., size, features, proposed conceptual level design, etc.

3. Develop a conceptual level cost estimate and schedule (as best as possible without an engineered design). Costs are dependent on location and the needs of a site.
4. Identify potential funding sources for assistance.
5. Report back to the Select Board by March 31, 2020. Due to Covid-19 and staff turnover, the delivery of the report was delayed.

Highway Garage Location Requirements

Locations for a new DPW Highway Garage Facility were evaluated based on their access to required utilities, lot size available, and proximity to residential, commercial, or open land. In order for a site to be viable, it would need to meet the following requirements:

1. Have access to water, wastewater, electricity, and natural gas.
2. Be centrally located to be able to access all parts of town easily.
3. Be approximately 6- to 8-acres in size
4. Must have adequate space to layout the garage building, a separate salt/sand storage structure, provide cold storage, and have space to stockpile materials, such as sand, gravel, stone, topsoil, culverts, etc.
5. Have minimal visual and noise impact on nearby residential and commercial properties.

Needs of a New Highway Garage Facility

The committee, with input from the DPW Highway Division staff, identified the needs of a new highway garage facility. This, and a concept floorplan drawing of a new highway garage can be found in Appendix 1.

Municipally Owned Properties

The committee evaluated approximately 40 town owned properties. See Appendix 2 for a list of properties and location map. The committee discussed each property, and found the majority of them to be unsuitable. Properties were identified as unsuitable if there was not adequate land available, if it would have been cost prohibitive due to the need for long extensions of water and/or wastewater infrastructure to reach the site, if they were too near a residential area, etc. The most promising municipally owned properties were:

1. The property off Quarry Court. This would have issues with access. The only access is a Town ROW off Quarry Court at the end of the cul-de-sac; Husky was not interested in offering access off of North Road.
2. The Municipal Complex area and ball field area. This area is too close to the playing fields, and would be in conflict with sports and other community activities.
3. Tracy Estates. This site was deemed too far away, and there was no access to water and sewer.
4. The Bombardier Property, on the corner of Bombardier Road and Middle Road. This is a prime piece of property for development, and the Bombardier Review Committee did not see a new highway garage as a good use of this property.

While these were the most promising locations, none of them were deemed good locations for a new town highway garage.

Privately Owned Properties

The committee evaluated numerous privately owned properties. The most promising of these were the Brault property (adjacent to the municipal complex and Bombardier Park), the Gardner/Jimmo property off Route 7, and the Lamelle property off West Milton Road. See Appendix 3 for additional information. The committee discussed each property, and determined only two of these were feasible, the Brault property and the Gardner/Jimmo property.

1. The Brault Property. This property is located adjacent to the Milton Municipal Building Complex. The Town Manager is currently in discussions with the property owner on the possibility of giving the needed acreage to the Town, in return for an increase in development density for the remainder of the site. A very preliminary drawing of the site, with a garage facility can be found in Appendix 3. There are mapped wetlands on the site, and the draft plan developed shows how a highway garage could fit and function within these constraints. This location would solve several issues.
    a. It would provide the town a location at no cost.
    b. It would provide for the eastern terminus of a town road which would parallel Route 7. This road is in the town plan for completing.
    c. It would provide water and sewer to the area on Willy's Lane, which is currently connected to town sewer at Route 7, but is connected via separate pump stations and force mains.
2. The Gardner/Jimmo property. This property is located off Route 7, across from the Milton Diner. We have had discussions with the property owner, and they are willing to construct a garage facility for the Town, which the Town would lease for an agreed upon amount and period of time.
3. Lamelle property. This property is located off West Milton Road, and was deemed too far from the center of town for good, and had wetlands which would make completing the project difficult.

Conceptual Level Cost Estimate and Schedule

It is difficult to come up with an accurate cost estimate for a building like this without a final design plan, however, costs for similar facilities were found, and are summarized here.

1. $6M, Williston Town Highway Garage, included land purchase.
2. $750K, Rutland three bay garage.
3. $525K, Glover, 50' by 100' four bay garage.
4. $4.2M, Saint Albans Town, eleven bay garage, including a new salt shed.

The new Williston garage closely resembles what Milton needs in a new highway garage facility. A reasonable estimate for a new highway garage facility would be in the $4M to $5M range.

In discussions with the Town Manager, the goal would be to schedule a bond vote for Town Meeting Day 2022, with construction occurring in 2022 and 2023.

Funding Sources

Transportation Alternative Grants through the Vermont Agency of Transportation can provide up to $300,000 for the construction of a salt shed. The local match for a grant in this amount would be $75,000. We did not find any additional grant programs for a public works facility.

Recommendations

The top locations for a new highway garage facility are:

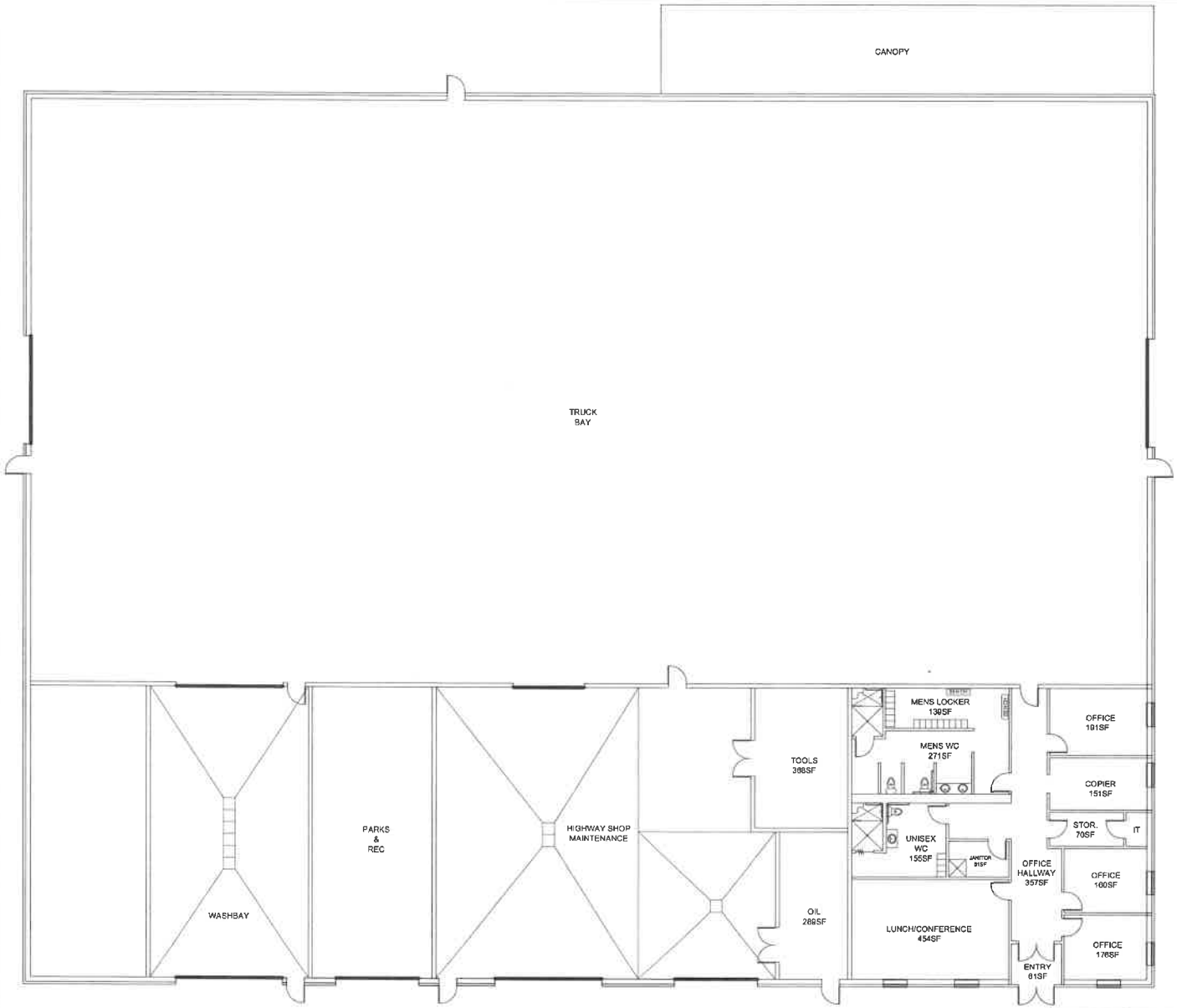
1. Brault Property (adjacent to Town Municipal Complex)
2. Gardner Property, Jeff Jimmo purchasing the property for development.
3. Quarry Lane Property. Municipally owned property.
4. Municipal Complex & Recreation Fields. Municipally owned property.
5. Bombardier Property. Municipally owned property.

Appendix 1 – List of DPW Highway Garage Needs and Conceptual Level Floor Plan

The Needs of a New Highway Garage Facility

1. Break Room, with kitchen items (fridge, microwave, etc.)
2. Meeting Room
3. Offices area with air conditioning
4. Multiple Bathrooms with air vents
5. Two locker rooms (men's and women's) with lockers and showers
6. Eyewash station
7. Kitchen
8. Wash bay with hot water pressure washer
9. Mechanics Bay
10. Salt shed – covered
11. Sand shed – covered
12. Want all equipment to be stored inside, and to have a parking spot
    a. Grader, loader, bobcat, sidewalk machines, trucks, excavator, backhoe, vac-truck etc.
13. Exterior lighting, motion sensors
14. Outside cameras
15. Fencing
16. Internet/cable
17. Storage rooms
    a. Mechanics Tools
    b. Flammable Storage
    c. Oil waste
    d. Signs
    e. Tires
    f. Hand tool room
    g. Parts room; miscellaneous truck parts, tires
    h. Propane cylinder storage
18. Cold Storage
    a. Cones, straw matting, fertilizer, hydro-seeder material, hay, etc.
    b. Miscellaneous material
19. Outside
    a. Sand piles
    b. Aggregate; gravel
    c. Topsoil
    d. Concrete pit for water decanting
    e. Covered area for cold and hot patch
    f. CaCl and MgCl, with secondary containment

    g. Culvert storage
    h. Trench boxes
    i. Fuel tanks
20. Storage for Plow supplies
21. Mechanical Room
22. Water sprinklers
23. Don't need three phase power
24. Compressor room
25. Welding area
26. Ventilated area for painting
27. Oil/water separator
28. Outside racks
29. A bay for Buildings & Grounds.
30. Tire changer and balancer
31. Overhead crane
32. Lift
    a. Small one for vehicles
    b. Larger one for dump trucks
33. Parking lot size and outside lighting
34. Landscaping
    a. Sound berms
35. Utilize green infrastructure where possible
36. Stormwater
37. Municipal water/sewer connections including a fire hydrant
38. Natural gas, if possible
39. Waste Steel Storage, concrete slab with fencing
40. New chairs and tables
41. Storage racks
42. Workbenches
43. Oversized doors
44. Signs
45. Other



DPW GARAGE PLAN

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

North

DPW GARAGE SITE PLAN

TOWN OF MILTON
PUBLIC WORKS
ENGINEERING DIV.

DRAWN BY:	SCALE
ANT	NTS
DATE	DRAWING
1/14/2020	S1

Appendix 2 – Municipally Owned Properties

Town of Milton Public Land					
No.	Description	Acres	Sewer On/Near Site	Water On/Near Site	Location
1	Beeman Preserve	15	N/A	N/A	No
2	Bridge ROW	1	N/A	N/A	No
3	Checkerberry Cemetery	0.95	N/A	N/A	No
4	Checkerberry Square Open Land	72.92	Maybe	Yes	Maybe
5	Eagle Mountain	229	N/A	N/A	No
6	Historical Museum	0.24	N/A	N/A	No
7	Lamoille River Wildlife Area	233.6	N/A	N/A	No
8	Landfill	16.7	Maybe	Maybe	Maybe
9	MES/MMS	31.8	N/A	N/A	No
10	McGrath Reservoir	0.37	N/A	N/A	No
11	Milton High School	48	N/A	N/A	No
12	Milton Pond	212	N/A	N/A	No
13	Miltonboror Cemetery	1.5	N/A	N/A	No
14	Misc. State Property	304	N/A	N/A	No
15	Municipal Complex & Recreation Fields	138.3	Yes	Yes	Yes
16	Oglewood Open Land	0.8	Yes	Yes	No
17	Old Fire Station	0.8	Maybe	Yes	Yes
18	Old Fire Station Yard	0.8	Maybe	Yes	Yes
19	Open Space State	76	N/A	N/A	No
20	Plains Cemetery	1.8	N/A	N/A	No
21	Public Works Garage	0.44	Yes	Yes	Yes
22	Quarry Lane Common Land	39.78	Yes	Yes	No
23	Ridge Field Open Land	34.75	Maybe	Maybe	Maybe
24	Sandbar State Park	20	N/A	N/A	N/A
25	Swamp		N/A	N/A	N/A
26	Town Forrest	138	No	No	No
27	Town Forest Access	59.7	No	No	No
28	Town Misc.	1.36	N/A	N/A	N/A
29	Town Misc.	0.42	N/A	N/A	N/A
30	Tracy Estates	43.05	No	No	No
31	US Post Office	2.5	N/A	N/A	N/A
32	Van Everest Boat Access	7.2	N/A	N/A	N/A
33	WW Pump Station	0	N/A	N/A	N/A
34	WWTF	18.5	N/A	N/A	N/A
35	Water Plant	2.49	N/A	N/A	N/A
36	West Milton Open Land	6.89	No	No	No
37	West Milton Cemetery	1.26	N/A	N/A	N/A
38	West Milton Open Land	34.75	No	No	No
39	Wildlife Management Area	1560	N/A	N/A	N/A
40	Bombardier	4.8	Yes	Yes	Yes

N

Legend

- Parcel Boundaries
- Beeman Preserve
- Bridge ROW
- Checkerberry Cemetery
- Checkerberry Square Open Land
- Eagle Mountain
- Historical Museum
- Lamoille River Wildlife Area
- Landfill
- MES/MMS
- McGrath Reservoir
- Milton High School
- Milton Pond
- Miltonboro Cemetery
- Misc State Property
- Municipal Complex & Recreation Fields
- Oglewood Open Land
- Old Fire Station
- Old Fire Station Yard
- Open Space State
- Plains Cemetery
- Public Works Garage
- Quarry Lane Common Land
- Ridge Field Open Land
- Sandbar State Park
- Swamp
- Town Forest
- Town Forest Access
- Town Misc
- Town Misc.
- Tracy Estates
- US Post Office
- Van Everest Boat Access
- WW Pump Station
- WWTF
- Water Plant
- West Milton Open Land
- West Milton Cemetery
- West Milton Open Land
- Wildlife Management Area
- Town Boundary
- Private Roads
- Public Water Body
- Streams

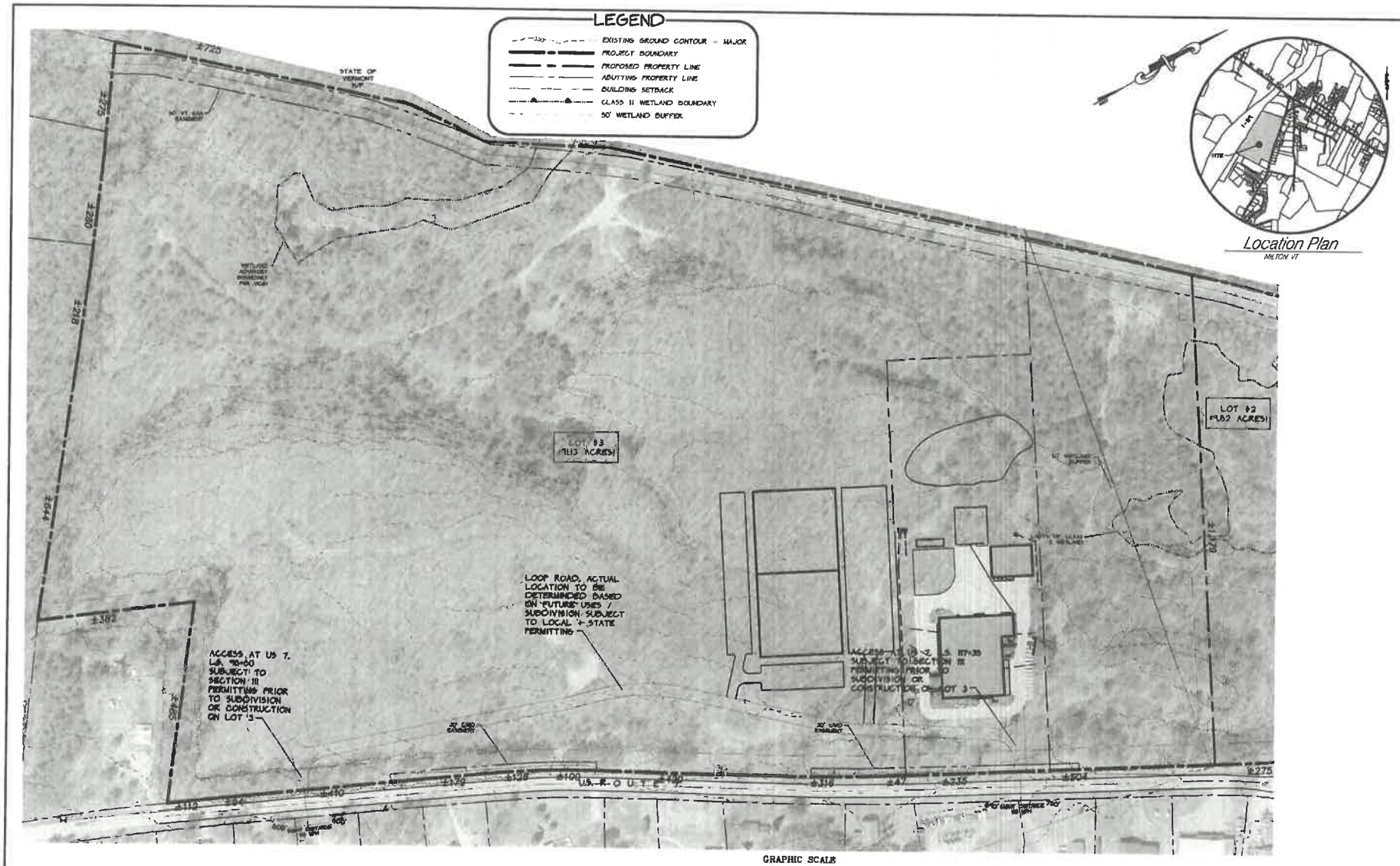
NOTE: Parcel boundary locations are aproximate.
Not for survey use.

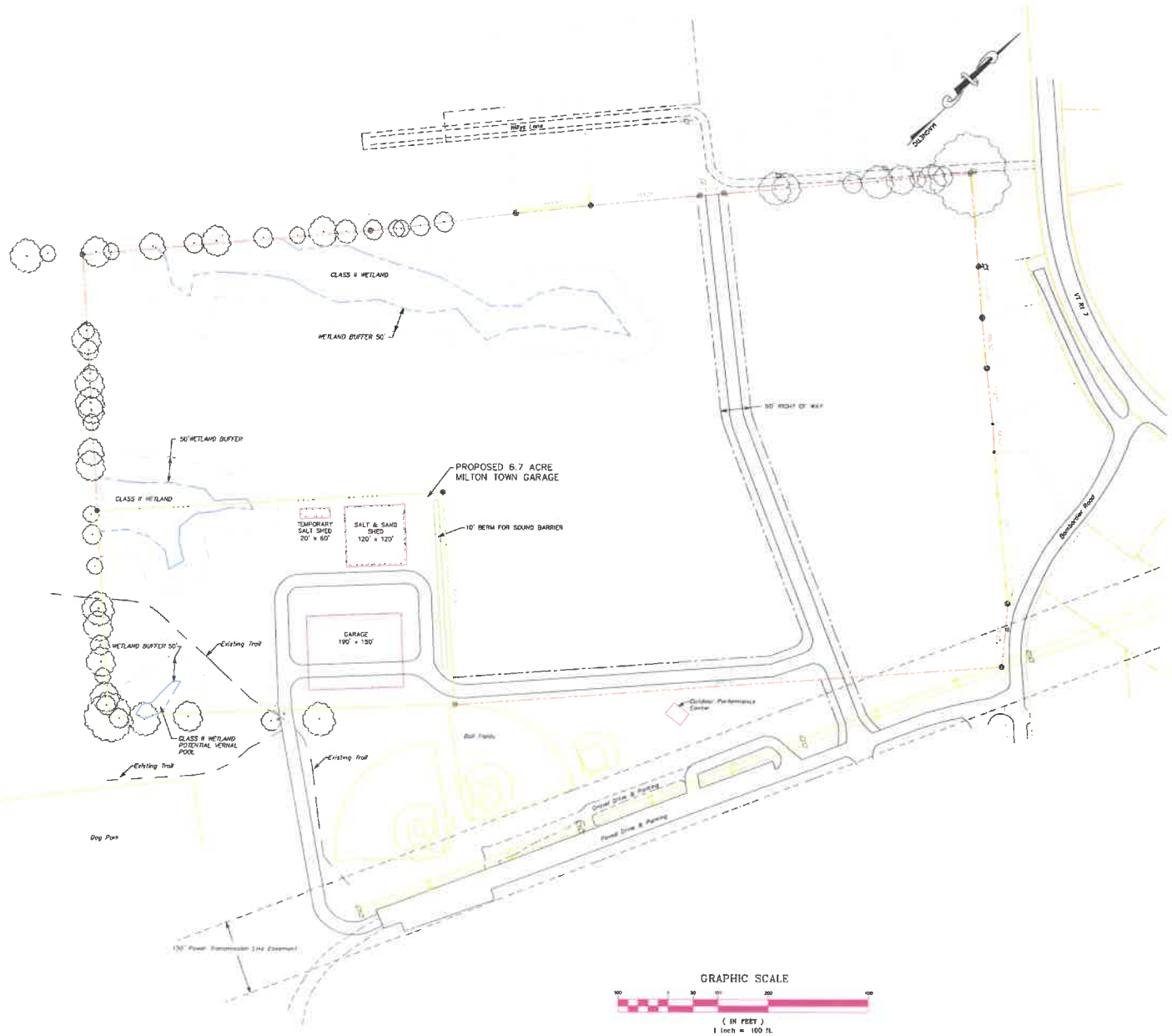
PUBLICALLY OWNED PROPERTIES

TOWN OF MILTON, VERMONT 05468
Department of Public Works:
Admin, Buildings and Grounds, Highway Operations, Water and Wastewater
43 BOMBARDIER ROAD MILTON, VERMONT 05468
TELEPHONE: 802-893-6030 • FAX: 893-1005 • www.miltonvt.org

1 inch = 2,000 feet	MUNICIPAL PROPERTIES
	Drawn By: RFH
Sheet No. C	Checked by:
	Date: 05/07/15

Appendix 3 – Privately Owned Properties


LEGEND
EXISTING GROUND CONTOUR - MAJOR
PROJECT BOUNDARY
PROPOSED PROPERTY LINE
ABUTTING PROPERTY LINE
BUILDING SETBACK
CLASS II WETLAND BOUNDARY
50' WETLAND BUFFER
STATE OF VERMONT R/W
LOT #3 (11.13 ACRES)
LOT #2 (9.82 ACRES)
LOOP ROAD, ACTUAL LOCATION TO BE DETERMINED BASED ON FUTURE USES / SUBDIVISION SUBJECT TO LOCAL + STATE PERMITTING
ACCESS AT US 7, LA 78+60 SUBJECT TO SECTION III PERMITTING PRIOR TO SUBDIVISION OR CONSTRUCTION ON LOT #3
ACCESS AT US 7, LA 117+35 SUBJECT TO SECTION III PERMITTING PRIOR TO SUBDIVISION OR CONSTRUCTION ON LOT #3
U.S. ROUTE 7
Location Plan
MILTON VT
GRAPHIC SCALE
(IN FEET)
1 inch = 100 ft.
THE CONTRACTOR SHALL NOTIFY "DIGSAFE" AT 1-888-DIG-SAFE PRIOR TO ANY EXCAVATION.
O'LEARY-BURKE CIVIL ASSOCIATES, PLC
INTERSTATE COMMERCE PARK
ROUTE 7 MILTON, VT
OVERALL PLAN
1


CLASS II WETLAND
WETLAND BUFFER 50'
50' WETLAND BUFFER
PROPOSED 6.7 ACRE
MILTON TOWN GARAGE
TEMPORARY
SALT SHED
20' x 60'
SALT & SAND
SHED
120' x 120'
10' BERM FOR SOUND BARRIER
GARAGE
190' x 130'
WETLAND BUFFER 50'
Existing Trail
CLASS II WETLAND
POTENTIAL VERNAL
POOL
Existing Trail
Existing Trail
Dog Park
Ball Fields
Outdoor Performance
Center
Gravel Drive & Parking
Paved Drive & Parking
130' Power Transmission Line Easement
VT Rt 7
Bombardier Road
GRAPHIC SCALE
(IN FEET)
1 inch = 100 ft.

Dave Allerton

From: j.gray stalbanstown.com <j.gray@stalbanstown.com>
Sent: Wednesday, September 29, 2021 9:59 AM
To: Dave Allerton
Cc: c.johnson stalbanstown.com
Subject: RE: Saint Albans Salt Shed Cost
Attachments: TOSA Salt Shed STP MM19-1 RFQ-FINAL.pdf; TOSA Salt Shed Plans-FINAL.pdf

Good morning Dave, great to hear from you!

Hey, and thank YOU for helping the Town Hall project happen!

My records indicate that we spent **$983,431.05** on the construction of the salt shed.

Attached, please find the Request for Qualifications for contractors that Matt Young, our Project Manager generated for the project. I've also attached the salt shed plans.

Please let me know should you require anything further.

Good luck!
Peace,
Jenn

Jennifer Gray, Executive Assistant
Town of St. Albans
P.O. Box 37
St. Albans Bay, VT. 05481
Ph: 802-524-7589 x. 107

From: Dave Allerton <dallerton@miltonvt.gov>
Sent: Wednesday, September 29, 2021 8:34 AM
To: c.johnson stalbanstown.com <c.johnson@stalbanstown.com>; j.gray stalbanstown.com <j.gray@stalbanstown.com>
Subject: Saint Albans Salt Shed Cost

Good morning, Carrie and Jenn,

It's been a long time since I contacted you, and I see the new municipal building construction is going well. Congratulations on getting that one through! Since I live in the Town at the top of Congress Street, I also see they are working on the new sidewalk to Hardack. This is awesome!

As I have mentioned in the past, we are working on a new DPW Facility and salt shed in Milton. I am going to be applying for a VTrans grant for the salt shed, and was wondering if you had a final cost for the new salt shed constructed in Saint Albans. Any information you could assist me with would be appreciated, such as the final cost, the footprint, etc. We are looking at a 120-ft by 120-ft combination salt/sand shed.

Thanks for all you do for Saint Albans!

David K. Allerton, P.E.
Director, Department of Public Works
43 Bombardier Road
Milton, VT 05468
802-893-6655 Office
(he, him, his)

Notes:

1. Test borings were performed on Oct 18 & 19, 2021 under the direction of JTC. Test boring locations should be considered approximate.
2. Refer to the Test Boring Logs for the subsurface conditions encountered at each boring location.
3. Basemap source(s): October 2021 "Google Maps".
4. Not to Scale.

Deriek Read **164 Main Street** **Colchester, Vermont 05446**	**Proposed Milton Public Works Building** **Park Place** **Milton, Vermont**
JOHN TURNER CONSULTING	**TEST BORING LOCATION PLAN**

JOHN TURNER CONSULTING

LOG OF BORING No. B-1

PROJECT: Milton Public Works Building **PROJECT NO.:** 21-04-079
CLIENT: Krebs & Lansing Consulting Engineers
PROJECT LOCATION: Milton, VT
LOCATION: See Boring Location Plan **ELEVATION:**
DRILLER: CASCADE **LOGGED BY:** EL
DRILLING METHOD: 4.25" I.D. HSA **DATE:** 10/18/21
DEPTH TO - WATER> INITIAL: ▽ 10.0 **AFTER 24 HOURS:** ▽

Depth (feet)	Description	Graphic	Elevation (feet)	Sample No.	Blow Counts	% < #200	TEST RESULTS
0	[FOREST MAT] Dark brown, silty Sand (SM), roots, organics; very loose			SS01	WOH .5 .5 1		Plastic Limit ⊢—⊣ Liquid Limit; Water Content - •; Penetration - ▨; 10 20 30 40 50
	0.5 [MARINE SAND] Light brown, Sand (SP) with silt; very loose			SS02	2 6 7 8		
4	2.2 [LACUSTRINE AND MARINE SILT] Grey-brown, Silt (ML); medium dense						
	-becomes loose			SS03	5 5 4 4		
8				SS05	5 5 3 2		
	▽ -becomes wet and very loose			SS05	1 2 2 3		•
12							
16				SS06	WOH WOH 1 1		
20	-becomes grey			SS07	WOH WOH WOH WOH		
24				SS08	WOH WOH WOH 1		
28	Boring terminated at 27 ft.						

Test boring backfilled with soil cuttings upon completion.

This information pertains only to this boring and should not be interpreted as being indicative of the site.

JOHN TURNER CONSULTING

LOG OF BORING No. B-2

PROJECT: Milton Public Works Building **PROJECT NO.:** 21-04-079
CLIENT: Krebs & Lansing Consulting Engineers
PROJECT LOCATION: Milton, VT
LOCATION: See Boring Location Plan **ELEVATION:**
DRILLER: CASCADE **LOGGED BY:** EL
DRILLING METHOD: 4.25" I.D. HSA **DATE:** 10/18/21
DEPTH TO - WATER> INITIAL: ▽ 8.5 **AFTER 24 HOURS:** ▽

Depth (feet)	Description	Graphic	Elevation (feet)	Sample No.	Blow Counts	% < #200	TEST RESULTS
0	[FOREST MAT] Dark brown silty Sand (SM) roots, organics; very loose			SS01	.5 .5 1 1		Plastic Limit ⊢—⊣ Liquid Limit; Water Content - •; Penetration - ▨; 10 20 30 40 50
	0.5						
	[MARINE SAND] Orange, poorly graded Sand (SP)			SS02	2 3 4 3		
4	3.5 [LACUSTRINE & MARINE SILT] Grey-brown, Silt (ML); loose; orange mottling			SS03	3 4 5 7		
	-becomes light brown and sandy			SS04	6 4 2 3		
8	-becomes wet						
	-becomes very loose			SS05	WOH WOH WOH 1		
12							
16				SS06	WOH WOH 1 1		
20	-becomes grey			SS07	WOH 1 1 1		
24				SS08	WOH WOH WOH WOH		
28	Boring terminated at 27 ft.						

Test boring backfilled with soil cuttings upon completion.

This information pertains only to this boring and should not be interpreted as being indicative of the site.

Figure

JOHN TURNER CONSULTING

LOG OF BORING No. B-3

PROJECT: Milton Public Works Building **PROJECT NO.:** 21-04-079
CLIENT: Krebs & Lansing Consulting Engineers
PROJECT LOCATION: Milton, VT
LOCATION: See Boring Location Plan **ELEVATION:**
DRILLER: CASCADE **LOGGED BY:** EL
DRILLING METHOD: 4.25" I.D. HSA **DATE:** 10/18/21
DEPTH TO - WATER> INITIAL: ▽ 7.5 **AFTER 24 HOURS:** ▽

Depth (feet)	Description	Graphic	Elevation (feet)	Sample No.	Blow Counts	% < #200
0	[FOREST MAT] Dark brown, silty Sand (SM), roots, organics; very loose			SS01	WOH 1 1 2	
	0.5 [MARINE SAND] Light brown, poorly graded Sand (SP); very loose			SS02	2 4 5 5	
	3.0 [LACUSTRINE & MARINE SILT] Grey, Silt (ML); loose; orange mottling			SS03	3 4 3 3	
4						
8	-becomes light brown and sandy -becomes very loose and wet ▽			SS04	2 2 2 2	
				SS05	WOH WOH WOH WOH	
12						
				SS06	WOH WOH 1 1	
16						
20	-becomes grey			SS07	WOH WOH WOH WOH	
24						
				SS08	WOH WOH WOH WOH	
28	Boring terminated at 27 ft.					

TEST RESULTS
Plastic Limit ⊢—⊣ Liquid Limit
Water Content - •
Penetration - ▨
10 20 30 40 50

This information pertains only to this boring and should not be interpreted as being indicative of the site.

Test boring backfilled with soil cuttings upon completion.

JOHN TURNER CONSULTING

LOG OF BORING No. B-4

PROJECT: Milton Public Works Building **PROJECT NO.:** 21-04-079
CLIENT: Krebs & Lansing Consulting Engineers
PROJECT LOCATION: Milton, VT
LOCATION: See Boring Location Plan **ELEVATION:**
DRILLER: CASCADE **LOGGED BY:** EL
DRILLING METHOD: 4.25" I.D. HSA **DATE:** 10/19/21
DEPTH TO - WATER> INITIAL: ▽ 7.5 **AFTER 24 HOURS:** ▽

Depth (feet)	Description	Graphic	Elevation (feet)	Sample No.	Blow Counts	% < #200	TEST RESULTS
0	[FOREST MAT] Dark brown, silty Sand (SM), roots, organics; loose			SS01	1 1 1 3		Plastic Limit ⊢—⊣ Liquid Limit Water Content - • Penetration - ▨ 10 20 30 40 50
2.0							
4	[MARINE SAND] Light brown, poorly graded Sand with silt (SP-SM); medium dense			SS02	3 5 7 8		
5.0							
	[LACUSTRINE & MARINE SILT] Grey, Silt (ML) with orange mottling; medium dense			SS03	5 5 6 2		
8 ▽	-6" layer of light brown fine Sand -becomes loose and wet			SS04	4 3 2 2		
	-becomes very loose			SS05	1 WOH WOH WOH		
12	-No sampling until 40.0'						
16							
20							
24							
28							

Test boring backfilled with soil cuttings upon completion.

JOHN TURNER CONSULTING

LOG OF BORING No. B-4

PROJECT: Milton Public Works Building **PROJECT NO.:** 21-04-079
CLIENT: Krebs & Lansing Consulting Engineers
PROJECT LOCATION: Milton, VT
LOCATION: See Boring Location Plan **ELEVATION:**
DRILLER: CASCADE **LOGGED BY:** EL
DRILLING METHOD: 4.25" I.D. HSA **DATE:** 10/19/21
DEPTH TO - WATER> INITIAL: ▽ 7.5 **AFTER 24 HOURS:** ▽

Depth (feet)	Description	Graphic	Elevation (feet)	Sample No.	Blow Counts	% < #200	TEST RESULTS
32							Plastic Limit ⊢—⊣ Liquid Limit
36							Water Content - •
40	-Auger refusal at 40.0'						Penetration - ▨
	Boring terminated at 40 ft.						10 20 30 40 50
44							
48							
52							
56							

Test boring backfilled with soil cuttings upon completion.

This information pertains only to this boring and should not be interpreted as being indicative of the site.

JOHN TURNER CONSULTING

LOG OF BORING No. B-6

PROJECT: Milton Public Works Building **PROJECT NO.:** 21-04-079
CLIENT: Krebs & Lansing Consulting Engineers
PROJECT LOCATION: Milton, VT
LOCATION: See Boring Location Plan **ELEVATION:**
DRILLER: CASCADE **LOGGED BY:** EL
DRILLING METHOD: 4.25" I.D. HSA **DATE:** 10/18/21
DEPTH TO - WATER> INITIAL: ▽ 8.5 **AFTER 24 HOURS:** ▽

Depth (feet)	Description	Graphic	Elevation (feet)	Sample No.	Blow Counts	% < #200	TEST RESULTS
0	[FOREST MAT] Dark brown, silty Sand (SM), roots, organics; very loose			SS01	1 1 1 1		Plastic Limit ⊢—⊣ Liquid Limit; Water Content - •; Penetration - ▨; 10 20 30 40 50
	0.5						
	[MARINE SAND] Light brown, poorly graded Sand (SP); very loose; orange mottling			SS02	2 5 6 8		
4	-becomes silty and medium dense						
	-becomes loose			SS03	7 3 3 4		
	7.0						
8	[LACUSTRINE & MARINE SILT] Brown-grey, Silt (ML); very loose ▽ -becomes wet			SS04	4 1 1 1		
				SS05	1 .5 .5 1		
12							
16				SS06	2 2 1 3		
20	-becomes grey			SS07	WOR WOR WOR WOH		
24				SS08	WOH WOH WOH WOH		
28	Boring terminated at 27 ft.						

Test boring backfilled with soil cuttings upon completion.

This information pertains only to this boring and should not be interpreted as being indicative of the site.

Figure

JOHN TURNER CONSULTING

LOG OF BORING No. B-7

PROJECT: Milton Public Works Building **PROJECT NO.:** 21-04-079
CLIENT: Krebs & Lansing Consulting Engineers
PROJECT LOCATION: Milton, VT
LOCATION: See Boring Location Plan **ELEVATION:**
DRILLER: CASCADE **LOGGED BY:** EL
DRILLING METHOD: 4.25" I.D. HSA **DATE:** 10/18/21
DEPTH TO - WATER> INITIAL: ▽ 8.5 **AFTER 24 HOURS:** ▽

Depth (feet)	Description	Graphic	Elevation (feet)	Sample No.	Blow Counts	% < #200	TEST RESULTS
0	[FOREST MAT] Dark brown, silty Sand (SM), roots, organics; very loose			SS01	.5 .5 .5 .5		Plastic Limit ⊢—⊣ Liquid Limit; Water Content - •; Penetration - ▨; 10 20 30 40 50
	0.5						
	[MARINE SAND] Light brown poorly graded Sand with silt (SP-SM); orange mottling			SS02	2 4 6 5		
4	2.0						
	[LACUSTRINE & MARINE SILT] Brown, Silt (ML); medium dense; orange mottling -becomes grey			SS03	5 9 7 8		
8	▽ -becomes wet			SS04	7 7 8 4		
	-becomes very loose			SS05	.5 .5 .5 .5		
12							
	-becomes loose			SS06	WOH 2 3 1		
16							
20	-becomes very loose			SS07	WOH 1 .5 .5		
	Boring terminated at 22 ft.						
24							
28							

Test boring backfilled with soil cuttings upon completion.

This information pertains only to this boring and should not be interpreted as being indicative of the site.

Figure

JOHN TURNER CONSULTING

LOG OF BORING No. B-8

PROJECT: Milton Public Works Building **PROJECT NO.:** 21-04-079
CLIENT: Krebs & Lansing Consulting Engineers
PROJECT LOCATION: Milton, VT
LOCATION: See Boring Location Plan **ELEVATION:**
DRILLER: CASCADE **LOGGED BY:** EL
DRILLING METHOD: 4.25" I.D. HSA **DATE:** 10/18/21
DEPTH TO - WATER> INITIAL: ▽ 10.0 **AFTER 24 HOURS:** ▽

Depth (feet)	Description	Graphic	Elevation (feet)	Sample No.	Blow Counts	% < #200	TEST RESULTS: Plastic Limit ⊢⊣ Liquid Limit; Water Content - •; Penetration - ▨ (10 20 30 40 50)
0	[FOREST MAT] Dark brown, silty Sand (SM), roots, organics; very loose			SS01	.5 .5 1 2		
	0.5						
	[MARINE SAND] Light brown, poorly graded Sand with silt (SP-SM); orange mottling			SS02	4 7 7 8		
4	2.0						
	[LACUSTRINE & MARINE SILT] Grey, Silt (ML); medium dense -orange color mottling			SS03	6 8 7 9		
8	- 8" Brown fine Sand with silt layer			SS04	7 6 8 9		
	▽ - 6" layer of brown poorly graded Sand - becomes loose			SS05	1 3 2 1		
12							
16	- 12" Brown fine sand and silt layer			SS06	WOH WOH 4 4		
20	-becomes very loose			SS07	WOH 1 1 1		
	Boring terminated at 22 ft.						
24							
28							

Test boring backfilled with soil cuttings upon completion.

This information pertains only to this boring and should not be interpreted as being indicative of the site.

JOHN TURNER CONSULTING

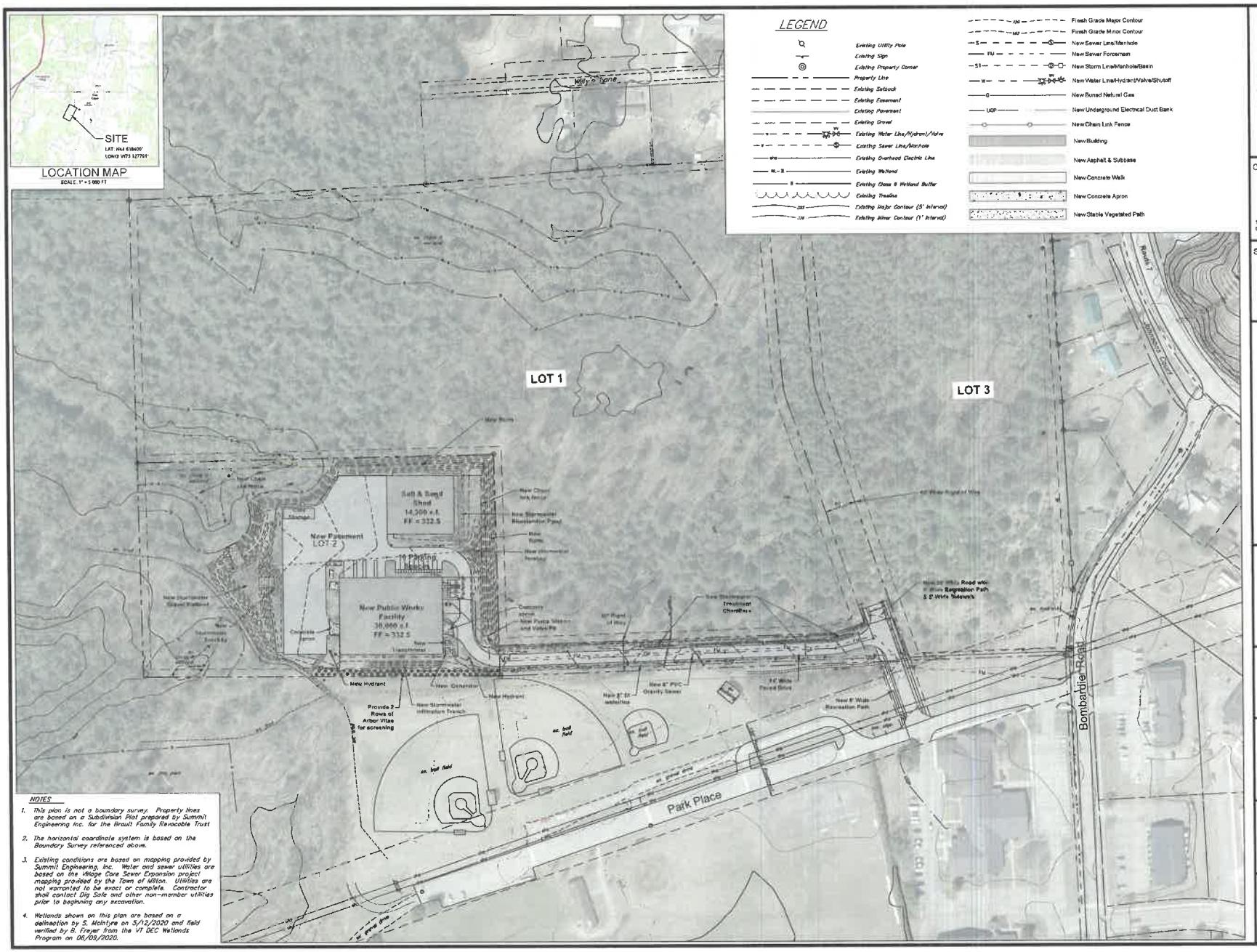
LOG OF BORING No. B-9

PROJECT: Milton Public Works Building **PROJECT NO.:** 21-04-079
CLIENT: Krebs & Lansing Consulting Engineers
PROJECT LOCATION: Milton, VT
LOCATION: See Boring Location Plan **ELEVATION:**
DRILLER: CASCADE **LOGGED BY:** EL
DRILLING METHOD: 4.25" I.D. HSA **DATE:** 10/19/21
DEPTH TO - WATER> INITIAL: ▽ 12.0 **AFTER 24 HOURS:** ▽

Depth (feet)	Description	Graphic	Elevation (feet)	Sample No.	Blow Counts	% < #200	TEST RESULTS
0	[FOREST MAT] Dark brown, silty Sand (SM), roots, organics; very loose			SS01	.5 .5 2 2		Plastic Limit ⊢—⊣ Liquid Limit; Water Content - •; Penetration - ▨; 10 20 30 40 50
	0.5 [MARINE SAND] Orange, poorly graded Sand and silt (SP-SM)			SS02	4 7 6 6		
4	2.0 [LACUSTRINE & MARINE SILT] Grey-brown, Silt (ML); medium dense; orange mottling			SS03	5 8 7 7		
	-becomes grey			SS04	8 8 6 5		
8							
12 ▽	-becomes loose and wet			SS05	4 4 3 2		
	-becomes very loose			SS06	WOH WOH WOH 1		
16							
20	-Hard to drill due to loose fines Boring terminated at 20 ft.						
24							
28							

Test boring backfilled with soil cuttings upon completion.

This information pertains only to this boring and should not be interpreted as being indicative of the site.



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

STAMP:

Project:

TOWN OF MILTON
Public Works Facility

Bombardier Road

Project No.	20282
Scale	1" = 80'
Drawn by	TJB
Checked by	DMR
Date	11/10/21

Revisions

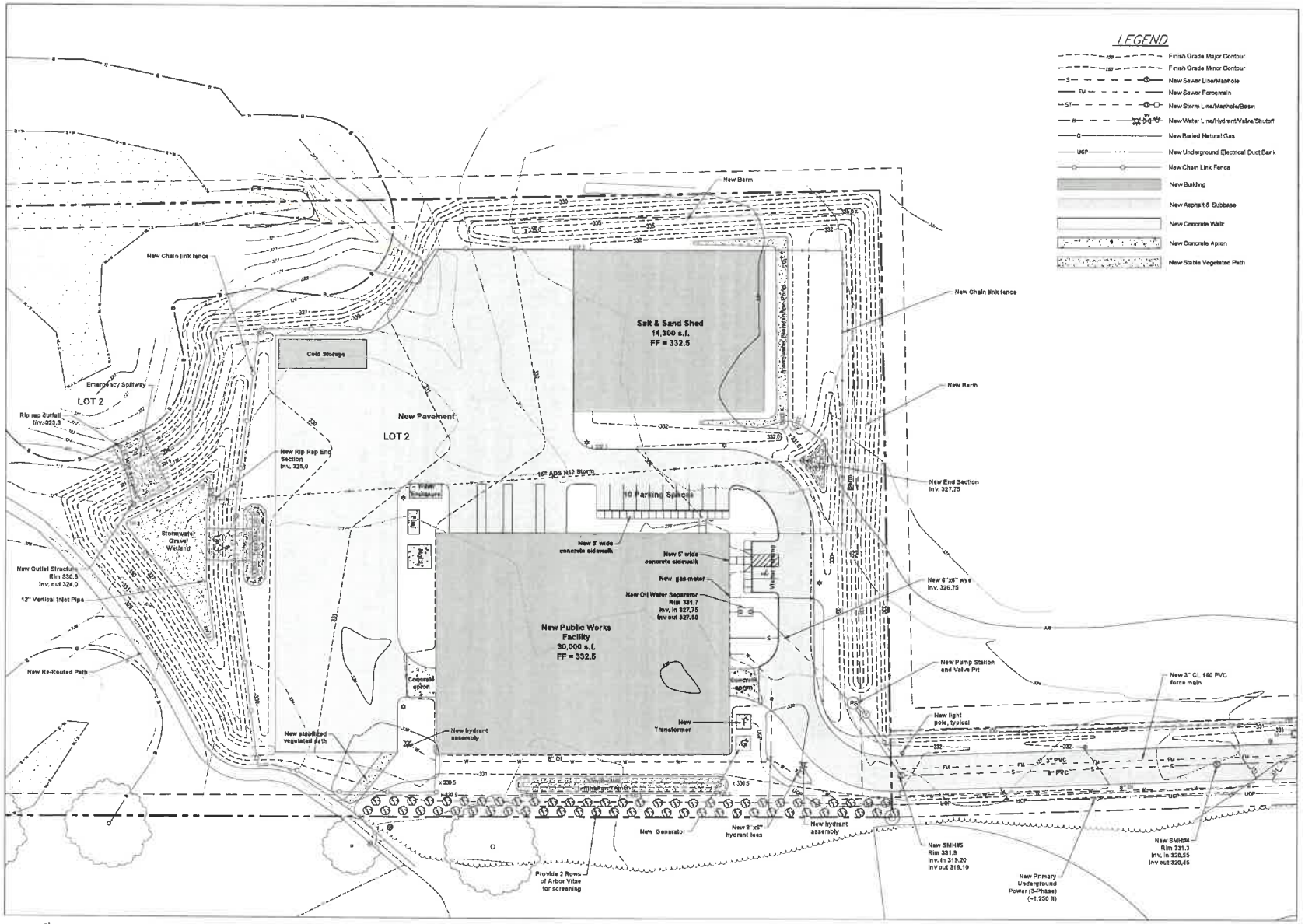
No.	Date	Description

Drawing Title

Overall Site Plan

Drawing No.

C1.00



CHARTERED 1763 TOWN OF MILTON VERMONT

CIVIL ENGINEER:

KREBS & LANSING CONSULTING ENGINEERS

164 Main Street, Suite 201 Colchester, Vermont 05446 P. (802) 878-0375 www.krebsandlansing.com

STAMP:

Project:

TOWN OF MILTON
Public Works Facility

Bombardier Road

Project No.	21282
Scale	1" = 30'
Drawn by	EB/SLM
Checked by	
Date	11/11/21

Revisions

No.	Date	Description

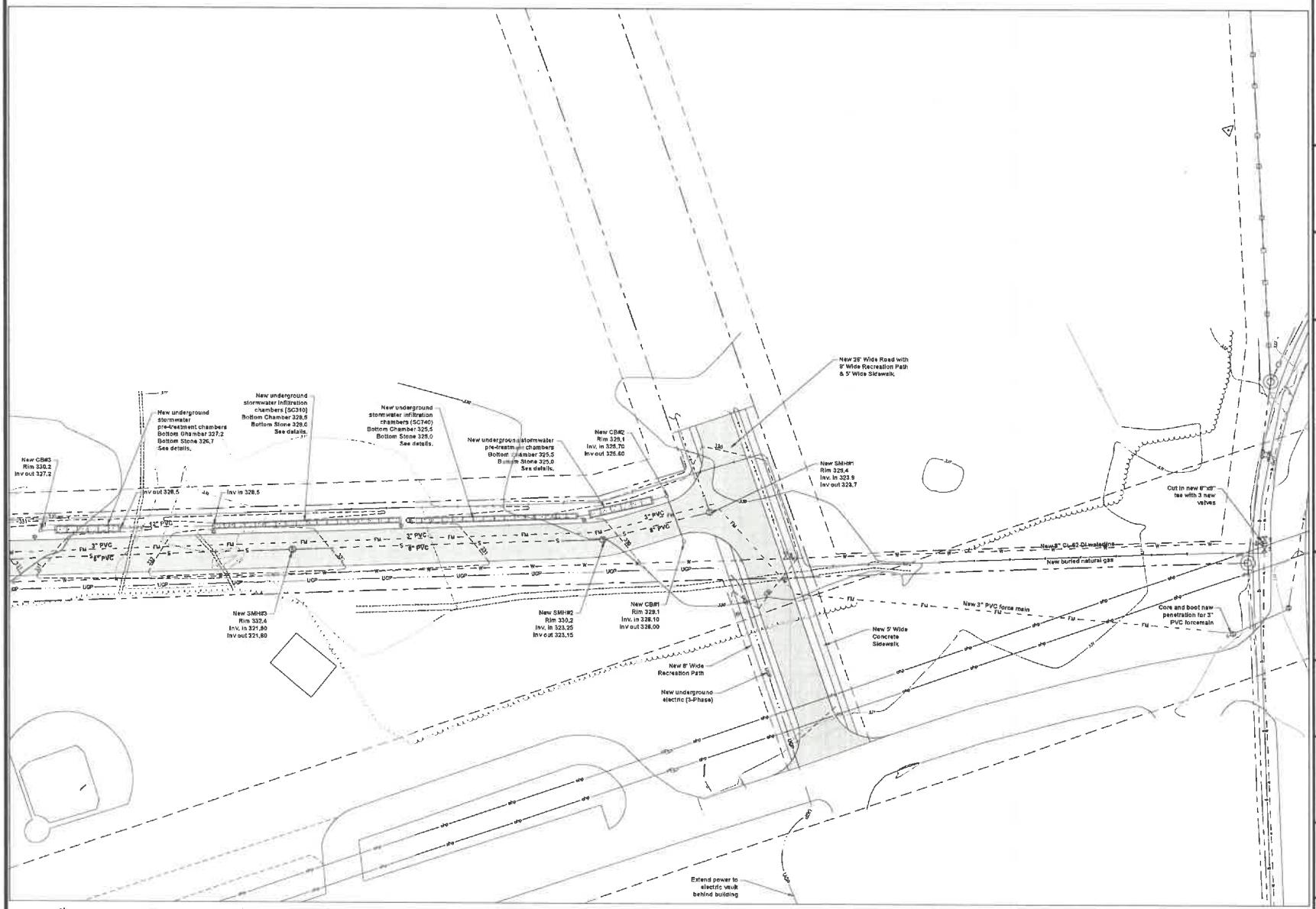
Drawing Title

Site Plan

Drawing No.

C1.01

21282\DWG\XL BASE 2021.dwg



CIVIL ENGINEER:

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

STAMP:

Project:

TOWN OF MILTON
Public Works Facility

Bombardier Road

Project No.	21283
Scale	1" = 30'
Drawn by	TJB/ELM
Checked by	
Date	11/10/21

Revisions

No.	Date	Description

Drawing Title

Site Plan

Drawing No.

C1.02

21283\DWGS\XL BASE 2021.dwg

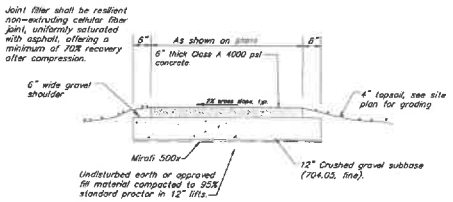
Road Construction Notes

1. New road shall be constructed to the line and grade shown on the drawings. The road and utility locations shall be as typically detailed unless otherwise shown.
2. All road and parking construction shall be completed in accordance with the Vermont Agency of Transportation "Standard Specifications for Construction" 2011, hereafter called Vermont Highway Specifications, specifications found on these plans, and project specifications. In case of conflict, the more stringent specification shall apply as determined by the Engineer.
3. The Contractor shall follow Vermont Highway Specifications (2011) Section 203.11 for placing and spreading embankments.
4. Fill material for road embankment shall meet Note #3 below and be approved by the Engineer. Fill shall be placed in 12" lifts, wetted and compacted with satisfactory compaction equipment to 95% of maximum density (Standard Proctor).
5. Road in fill sections shall be placed and compacted a minimum of 3 feet above top of any utility to be installed before trench is excavated for pipe placement. In trenches and cut sections, the Contractor shall provide all necessary sheeting, shoring and bracing to maintain compliance with all OSHA/VOSHA regulations.
6. Methods for construction of subgrade shall conform to Vermont Highway Specifications (2011) 203.12 or as determined by the Engineer.
7. Any subgrade or subbase disturbed by Contractor, or rendered unsuitable by construction machinery, shall be removed and replaced with approved granular backfill at the Contractor's expense. The subgrade shall be compacted to obtain at least 95% of the maximum density (Standard Proctor) before placing road or embankment materials.
8. The Owner will pay for on site soils testing (compaction, sieve, and proctor). The Contractor shall pay for failing tests.
9. Sand borrow and cushion shall conform to Vermont Highway Specifications (2011) 703.03. Granular borrow shall conform to the Vermont Highway Specifications 703.04.
10. Gravel subbase for pavement shall conform to Vermont Highway Specifications (2011) 704.06, Dense Graded Crushed Stone. Substitute materials identified in VAOT Specifications Section 301 – Subbase are not allowed.
11. Leveling course shall conform to Vermont Highway Specifications (2011) 704.05, fine grading. Shoulders shall conform to Section 704.12, Aggregate for Shoulders. Substitute materials identified in VAOT Specifications Section 301 – Subbase are not allowed.
12. Bituminous concrete pavement shall conform to Vermont Highway Specifications (2011) Section 404 and 406. Binder course shall be Type I + II, and finish wearing course shall be Type III, IV, or as detailed.
13. Embankment fill for all impervious areas, EXCLUDING BUILDINGS, shall be a sieve specification as follows:

Sieve	% Finer
4"	100
2"	85–100
#4	50–100
#200	30 maximum

14. Dense graded crushed stone, crushed gravel and sand borrow shall not be contaminated by work. Construction traffic shall not travel over exposed areas of this material.
15. Contractor is responsible for all pavement markings (ie. parking striping, handicap markings, stop bars, etc.) shown or implied on the Plans. This includes both new and replacement of existing.
    - Paint for pavement markings shall be Hydroplast Waterborne Traffic Paint by Franklin Paint Company. It shall be reflective, VOC compliant, fast drying, 100% acrylic waterborne traffic paint. Paint for parking line striping shall be white.
    - Traffic paint shall be applied with a uniform thickness and at a rate such that no pavement is visible after drying. Additional paint application will be required if underlying pavement is visible.

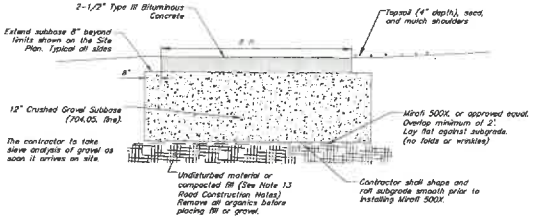
All concrete used in the construction of concrete sidewalk shall be air entrained and made with Portland cement. The concrete shall meet section 541 of the State of Vermont Standard Specification for Construction for Class A concrete and have 28 day compressive strength of 4,000 psi.



Concrete Notes:
- Broom finish concrete
- Construction joints shall be spaced max. 24' in all directions. See Concrete Construction Joint Detail.
- Score control joints 1-1/2" depth at intervals equal to width of sidewalk. Contractor is responsible for providing appropriately sized tooling trowel.
- Apply SpecChem Cure Shield cure/seal compound to all concrete surfaces, per the manufacturer's specifications.
- Concrete construction and curing shall conform to section 618.03 of the current VAOT Standard Specifications for Construction

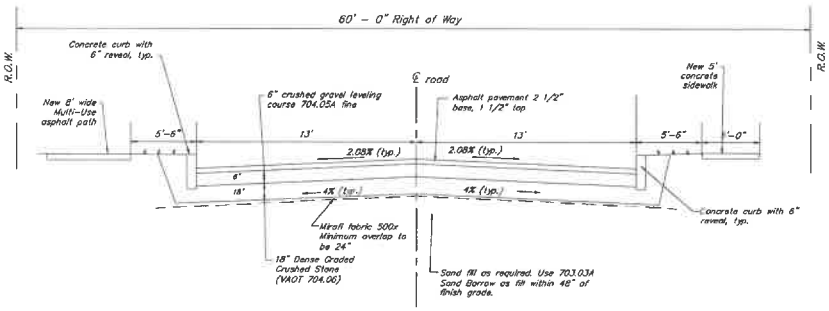
New Concrete Sidewalk Detail

N.T.S.



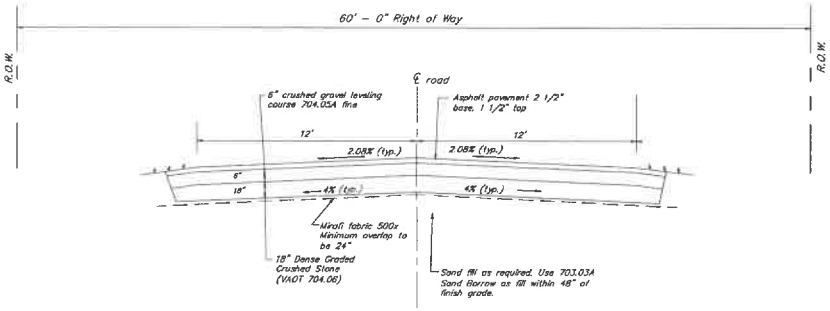
New Asphalt Multi-Use Path Detail

N.T.S.



Typical 26' Wide Road Cross-Section

N.T.S.



Typical 24' Wide Driveway Cross-Section

N.T.S.

Concrete Curb
- Broom finish concrete
- All joints to be tool finished
- Expansion/contraction joints every 20' with 1/2" joint filler.
- Score 1/3 total depth at 10' intervals
- Apply SpecChem Cure Shield EX cure and seal product to all concrete surfaces, per the manufacturer's specifications.
- Concrete may not be poured if frost is present or thawing in the subgrade, if the temperature is 40° F or less, or during unseasonable weather conditions.
- Concrete curb radii less than 200 ft shall be formed with flexible forms

All concrete used in the construction of concrete curb shall be air entrained and made with Portland cement. The concrete shall meet section 541 of the State of Vermont Standard Specification for Class A concrete and have 28 day compressive strength of 4,000 psi.

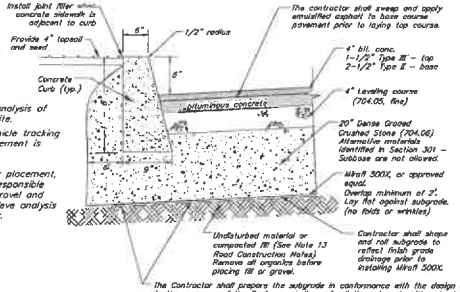
Joint filler shall be resilient non-extruding cellular fiber joint, uniformly saturated with asphalt, offering a minimum of 70% recovery after compression.

The Engineer shall be contacted at least 24 hours prior to forming concrete curb to review layout.

The contractor to take sieve analysis of gravel as soon it arrives on site.

Travel over gravel with any vehicle tracking soil prior to placement of pavement is prohibited.

If gravel is contaminated after placement, the Site Contractor shall be responsible removal of all contaminated gravel and paying for all recommended sieve analysis as determined by the Engineer.



Subbase material shall be placed and compacted in 12" maximum lifts.

The Contractor shall prepare the subgrade in conformance with the design grades then, in the presence of the Engineer, shall proof roll the subgrade with a loaded tandem dump truck. Conditions may require the removal of unsuitable material and placement of additional subbase. The Owner must approve any work involved with the removal of unsuitable material and placement of additional subbase.

Typical Road Cross Section Detail

N.T.S.

CIVIL ENGINEER:

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STAMP:

Project:

TOWN OF MILTON
Public Works Facility

Bombardier Road

Project No.	21232
Scale	N.T.S.
Drawn by	DMR
Checked by	
Date	11/15/2021

Revisions

No.	Date	Description

Drawing Title

Civil Details

Drawing No.

C3.00

Construction Material Specifications

1. Unless otherwise indicated all civil site materials shall comply with the Vermont Agency of Transportation "Standard Specifications for Construction" 2018.
2. The Contractor shall follow Vermont Highway Specifications (2018) Section 203.11 for placing and spreading embankments.
3. Fill material for Embankment shall be clean, shall contain no stones greater than 3" in diameter, no frozen lumps, clay, organics, roots or contaminated material, shall meet the sieve indicated below, and shall be approved by the Engineer. Fill shall be placed in 12" lifts, wetted and compacted with satisfactory compaction equipment to 90% of maximum density (Standard Proctor)

Sieve	% Finer
4"	100
2"	85-100
#4	60-100
#200	30 maximum

4. Crushed Gravel for Subbase shall conform to Vermont Highway Specifications (2018) 704.05 and shall meet the following gradation requirements:

COARSE GRADED		FINE GRADED	
Sieve	% Finer	Sieve	% Finer
4"	95-100	2"	100
#4	30-60	1 1/2"	90-100
No 100	0-12	#4	30-60
No 200	0-6	No 100	0-12
		No 200	0-6

5. Dense Graded Crushed Stone for Subbase shall conform to Vermont Highway Specifications (2018) 704.06 and shall meet the following gradation requirements

Sieve	% Finer
3-1/2"	100
3"	90-100
2"	75-100
1"	50-80
1/2"	30-60
No 4	15-40
No 200	0-6

6. Drainage Aggregate, Drainage Rock, and Clean Crushed Stone for Drainage shall conform to Vermont Highway Specifications (2018) 704.16 and shall meet the following gradation requirements:

Sieve	% Finer
1"	100
3/4"	90-100
3/8"	20-55
No 4	0-10
No 8	0-5

7. Sand Barrow and Cushion shall conform to Vermont Highway Specifications (2018) 703.03 and shall meet the following gradation requirements:.

Sieve	% Finer
2"	100
1-1/2"	90-100
1/2"	70-100
No. 4	60-100
No. 100	0-20
No. 200	0-8

7. Portland Cement Concrete shall conform to the current edition of the Vermont AOT Standard Specifications for Construction Section 541 and shall meet the properties of the Concrete Class identified on the plans. Concrete specified with a 5,000 psi, 28-Day Compressive Strength shall meet the following mix design:

Max water-cement ratio (lb./lb.)	0.44
Min cement factor (lbs/C.Y.)	705
Entrained air content (%)	5 – 7
Slump (inches, before adding HRWR)	2 – 4

Use air entrained agent conforming to ASTM C260 with 5-7% total air. Use high range water reducing agent conforming to ASTM C494 in all concrete.

8. The Owner will pay for on site soils testing (compaction, sieve, and proctor). The Contractor shall pay for failing tests.

Note:
Owner or Contractor is not allowed to place deicing materials on newly poured concrete sidewalk for a period of 6 months.

All concrete used in the construction of Multi-Use Concrete shall be made with Portland cement. The concrete shall meet section 541 of the State of Vermont Standard Specifications for Construction, have 28 day compressive strength of 5,000 psi, and meet the following mix design.

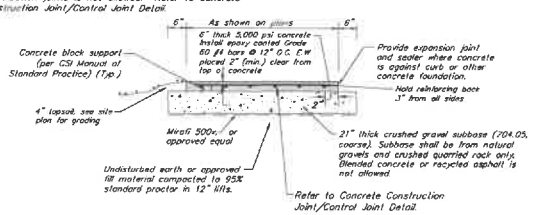
Max water-cement ratio (lb./lb.)	0.44
Min cement factor (lbs/C.Y.)	705
Entrained air content (%)	5 – 7
Slump (inches, before adding HRWR)	2 – 4

Use air entrained agent conforming to ASTM C260 with 5-7% total air. Use high range water reducing agent conforming to ASTM C494 in all concrete.

Concrete shall be installed in alternating pours at construction joints. Continuous pours through construction joints is not allowed. Refer to Concrete Construction Joint/Control Joint Detail.

Concrete Slab

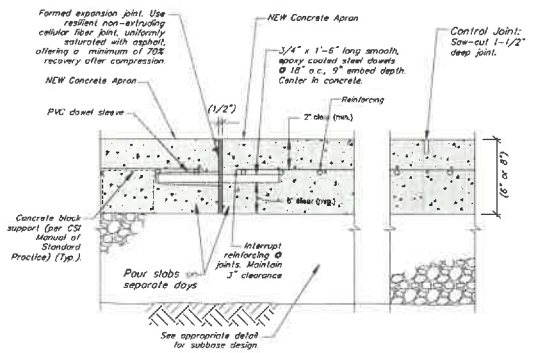
- Broom finish concrete
- Construction joints shall be spaced max. 24' in all directions. See New Concrete Construction Joint Detail.
- See Site Plan for construction joint layout.
- Sawcut control joints 1-1/2" depth at intervals equal to width of sidewalk or as shown on the Site Plans.
- Apply SpecChem Cure Shield cure and seal product to all concrete surfaces, per the manufacturer's specifications
- Concrete may not be poured if frost is present or thawing in the subgrade, if the temperature is 40° F or less, or during unreasonable weather conditions.
- Concrete construction and curing shall conform to section 618.03 of the current VAOT Standard Specifications for Construction



New Concrete Apron Detail

(To be used for concrete along west side of building)

N.T.S.



New Concrete Construction Joint/Control Joint Detail

Contractor to use this pinning detail to pin NEW concrete to NEW concrete

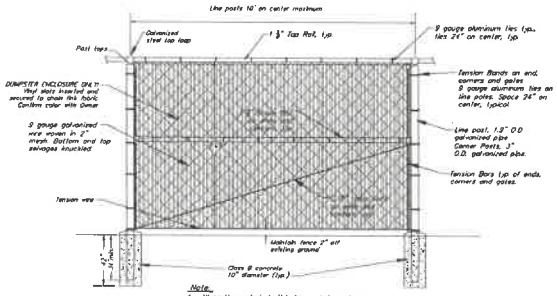
N.T.S.

Construction Notes

1. The methods and materials of construction shall conform to the latest standards of the Municipality and the State of Vermont. All work shall be in conformance with all permits and approvals issued for the project. In case of conflict, the more stringent specification shall apply as directed by Engineer. All work shall be done in a workmanlike manner and completed in the time specified by Owner.
2. The Contractor shall be responsible for all work and materials shown and required to make the job complete. These drawings do not show every fitting or appurtenance. Materials shall be as specified on the drawings. Manufacturer's product specifications shall be submitted for all materials to the Engineer for approval prior to installation.
3. The location and size of existing underground utilities is not warranted to be exact or complete. The Contractor shall field locate all utilities and shall contact the affected utility company, the Engineer and the Municipality prior to making any hook ups. The Contractor shall be solely responsible for all existing utilities and their uninterrupted services. The Contractor shall contact Dig Safe and other non-member utilities prior to any excavation.
4. All off-site backfill, sheeting and shoring, dewatering, clearing and grubbing, erosion control, dust control, traffic control, grading, and all incidentals shall be included as part of the required work.
5. Repair of all disturbed areas, grading, seeding, mulching, repair of roads and curbs, paving, and other incidentals are included as part of the required work. All disturbed areas shall be loamed and mulched until permanent ground cover is established.
6. The Contractor shall be responsible for all construction layout and shall verify all horizontal control and temporary bench marks before use.
7. The workers and public shall be protected by the Contractor from any and all hazards connected with the construction work. Open trenches, materials, or equipment within the working limits are to be guarded by the use of adequate barricades or flaggers. All barricades left in position overnight are to be properly lighted. Kerosene pots are not acceptable. When work narrows the usable pavement, flaggers shall be employed to aid the flow of traffic so that there will be no undue delays. The Contractor shall be held responsible for the safety of all workers and the general public and all damages to property occurring from or upon the work occasioned by negligence or shall be held responsible for the safety of all workers and the general public and all damages to property occurring from or upon the work occasioned by negligence or day or night within the working area. All work shall be in conformance to OSHA regulations, Title 19, Parts 1926.651 and 1926.652, and applicable to VOSHA regulations.
8. The Contractor shall sawcut all existing pavement to be removed. The Contractor shall minimize the pavement area disturbance. Contractor shall be responsible for all pavement repair and restoration necessary to complete the work.
9. Existing plantings are located in general areas as shown on the plans. Contractor shall protect plantings scheduled to remain so as not to damage these or their root systems.
10. Contractor shall comply with all permits and approvals issued for this project.
11. Contractor shall sign on as the Co-Permittee for the State of Vermont Erosion Prevention and Sediment Control permit for the project.
12. Slope stability upon unsaturated soil conditions. If during construction saturated soils are encountered, contact the Engineer immediately.

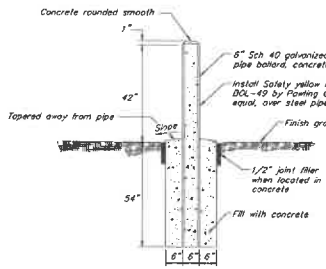
SIGN POST NOTES

1. All sign posts shall be 2" square galvanized steel posts with anchors. Bottom of all signs to be 7 feet above nearest adjacent curb or pavement elevation.
2. All square tube steel posts and anchors shall be formed into a size and shape in such a manner that neither flash nor weld shall interfere with the telescoping properties, nor damage the galvanizing.
3. Anchors may be driven or set into a dug hole and backfilled. If driven, a driving cap shall be used. The dug hole installation method shall be utilized in areas with poor soil conditions or as directed by the engineer. Backfill shall be compacted as directed by the engineer.
4. The tops of sign posts shall be at or near the top of sign. The post shall not extend above the top of sign.
5. Sign posts shall be installed a minimum of one foot below ground, inside the anchor. The length of anchor exposed above ground shall not exceed four inches.



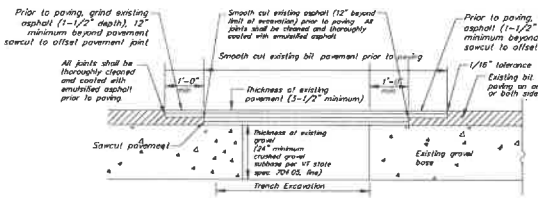
Chain Link Fence & Dumpster Enclosure Detail

N.T.S.



Bollard Detail

N.T.S.



1. Set up and maintain signs and other safety control devices.
2. Reshape hole and patch area by cutting with a concrete saw into square or rectangular shape and cut side faces vertically. Reshape downward solid material and around hole to sound pavement.
3. Backfill trench in 6" lifts and compact each lift to 95% of maximum density at optimum moisture content as determined by ASTM D698 standard proctor.
4. Remove all loose material and thoroughly sweep the hole area clean of mud and standing water.
5. Apply liquid asphalt tack to vertical faces in a uniform manner. Do not puddle tack coat on bottom of hole.
6. Fill top of hole with type IX bituminous concrete and compact in lifts no more than 2" thick. Each lift should be thoroughly compacted with a vibratory plate compactor or a portable roller. Experience has shown that 15 to 20 passes with a vibratory roller and mix temperature above 250°F (121°C) are necessary to ensure good compaction. Hand tamp should only be used for small areas (less than 1 s.f.)
7. Clean up area. Do not leave excess fill or excavated material on the pavement. Remove safety signs.

Replacement of Existing Road Subbase and Bituminous Pavement

N.T.S.

TOWN OF MILTON CHARTERED 1763 VERMONT

CIVIL ENGINEER:

KREBS & LANSING CONSULTING ENGINEERS

STAMP:

Project:

TOWN OF MILTON
Public Works Facility

Bombardier Road

Project No.	21292
Scale	N.T.S.
Drawn by	DMR
Checked by	
Date	11/11/2021

Revisions

No.	Date	Description

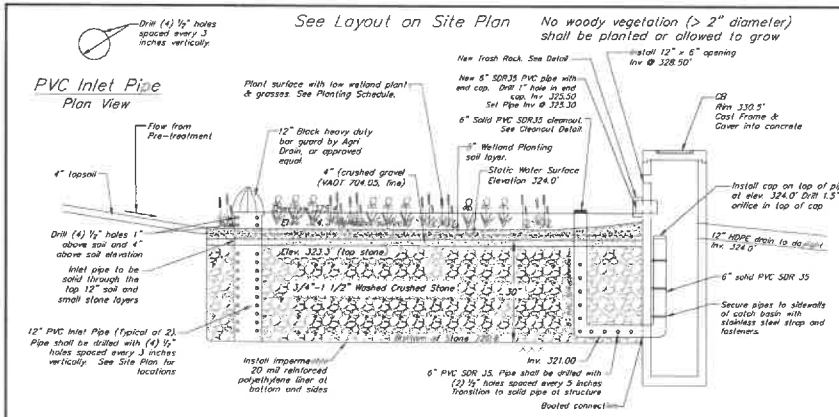
Drawing Title

Civil Details

Drawing No.

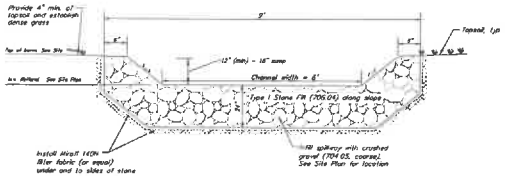
C3.01

21292\DWG\[C3.01 - Details.dwg]



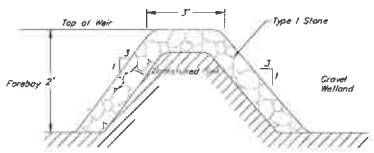
Gravel Wetland #1 (NW)

N.T.S.



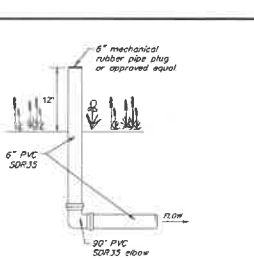
Spillway Cross Section Detail

N.T.S.



Forebay Weir Cross Section Detail

N.T.S.



Gravel Wetland Cleanout Detail

N.T.S.

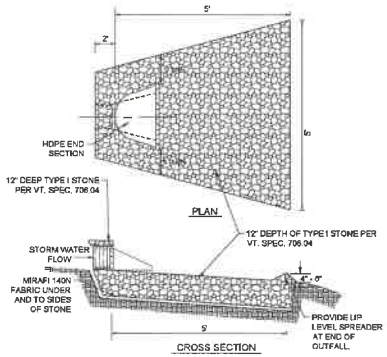
Wetland Planting Schedule

Elevation Range	Area (Sq. ft.)	Example Species	Planting Rate	Total Quantity
329.0 (gravel Wetland)	2,100	Water Lily, Water Celery Pondweed, Northern Arrowhead, Softstem Bulrush	1 Plant/ 4 sq. ft	175

WETLAND PLANTING SOIL CHARACTERISTICS

Parameter	Value
pH range	6.0 to 7.0
Compost (low phosphorus or leaf compost)	Wetland soil may contain 3% max low phosphorus compost (Compost shall have no more than 0.2% total phosphorus)
Total Phosphorus	4 mg/kg utilizing Mehlich-3 or Modified Morgan test
Soluble salts	300 ppm, maximum
Soil (see hydraulic conductivity (0.1-0.01 ft/day)	
Sieve Size	Percent Passing
0.5"	±10%
No. 10	75-90% (±5%)
No. 100	40-50% (±5%)
No. 200	25-50% (±5%)

A dense and vigorous vegetative cover must be established and maintained over all pervious drainage areas upslope of the system



STORMWATER OUTFALL DETAIL

N.T.S.

BIORETENTION SOIL CHARACTERISTICS

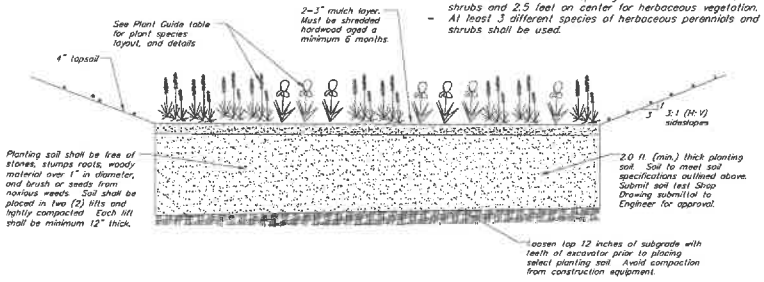
Parameter	Value
pH range	5.2 to 7.00
Organic matter	2.5% to 8.0% by volume
Soil (loamy sand, sandy loam, or loam)	
Sand	60% to 85% passing by weight
Silt	0% to 20% passing by weight
Clay	0% to 5% passing by weight
Mulch	Bark Mulch - Submit sample for approval
Available Phosphorus	0.2%

A dense and vigorous vegetative cover shall be established over all pervious drainage areas upslope of the bioretention areas.

PLANT GUIDE FOR STORMWATER BIORETENTION AREAS

TREES	SHRUBS	HERBACEOUS SPECIES
Acer rubrum (Red Maple)	Hamamelis virginian (Witch Hazel)	Iris versicolor (Blue Flag)
Juniperus virginiata (Eastern Red Cedar)	Ilex verticillata (Winterberry)	Lobelia cardinalis (Cardinal Flower)
Platanus occidentalis (Sycamore)	Viburnum dentatum (Arrowhead)	Rudbeckia laciniata (Cutleaf Coneflower)
Salix Nigra (Black Willow	Alnus serrulata (Brook-side Alder)	Scirpus cyperinus (Woolgrass)
Pinus rigida (Pitch Pine)	Cornus stolonifera (Redosier Dogwood)	Scirpus pungens (Three Square Bulrush)

- From this list of least 8 trees shall be planted above elevation 332.35 (in approximate locations shown).
- Shrubs and herbaceous species shall be plant below elevation 332.35 with a spacing of five feet on center for shrubs and 2.5 feet on center for herbaceous vegetation.
- At least 3 different species of herbaceous perennials and shrubs shall be used.



Bioretention Planting Soil Bed Detail

N.T.S.

The Vermont Stormwater Management Manual — Appendix D8

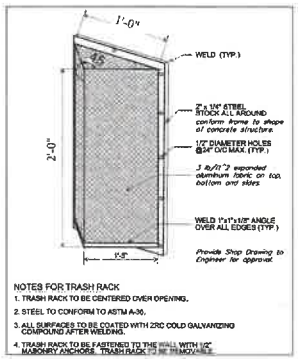


Figure D.1. Trash Rack Protection for Low Flow Orifice

172

Trash Rack Detail

N.T.S.

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Project:

TOWN OF MILTON
Public Works Facility

Bombardier Road

Project No.	21292
Scale	N.T.S.
Drawn by	DMR
Checked by	
Date	11/11/2021

Revisions

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Civil Details

Drawing No.

C3.02

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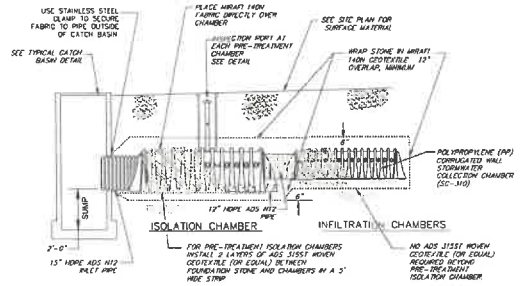
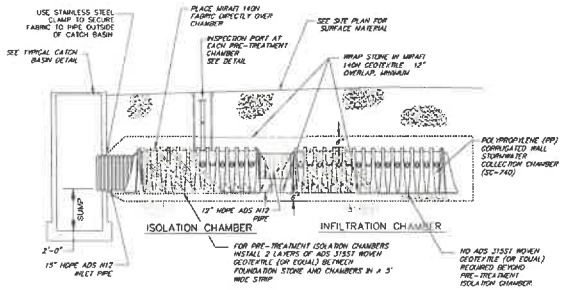


Stormtech Chamber System #1

N.T.S.



Stormtech Chamber System #2

N.T.S.

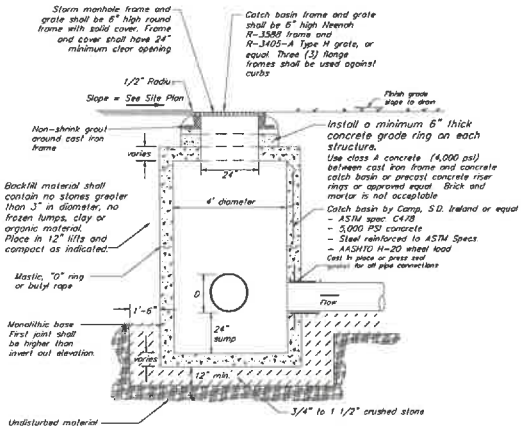
Infiltration System Construction Notes:
All upstream/upslope construction shall be complete and stabilized prior to allowing runoff to enter any infiltration systems. "Stabilized" shall mean paved surfaces, washed crushed stone, or vegetated areas that have established a dense and vigorous vegetative cover.

NOTES

1. TYPICAL GRASS SWALE & INFILTRATION BASIN CROSS SECTION. SEE PLAN VIEW FOR LOCATIONS
2. TYPICAL SIDE SLOPES TO BE 3:1.
3. DURING CONSTRUCTION TEMPORARILY SEED AND HEAVILY MULCH. POST CONSTRUCTION CONTRACTOR SHALL RE-GRADE ANY EROSION, REMOVE BUILD UP SEDIMENTS, PERMANENT SEED AND HEAVILY RE-MULCH.
4. CROSS-SECTION SHALL BE EXCAVATED TO NEAT LINES AND GRADES. OVER-EXCAVATED AREAS SHALL BE BACKFILLED WITH MOIST SOIL COMPACTED TO DENSITY OF SURROUNDING MATERIAL.
5. ALL EARTH REMOVED AND NOT NEEDED IN CONSTRUCTION SHALL BE SPREAD OR DISPOSED OF IN APPROVED UPLAND AREA (PER O.S.P.C.) SUCH THAT IT DOES NOT INTERFERE WITH FUNCTION

GRASS SWALE & INFILTRATION BASIN CROSS SECTION

N.T.S.

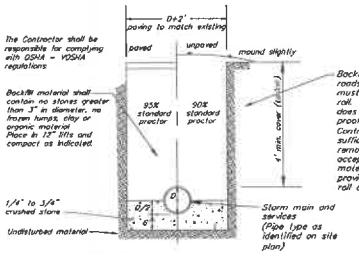


Typical Catch Basin/Storm Manhole Detail

N.T.S.

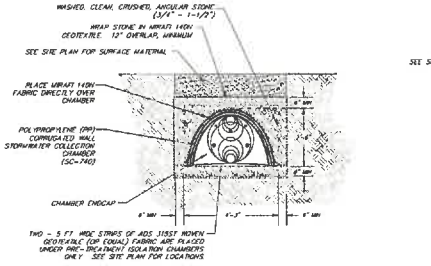
PVC SDR 35 pipe shall not be installed when the temperature drops below 32° F or goes above 100° F unless prior approval is obtained from the Engineer. Extra care is required when handling PVC pipe during cold weather. PVC pipe shall not be stored outside and exposed to prolonged periods of sunlight as pipe discoloration and reduction in pipe impact strength will occur. If PVC pipe is to be stored on site for 1 month or longer it shall be covered with canvas or other opaque material.

All new storm and sanitary extending from structures shall be laid with a pipe laser to elevation and slope as shown on the plans



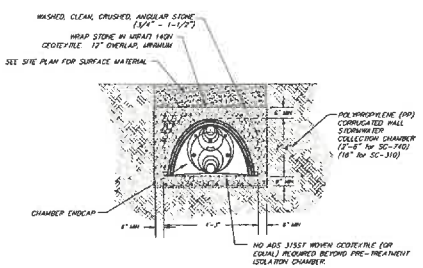
Typical Storm Trench Detail

N.T.S.



Typical Pretreatment Isolation Chamber Cross Section

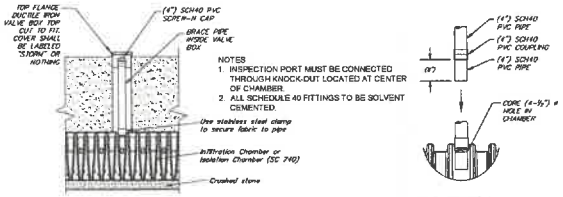
N.T.S.



Typical Infiltration Chamber Cross Section

N.T.S.

One Inspection port shall be installed in each pre-treatment isolation chamber row. See site plan for inspection port locations.



Typical Inspection Port Cross Section

N.T.S.

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Project:
TOWN OF MILTON
Public Works Facility
Bombardier Road

Project No.	21093
Scale	N.T.S.
Drawn by	DMR
Checked by	
Date	10/11/2021

Revisions

No.	Date	Description

Drawing Title
Civil Details

Drawing No.
C3.03

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Construction Notes

The Contractor will be responsible for all construction of water main, storm and sanitary sewer systems as shown on the plans. The Contractor will be responsible for all necessary adapters, fittings, etc. to make connections to the existing and proposed units. The Contractor shall be responsible for all work shown or implied on the plans and/or referenced in the specifications and permits. The Contractor shall submit, for approval by the Engineer, all types of materials and products used.

Water Main (Applies to new domestic water mains and services) (See also Fire Service Main Notes)

1. The pipe for water main shall be CL52 ductile iron. Ductile iron fittings shall conform to AWWA C110, 350 pounds working pressure. Valves shall be manufactured to meet all requirements of AWWA specification C509.

2. All pipe shall be installed in accordance with AWWA C600. The pipe shall be kept free of foreign matter and debris during installation. When the process of pipe laying has stopped, any open ends of pipe shall be plugged. There shall be a minimum of 6'-0" (1.82 m) cover over all pipe and service lines. Any pipe deflection shall not exceed fifty (50%) percent of recommended manufacturer's maximum deflection. Backfill materials and procedures shall be as detailed on the drawings. The Contractor shall be responsible for any and all sheeting and/or shoring necessary to comply with OSHA – VOSHA regulations.

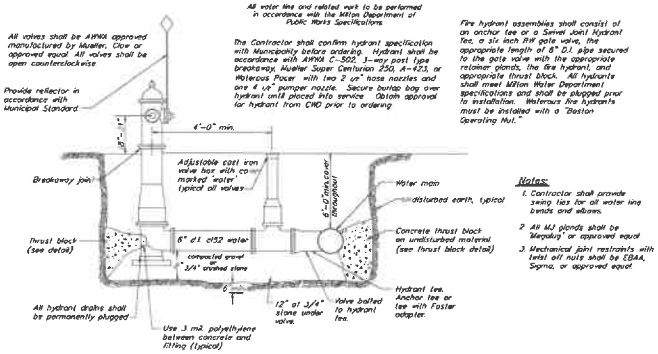
3. The testing of the water main shall consist of the testing of all installed pipe, services and hydrants in accordance with AWWA C600. The testing shall consist of a pressure test and leakage test. All testing shall be done with potable water and in the presence of the Engineer, and representatives from the Town of Milton Water Department. The pressure test consists of maintaining a minimum internal pipe pressure of 200 psi (140,620 kg/m^2) for two (2) hours. The testing allowance shall be defined as the maximum quantity of makeup water that is added into a pipeline undergoing hydrostatic pressure testing, or any valved section thereof, in order to maintain pressure within +/– 5 psi of the specified test pressure (after the pipeline has been filled with water and the air has been expelled). No pipe installation will be accepted if the quantity of makeup water is greater than that determined by the following formula:

$$L = \frac{SD\sqrt{P}}{148{,}000}$$

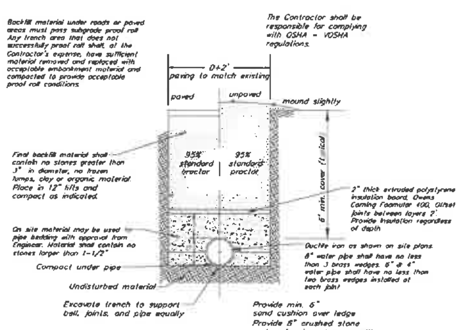
L = testing allowance (makeup water), in gallons per hour
S = Length of pipe tested, in feet
D = Nominal pipe diameter, in inches
P = average test pressure during the hydrostatic test, in pounds per square inch (gauge)

4. Chlorinating of the system shall be accomplished after the water main has been successfully pressure tested and thoroughly flushed. Disinfecting shall be in accordance with AWWA C-651. The disinfecting process shall be deemed acceptable only after two consecutive sets of acceptable samples, taken from the flushed and disinfected main 24 hours apart, shows no evidence of bacteriological contamination. For proper disinfection use minimum 25 mg/l chlorine concentration for 24 hours. The concentration must remain above 10 mg/l. Tablet disinfecting is not acceptable.

5. The water main shall be thoroughly flushed with a minimum flow velocity of 2.5 ft/s to flush foreign materials out of the valves and hydrants. Prior to flushing, the Contractor shall contact the Owner, Fire Department in the municipality, the District Water Supply or Department of Public Works, and the Engineer.



Typical Hydrant & Gate Valve Assembly
N.T.S.

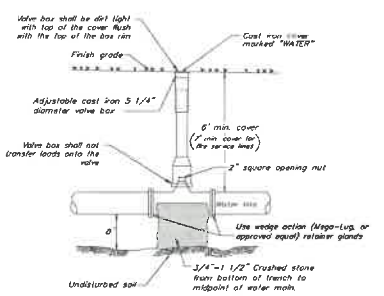


Typical Water Trench Detail
N.T.S.

WATER & SEWER Testing and Contractor Coordination Requirements

1. All water lines and sewer lines shall be thoroughly tested by the Contractor in accordance with the Environmental Protection Rules (09/29/07), and the Chapter 21 Water Supply Rules (the more stringent rule shall apply).
2. All private or municipal waterlines shall be tested by the Contractor in accordance with the procedures outlined in AWWA C600 and/or NFPA 24
3. The Contractor will be responsible for all construction of water main and sanitary sewer systems as shown on the plans. The Contractor will be responsible for all necessary adapters, fittings, etc. to make connections to the existing and proposed units. The Contractor shall be responsible for all work shown or implied on the plans and/or referenced in the specifications and permits. The Contractor shall submit, for approval by the Engineer, all types of materials and products used.
4. No water main shall be closer than ten (10) feet to any sanitary sewer or sanitary manhole and five (5) feet to any catch basin or storm sewer line. Provide minimum of 18" vertical separation between water main and storm/sanitary sewer crossing
5. The Contractor shall be responsible for construction as-builts to service locations, and any water main fittings. As-builts shall be recorded in accordance with the outlined procedures.
6. The Contractor shall be responsible for contacting the Engineer, Municipality, and Water District, when applicable, at least 48 hours prior to starting construction on any portion of the exterior water or sanitary systems. This notification requirement shall continue to the completion of the water and sanitary systems.
7. Utility Testing. The Contractor shall be responsible for scheduling water and sanitary testing, with the Engineer, Municipality Public Works Department, and/or the Water District at a minimum of 48 hours prior to the test. Based on availability of Engineer's staff, the Engineer shall accommodate the testing schedule within 48 hours of the Contractor requested test date/time
8. The Contractor must successfully pre-test the water and forcemain for 2 hours prior to scheduling the Engineer. The Contractor shall notify Engineer immediately if pre-test failed.
9. The Contractor shall immediately contact the Engineer if pre-scheduled testing and/or water/sewer construction is canceled. If Contractor does not contact Engineer and Engineer visits the site, the Contractor shall be responsible for Engineer's fees/mileage for site visit.
10. The Contractor shall coordinate water construction with the Milton Water Department. The Contractor shall leave thrust blocks and other required sections of new line exposed until the Water Department has inspected and approved them.

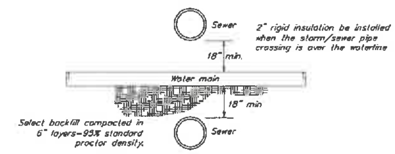
1. Valves shall be manufactured to meet all requirements of AWWA C509 or C515 latest edition. Valves twelve inches (12") and smaller shall be bubble tight, zero leakage at 200 psi working pressure. Valves shall have non-rising stems, open counter clockwise (left) and provide a two inch (2") square operating nut with an arrow cast in the metal indicating direction of opening. Each valve shall have the maker's name, pressure rating and year in which it was manufactured cast on the body. Valves shall be mechanical joint on each end, and secured to the adjoining pipe with an approved retainer gland. Prior to shipment from the factory each valve shall be tested by hydrostatic pressure equal to twice the specified working pressure.
2. Gate valves shall be Mueller, Kennedy, AFC, M&H or approved equal on water distribution mains and Mueller, AFC, or approved equal on CWD Transmission mains.
3. Gate valves used to convey or dispense water for human consumption shall comply with the Vermont Law (Act 193) An Act Relating to Prevention of Lead Poisoning By Exposure to Lead in Consumer Products, and shall contain no more than 0.25% lead by weighted average. Fixtures containing brass must comply with NSF/ANSI 61 Annex G.
4. Buried gate valves shall be provided with a two inch (2") square wrench nut and shall be installed with a cast iron valve box as required to allow access to the valve operating nut at all times. In installations where the depth from grade to top of valve operating nut is greater than five feet (5'), a valve stem riser shall be provided and installed such that the depth from the valve stem riser nut to grade is from four feet to five feet (4'–5'). Valve stem risers shall be of high strength stainless steel and of welded construction (see Valve Stem Extension Detail in CWD Standard Specifications).
5. All gate valve bolts, studs and nuts shall be made from corrosion resistant stainless steel.
6. Tapping valve inlet and outlet connection shall be Standardized Mechanical Joint unless specified otherwise on the drawings for the type of pipe required for the branch or lateral pipeline.
7. Valve boxes located in roadways shall have one non-adjustable paving riser of a height ranging from one and a half inches (1.5") to six inches (6") as needed, to be brought to final pavement grades



Typical Resilient Wedge Gate Valve
N.T.S.

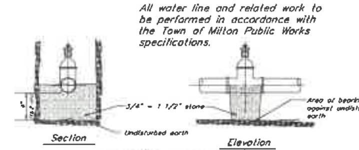
NOTES:

1. The location of sewer/storm mains in relation to water mains shall be in accordance with the Vermont Water Supply Rules.
2. Water mains shall be laid at least 10 feet horizontally from any existing or proposed sanitary manholes, sanitary sewer, or force mains. Storm sewers and manholes shall be at least 5 ft horizontally from any existing or proposed water main. The distance shall be measured edge to edge. If this distance cannot be obtained variance shall be approved by the ANR Drinking Water & Groundwater Protection Division.
3. 18" separation shall be maintained whether water is over or under sewer. At crossings, one full length of water pipe shall be located so both joints are as far from the sewer as possible. If the sewer main is over the water main, the water main shall be wrapped in V-Bio Enhanced Polyethylene Encasement in accordance with the manufacturer's requirements. At a minimum, the V-Bio wrap shall extend beyond the water pipe joint on each side of the sewer pipe crossing. If the 18" vertical separation distance cannot be obtained, then a variance must be approved in accordance with the Water Supply Rule.
4. A minimum separation of 25 ft. shall be maintained between waterlines and underground storage tanks. 50 ft. separation is preferred, if possible.



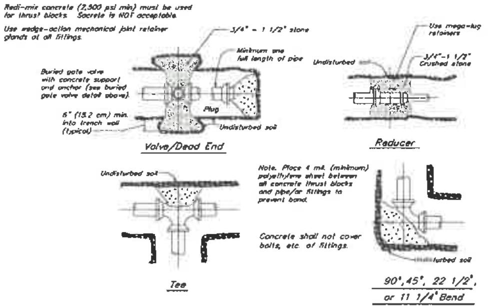
Sewer / Water Separation Detail
N.T.S.

All water line and related work to be performed in accordance with the Town of Milton Public Works specifications.



Anchorage of Valves

Note
A thrust block shall be installed at all water main bends, end caps, and tees.
Precast thrust blocks are NOT acceptable.
Redi-mix concrete (2,500 psi min) must be used for thrust blocks. Sacrete is NOT acceptable.
Use wedge-action mechanical joint retainer glands at all fittings.



Minimum Area of Bearing Surface of Concrete Thrust Block (in square feet)

3"				4"				6"				8"				12"				SOIL CONDITION	SAFE BEARING LOAD(PSF)
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
0.5	0.5	0.5	0.5	0.5	1.0	0.5	0.5	1.0	1.5	1.0	0.5	2.0	2.5	1.5	1.0	4.0	5.5	3.0	1.5	Sound shale	10,000
1.0	1.0	1.0	0.5	1.5	2.0	1.0	0.5	3.0	4.0	2.0	1.0	4.5	6.5	3.5	2.0	10.0	14.[illegible]	7.5	4.0	[illegible] & sand	4,000
1.0	1.0	1.0	0.5	2.0	0.5	1.5	1.0	3.5	5.0	3.0	1.5	6.0	[illegible]	5.0	2.5	13.0	18.5	10.0	5.0	[illegible] compact sand	3,000
1.5	2.5	1.5	1.0	2.5	3.5	2.0	1.0	5.5	7.5	4.0	2.0	9.0	[illegible]	7.0	3.5	[illegible]	27.[illegible]	15.0	8.0	[illegible]	2,000
3.0	4.5	2.5	1.5	5.0	7.0	4.0	2.0	[illegible]	15.0	8.0	4.0	18.[illegible]	[illegible]	14.0	7.0	[illegible]	[illegible]	[illegible]	15.[illegible]	Soft clay	1,000

Maximum water pressure = 200 PSI (140,620 kg/m^2)

Thrust Block Details
N.T.S.

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Project:
TOWN OF MILTON
Public Works Facility
Bombardier Road

Project No.	21232
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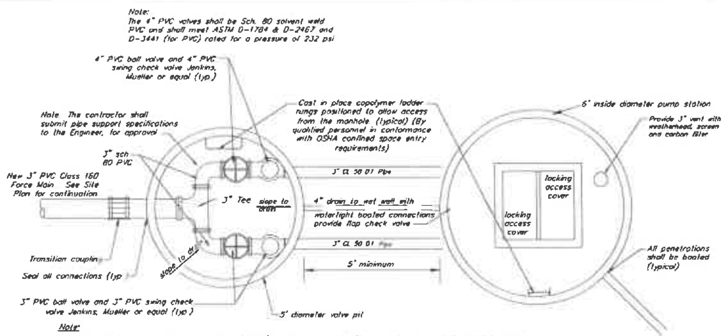


Note

1. The structure is to be a package pump station w/ exterior valve vault. Plans for the pump station shall be approved by the Engineer prior to construction.
2. The submersible pumps shall be assembled and tested at the factory
3. The Contractor shall provide the design for floatation prevention, approved by the Engineer, prior to construction
4. The station shall include all necessary controls, switches, fittings, power service, and supply all appurtenances necessary to make the station complete and operable.
5. All electrical equipment shall comply with National Electrical Code requirements and all City of Vergennes codes

Plan

Sewage Pump Notes

1. The sewage pumps shall be designed such that, with any one pump out of service, the remaining unit(s) will have capacity to handle the design peak hourly flow.
2. The pumps shall be recessed impeller, explosion proof, non-clog type specifically designed for raw sewage applications.
3. Each pump shall be of heavy cast iron construction. The shaft shall be of solid stainless steel construction sealed against leakage by a double mechanical seal.
4. Pumping sequence shall be arranged in an alternating "lead"/"lag" configuration. When liquid level reaches the predetermined "lead pump on" elevation, the designated lead pump shall start automatically. This pump shall continue to operate until such time as the liquid level falls below the designated "pump off" elevation. If flow into the wet well exceeds the capacity of the lead pump, the liquid level rises to the "lag pump on" elevation, then the designated lag pump shall be automatically activated. Both the lag pump and the lead pump shall continue to operate until liquid level falls to the "pump off" elevation. A "high level alarm" condition shall occur if liquid level rises above the predetermined alarm level (typically established at an elevation 6" above the "lag pump on" elevation). The alarm condition shall remain in effect until manually reset from the control panel.

Controls

The main equipment control system shall be mounted on separate posts or on buildings as specified on Electrical Plans in a NEMA 4 panel, complete with suitable latching devices. All circuit breakers, motor starter reset buttons, and pump control switches shall be mounted so that they are operable without opening the cabinet. The low voltage, automatic pump control section shall be separate from the high voltage circuit breaker motor starter section and shall be provided with a hinged access door and latch. The control switches shall be mounted on the face of the automatic pump control section door. A grounding-type convenience duplex outlet shall be provided for operation of 115 volt AC devices.

Thermal magnetic circuit breakers shall be provided for branch disconnect service and over-current protection of all motor, control and auxiliary circuits. Magnetic across-the-line starters with under voltage release and overload coils for each phase shall be provided for each pump motor to give protection against single phasing. Each single phase auxiliary motor shall be equipped with an over-current protection device, in addition to its branch circuit breaker, or shall be impedance protected. All switches shall be labeled and a coded wiring diagram shall be provided.

A running time meter shall be supplied for each pump to record the hours of operation. The meter shall be enclosed in a dust and moisture proof molded plastic case. The flush mounted dial shall register in hours and tenths of hours up to 99999.9 hours before repeating. The meter shall be suitable for operation from a 115 volt, 60 cycle supply and shall be mounted on the surface of the control cabinet.

Wiring

The pump station shall be completely pre-wired at the factory, except for the power feeder lines. All wires shall meet the requirements of the National Electric Code and shall be color-coded as indicated on the wiring diagram. All wiring outside the panel shall be in conduit, except for the 115 volt accessory items which are provided with insulated service cord. Conduit shall be provided from the control panel across the ceiling, and up the entrance tube to receive the feeder lines, and shall terminate in a threaded conduit connection through the wall of the entrance tube. All receptacles shall be of the ground fault type.

Electrical System

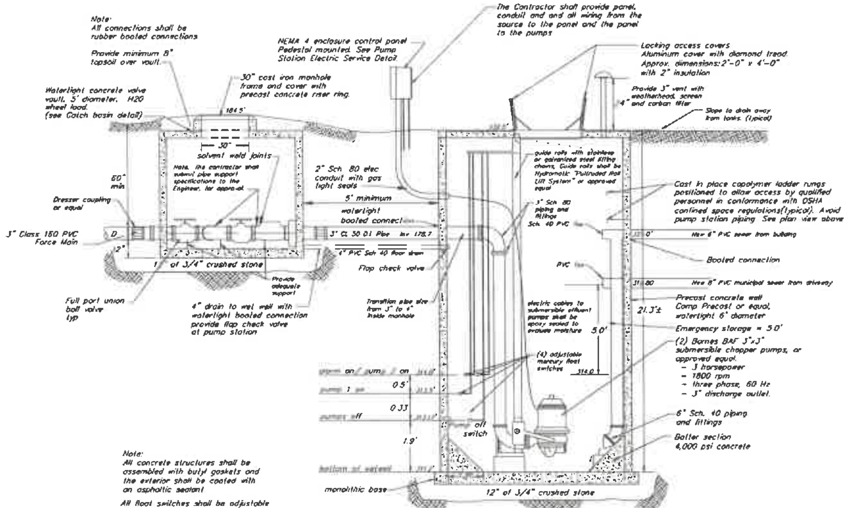
All material and equipment necessary for a complete and workable electrical system shall be furnished and installed including: conduit and fittings, wire and cable, service panel, grounding, alarm system, connections to pump station, power company connection fees, telephone service fees.

Packaged pump station will be furnished completely wired including controls and will require only power wiring from the service panel to the control panel in the pump station and signal wiring for the high level signal from the pump station control to the service panel. The above grade panel and signal communicator shall be provided by the pump station manufacturer.

All materials and equipment shall meet the standards of the National Electrical Manufacturer's Association and Underwriters Laboratories, Inc., and shall bear their label wherever standards have been established and label service is available.

Installation of electric systems and controls shall be in conformance with the latest edition of the National Electric Code, local ordinances and regulations prescribed by the local power company.

Completed electric work performed shall comply with the latest edition of the National Electric Code Underwriters Laboratories regulations and all Municipal, State and other public or private authorities having jurisdiction. The contractor is responsible for acquiring all necessary permits. All equipment and workmanship shall be guaranteed to be free from mechanical and electrical defects for a period of one year from the day of final acceptance. Any replacement of parts or adjustments, including labor made necessary by such defects and adjustments, shall be rectified without cost to the Owner.



Section

Duplex Pump Station

not to scale

Required Testing

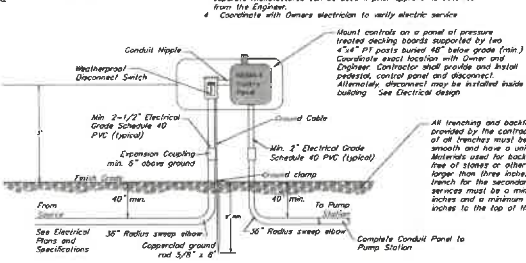
All mechanical, control and alarm functions shall be tested in the presence of the Owners representative to demonstrate that all equipment is fully operational.

Any grounds, opens, shorts or other defects shall be rectified at no cost to the Owner before acceptance.

The contractor and electrician shall perform a start up test with potable water. Engineer shall witness test. Flow rate of pumps, start up amperage, run amperage, flow rate, alarms, floats, alternator, etc. shall be measured.

Pump Station Control Panel Requirements

1. All Panels shall be NEMA 4, (lockable)
2. All Panels shall include (at a minimum) the following equipment:
   - Fused disconnect for main power feed
   - UL508 stamp and approval
   - Overload relays with manual reset
   - Individual circuit breakers for each pump
   - HOA switches for each pump
   - Automatic alternator to cycle pumps
   - Leak seal detector
   - Audible alarm and flashing light
   - Elapsed time meters for each pump
3. It is preferable that the same manufacturer supply both the pumps and the control panel. Since this is not always possible separate manufactures can be used if prior approval is obtained from the Engineer.
4. Coordinate with Owners electrician to verify electric service



Typical Pump Station Electric Service

n.t.s.

System Curve For Pump Selection New Pressurized Distribution

Gallon/Per/Minute GPM	Velocity	Static Head	Friction Loss	Minor Loss	Discharge Head	Total Dynamic Head
1[illegible]	2.39ft/sec	8ft	0.66ft	[illegible]ft	[illegible].31ft	15.9[illegible]ft
1[illegible]	2.99ft/sec	[illegible]	[illegible]	[illegible]ft	2.31[illegible]	16.30ft
[illegible]	3.58ft/sec	[illegible]	1.[illegible]	[illegible]	2.31ft	16.69ft

Minimum pump operating point capable of 125 G.P.M. @ 15.64' T.D.H.

Pump Station Testing Notes

1. The Contractor shall test both the pump station wetwell and the valve pit for watertightness prior to backfill. The leakage test shall conform to applicable sections of the State of Vermont Environmental Protection Regulations, Chapter 14, Indirect Discharge Rules (April 2003). This test shall be witnessed by the Engineer and shall be performed as follows:

   After the structure has been assembled in place, all lifting holes and exterior joints shall be filled and pointed with an approved non-shrinking mortar. All pipes and other openings into the structure shall be suitably plugged and the plugs placed to prevent blowout.

   Pump Station structure shall be checked for infiltration by filling with water to the top of the cone section. A stabilization period of one hour shall be provided to allow for absorption. At the end of this period, the structure shall be refilled to the top of the cone, if necessary, and the measuring time of at least six hours begun. At the end of the test period, the structure shall be refilled to the top of the cone measuring the volume of water added. This amount shall be converted to a 24 hour rate and the leakage determined on the basis of depth. The leakage for each structure shall not exceed one gallon per vertical foot for a 24 hour period for exfiltration and there shall be no visible infiltration.

   If the structure fails the test it shall be thoroughly cleaned and resealed, from the outside, and retested at the Contractors expense.

2. All penetrations and joints shall have watertight seals.
3. The Contractor shall provide all necessary unions, fittings, etc. for easy pump removal.
4. The pump station shall include all the necessary controls, switches, fittings and appurtenances to make the station complete.
5. The Contractor shall provide an audible and flashing alarm and fused disconnect switch. All necessary cable and wiring shall be supplied by the Contractor.
6. The Contractor shall use Schedule 80 PVC with solvent weld joints for all piping inside pump station and valve pit.
7. All electrical equipment shall comply with the National Electric Code and other applicable codes.
8. Any modifications to pump station design or location must be approved by the Engineer and other permitting authorities.
9. The Contractor shall anchor tank as required to prevent flotation of valve pit and pump station wet well. Flotation calculations for the structures must be provided by the Contractor.

Pump Station Design Criteria

Design Flows: 525 GPD

10 employees x 15 GPD = 150 GPD

5 Vehicle washes/day x 75 GPD/Wash = 375 GPD

Use duplex pumps in 6 foot diameter wetwell

Volume of wetwell per foot = 211 gallons/foot

Dose of 8 cycles/day for 180 min. retention time

Volume of minimum dose = 525 gallons/8 cycles = 65 gallons/cycle

Height of pump cycle = $\frac{65 \text{ gallons/cycle}}{211 \text{ gallons/foot}}$ = 0.31 feet/cycle

Minimum volume of emergency storage using Design Flow and 16 hour delivery:

Volume = $\frac{525 \text{ gallons/day}}{16 \text{ hours/day}}$ x 4 hours = 132 gallons

Emergency storage will be in Pump Station with interior storage volume of:

Volume of wetwell per foot = 211 gallons/foot

Provide 5' Height of emergency storage = 5.0 feet x 211 gal/ft = 1,055 gallons

Average Flow 24 hour day = $\frac{525 \text{ gallons/day}}{(24 \text{ hours/day})(60 \text{ minute/hour})}$ = 0.36 gallons/minute

CIVIL ENGINEER:

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Project:

TOWN OF MILTON
Public Works Facility

Bombardier Road

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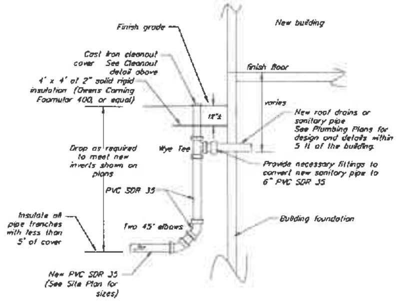
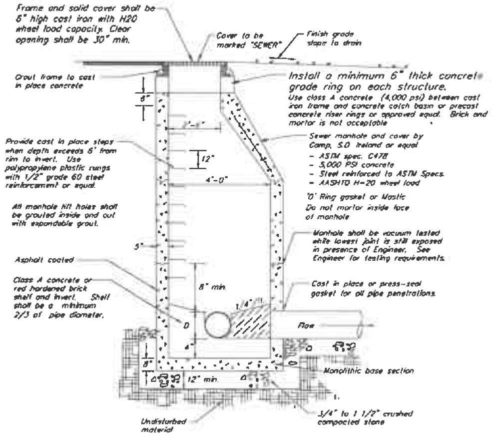


Drop Outlet Plumbing Connection Detail

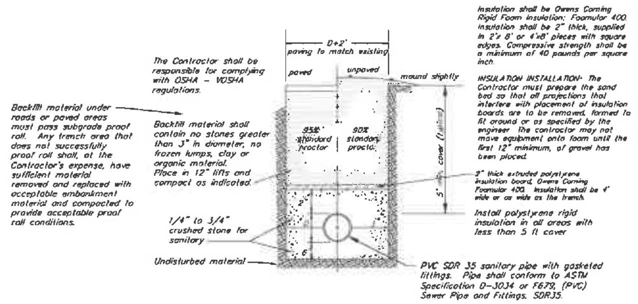
N.T.S.



Typical Precast Sewer Manhole

N.T.S

PVC SDR 35 pipe shall not be installed when the temperature drops below 32° F or goes above 100° F unless prior approval is obtained from the Engineer. Extra care is required when handling PVC pipe during cold weather. PVC pipe shall not be stored outside and exposed to prolonged periods of sunlight as pipe discoloration and reduction in pipe impact strength will occur. If PVC pipe is to be stored on site for 1 month or longer it shall be covered with canvas or other opaque material.

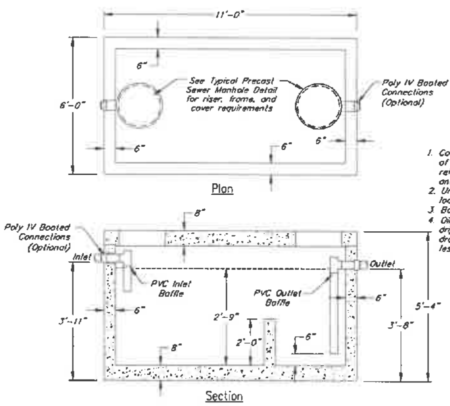


Typical Sanitary Trench Detail

N.T.S.

Sanitary Testing Requirements

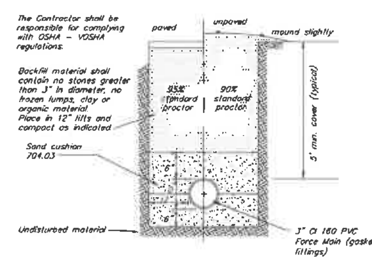
1. All sewer lines and manholes shall be thoroughly tested by the Contractor in accordance with the Environmental Protection Rules (09/29/07).
2. All sanitary manholes shall be vacuum tested in the presence of the Engineer. The structure shall be tested prior to backfill with the lowest seam exposed. Test procedures and pressure shall be determined jointly by the local approval agency and the Engineer. Failure of any vacuum test shall necessitate repair and/or replacement of the structure and retest. Water testing manholes is not acceptable.
3. All sanitary mains shall be air tested in the presence of the Engineer. At a minimum, the test pressure shall be 4 pounds per square inch at the highest point along the test for 4 minutes.
4. Utility Testing The Contractor shall be responsible for scheduling sanitary testing at a minimum of 24 hours prior to the test. Based on availability of Engineer's staff, the Engineer shall accommodate the testing schedule within 24 hours of the Contractor requested test date/time.
5. The Contractor shall immediately contact the Engineer if pre-scheduled testing and/or water/sewer construction is canceled. If Contractor does not contact Engineer and Engineer visits the site, the Contractor shall be responsible for Engineer's fees/mileage for site visit.



1. Concrete will meet the minimum strength of 5,000 psi or 28 days. Steel reinforcement shall be grade 60. Joints and seals shall use Butyl Sealant.
2. Unit, riser and rim shall meet H20 loading.
3. Booted pipe connections.
4. Oil/water separator is for incidental drippings from the shop area and the drop off area, flows are expected to be less than 1 GPD.

Heavy Duty 1,000 Gallon Oil/Water Separator Detail

N.T.S.



Force Main Trench Detail

N.T.S.

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Project:

TOWN OF MILTON
Public Works Facility

Bombardier Road

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