VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
STORMWATER PROGRAM

Municipal Separate Storm Sewer System (MS4)
2021 Annual Report

A. Permittee Information

1. Name of MS4: City of Burlington

2. Permit Number: 7022 - 9014

B. Attached Documents

The following documents have been prepared and submitted with this Annual Report:

- ☑ Annual Report Workbook (.xlsx)
- ☑ BMP Tracking Table (.xlsx)

C. Certification of STPs constructed to comply with the FRP or PCP

The following BMPs were built or implemented within the past calendar year and were constructed in compliance with the approved Flow Restoration Plan (FRP) or Phosphorus Control Plan (PCP).

Name of System	Location
182 Lakewood Parkway	Same as name
191 Lakewood Parkway	Same as name
146 Lakewood Parkway	Same as name

Ashley Walenty, PE
Name of Qualified Designer

Water Resources Engineer
Title

Signature

3/31/2022
Date

D. MS4 Operator Certification

This Annual Report shall be signed by a principal executive officer, ranking elected official or other duly authorized employee consistent with 40 CFR §122.22(b) and certified as follows:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

James A. Sherrard Jr
Print Name

Stormwater Program Coordinator
Title

James Sherrard Jr
Signature

Digitally signed by James Sherrard Jr
DN: cn=James Sherrard Jr, c=US, o=City of Burlington, ou=Water Resources, email=jsherrard@burlingtonvt.gov
Date: 2022.03.31 11:11:34 -04'00'

3/31/2022
Date

Table of Contents

Table of Contents 1
Watershed Management Division Generic Application/Report Submission and Fee Payment Form 2
(Submission #: HPG-K8AG-BZ94C, version 1) 2
Details 2
Form Input 2
General Information 2
Attach Forms/Supporting Materials 2
Attachments 3
Status History 3
Processing Steps 3

Watershed Management Division Generic Application/Report Submission and Fee Payment Form

version 1.20

(Submission #: HPG-K8AG-BZ94C, version 1)

Details

Submitted	3/31/2022 (623 days ago) by James Sherrard Jr.
Alt ID	James Sherrard | 7022-9014.ARA
Submission ID	HPG-K8AG-BZ94C
Status	Deemed Complete

Form Input

General Information

Contact Person
James Sherrard

Contact Phone (Format: 123-456-7890 Ext 123)
802-863-4501

Contact Email
jsherrard@burlingtonvt.gov

Select the Watershed Management Division Program that this submission is for:
Stormwater

Please select the type of submission you would like to make:
Compliance or reporting form

Permit Number
7022-9014.ARA

Attach Forms/Supporting Materials

IMPORTANT:

The attachment control below will allow you to select and upload multiple files at one time. However, if the files you are uploading are relatively large (greater than 2 MB each), if you are uploading a large number of files, or if you are accessing this site over a relatively slow Internet connection, you should upload your files one at a time.

Compliance or Reporting Form Attachment(s)

Burlington_sw_MS4_2021_Annual_Report_signed.pdf - 03/31/2022 02:19 PM
MCM1_Complete.pdf - 03/31/2022 02:21 PM
MCM2_Complete.pdf - 03/31/2022 02:26 PM
MCM3_Complete.pdf - 03/31/2022 02:26 PM
MCM4 and 5_Complete.pdf - 03/31/2022 02:26 PM
MCM6_Complete.pdf - 03/31/2022 02:33 PM
Burlington_Annual Report Workbook_2021.xlsx - 03/31/2022 02:33 PM
BMPTrackingTable_MS4 2021 Annual Permit.xlsx - 03/31/2022 02:34 PM

Comment
NONE PROVIDED

Attachments

Date	Attachment Name	Context	User
3/31/2022 2:34 PM	BMPTrackingTable_MS4 2021 Annual Permit.xlsx	Attachment	James Sherrard Jr.
3/31/2022 2:33 PM	Burlington_Annual Report Workbook_2021.xlsx	Attachment	James Sherrard Jr.
3/31/2022 2:33 PM	MCM6_Complete.pdf	Attachment	James Sherrard Jr.
3/31/2022 2:26 PM	MCM4 and 5_Complete.pdf	Attachment	James Sherrard Jr.
3/31/2022 2:26 PM	MCM3_Complete.pdf	Attachment	James Sherrard Jr.
3/31/2022 2:26 PM	MCM2_Complete.pdf	Attachment	James Sherrard Jr.
3/31/2022 2:21 PM	MCM1_Complete.pdf	Attachment	James Sherrard Jr.
3/31/2022 2:19 PM	Burlington_sw_MS4_2021_Annual_Report_signed.pdf	Attachment	James Sherrard Jr.

Status History

	User	Processing Status
3/31/2022 2:16:51 PM	James Sherrard Jr.	Draft
3/31/2022 2:36:18 PM	James Sherrard Jr.	Submitted
6/6/2022 5:16:29 PM	Catherine Gott	Deemed Complete

Processing Steps

Step Name	Assigned To/Completed By	Date Completed
Form Submitted	James Sherrard Jr.	3/31/2022 2:36:17 PM

2021 Annual MS4 Report

Attachment

MCM #1

Minimum Control Measure #1:
Public Education & Outreach
REGIONAL STORMWATER EDUCATION PROGRAM
RETHINK RUNOFF

JANUARY–DECEMBER 2021
ANNUAL REPORT

Prepared by:
Pluck

VCET/299 Main Street, Burlington, VT 05401 p 802.224.6975 e hello@pluckvermont.com w pluckvermont.com

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VCET/299 Main Street, Burlington, VT 05401 p 802.224.6975
e hello@pluckvermont.com w pluckvermont.com

Introduction

Since 2003, Chittenden County's twelve MS4s have worked to pool resources to professionally engage the public in a one message, one outreach effort known as the Regional Stormwater Education Program. Through regular spring and summer advertisements to drive people to the program's website, www.smartwaterways.org, this cooperative approach to fulfilling its NPDES Permit Minimum Control Measure #1 (Public Education & Outreach) requirements has built a regional awareness among the public of the need for individual action to assist in fighting stormwater problems.

In the summer of 2016, the MS4s contracted with Tally Ho through their Lead Agency, the Chittenden County Regional Planning Commission, to rebrand the Smart Waterways campaign into a combined effort with the MS4's Minimum Measure #2 regional effort known as the Chittenden County Stream Team. The goal was to create one cohesive organization and outreach effort to both educate the public about stormwater and boost public participation in implementation of projects to combat the negative impacts of stormwater. In spring of 2017, Rethink Runoff was publicly launched, including a new website and revised creative by Pluck (previously Tally Ho Design).

Pluck has been responsible for the creative, administration, and management of Rethink Runoff since late 2017.

This 2021 calendar year report recaps the work done primarily related to Minimum Control Measure #1. As in prior years, this work us developed through coordination with CCRPC and its MS4 subcommittee of the Clean Water Advisory Committee.

2021 Initiatives

In 2021, Pluck maintained existing creative for advertising, while introducing certain web initiatives and introducing social media in the 2021-2022 fiscal year, all for the purpose of continuing to drive residents to visit the program website, www.rethinkrunoff.org. We continued our Ms. Drop's Tip of the Month promoted animation as a way of providing monthly and seasonal topics related to stormwater runoff *(A on page 3.)*

We introduced HTML5 animations onto our What You Can Do interior pages on the website *(F on page 4)*. These short, repeatable animations are based on our existing visual language and provide on-screen movement to web visitors.

We set up tracking onto the websites for conversions (or actions our visitors take while visiting the website). Our first conversion to be tracked was a downloadable pdf with instructions on How to Build a Rain Barrel. Rain Barrel workshops often book to capacity and are also restricted to residents by the host city or town, so including a downloadable pdf on the site allows us to measure of interest in visitors doing DIY stormwater-related projects.

During 2020–2021, we discussed our approach to rain gardens with the subcommittee. Rain gardens are inherently expensive to install, when compared with other initiatives, like installing rain barrels. With that in mind, we created a new downloadable pdf *(B on page 3)* identifying plants used in rain gardens that homeowners could use in their gardens, to help alleviate stormwater runoff. The overall strategy was to identify and include a low-cost options for homeowners, allowing them to take action to reduce stormwater runoff, thereby raising awareness.

In Fall 2021, we introduced Google Search ads to complement our Google Display ads and YouTube ads *(E on page 4)*. Whereas Google Display ads are graphic-based ads served on websites based on content (i.e. fertilizer-related ads on a site about lawn care), Google Search are text-based ads shown in response to users' searches. In this way, we're able to provide a presence and a direct call to action. For example, we created a series of Search ads offering non-fertilizer-based lawn care ads designed to be seen when users searched for "fall lawn care tips" or related topics.

Starting in the fall of 2021, we also began to strengthen social media development as well as implementation of social media content. Our social media strategy focuses on Facebook and Instagram, our existing social media channels. Our work here complements the outreach efforts of MCM #2 effort, the Rethink Runoff Stream Team, administered by the Winooski Natural Resources Conservation District. Our overall strategy includes posting brand-related content, Lake Champlain news, general water pollution/clean water news *(C on page 3)*, and Instagram-based engagement from Vermont residents (i.e. reposting Lake Champlain and Vermont waterways photography). In some cases, social media posts are promoted via ads, based on target MS4 audiences *(D on page 3)*.

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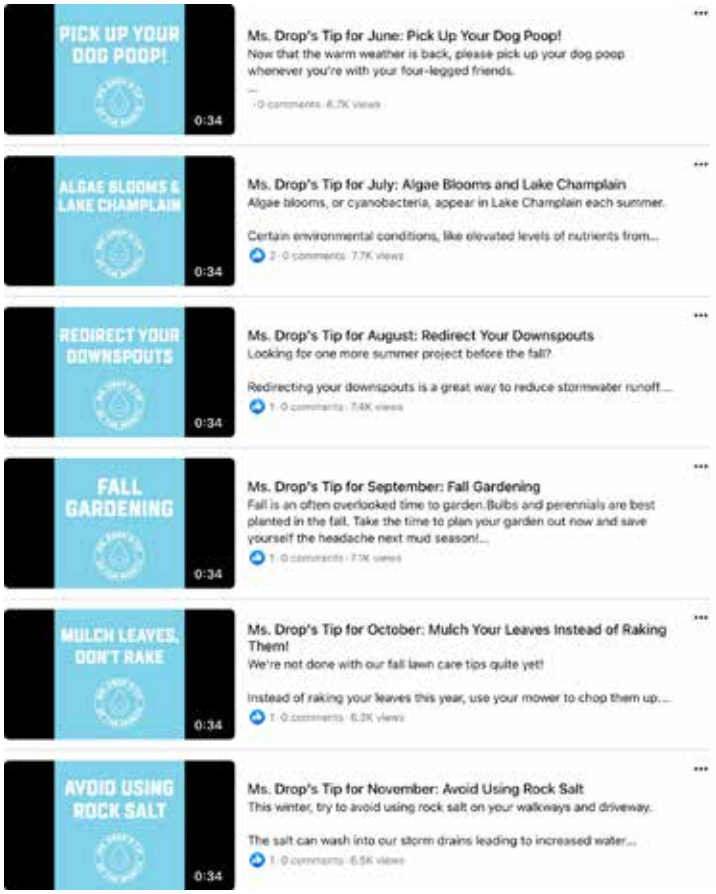
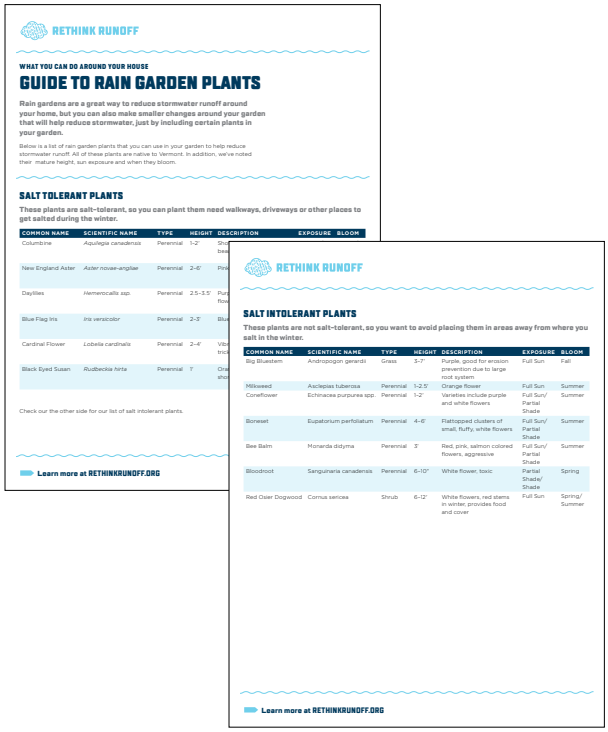
e hello@pluckvermont.com w pluckvermont.com

2021 Creative

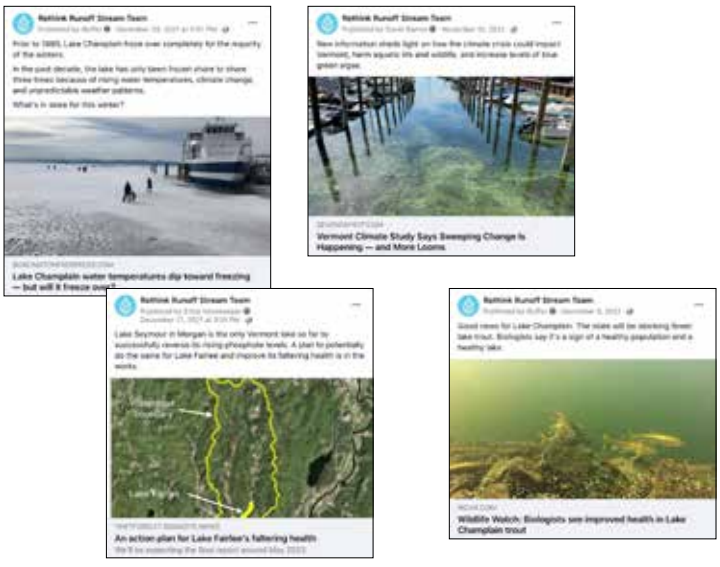
A. SOCIAL MEDIA ANIMATIONS: SAMPLE VIDEOS



B. RAIN GARDEN PLANTS PDF



C. SAMPLE SOCIAL MEDIA POSTS: NEWS



D. SAMPLE SOCIAL MEDIA POSTS: CONTENT

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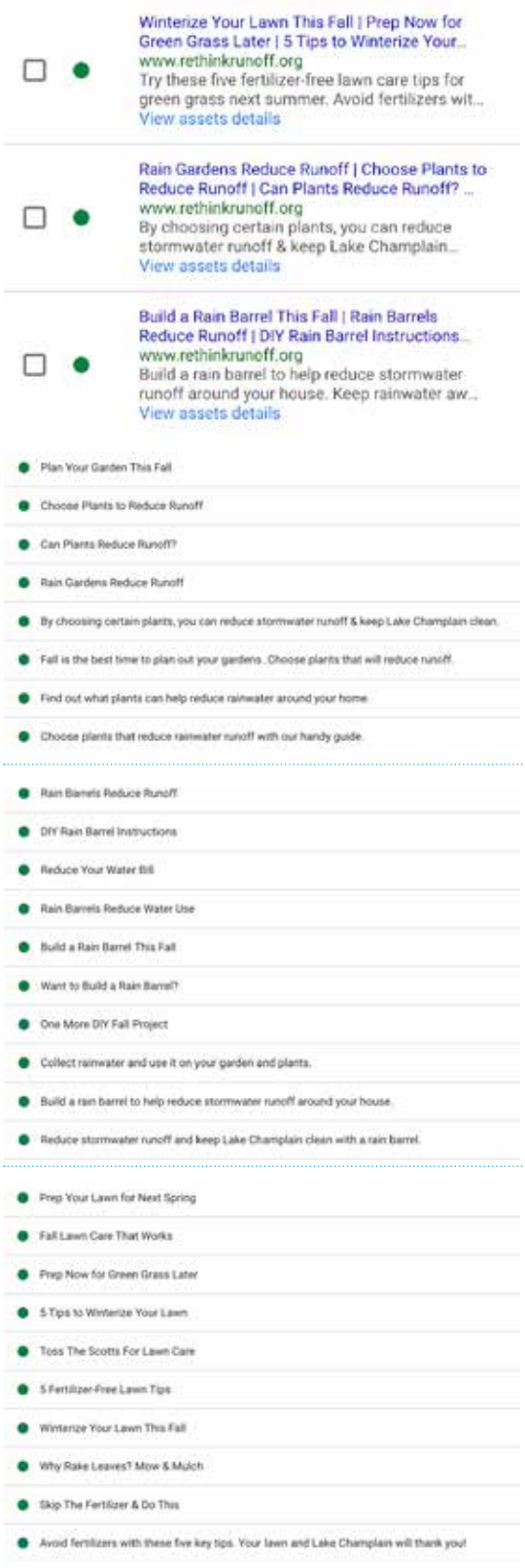
2021 Creative

E. SEARCH ADS: SAMPLE COPY AND VARIABLE HEADLINES

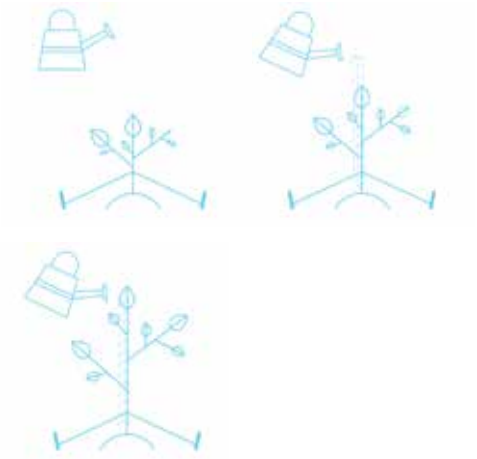


F HTML 5 ANIMATIONS

RAIN BARREL

PET WASTE

PLANTING A TREE



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Media Buy Breakdown

Below is a cost breakdown of media buys, compared with previous years. We continued our Winter Campaign with a focus on both pet waste and reducing salt use. Similar to our past efforts to shift outreach year-round, our Winter Campaign ran in January and February, traditionally a quieter time from an advertising standpoint.

Digital media buys include Google ads, Facebook ads and WCAX. TV includes WCAX and Xfinity media buys.

Overall ,our 2021 media buy strategy continued earlier efforts to create a more year-round approach. For 2021, we reduced our broadcast spend, pushing more into digital/digital video (Facebook, Google and YouTube).

In Fall 2021, we introduced Google Search ads, to complement Google Display ads and YouTube ads.

On the social media front, we also began promoting content-based posts that also offered a direct Call-To-Action leading to our website.

2016 – MEDIA BUY			
SOURCE	SPRING	SUMMER	FALL
RADIO	$4,500	-	$3,258
DIGITAL	$7,500	-	$4,985
TV	$5,500	-	$2,379
PRINT	$2,500	-	
TOTAL	$20,000	-	$10,622

2017 – MEDIA BUY			
SOURCE	SPRING	SUMMER 05/28-08/02	FALL
RADIO	$3,088	-	$1,080
DIGITAL	$3,600	$3,826	$4,582
TV	$2,015	-	$1,833
PRINT	$1,755	$585	$1,170
TOTAL	$13,191	$4,235	$8,666

2018 – MEDIA BUY			
SOURCE	SPRING	SUMMER 6/16-08/27	FALL
RADIO	$2,675	-	$1,044
DIGITAL	$3,394	$7,534	$2,987
TV	$3,710	-	$2,472
PRINT	$1,755	-	$1,006
TOTAL	$11,534	$7,534	$7,509

2019– MEDIA BUY				
SOURCE	WINTER	SPRING	SUMMER* 5/27-09/2	FALL
RADIO	$360	$1,008		$1,025
DIGITAL	$1,800	$2,320	$5,830	$3,000
TV		$5,830		$3,306
PRINT	$503	$2,012		$1,006
TOTAL	$2,663	$11,170	$5,830	$7,509

2020– MEDIA BUY				
SOURCE	WINTER	SPRING	SUMMER 7/1-9/1	FALL
RADIO		$375		$375
DIGITAL	$1,800	$4,557.51	$400	$3,430.33
TV		$5,788.75		$2,063.83
PRINT		$1,579.50		$1,053
TOTAL	$1,800	$12,301	$400	$6,922

2021– MEDIA BUY				
SOURCE	WINTER	SPRING	SUMMER 7/1-9/1	FALL
RADIO	$725.40	$375		$375
DIGITAL	$2,640.00	$7,380.00	$3,429.45	$4195.54
TV		$5,600.00		$680
PRINT		$1,455.00		$1,053
TOTAL	$3,365.40	$14,810	$3,429.45	$6,922

Media Buy Breakdown by Vendor

CAMPAIGN	WINTER	SPRING	SUMMER	FALL
WCAX BROADCAST		X		X
XFINITY BROADCAST		X		
GOOGLE	X	X	X	X
YOUTUBE		X	X	X
VTDIGGER.ORG				
VPR RADIO	X			X
WVMT RADIO		X		X
SEVEN DAYS		X		X

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Google Advertising Metric

CAMPAIGN	IMPRESSIONS	INTERACTIONS	COST
DISPLAY	3,405,317	3,287	$4,755.87
VIDEO	571,872	339,690	$5,704.81
SEARCH	20,488	419	$768.16

Impressions are the number of times the ads are served to web users. For Display and Search, Interactions are the number of times a web user clicks on the ad.

Video ads are consider pre-roll or mid-roll, meaning they are shown either directly before, or in the middle of a video the web user is watching. These ads are typically skipable after the first five seconds. Interactions include web users who click on the ads, or watch the entire ad.

Facebook Advertising Metrics

CAMPAIGN	IMPRESSIONS	CLICKS	REACH	COST
MS. DROP	113,535	618	21,083	$2,054.92
FALL 2021	571,872	87	42,513	$680.23
WINTER 2021	10,432	139	2,258	$200.70
PAGE LIKES	3,142	10	1,390	$55.09

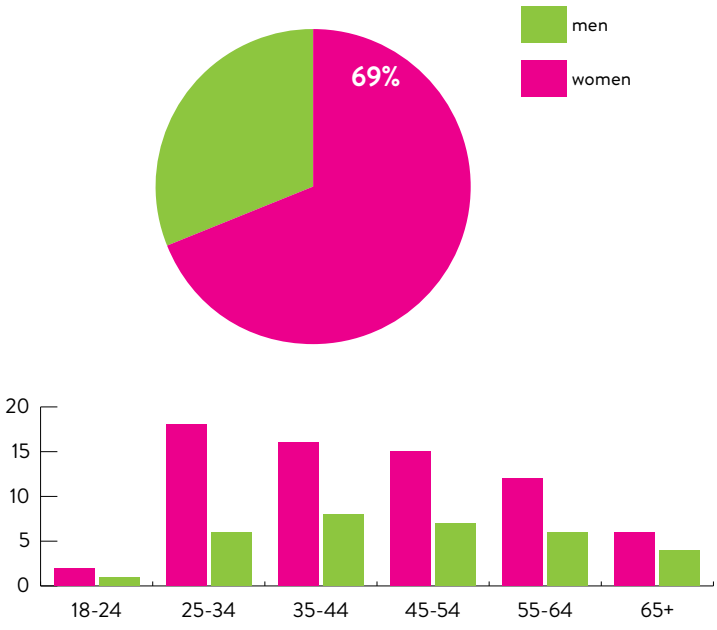
Impressions are the number of ads served to Facebook users. Clicks are the number of people who click on an ads. Reach is the number of individual Facebook users that see the ad.

Our increased focus on social media also provides us with age- and gender-related information about users who like our Facebook page (Likes) and individuals who follow our Instagram page (Followers).

In this case, reach refers to the overall unique users in each platform that have seen our posts, either through other users liking and sharing our content, users using the Explore features, or users who see promoted posts.

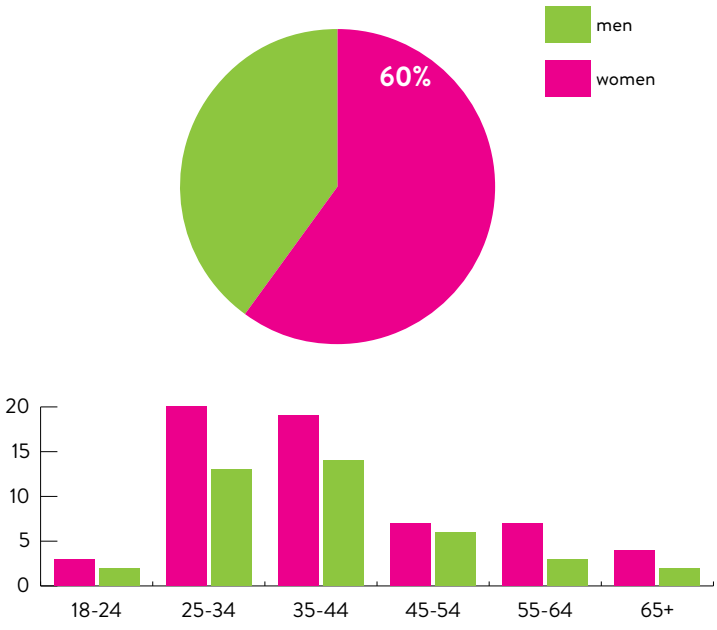
Facebook Likes Demographics

Facebook Reach: 60,998
Likes: 318



Instagram Follower Demographics

Instagram Reach: 19,384
Followers: 349



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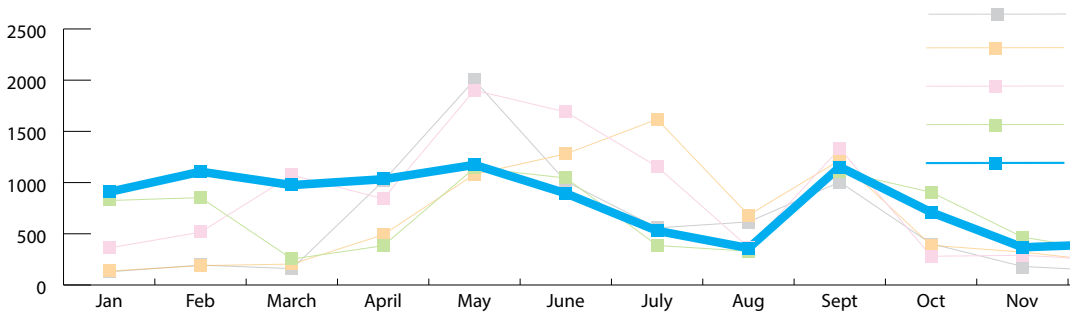
Website Metrics for 2016–2021

Our 2021 website metrics bounced back after a slower 2020 calendar year (due to COVID). Overall, our users, sessions and page views all increased by close to 20% when compared with 2020. In addition, when compared with 2019 (the last full pre-COVID year), our sessions (10,557 vs. 10,111), users (9,436 vs. 8,531), and pageviews (16,001 vs. 15,769) increased as well.



	2021	2020	2019
SESSIONS	10,557	8,908	10,111
USERS	9,436	7,861	8,531
PAGEVIEWS	16,001	13,112	15,769

Total Sessions/Visits (1/1–12/31)

TOTAL	TIME PERIOD
10,557	2021
8,908	2020
10,111	2019
7,832	2018
7,407	2017
6,004	2016
4,659	2015
7,728	2014
3,541	2013
2,787	2012

Top Vermont Cities and Towns

TOTAL	USERS
BURLINGTON*	1,152
SOUTH BURLINGTON*	589
COLCHESTER*	539
ESSEX*	487
SHELBURNE*	196
STOWE*	65
JERICHO	58
WILLISTON	51
MIDDLEBURY	28
MONTPELIER	27

MILTON: 13
WINOOSKI 6

* SAME POSITION AS LAST YEAR

Website Visits by Device

DEVICE	2021	2020	2019	2018	2017	2016
DESKTOP	46.9%	51.25	40.2%	50.1%	52.8%	65.7%
MOBILE	44.6%	41.28%	44%	40.6%	36.4%	24.5%
TABLET	8.5%	7.47%	15.8%	9.3%	10.8%	9.8%

Most Visited Pages

PAGE	TOTAL
HOMEPAGE	4,465 (27.90%)
/EDUCATIONAL-RESOURCES/PICK-UP-DOG-POOP/	1,239 (7.74%)
/WHAT-YOU-CAN-DO/	1,076 (6.72%)
/EDUCATIONAL-RESOURCES/REDUCE-ROAD-SALT/	702 (4.39%)
/THE-STREAM-TEAM/	551 (3.44%)
/WHAT-YOU-CAN-DO/REDUCE-FERTILIZER-USE/	551 (3.44%)
/WHAT-YOU-CAN-DO/PICK-UP-DOG-POOP/	528 (3.30%)
/WHAT-YOU-CAN-DO/PLANT-A-RAIN-GARDEN/	472 (2.95%)
/EDUCATIONAL-RESOURCES/FOR-KIDS/CREATE-YOUR-OWN-WATER-CYCLE/	460 (2.87%)
/EXPLORE-THE-LAKE-CHAMPLAIN-BASIN/	410 (2.56%)

Website Event Tracking

DEVICE	2021	2020
MAILCHIMP FORM	48	61
RAIN GARDEN PDF	56	N/A
RAIN BARREL PDF	17	8
SOIL TEST CTA	18	5
SCIENCE EXPERIMENT PDF	15	N/A

2021 Annual MS4 Report

Attachment

MCM #2

Minimum Control Measure #2: Public Involvement & Participation Rethink Runoff Stream Team Summary of Activities

Prepared by Winooski Natural Resources Conservation District

2021 Calendar Year

Overview

Although the pandemic continued to present challenges for the Stream Team in 2021 the Winooski Natural Resources Conservation District (WNRCD) was able to engage many residents in meaningful actions to improve stormwater in their community. We organized a watershed field-day for students in the Winooski Middle School summer school program, reinstated our volunteer water quality monitoring program, explored new opportunities for remote community engagement with the Adopt-a-Drain program and recruited volunteers to install a new rain garden at the Milton Municipal building.

RRST Estimated Impact by Municipality

The table below depicts the estimated number of individuals engaged in each RRST municipality in 2021. This table reflects **in-person** interactions where it was possible to log participants' town of residence. For information about residents reached through digital efforts on the website and social media outlets, see final report from Pluck.

Municipality	# of people reached in-person in 2021
Burlington	4
Colchester	0
Town of Essex	0
Village of Essex Junction	2
Milton	3
Shelburne	0
South Burlington	14
Williston	3
Winooski	16

TOTAL	42

Table 1: Interaction with the Stream Team by municipality

Organizational Partnerships

The Rethink Runoff Stream Team partnered with **2** non-municipal organizations in 2021:

1. **Hamline University:** Created the Adopt-a-Drain website based on social science research to engage more volunteers in maintaining the health of storm drains in MS4 communities across the country. This year RRST municipalities engaged in a discussion about joining the Adopt-a-Drain program. See "Projects" section for more details
2. **Winooski Middle School:** A summer school teacher at Winooski Middle School asked if RRST could present a hands-on watershed lesson to students. See "Outreach Events" section for more details.

Outreach ----------

Social Media

The Stream Team coordinator periodically updated the Facebook and Instagram pages with information about upcoming outreach events or volunteer opportunities.

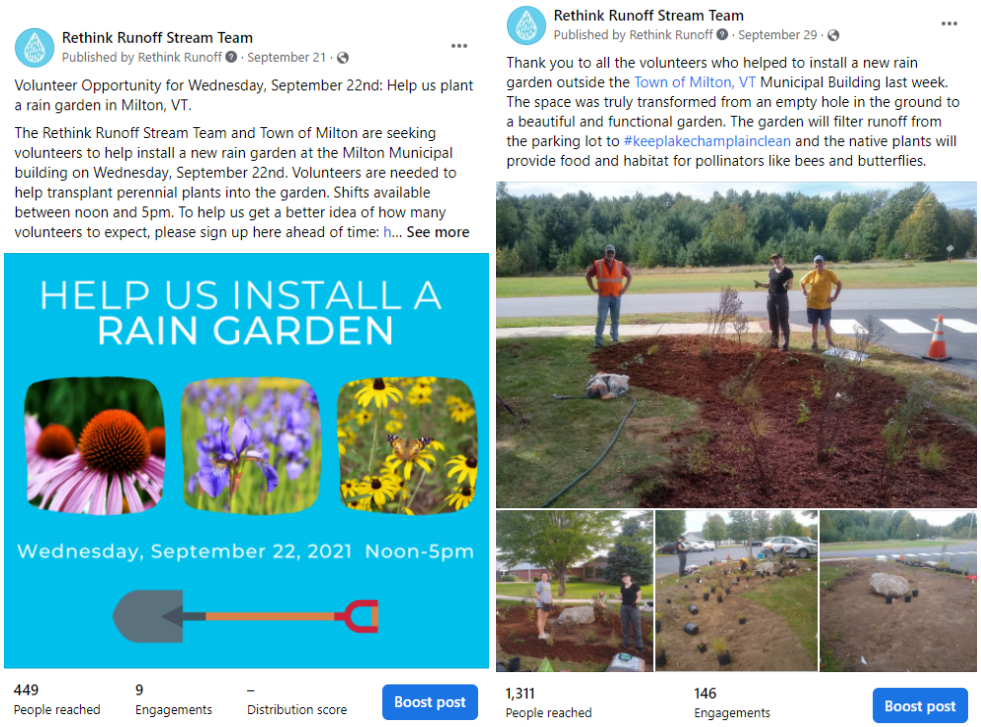


Figure 1: Two Facebook posts from 2021 related to the Milton Municipal Rain Garden installation project

RRST Website

We maintained the "events" section of the website and occasionally helped to develop ideas for new web content in collaboration with Pluck Design.

Newsletter

At the end of 2021 there were **799** subscribers to the RRST newsletter (an increase from 770 in 2020). One newsletter was published this year in December.

Outreach Events

One "outreach" event was held in 2021. A total of **16** people participated.. The event is described in more details below:

1. **Winooski Middle School Watershed Field Day:** The Stream Team Coordinator delivered a 2-hour hands-on lesson to 12 students and 4 teachers at Winooski Middle School as part of their summer school program. Students met the coordinator at Landry Park in Winooski. The focus of the lesson was watersheds and community. Students looked at a map of watersheds that drain to Lake Champlain, built their own 3D watershed model, explored Morehouse Brook and played a game about ecological connections. Two WNRCD summer interns helped to facilitate small-group activities for students. Teachers provided positive feedback after the event and expressed an interest in continued partnership for the 2021/22 school year. Total # of people reached in-person in Winooski = 16

Figure 2: Students at Winooski Middle School participate in hands-on watershed activities at Morehouse Brook in Landry Park.

Projects ----------

Three in-person "project" events were held in 2021 and planning for a fourth initiative (Adopt-A-Drain) began. A total of **29** people participated in hands-on volunteer events in their communities. The projects are described in detail below:

1. Milton Rain Garden Installation
2. Stream Team Water Quality Sampling
3. Adopt-a-Rain Garden Program
4. Planning for Regional Adopt-a-Drain Program

Milton Project: Rain Garden Planning and Installation

Summary: RRST assisted staff at the Town of Milton with the design and installation of a new rain garden at the Municipal Building on Bombardier Road. The Stream Team Coordinator provided municipal staff with a tailored list of recommended plants for the project. All project supplies were paid for by the town, but the Stream Team Coordinator did harvest about 30 perennial transplants from other over-crowded gardens to add to the planting plan. 5 community volunteers assisted with planting & mulching the garden on installation day.

Advertising: Advertising was completed through direct email outreach to our list of active volunteers, posting on social media and inviting community members to share a post on Front Porch Forum.

Impact: 5 community volunteers and three staff members participated in two planting shifts throughout the day. Volunteers learned more about the function of the rain garden and the pollinator and wildlife benefits of the plants that were selected. The area was quickly transformed from an empty hole to a beautifully planted and mulched stormwater feature. Most participants accepted a Stream Team t-shirt and sticker as thanks for assisting. The Stream Team Coordinator is currently working with town staff to design an educational sign to accompany the garden since it is in a location with high foot-traffic.

Fig 3: Community volunteers, Milton municipal staff and WNRCD communications intern help to install perennial plants in a new rain garden at the Milton Municipal Building.

Water Quality Monitoring

Summary: The Stream Team has maintained an ongoing water quality monitoring program since 2012. Community science volunteers collect water samples in urban or suburban streams that are impacted by excessive nutrient loading, high chloride and other pollution.

This year VT DEC's LaRosa Program provided financial support for analysis of the water samples at the Vermont Agriculture and Environmental Laboratory (VAEL), wrote the Quality Assurance Project Plan (QAPP), transported samples from partners' offices to the lab, and took on the responsibility of analyzing data from all state-wide partners. This change allowed us to focus more on volunteer recruitment and engagement and less on behind-the-scenes paperwork. Of note, the state-wide data analysis has not been published yet, so a Stream Team

Data Analysis document is not available with this report.

Fourteen Stream Team volunteers collected biweekly water quality samples at fourteen sites on eight streams in 2021. Volunteers collected biweekly grab samples from June 2 - August 11. Grab samples were analyzed for total phosphorus, chloride, and at some sites, nitrogen. These parameters were also sampled at all sites after two rain events. Eight of the sites were new this year and some required special equipment for sampling like a throw-bucket or dipper stick. Appropriate tools were purchased and/or created to assist with sampling while maintaining volunteer safety around swift waters.

The training day for volunteer samplers took place in late May. This year two sessions were offered - one in person at the stream adjacent to the WNRCD Williston Office and one online - to accommodate volunteers' schedules and comfort with gathering in-person. During both trainings the Stream Team coordinator demonstrated sampling procedures, described the data collection sheets, explained how the collected data would be used and answered questions. Throughout the season, volunteers returned their samples through a contactless dropoff system to the WNRCD office. The Stream Team coordinator ensured all samples were properly checked-in and prepared for delivery to the lab. The Stream Team coordinator sent bi-weekly emails to WQ volunteers to check in about sampling procedure and share interesting local water tidbits, and other ways to get involved.

Advertising: Advertising was completed through direct email outreach to our list of active volunteers. Recognizing that covid-restrictions may make a fully in-person training impossible, we targeted samplers with prior experience. Next year we look forward to adding new volunteers to the team.

Impact: In total volunteers collected 250 individual samples. This data provides information about long term trends that may help towns analyze effectiveness of stormwater BMPs or identify new opportunities for action. Perhaps more importantly, we believe that engaging community members directly in clean-water work creates greater public understanding of the issues VT watersheds are facing and creates greater public support for clean-water initiatives like GSI installation or wastewater treatment plant improvements. In 2022 we plan to add data from this sampling season to the Stream Storytelling online map and use it as an educational tool during outreach events.

Figure 4: Stream Team volunteers collect water samples at sites at various sites across the RRST service area

Stream Team Volunteers 2021	
Municipality	**# of Volunteers**
Burlington	3
Colchester	0
Village of Essex Junction	2
Town of Essex	0
Milton	1
South Burlington	6
Shelburne	0
Williston	1
Winooski	0
Non-RRST Municipalities	1
TOTAL	**14**

Table 2: Stream Team Water Quality Sampling Volunteers by town

Fig 5: Stream Team Water Quality Sampling sites map. See interactive online version here: https://www.google.com/maps/d/u/0/edit?mid=15P_lsNKpOTLeedE0uaGgRXeEcyNGrGrO&usp=sharing

Adopt-a Rain Garden Program Summary

The Stream Team's Adopt-a-Rain Garden program is an opportunity for individuals to assist in keeping public rain gardens in their community functional and attractive. This involves basic maintenance activities like picking up trash, pruning, pulling weeds, installing new mulch, and informing the coordinator of non-functioning gardens. There are currently seven public rain gardens managed by Stream Team. In 2021 all seven gardens were cared for by approximately 10 volunteers. The gardens that have been removed from this list are either now cared for by municipal staff or hired landscaping crews, so it is no longer appropriate to recruit community volunteers. We plan to add 1-4 new gardens for adoption in 2022. See table below for more details.

Rain Garden Volunteers 2021	
Location	**Adopter Name**
Williston Annex	Rita D.
Callahan Park, Burlington	Brad K.

Chamberlin School, South Burlington	Chris P.
Coast Guard Station, Burlington	Larry K.
Farrell Park, South Burlington	Roan O.
South Burlington Fire Station	Cub Scouts 678
South Burlington Library	Cub Scouts 678

Table 3: 2021 Rain Garden Adopters 2021

Regional: Adopt-a-Drain Launch

Summary: This year we completed significant behind-the-scenes research and coordination to launch a robust Adopt-a-Storm-Drain program similar to Adopt-a-Rain-Garden. Based on early interest from the Village of Essex Junction and the City of Burlington in improving and/or starting new storm drain steward programs and based on the success of a small pilot program in 2020 (see 2020 RRST Annual Report) we began to explore options for offering "Adopt a Drain" as a rotating program for interested municipalities. The goal of the program would be to recruit volunteers to care for storm drains in their neighborhood by clearing trash, sediment, salt and other pollutants on a regular basis.

In early conversations we discussed the feasibility of municipal staff creating and maintaining in-house interactive maps where volunteers could view "adoptable" drains and sign up to help. After discussing the idea with GIS specialists in multiple towns (including Burlington where a pilot platform had already been developed, but experienced technical difficulties), the Adopt-a-Storm-Drain initiative developed by Hamline University was brought to our attention.

Adopt-a-Storm-Drain is a model developed by staff at Hamline University based on research about best practices for community engagement around stormwater. Their website offers a template for towns to input available drains and for volunteers to sign up and find training resources easily. Their interface is supported by technical staff at the university, which means we can spend more time engaging people in our communities and less time working on coding and data management.

Challenges: The main challenge of this project was that the Adopt-A-Storm-Drain package comes at an additional cost to current MS4 dues. With most MS4 staff and the Stream Team Coordinator working and meeting remotely, the process of discussing this opportunity was lengthy. Gauging the level of interest from each municipality and assessing which funding options would be most feasible took many months, but we have now determined the cohort of municipalities that would like to participate and plan to move forward with a project launch in 2022.

Impact: With the Chittenden County RPC as the administrative partner, the five MS4 communities entered into an MOU with Hamline University (effective Jan 2022) to gain access to the web platform and volunteer training resources. The Stream Team Coordinator will help to

launch the program by taking the lead on volunteer recruitment as a core goal for 2022. We believe launching the Adopt-a-Storm-Drain program is a great fit for these communities in a year that will still be impacted by COVID restrictions. We anticipate that this program will engage hundreds of community volunteers in a project that can be completed without requiring any in-person interaction. Adopting a storm drain is a small and simple action that may inspire community members to participate in other Rethink Runoff activities in the years to come and consider the ways water flows through their neighborhood.

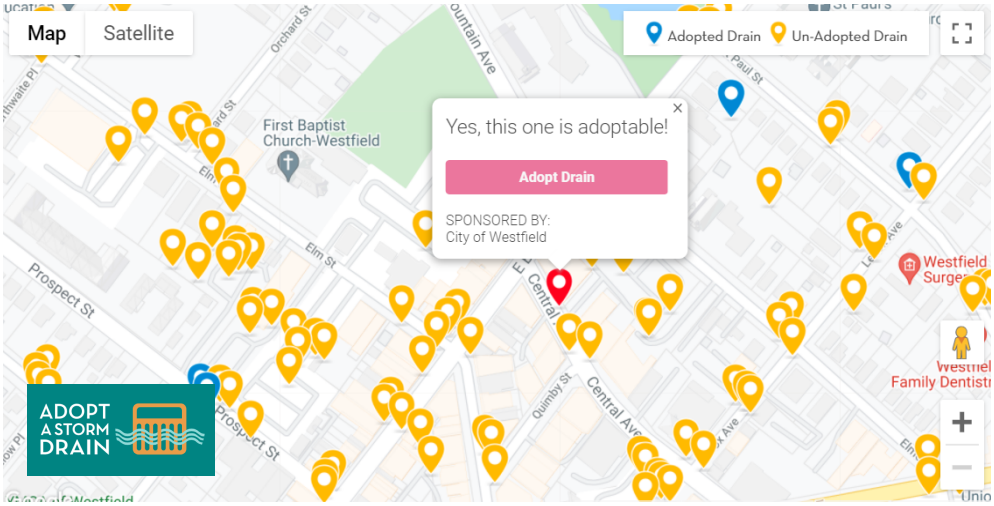


Figure 6: Screenshot from Adopt-a-Drain Website illustrating volunteer sign-up map format

Volunteer Appreciation Summary

Due to covid we were not able to host an in-person volunteer event. All volunteers were offered Stream Team t-shirts and stickers at the time of the event and many accepted one or both. We are planning to send handwritten thank-you notes and a small gift in the mail to our most dedicated volunteers in early 2022.

2021 Annual MS4 Report

Attachment

MCM #3

The Burlington City Ordinances can be reviewed online: https://www.codepublishing.com/VT/Burlington/

26-71 Use of public sewers generally.

(c) Express prohibitions.

d. Solid or viscous substances in quantities or of such size capable of causing obstruction to the flow in sewers, or other interference with the proper operation of the wastewater facilities such as, but not limited to, animal waste, ashes, bones, cinders, sand, mud, sediment, straw, shavings, metal, glass, rags, feathers, tar, plastics, wood or cellulose, unground garbage, whole blood, paunch manure, hair and fleshings, entrails and paper dishes, cups, milk containers, either whole or ground by garbage grinders.

h. Wastewater containing more than fifteen (15) milligrams per liter, whether emulsified or not, of petroleum oil, nonbiodegradable cutting oils, or products of mineral oil origin.

i. Wastewater containing more than one hundred (100) mg/l of oil, fat and grease of animal and vegetable origin.

j. Wastewater containing floatable oils, fat or grease.

(f) (1) The following described substances, materials, waters or wastes shall be limited in discharges to municipal systems to concentrations or quantities which will not harm either the sewers, wastewater treatment process or equipment, will not have an adverse effect on the receiving stream, or will not otherwise endanger lives, limb, public property, or constitute a nuisance.

(2) The director may set limitations lower than the limitations established in the regulations below if in his opinion such more severe limitations are necessary to meet the above objectives. In forming this opinion as to the acceptability, the director will give consideration to such factors as the quantity of subject waste in relation to flows and velocities in the sewers, materials of construction of the sewers, the wastewater treatment process employed, capacity of the wastewater treatment plant, degree of treatability of the waste in the wastewater treatment plant, and other pertinent factors.

(3) The limitations or restrictions on materials or characteristics of waste or wastewaters discharged to the sanitary sewers which shall not be violated without approval of the director are as follows:

a. Wastewater of which the BOD5 exceeds four hundred (400) milligrams per liter.

b. Wastewater in which suspended solids exceed five hundred (500) milligrams per liter, or the organic content of such suspended solids or of dissolved solids is unusually small.

c. Any garbage that has not been properly shredded. Garbage grinders may be connected to sanitary sewers from homes, hotels, institutions, restaurants, hospitals, catering establishments, or similar places where garbage originates from the preparation of food in kitchens for the purpose of consumption on the premises or when served by caterers.

d. Quantities of flow, concentrations, or both which constitute a slug as defined herein.

e. Waters or wastes containing substances which are not amenable to treatment or reduction by the wastewater treatment processes employed, or are amenable to treatment only to such degree that the wastewater treatment plant effluent cannot meet the requirements of other agencies having jurisdiction over discharge to the receiving waters.

f. Any water or wastes which, by interaction with other water or wastes in the public sewer system, release obnoxious gases, form suspended solids which interfere with the collection system, or create a condition deleterious to structures and treatment processes.

(g) If any waters or wastes are discharged or are proposed to be discharged to the public sewers, which waters contain the substances or possess the characteristics, enumerated in subsections (c)(4) and (f) above, and which in the judgment of the director may have a deleterious effect upon the wastewater facilities or treatment works, processes, equipment, or receiving waters, or which otherwise create a hazard to life or constitute a public nuisance, the director may:

(1) Reject the wastes.

(2) Require pretreatment to an acceptable condition for discharge to the public sewers.

(3) Require control over the quantities and rates of discharge.

(4) If the director permits the pretreatment or equalization of waste flows, the design and installation of the plants and equipment shall be subject to the review and approval of the director, and subject to the requirements of all applicable codes, ordinances, laws, and the municipal discharge permit. Further, such pretreatment installations must be consistent with the requirements of any state pretreatment permit issued to the owner.

(h) Grease, oil, and sand interceptors shall be provided when, in the opinion of the director, they are necessary for the proper handling of liquid wastes containing floatable grease in excessive amounts or any flammable wastes, sand or other harmful ingredients; except that such interceptors shall not be required for private living quarters or dwelling units. All interceptors shall be of a type and capacity approved by the director, and shall be located as to be readily and easily accessible for cleaning and inspection. In the maintaining of these interceptors the owner shall be responsible for the proper removal and disposal by appropriate means of the captured material and shall maintain records of the dates and means of disposal which are subject to review by the director. Any removal and hauling of the collected materials not performed by owner's personnel must be performed by qualified waste disposal firms.

2021 Annual MS4 Report

Attachment

MCM #4 & 5

Burlington Department of Public Works
Water Resources Division
235 Penny Lane
Burlington, VT 05401
(802) 863-4501

To: Adam Winter, Applicant

From: James Sherrard, Stormwater Program Coordinator

Date: 11/4/2021

Re: 224-226 Pine Street Chapter 26 Ordinance Compliance Memorandum (Pending Building Permit CBP-21-1127)

Issue

The Applicant is currently out of compliance with City Ordinance Chapter 26 for both the improper management of stockpiles and disturbed surfaces on site in addition to the presence of excavated soil located on the City sidewalk.

Request

The Applicant must remove all excavated soils from the City sidewalk and meet all applicable erosion prevention and sediment control requirements including proper stockpile management and erosion control in the form of silt fence installed at the extent of the limit of disturbance.

This must be completed by 3pm on Friday November 5th, 2021 to ensure sediment is not discharged into the City right-of-way.

The applicant must also complete the EPSC form in OpenGov that was triggered as part of the pending building permit referenced above.

Pictures of the compliance issue were taken at approximately 3pm today. They are attached for your reference.

CITY OF BURLINGTON, VERMONT
Department of Public Works

OBSTRUCTION PERMIT

645 Pine Street
PO Box 849, Burlington, VT 05402
Phone (802) 863-9094 / Fax (802) 863-0466

Permit No: ROB-21-174
Amount Paid: $$30.00

Working Together for Burlington - Preserving, Improving Our Community

Property Address: 224-226 Pine Street Issue Date: November 2, 2021

Obstruction In:

Construction Start Date: Permit Expiration Date:

Owner	CMF VENTURES, LLC 106 CREEKS EDGE; WILLISTON VT 05495	PH:
Applicant	Adam Winter	

DESCRIPTION OF WORK:
Sidewalk blocked by dirt from excavation. should be removed 11/2/21

Obstructed By:

CONDITIONS OF PERMIT: All work performed by the applicant shall comply with the codes and ordinances of the City of Burlington. This permit authorizes the applicant to proceed with the world described above in accordance with these codes. This Permit shall not be construed as authority to violate, cancel or set aside any of the provisions of the codes. The applicant must contact the departments to schedule inspections of the work and obtain final project approvals.

APPLICANT SIGNATURE: _____ **LICENSE #:** _____

THIS PERMIT AND APPROVED TRAFFIC PLAN SHALL BE ON JOB SITE AT ALL TIMES THE PERMIT IS VALID.

Initial Inspection Required
Intermediate Inspection Required
Final Inspection Required

Inspector

Date

ARTICLE III. STORMWATER AND EROSION CONTROL

DIVISION 1. GENERALLY

26-96 Applicability.

(a) Except as exempted under subsection (d) below, this article shall apply to all property within the City of Burlington, and shall apply specifically to:

(1) Construction activities that include land disturbance activities and are subject to major impact, subdivision, and/or planned unit development zoning permit review as defined in the comprehensive development ordinance, and/or are subject to building permit or approval under any regulation or ordinance of the City of Burlington;

(2) Any construction activity that include land disturbance activities of four hundred (400) square feet or more and are subject to zoning permit review other than noted in subsection (a) above and/or are subject to building permit or approval under any regulation or ordinance of the City of Burlington;

(3) Any condition or activity, regardless of the amount of impervious surface or disturbed area proposed, where there exists any hydrological condition which may lead to offsite sediment runoff or other pollutant load to a public sewer or natural outlet.

(4) Illegal discharges and/or connections into any premise, public or private property, driveway, parking area, street, alley, sidewalk, component of the MS4, CS, or public sewer.

(b) All projects, conditions, and activities that are subject to this article must meet the minimum requirements of this article, and reserved.

(c) All projects, conditions, and activities that are subject to this article shall be determined by the department of public works to be compliant with:

(1) The city’s MS4 General Permit No. 3-9014, as issued and as amended by the State of Vermont;

(2) The city's combined sewer overflows and sewer ordinance conditions of and Final Discharge Permit No. 3-1331, 3-1247 and 3-1245, Part 1, Section F. Combined Sewer Overflows and Section I. Sewer Ordinance, as issued and as amended by the State of Vermont;

(3) Where applicable, the Vermont Stormwater Manual design requirements to the maximum extent practicable as determined by the director; and

(d) The following projects, conditions and activities are exempt from this article:

(1) Any emergency activity that is immediately necessary for the protection of life, property or natural resources as determined by the department of public works.

(2) Any accepted agricultural or silvicultural practices as defined by the state secretary of agriculture, food and markets, or the state commissioner of forests, parks and recreation, respectively.

(3) Any athletic/sports facility commonly involving bare earth, such as baseball diamonds and volleyball courts.

(4) Bulk storage of landscaping materials such as topsoil, gravel, and mulch within compounds or bunkers for commercial or governmental use, so long as such storage does not directly result in offsite sedimentation.

(e) The requirements of this article may be waived in whole or in part by the director at the department of public works on a case-by-case basis upon written request of the applicant, provided that it is demonstrated by the applicant that at least one (1) of the following conditions applies:

(1) Alternative measures for onsite and/or offsite management of erosion and stormwater have been proposed, and these measures comply with city ordinance(s) and permits; or

(2) It is otherwise demonstrated that the proposed development will not produce any significant change to the existing pre-application hydrology and will not contribute substantially to offsite sediment runoff or other pollutant loads resulting in little to no impact on stormwater quality.

(Ord. of 12-15-08(2), § 26-3-1)

26-97 Application requirements.

(a) Unless otherwise exempted or waived by this article, every zoning permit application involving major impact, subdivision, and/or planned unit development review per section 26-96(a)(1) shall be accompanied by the following, as applicable:

(1) A written approval from the department of public works for discharge to or connection with public sewers;

(2) An "erosion prevention and sediment control (ESPC) plan";

(3) A "stormwater management plan"; and

(4) A written determination from the department of Public Works that the project for which a permit is requested complies with the City's MS4 general permit, CS discharge permit and the Vermont Stormwater Manual design requirements.

(b) Unless otherwise exempted or waived by this article, every other project, condition or activity per section 26-96(a)(2) and (3) shall be accompanied by the following, as applicable:

(1) A written approval from the department of public works for discharge to or connection with public sewers;

(2) A completed small project erosion and sediment control plan approved in writing by the department of public works;

(3) A "stormwater management plan"; and

(4) A written determination from the department of public works that the project for which a permit is requested complies with the city's MS4 general permit, CS discharge permit and the Vermont Stormwater Manual design requirements.

(c) Prior to commencement of the project, condition, or activity, the applicant shall submit site plans and designs and any supporting documentation to the department of public works for review and approval. No project, condition, or activity shall commence until the department of public works has reviewed and issued a written approval.

(d) The city shall prescribe the form(s) and information that shall be submitted to determine compliance with this article, with sufficient copies for necessary referrals and records.

(Ord. of 12-15-08(2), § 26-3-2)

26-98 Responsibilities.

(a) The department of public works, in consultation with the department of planning and zoning, shall administer and implement the provisions of this article. The code enforcement office shall enforce the provisions of this article in the event of a violation.

(b) The standards set forth herein and promulgated pursuant to this article are minimum standards; therefore this article does not intend nor imply that compliance by any person will ensure that there will be no contamination, pollution, nor unauthorized discharge or discharge of pollutants.

(Ord. of 12-15-08(2), § 26-3-3)

26-99—26-110 Reserved.

DIVISION 2. ILLEGAL DISCHARGES

26-111 Applicability.

This division applies to all properties within the jurisdictional area of this chapter, unless specifically exempted by section 26-113.

(Ord. of 12-15-08(2), § 26-3-4)

26-112 Prohibitions.

(a) *Illicit connections.*

(1) No person shall throw, deposit, leave, maintain, keep, or permit to be thrown, deposited, left, or maintained, in or upon any premise, public or private property, driveway, parking area, street, alley, sidewalk, component of the MS4, CS or public sewer, or any surface water of the City of Burlington, any object or material, including but not limited to: water, refuse, rubbish, garbage, animal waste, litter, yard waste, or other discarded or abandoned objects, articles, and accumulations, so that the same may cause

or contribute to pollution, or interfere with the operation, maintenance and access to the MS4, CS or public sewer. Wastes deposited in streets in proper waste receptacles for the purposes of collection are exempted from this prohibition.

(2) The construction, use, maintenance or continued existence of illicit connections to the MS4, CS or public sewer is prohibited.

(3) This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.

(b) *Illegal discharges.*

(1) No person shall discharge or cause to be discharged into the MS4, any materials, including but not limited to pollutants or waters containing any pollutants, other than stormwater, or any materials that may impede the natural flow of stormwater or the functionality of the MS4 without first receiving written authorization from the director upon a determination that such discharge is in compliance with this division and other applicable city ordinances, regulations or permits.

(2) No person shall discharge or cause to be discharged into the CS and/or public sewer without first receiving written authorization from the director upon a determination that such discharge is in compliance with the city's Final Discharge Permit No. 3-1331, 3-1247 and 3-1245, Part 1, Section F. Combined Sewer Overflows and Section I. Sewer Ordinance as issued and as amended by the State of Vermont; and the provisions of the City of Burlington Ordinances.

(Ord. of 12-15-08(2), § 26-3-5)

26-113 Exemptions.

The commencement or continuance of any illegal discharge to the MS4, and/or surface or groundwater, CS or public sewer is prohibited except as described as follows:

(a) Water line flushing or other potable water sources, landscape irrigation or lawn watering, approved stream flow diversions, rising groundwater, groundwater infiltration to storm drains, uncontaminated pumped groundwater, foundation or footing drains (not including active groundwater dewatering systems), crawl space pumps, air conditioning condensation, springs, noncommercial

washing of vehicles, natural riparian habitat or wetland flows, swimming pool draining (if dechlorinated, typically less than one (1) PPM chlorine), fire fighting activities, and any other water source not containing pollutants.

(b) Discharges specified in writing by the director of the department of public works as being necessary to protect public health and safety.

(c) Dye testing is an allowable discharge, but requires a verbal notification to the department of public works prior to the time of the test.

(d) The prohibition shall not apply to any stormwater or non-stormwater discharge permitted under an NPDES permit, waiver, or waste discharge order issued to the discharger and administered under the authority of the Federal Environmental Protection Agency, provided that the discharger is in full compliance with all requirements of the permit, waiver, or order and other applicable laws and regulations, and provided that written approval has been granted for any discharge to the MS4 by the department of public works.

(e) Discharges specifically allowed and not prohibited under the city's Final Discharge Permit No. 3-1331, 3-1247 and 3-1245, as issued and as amended by the State of Vermont; and

(f) Discharges specifically allowed and not prohibited under section 26-71

(Ord. of 12-15-08(2), § 26-3-6)

26-114 Industrial or construction activity discharges.

Any person subject to an industrial or construction activity NPDES stormwater discharge regulation, and/or permit shall comply with all provisions of such regulation and/or permit. Proof of compliance with said regulation and/or permit may be required in a form acceptable to the director prior to the allowing of discharges to the MS4.

(Ord. of 12-15-08(2), § 26-3-7)

26-115 Monitoring of discharges.

This section applies to all premises that have stormwater discharges associated with industrial activity, construction activity, and post-construction (operational) stormwater management.

(a) The department of public works shall be permitted to enter and inspect any premises subject to regulation under this division as often as may be necessary to determine compliance with this division. If a person has security measures in force which require proper identification and clearance before entry into its premises, the person shall make the necessary arrangements to allow access to representatives of the department of public works.

(b) A person shall allow the department of public works ready access to all parts of the premises for the purposes of inspection, sampling, examination and copying of records that must be kept under the conditions of an NPDES permit, a Vermont post-construction (operational) stormwater management permit, a zoning permit, a building permit or approval under any regulation or ordinance of the City of Burlington to discharge stormwater, and the performance of any additional duties as defined by state and federal law. All monitoring data shall be recorded in the associated permit/approval files and entered into the city's permitting system.

(c) The department of public works shall have the right to set up on any permitted premises such devices as are necessary in the opinion of the director to conduct monitoring and/or sampling of the premises stormwater discharge.

(d) The director has the right to require a person to install monitoring equipment as necessary. The sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the owner or operator of the premise at their own expense. All devices used to measure stormwater flow and quality shall be calibrated to ensure their accuracy. The owner or operator of the premises shall demonstrate calibration techniques and satisfactory operation of the devices to the department of public works upon request.

(e) Any temporary or permanent obstruction to safe and easy access to the premises to be inspected and/or sampled shall be promptly removed by the owner or operator of the premise at the written or oral request of the department of public works and shall not be replaced. The costs of clearing such access shall be borne by the owner or operator of the premises.

(f) Unreasonable delays in allowing the department of public works access to permitted premises are a violation of this division. A person who is the operator of a premise with a NPDES permit to discharge stormwater associated with industrial activity or construction activity, a state post-construction (operational) stormwater management permit, a zoning permit, a building permit or approval under any regulation or ordinance of the city commits an offense if the person denies the department of public works reasonable access to the permitted premises for the purpose of conducting any activity authorized or required by this division.

(g) If the department of public works has been refused access to any part of the premises from which stormwater is discharged, and he/she is able to demonstrate probable cause to believe that there may be a violation of this division, or that there is a need to inspect and/or sample as part of a routine inspection and sampling program designed to verify compliance with this division or any order issued hereunder, or to protect the overall public health, safety, and welfare of the community, then the director may seek issuance of a search warrant from any court of competent jurisdiction.

(Ord. of 12-15-08(2), § 26-3-8)

26-116 Control, prevention and reduction of stormwater pollutants.

The owner or operator of a commercial or industrial establishment shall provide, at their own expense, reasonable protection from accidental discharge of prohibited materials or other wastes into the MS4, and/or surface or groundwater, CS or public sewer through the use of structural and nonstructural BMPs. Further, any person responsible for a property or premises, which is, or may be, the source of an illegal discharge and/or illicit connection, may be required to implement, at said person’s expense, additional structural and nonstructural BMPs to prevent the further discharge of pollutants to the MS4, and/or surface or groundwater, CS or public sewer. Compliance with all terms and conditions of a valid NPDES or MSGP permit, a state post-construction (operational) stormwater management permit, a zoning permit, a building permit or approval under any regulation or ordinance of the city authorizing the discharge of stormwater, shall be deemed to be in compliance with the provisions of this section.

(Ord. of 12-15-08(2), § 26-3-9)

26-117 Notification of spills.

Notwithstanding other requirements of law, as soon as any person responsible for a premises or operation, or responsible for emergency response for a premises or operation has information of any known or suspected release of materials which are resulting or may result in illegal discharges or pollutants discharging into the MS4, and/or surface or groundwater, CS or public sewer, said person

shall take all necessary steps to ensure the discovery, containment, and cleanup of such release. In the event of such a release of hazardous materials said person shall immediately notify emergency response agencies of the occurrence via emergency dispatch services. In the event of a release of nonhazardous materials, said person shall notify the department of public works either in person, by phone, or facsimile no later than the next business day. Notifications in person or by phone shall be confirmed by written notice addressed and mailed to the department of public works within three (3) business days of the phone notice.

If the discharge of prohibited materials emanates from a commercial or industrial establishment, the owner or operator of such establishment shall also retain an onsite written record of the discharge, steps taken to remediate said illicit discharge, and the actions taken to prevent its recurrence. Such records shall be retained on site by the owner or operator for at least three (3) years.

(Ord. of 12-15-08(2), § 26-3-10)

26-118—26-130 Reserved.

DIVISION 3. EROSION PREVENTION AND SEDIMENT CONTROL

26-131 Applicability of erosion prevention and sediment control.

This division applies to all properties within the jurisdictional area of this chapter, unless specifically exempted or waived by section 26-134.

(Ord. of 12-15-08(2), § 26-3-11)

26-132 Prohibitions.

No person subject to this article as defined by section 26-96, shall cause, allow or permit the discharge and/or release of any sediment or other pollutant created by soil erosion to a public sewer or natural outlet unless such discharge and/or release is incidental to the implementation of an approved EPSC plan under this division.

(Ord. of 12-15-08(2), § 26-3-12)

26-133 Permits.

Except as exempted or waived per section 26-134, no person shall be granted a zoning permit, building permit, excavation permit or any other approval for any project, condition or land disturbance activity regulated under this article without the written approval of an

erosion prevention and sediment control plan by the department of public works.

(Ord. of 12-15-08(2), § 26-3-13)

26-134 Exemptions and waivers.

The discharge and/or release of any sediment from land disturbance activities subject to this division is prohibited except exempted or waived by section 26-96(d) or (e).

(Ord. of 12-15-08(2), § 26-3-14)

26-135 Erosion prevention and sediment control requirements.

(a) *Design requirements.* All erosion prevention practices, sediment control practices, waterway and watercourse protection practices and construction site access practices shall meet the design criteria set forth in the Vermont Standards & Specifications for Erosion Prevention & Sediment Control, 2006, and as amended, City of Burlington, Department of Public Works Public Sewer, Stormwater and Erosion Control Specifications, Standards and Management Practices Design Manual, latest version, and the Burlington Comprehensive Development Ordinance, latest version, and shall be adequate to prevent transportation of sediment from the site to the satisfaction of department of public works. In the event of conflicting design criteria within these standards, the stricter shall prevail.

(b) *General performance criteria for erosion prevention and sediment control.* The following are required performance criteria:

(1) Prevent erosion and the transport of sediment off lot, onto the public streets and sidewalks, into the municipal stormwater system, and/or waters of the state. Earthen material hauled offsite by way of a dump truck or similar method does not constitute erosion or sedimentation;

(2) Prevent parking of any construction or construction related vehicles on city owned green space. Damage to green space shall be immediately addressed;

(3) Take any and all steps necessary to abate erosion and to clean up all resulting sediment deposited, discharged or found to exist off lot, on city streets and sidewalks, and/or in the city stormwater system;

(4) Maintain project erosion prevention and sediment control devices/measures and perform requisite cleanup of resulting sedimentation. This may include, but is not limited to, daily sweeping of streets and sidewalks and cleaning city stormwater catch basins;

(5) Specify appropriate seed and fertilizer applications that are ecologically sound and site specific;

(6) Specify an appropriate mulch when and where needed and adequate anchoring measures to prevent mulch from being blown away;

(7) Specify an effective grass re-vegetation program. Turf replacement is recommended in areas where re-vegetation of grass proves difficult with seeding and mulch. To reestablish all existing and proposed green space and, where practical, consider porous (pervious) pavers and associated pervious subsurface;

(8) Engage the contractor to be proactive in planning and executing construction phase activities with the goal of preventing erosion and controlling sediment;

(9) Identify the parties to the EPSC plan and clearly define their respective roles and responsibilities including, but not limited to, the contractor, the onsite erosion coordinator, those responsible for project adherence to the EPSC, and those participating in inspections and acceptance of final site stabilization; and

(10) Define the overall strategy for the EPSC plan by:

a. Limiting actual disturbance area and time of disturbance;

b. Employing proper site stabilization (addressing soil preparation for final seeding and landscaping, seed, pesticide/herbicide use, and mulch);

c. Specifying stone and/or grass swale lining where appropriate;

d. Specifying when and where necessary to employ erosion control blankets or mats;

e. Specifying locations for silt fence and construction barrier fence; and

f. Specifying catch basin inlet protection during construction, cleanup and maintenance and post-construction (operational) system operation and maintenance.

(11) Prior to and during construction, erosion control measures shall be installed and maintained in accordance with EPSC plan established with this permit approval. At a minimum, the project EPSC plan shall:

a. Identify the contractor who is responsible for installing, implementing, and maintaining the EPSC plan and measures;

b. Identify the onsite contractor who is responsible for the day-to-day monitoring, oversight, and inspections required in the EPSC plan;

c. Assure that any amendments to the project EPSC plan are filed with the department of public works and the department of planning and zoning;

d. Provide that the erosion control measures remain in place until vegetation has become established on all disturbed surfaces and clearly identify under what conditions final site stabilization has occurred; and,

e. Provide a process whereby the department of public works and/or the department of planning and zoning participate in the final site stabilization program.

(c) *Major impact, subdivision, and/or planned unit development projects.*

(1) Each EPSC plan shall address:

a. *Construction access route.* Construction activities and land disturbing activities subject to the provisions of this division shall require the installation of at least one (1) stabilized temporary construction access. Construction site access routes regulated under this division shall be clearly delineated of the project site plans and subject to approval by the department of public works.

b. *Winter site stabilization.* All land disturbance activity where practical shall be scheduled for completion no later than October 15 and temporary site stabilization achieved no later than October 15. By the end of the growing season, perennial cover shall be established (seed and mulch to be applied by October 1) and non-vegetated protection measures shall be installed by October 15 and continuously thereafter if land disturbance activities occur after the growing season. In the event land disturbance activities are planned to occur between the dates of October 15 and April 15, approval for such work may be granted by the department of public works, following the submittal and approval of a winter construction erosion control plan consistent with the Vermont Standards & Specifications for Erosion Prevention & Sediment Control, 2006, and as amended.

c. *Temporary site stabilization.* Soil may be exposed for a maximum of forty-eight (48) hours. All denuded and disturbed areas must receive temporary stabilization in conformance with this section by implementing soil covering BMPs such as, but not limited to; mulching, straw matting, plastic covering, sodding, etc. Construction and land disturbance activities shall be planned and sequenced to limit the amount of exposed area and to avoid occurring during rainy periods. Clearing limits shall be clearly marked onsite and kept as small as possible.

d. *Protection of adjacent properties.* All sediment from land disturbing activities shall be kept on site through the use of cover practice BMPs, structural BMPs and other appropriate construction management measures. Where possible, a vegetative buffer strip shall be preserved and maintained around the site boundary. All soil stock piles on site shall be placed as far as possible from any and all drainage ways including storm drains systems and roadside ditches and swales. All soil stockpiles on site shall be placed within the development envelope and outside of any natural area buffers (wetlands, riparian, etc.) All soil piles on site shall also be covered with mulch, plastic or some other suitable cover practice BMP until the soil is either used or removed from the site. Silt fencing and/or other perimeter controls shall be implemented to inhibit offsite sediment transport. Where possible, a vegetated buffer strip shall be maintained in front of silt fence or its equivalent.

e. *Maintenance.* All construction access routes, cover practice BMPs and structural BMPs shall be inspected weekly, and immediately following each rain event causing runoff to ensure they are functioning properly. Any maintenance that is required to ensure the proper operation and performance of these BMPs shall be completed immediately.

f. *Landscaping and final stabilization requirements.* Any area of land for which the natural vegetative cover has been either partially or wholly cleared or removed by land disturbance activities subject to this division shall be revegetated within twenty-

one (21) days from initial disturbance for such clearing and construction. Additionally, the following requirements apply until such time as final site stabilization has been achieved:

1. Reseeding must be done with an annual or perennial cover crop accompanied by placement of straw mulch or its equivalent of sufficient coverage to control erosion until such time as the cover crop is established over ninety (90) percent of the seeded area.

2. Replanting with native woody and herbaceous vegetation must be accompanied by placement of straw mulch or its equivalent of sufficient coverage to control erosion until the plantings are established and are capable of controlling erosion.

3. Any area of revegetation must exhibit survival of a minimum of seventy-five (75) percent of the cover crop throughout the year immediately following revegetation. Revegetation must be repeated in successive years until the minimum seventy-five (75) percent survival for one (1) year is achieved.

4. Any and all accumulated sediments transported off site and deposited onto city streets, and sidewalks shall be routinely and frequently swept up and properly disposed of so as to prevent their discharge into stormwater and/or the city’s public sewer.

(2) Plan requirements. The erosion prevention and sediment control plan shall be prepared by or under the direction of a licensed professional engineer, a certified professional in erosion and sediment control (CPESC), or a certified inspector in erosion and sediment control (CIESC) and demonstrate conformance to the erosion and sediment control requirements and criteria contained in subsection (c) of this section. All erosion and sediment control devices must be installed and stabilized before the start of construction. The erosion prevention and sediment control plan shall contain both narrative and map(s) that clearly provide the following information:

a. Contact information. The name, address, and telephone number of all persons having a legal interest in the property and the tax reference number and parcel number of the property or properties affected.

b. General description. A general description of the project including a map identifying the location of the property and parcel boundaries.

c. Natural resources. A map of existing onsite natural resources including soil type (including porosity and erodibility factor (k-factor) if available), types and location of vegetative covering, natural drainage ways, brooks, streams, ponds, wetlands and other surface waters (including intermittent streams) and associated buffer zones, including any surface waters within three hundred (300) feet from the site.

d. Grading plan. A grading plan at a minimum scale of one (1) inch = forty (40) feet. The grading plan shall include existing and proposed contours at maximum intervals of five (5) feet. The grading plan shall also include the location of the temporary construction entrance and any soil stockpiles that will be maintained on the site.

e. Infrastructure. A map identifying existing infrastructure both on and adjacent to the site, including roads, driveways, culverts, drainage structures, roadside ditches, etc.

f. BMPs. A description of each of the best management practices to be used on the site, and a map identifying the locations where each of the best management practices will be installed and maintained.

g. Maintenance schedule for each BMP.

(d) *All other projects, conditions, or activities.* The erosion prevention and sedimentation control plan shall consist of a completed small project erosion prevention and sediment control form and shall:

(1) Indicate disturbance limits and the protection of existing vegetation that is to be preserved;

(2) Depict clearing and grading limits, which shall be kept to the minimum practicable;

(3) Address diverting the flow of runoff away from cleared and graded areas;

(4) Address temporary and permanent stabilization of the site.

(5) Address the protection of any channels or drainage courses that may become enlarged or destabilized from erosion.

(6) Address the protection of any stormwater catch basin that may receive stormwater from the site during and after construction, and

(7) Indicate the best management practices that shall be implemented consistent with achieving the general performance criteria of subsection (c).

(Ord. of 12-15-08(2), § 26-3-15)

26-136 Review and approval.

The department of public works will review each erosion prevention and sediment control plan to determine its conformance with the provisions of this regulation, unless such review is explicitly exempted within this article. Within thirty (30) days after receiving a complete plan and application, the department of public works, shall in writing:

(a) Approve the plan;

(b) Approve the plan subject to such reasonable conditions as may be necessary to secure substantially the objectives of this division, and require that the issuance of the zoning and/or building permit be subject to these conditions; or

(c) Disapprove the plan, indicating the reason(s) and procedure for submitting a revised plan.

(Ord. of 12-15-08(2), § 26-3-16)

26-137 Access to land disturbance activities.

The department of public works shall be permitted to enter and inspect any land disturbance activities subject to regulation under this division as often as may be necessary to determine compliance with this division.

(Ord. of 12-15-08(2), § 26-3-17)

26-138 Inspection requirements.

(a) Except as provided for in subsection (c) below, the department of public works shall make inspections as hereinafter required and either shall approve that portion of the work completed or shall notify the permittee wherein the work fails to comply with the erosion prevention and sediment control plan as approved. To obtain inspections, the applicant or their agent shall notify the department of public works at least two (2) working days before the following:

(1) Start of construction.

(2) Installation of sediment and erosion control measures.

(3) Completion of site clearing.

(4) Completion of rough grading.

(5) Completion of final grading and close of construction season.

(6) Completion of final landscaping.

(b) Major impact, subdivision, and/or planned unit development projects will generally require separate site visits for each of the foregoing items (1)—(6). All other projects, conditions, or activities may entail consolidated site visits for two (2) or more of the foregoing items depending on the size of the project, condition, or activity.

(c) For major impact, subdivision, and/or planned unit development projects, the department of public works may allow or require that the applicant or their agent provide a written certification from a professionally licensed engineer, a certified professional in erosion and sediment control (CPESC), or a certified inspector in erosion and sediment control (CIESC) certifying compliance to the erosion prevention and sediment control plan as approved.

(d) For all other projects, activities, or conditions, inspections shall be conducted by the department of public works as noted in this section.

(e) In any event, the applicant or their agent shall make regular inspections of all control measures in accordance with the inspection schedule outlined on the approved erosion prevention and sediment control plan.

(Ord. of 12-15-08(2), § 26-3-18)

26-139—26-150 Reserved.

DIVISION 4. STORMWATER MANAGEMENT

26-151 Applicability.

This division applies to all properties within the jurisdictional area of this chapter, unless specifically exempted or waived by section 26-154.

(Ord. of 12-15-08(2), § 26-3-19; Ord. of 3-22-10(2))

26-152 Prohibitions.

No person subject to this article as defined by section 26-96, shall cause, allow or permit the discharge, connection and/or release of stormwater runoff to a public sewer or natural outlet unless such discharge, connection and/or release is incidental to the implementation of an approved stormwater management plan under this division.

(Ord. of 12-15-08(2), § 26-3-20)

26-153 Permits.

Unless exempted under section 26-96(d), no person shall be granted a zoning permit, building permit, excavation permit or any other approval for any project, condition or land disturbance activity regulated under this division without the written approval of a stormwater management plan by the department of public works.

(Ord. of 12-15-08(2), § 26-3-21)

26-154 Exemptions and waivers.

The discharge, connection and/or release of stormwater from any project, condition or land disturbance activity regulated under this article is prohibited except as provided in section 26-96(d) or (e).

(Ord. of 12-15-08(2), § 26-3-22; Ord. of 3-22-10(2))

26-155 Stormwater manual.

The stormwater manual as referenced in this article refers to the technical analysis and design standards specified in the Vermont Stormwater Manual (Volumes I and II), latest revision and to the City of Burlington, Department of Public Works Stormwater and Erosion Control Specifications, Standards and Management Practices Design Manual.

(Ord. of 12-15-08(2), § 26-3-23)

26-156 Stormwater treatment standards and treatment practice design criteria.

The following stormwater treatment standards may apply to those projects, conditions and activities regulated under this division and where applicable, shall be applied as required and outlined in the Vermont Stormwater Manual, (Volumes I and II), latest revision, to the maximum extent practicable as determined by the director of the department of public works.

(1) Water quality treatment standards.

(2) Channel protection treatment standards.

(3) Groundwater recharge treatment standards.

(4) Over bank flood protection treatment standards.

(5) Extreme flood protection treatment standards and, where applicable,

(6) Hydraulic capacity standard. In instances where discharges, connections and/or releases of stormwater are to city public sewers, infrastructure, and/or facilities, the applicant must make demonstration to the satisfaction of the director at the department of public works that the public sewer, infrastructure and/or facility has the hydraulic capacity to accommodate the anticipated stormwater runoff flows and volumes without burdening or creating an adverse impact on such infrastructure and facilities. If the hydraulic capacity analyses shows city infrastructure will be exceeded and/or burdened, the applicant may seek to mitigate such impacts through flow reduction, retention, detention, infiltration and/or water re-use stormwater management practices upon the approval of the director on a case-by-case basis.

(Ord. of 12-15-08(2), § 26-3-24)

26-157 Use of alternative stormwater management practices.

The city recognizes that in some instances the ability to strictly meet the requirements of section 26-156, stormwater treatment standards and treatment practice design criteria, may not be possible, feasible or desired in an urban landscape. As such the city encourages the use of alternative management practices and technologies as a way to both satisfy the requirements of this division, to give flexibility to design and to encourage green Infrastructure (green), best management practices (BMP), low impact design (LID) or other innovative practices that in the opinion of the department of public works satisfies the requirements of this division. Such practices include but are not limited to, green roofs, alternative detention practices, water reuse, including stormwater use, infiltration practices, including pervious and porous pavements and pavers. See Burlington's Guidelines for Stormwater Pollutant Reduction, September 1999 and as may be amended and EPA "Managing Wet Weather with Green Infrastructure Action Strategy", January 2008, and as amended.

Persons subject to this division may utilize alternative stormwater management practices as a means of meeting the standards established in section 26-156. Persons seeking to employ any alternative practice must provide descriptions and standard details as well as a make a demonstration that such alternative practice meets or exceeds the standards of section 26-156, that the standards of section 26-156 are not applicable, and/or the alternative practice mitigates the impact that section 26-156 seeks to address, subject to the department of public works for review and approval. A maintenance and a installation guide shall also be provided to ensure the materials are properly installed. When considering any alternative stormwater management practice, the department of public works will evaluate and determine if such practice is consistent with the city MS4, CSO and use of public sewers permits and ordinances, including this chapter. Where such management practices are found to be consistent with or likely not to compromise the city MS4, CSO and use of public sewers permits and ordinances, the department of public works may grant their use on a case-by-case basis.

(Ord. of 12-15-08(2), § 26-3-25)

26-158 Stormwater management plan.

(a) *Review and approval.* The department of public works will review each stormwater management plan to determine its conformance with the provisions of this division, unless such review is explicitly exempted within this division. Within thirty (30) days after receiving a complete plan and application, the department of public works shall in writing:

(1) Approve the plan;

(2) Approve the plan subject to such reasonable conditions as may be necessary to secure substantially the objectives of this division, and require that the issuance of the zoning permit and/or building permit be subject to these conditions; or

(3) Disapprove the plan, indicating the reason(s) and procedure for submitting a revised plan.

(b) *Plan requirements.* The stormwater management plan shall be prepared and signed by a licensed, professional engineer who shall verify and demonstrate conformance to the applicable water quality treatment standards and stormwater management design criteria contained in this division. The stormwater management plan shall contain both narrative and map(s) that clearly provide the following information:

(1) *Contact information.* The name, address, and telephone number of all persons having a legal interest in the property and the tax reference number and parcel number of the property or properties affected and similar information on the persons charged with the responsibility of constructing, maintaining and managing such stormwater systems.

(2) *Site plan.* A map indicating the location of existing and proposed buildings, roads, parking areas, utilities, structural stormwater management and sediment control facilities. The map will also clearly show proposed land use with tabulation of total lot size in acres, percentage of surface areas to be disturbed, percentage of existing and proposed impervious surfaces, drainage patters, locations of utilities, limits of clearing and grading, and all easements, including those easements necessary for required maintenance of all stormwater treatment practices.

(3) *Base map.* A one (1) inch = two hundred (200) feet topographic base map of the site which extends a minimum of three hundred (300) feet beyond the limits of the proposed development and indicates existing surface water drainage including streams, ponds, culverts, ditches, and wetlands, including associated buffer zones, and current land use including all existing buildings, utilities, roads, and significant natural and manmade features not otherwise shown.

(4) *Calculations.* Sufficient engineering analysis to show that the proposed stormwater treatment practices are capable of controlling runoff from the site in compliance with this division and the Vermont Stormwater Manual. The analysis shall also include hydrologic and hydraulic design calculations for the pre-development and post-development conditions for the design storms specified in the department of public works design manual with specific emphasis on demonstrating how post-development flows

are maintained for discharges to the MS4 and/or where applicable demonstrating how post-development flows are detained for discharges to the CS.

(5) *Soils report.* A soils report that addresses the hydrologic properties of onsite soils shall be submitted. The soils report and accompanying information shall be based on the VSMM (latest edition) or the Underground Injection Control Rule, Chapter 11 (latest edition) which ever is applicable.

(6) *Operation maintenance and repair plan.* The design and planning of all stormwater management facilities shall include detailed operation maintenance and repair procedures to ensure their continued function. These plans will identify the parts or components of a stormwater management facility that needs to be maintained. The operation and maintenance and repair plan shall also include:

a. *A landscape plan.* The applicant must present a detailed plan for the management of vegetation at the site after construction is finished, including who will be responsible for the maintenance of vegetation at the site and what practices will be employed to ensure that adequate vegetation cover is preserved.

b. *Maintenance easements.* Prior to the issuance of any permit that has a stormwater management facility as a requirement, the applicant or owner of the site must execute a maintenance easement that shall be binding on all subsequent owners of land served by the stormwater management facility. The purpose of the maintenance easement shall be to allow access to the stormwater management facility to perform maintenance as required by the maintenance agreement noted in subsection c. below. The easement shall provide for access to the facility at reasonable times for periodic inspection by the city, or its contractor or agent, and for regular or special assessments of property owners to ensure that the facility is maintained in proper working condition to meet design standards and any other provisions established by this section. The property owner shall record such easement, in a form and format approved by the city attorney, in the city land records with the city clerk’s office.

c. *Maintenance agreement.* The applicant must execute a maintenance agreement binding on all subsequent owners of land served by an onsite stormwater management measure. The maintenance agreement shall be recorded in the land records before the issuance of a building permit and shall specify the required maintenance for all stormwater treatment practices,

along with a maintenance schedule specifying when and how often maintenance is performed on the stormwater treatment practices and a demonstrated financial ability to perform such maintenance. Such agreement shall be in a form and format approved by the city attorney, and be filed in the city land records. The owner is responsible for maintenance of stormwater management facilities; however, the city may accept dedication of existing or future stormwater management facilities for public maintenance and inspection.

d. *Maintenance inspections.* All stormwater management facilities must be inspected by the department of public works no less than once annually to identify maintenance and repair needs and to ensure compliance with the requirements of this division. Any identified maintenance and/or repair needs found must be promptly addressed by the responsible party. The inspection and maintenance requirement may be increased as deemed necessary by the city to ensure proper functioning of the stormwater management facility.

e. *Records of installation and maintenance activities.* Parties responsible for the inspection, operation and maintenance of a stormwater management facility shall make records of the installation and of all maintenance and repairs and shall retain the records for at least five (5) years. These records shall be made available to the director upon request and/or as specifically outlined in the maintenance covenant.

f. *Failure to maintain practices.* If a responsible party fails or refuses to meet the requirements of the maintenance covenant, the city, after proper notice, may correct a violation of the design standards or maintenance needs by performing all necessary work to place the facility in proper working condition and/or shall handle the matter as a violation per section 26-4, penalties and enforcement.

(7) *Landscaping and stabilization requirements.* Any area of land for which the natural vegetative cover has been either partially or wholly cleared or removed by land disturbance activities subject to this division shall be revegetated within ten (10) business days from the substantial completion of such clearing and construction. Additionally, the following requirements apply until such time as final site stabilization has been achieved:

a. Reseeding must be done with an annual or perennial cover crop accompanied by placement of straw mulch or its equivalent of sufficient coverage to control erosion until such time as the cover crop is established over ninety (90) percent of

the seeded area.

b. Replanting with native woody and herbaceous vegetation must be accompanied by placement of straw mulch or its equivalent of sufficient coverage to control erosion until the plantings are established and are capable of controlling erosion.

c. Any area of revegetation must exhibit survival of a minimum of seventy-five (75) percent of the cover crop throughout the year immediately following revegetation. Revegetation must be repeated in successive years until the minimum seventy-five (75) percent survival for one (1) year is achieved.

d. Any and all accumulated sediments transported offsite and deposited onto city streets, and sidewalks shall be routinely and frequently swept up to prevent their discharge into stormwater and/or the city's public sewer.

(Ord. of 12-15-08(2), § 26-3-26)

26-159 Access to stormwater treatment practices.

The department of public works shall be permitted to enter and inspect any land or premises where stormwater treatment practices are being, or have been constructed subject to regulation under this division as often as may be necessary to determine compliance with this division.

(Ord. of 12-15-08(2), § 26-3-27)

26-160 City inspections during installation and construction.

The applicant must notify the department of public works or their designee in advance before the start of construction and/or installation of any stormwater management system to alert the department of public works so they may arrange to make regular inspections of the construction of stormwater treatment practices and/or connections to any city infrastructure. If any violations are found, the property owner shall be notified in writing of the nature of the violation and the required corrective actions and shall be subject to the enforcement provision of section 26-4. No additional work shall proceed until any violations are corrected and all work previously completed has received approval from the department of public works.

In lieu of the requirements outlined in this section, the department of public works at their discretion may allow or require that the applicant or their agent provide a written certification from a professionally licensed engineer certifying compliance to the stormwater

management plan as approved.

(Ord. of 12-15-08(2), § 26-3-28)

26-161—26-170 Reserved.

DIVISION 5. STORMWATER SYSTEM USER FEES

26-171 Establishment of stormwater user fees.

(a) A user fee based on an impervious surface unit (ISU) shall be imposed on every owner of non-exempt developed property within the city. An ISU shall equal one thousand (1,000) square feet.

(b) The city council shall have the authority to set and modify the user fee rates so that the total revenue generated by said charges, and any secondary sources of revenue, shall be sufficient to fund the city's stormwater program.

(c) The city council shall establish by resolution the monthly rate for each ISU. The monthly user fee for a specific property is determined by multiplying the ISU rate times the number of ISUs on the property.

(d) The only exempt properties under this division are those included within the limits of a railroad track right-of-way (property on which railroad stations, maintenance buildings, or other developed land used for railroad purposes is located shall not be exempt) and those included within the limits of a public road right-of-way.

(Ord. of 12-15-08(2), § 26-3-29)

26-172 Establishment of ISUs.

(a) The following residential property types shall be allocated ISUs based on the group averages and shall be charged a monthly flat fee based on the group average.

(1) Detached single-family home (not including mobile home) = 2.67 ISUs.

(2) Two-unit home = 2.65 ISUs.

(3) Three-unit home = 3.06 ISUs.

(b) The ISUs allocated to all other property types shall be determined as follows:

(1) The amount of impervious surface on each parcel shall be calculated in square feet. That total shall be converted to ISUs for every one thousand (1,000) square feet and rounded to the nearest hundred (i.e. a commercial property with four thousand seven hundred eighty (4,780) square feet would have 4.78 ISUs).

(2) The user fee would be based on the number of ISUs (i.e. commercial property with 4.78 ISUs would pay the monthly user fee times 4.78).

(3) Owners of property subject to this subsection shall have the right to contest, in writing to the director, the number of ISUs allocated to their property. In such event, an onsite inspection and calculation of impervious surface shall be conducted jointly by the property owner (or representative) and the director to determine the number of ISUs. Such determination shall be made by the director, and such decision may be appealed to the public works commission within fifteen (15) days of the determination.

(Ord. of 12-15-08(2), § 26-3-30)

26-173 Credits.

(a) Institutional properties with impervious surface within a publicly owned nontraditional separate MS4 system shall receive a credit on their stormwater user fee. This credit applies only to impervious surfaces within the boundaries of the publicly owned non-traditional separate MS4 system.

(b) Properties not subject to a flat fee may be eligible for a credit on their stormwater user fee. Credits shall be available to properties that reduce the volume, or improve the water quality, of stormwater runoff. The degree of credit shall be based on the degree of reduction in stormwater runoff volume and/or the degree of water quality improvement of stormwater runoff. No credit shall exceed fifty (50) percent of the stormwater user fee, and in no event shall any credit result in a stormwater user fee below the flat fee for a single - family home. Credits shall be reviewed and assessed by the director based on the rules and procedures contained in the Stormwater User Fee Credit Manual. Any award of credit shall be conditioned on continuing compliance with the city’s design and performance standards as stated in the manual and/or upon continuing provision of the systems, facilities, services, and activities provided, operated,

and maintained by the property owner or owners upon which the credit is based. The director may revoke a credit at any time for noncompliance by providing thirty (30) days written notice of a noncomplying condition and intent to revoke the credit to the property owner. If the noncompliance is not cured within the thirty (30) day period, the director shall eliminate the credit. A property owner may appeal the director's determination regarding credit revocation to the public works commission within fifteen (15) days of the determination.

(Ord. of 12-15-08(2), § 26-3-31)

26-174 Expenditures.

The user fees, as well as any secondary sources of revenue, shall be used to fund the city's efforts to manage stormwater. Acceptable expenditures include, but are not limited to, capital construction, maintenance and operations, engineering and planning, regulation and enforcement, water quality programs, special services, administration and management, coverage requirements, reserve funds, and miscellaneous overhead costs.

(Ord. of 12-15-08(2), § 26-3-32)

2021 Annual MS4 Report

Attachment

MCM #6

Pesticide/Herbicide Ordinance – City of Burlington, VT

Sec. 17-9. Notification and posting of turf grass and landscape pesticide application.

(a) *Policy.* It is the policy of the city to take note of and respond to continuing concerns about health effects from toxic chemicals. Toxic chemicals classified as pesticides are designed to kill a variety of plants and animals; relatively little is known about their long-term effects upon humans and the environment. In light of this uncertainty, the city considers all pesticides detrimental to human health unless proven otherwise. In order to prevent unnecessary exposure to such chemicals, the city council, upon recommendation from the board of health, has enacted the following provisions.

(b) *Definitions.* As used in this section, the following terms are defined below:

Application of a pesticide: The placement for effect of any pesticide at or on the site where pest control or other response is desired.

Commercial applicator: Any person, certified or not, who uses or applies pesticides in the course of employment.

Landscape plants: Any ornamental and flowering shrubs and plants, shade trees, or plants designed and/or considered to add to the aesthetic environment.

Pesticide: Any substance produced or distributed for preventing, destroying or repelling any insects, weeds, rodents, fungi, nematodes, mites, spiders or other forms of plant or animal life or viruses (i.e., any herbicide, insecticide, fungicide, acaricide, nematicide or rodenticide) except viruses on or in living humans or other animals. This includes any fertilizer mixture which contains pesticides within it.

Resident: Any person who owns or manages the private property on which pesticides are applied.

Tributaries of Lake Champlain: Those streams and/or drainage systems that flow during the spring and early summer including the following:

(1) Winooski River;

(2) Centennial (Muddy Brook): being three (3) branches running north and east from the area of Bilodeau Court and the border with South Burlington, joining below UVM's retention pond, and then under Grove Street to the Winooski River;

(3) Englesby Ravine: beginning east of UVM's Redstone Campus and running south and west through the "Hill Section," and then under Shelburne and Pine Streets to Lake Champlain;

(4) The stream running westerly from North Avenue, bordered on the south by Little Eagle Bay and on the north by Lakewood Estates, and into Lake Champlain;

(5) Appletree Point Stream: being two (2) branches running south from Appletree Point Lane into Lake Champlain;

(6) North Beach Stream: beginning south of Institute Road running south to Lake Champlain:

(7) Intervale: being the area bounded by the "Northern Connector," the Winooski River and the railroad right-of-way;

(8) Reeves Brook: beginning at Trinity College running north to Reeves Pond (at Riverwatch) then under Riverside Ave. to the Winooski River.

Turf grass: A covering of mowed vegetation growing together with an upper soil stratum of intermingled roots and stems.

(c) *Commercial applicators contract requirements.* No outdoor application of pesticides to turf grass or landscape plants shall be made on single-or multifamily

residential properties, nor on public or private nonresidential properties, including, but not limited to, athletic fields, schoolyards, university greens, corporate lawns, parks and cemeteries, without the following provisions having been met:

(1) Prior to initial application by a commercial applicator, the applicator or her/his employer must enter into a written contract with the customer specifying the approximate date(s) of application(s), the number of applications and the posting required by this section.

(2) With the written contract, the applicator or her/his employer must provide the customer with the following information, in writing:

a. A list of the pesticide(s) to be applied, including brand and chemical names;

b. Label warnings from all the listed pesticides;

c. Name, address and phone number of the company or non-commercial facility providing service;

d. EPA registration number(s) and if applicable applicator(s) certification number(s);

e. Current fact sheets approved by the Burlington Board of Health that include relevant information from the Environmental Protection Agency (EPA) and/or the Government Accounting Office (GAO) and/or Material Safety Data Sheet(s) (MSDS) that identify potential health and environmental hazards.

(d) *Posting and notification:*

(1) Before beginning each application, the applicator(s) shall post signs on the treated property at intervals no greater than one hundred (100) feet along all public and private rights-of-way. All properties, regardless of size, must post a minimum of two (2) signs at conspicuous points of access to the property. The specifications of the sign shall be as follows:

a. Shall be at least four (4) × five (5) inches, of sturdy, weather-resistant material;

b. Shall be with contrasting colors using the indicated point type size;

c. Shall display the following warning on the front of the sign:

CAUTION
PESTICIDE APPLICATION
CAUTION
KEEP OFF
WHILE POSTED
CUSTOMER:
PLEASE REMOVE
AFTER 24 HOURS.

Both the fluorescent green symbol commonly known as "Mr. Yuk" and the international slash in a circle superimposed upon representational figures of an adult, child and dog as well as instructions that signs must remain posted for at least twenty-four (24) hours;

d. Shall be posted at least twelve (12) inches above the ground;

e. Shall contain the date and time of application on the back of the sign;

f. The back of the sign shall contain the emergency numbers for poison control and 911, the city health officer's number for complaints, the brand or chemical name and concentration, and the name of the applicator's company.

(2) All commercial outdoor pesticide applicators and all private outdoor applicators applying pesticides on an area greater than two hundred (200) square feet per property within the span of one year must give occupants of treated property and occupants of any

adjacent property notice of any pesticide application(s). The notice may be distributed up to ten (10) days but not less than twenty-four (24) hours in advance of the application. The notice shall indicate when the pesticide shall be applied, which shall be within a five-business-day timeframe set forth in the notice. This written notice, approved by the board of health, must include the same information described in subsection (c)(2). The two hundred (200) square foot exemption applies only to ground applications; any application to trees and shrubs requires both prenotification and posting as described. Any property with more than twenty (20) units, or any property required to notify residents of more than twenty (20) adjacent properties, has the option of proposing a notification plan, in lieu of individual notification, to the board of health for approval.

(3) Fenced, private nonresidential properties shall post written notices as described below in visitor reception areas and at all employee entrances.

a. The written notice shall contain information as specified under subsection (c)(2) as well as the specific location where each pesticide is to be applied.

b. The notices shall be posted at least twenty-four (24) hours prior to application and shall remain in place for at least twenty-four (24) hours after application.

c. Upon request, copies of any or all material listed under subsection (c)(2) shall be made available to any visitor or employee.

d. All adjacent property owners must be notified by the grounds superintendent or equivalent at least twenty-four (24) hours prior to pesticide application. Copies of all materials listed under subsection (c)(2) must be provided to all adjacent property owners.

(4) Pesticide applications made on golf course turf grass or landscape plants shall require posting of a written notice on the clubhouse bulletin board, in all locker rooms, and on the first and tenth tee. This notice shall be posted by the course superintendent or his/her designee.

a. The written notice shall contain information specified in subsection (c)(2) and shall include the specific location and number of each fairway, green, tee, driving area, etc., where pesticide is to be applied.

b. The notice shall be posted at least twenty-four (24) hours prior to application and must remain posted at all designated places for at least twenty-four (24) hours after application. Copies of the posted material shall be made available to any individual using or employed by the facility.

c. The golf course superintendent shall notify all adjacent property owners of her/his intent to apply pesticides at least twenty-four (24) hours prior to application. The superintendent shall provide all materials listed in subsection (c)(2) to all adjacent property owners.

(5) This regulation requires that those responsible for rights-of-way and utility applications of pesticides post described signs or submit an alternative posting plan to the board of health for its approval.

(6) No pesticides may be applied outdoors within five hundred (500) feet of Lake Champlain or any of its tributaries without specific approval from the board of health. Criteria for this approval are defined by the board of health's statutory authority to protect public health.

(7) No licensed child care center, registered day care home, preschool, primary or secondary school (K--12) may use any turf grass or landscape pesticide on its grounds without specific approval from the board of health.

(e) *Records.* Each applicator shall keep written records of the parties who have been notified pursuant to subsections (c) and (d) of this section. Such records shall be made available to the board of health upon request by the board or by the office of the city attorney.

(f) *Sign requirements and enforcement:*

(1) The department of public works (DPW) shall have signs available to applicators that meet the notification and posting requirements of this section. DPW may charge a fee for the issuance of the signs to cover its administrative costs. No fee shall be assessed against any city department.

(2) The applicator shall be the individual responsible for correctly posting the signs in accordance with the requirements of subsection (d) of this section.

(3) a. First offense. A first offense of any provision of this section during any twenty-four-month period shall be a civil ordinance violation punishable by a penalty of a minimum fine of two hundred dollars ($200.00) to a maximum fine of five hundred dollars ($500.00). The waiver penalty for a first offense shall be a fine of two hundred dollars ($200.00).

b. Second offenses. A second offense during a twenty-four (24) month period shall be a civil offense and shall be punishable by a fine of five hundred dollars ($500.00). The waiver penalty shall be a fine of three hundred dollars ($300.00).

c. The third and any subsequent offense within a twenty-four (24) month period shall be a criminal offense punishable by a fine of five hundred dollars ($500.00).

d. Any law enforcement or code enforcement officer may issue a municipal complaint ticket or criminal citation for offenses of this section.

(Ord. of 6-22-92; Ord. of 2-20-96; Ord. of 2-19-08(2), eff. 4-9-08)

Procedure for Handling Material Collected During Street Sweeping, Catch Basin and Stormwater Pipe Cleaning

City of Burlington Department of Public Works
Prepared on December 15, 2014

Introduction

The City of Burlington Department of Public Works (DPW) regularly uses a vacuum assisted street sweeper to remove sediment and debris from all curbed streets in the City. The DPW also uses a vacuum truck to clean stormwater drainage pipes and removed accumulated debris from catch basin structures.

Regular completion of these activities is a requirement of the City's Municipal Separate Storm Sewer System (MS4) permit, which is administered by the State of Vermont Agency of Natural Resources (ANR) Department of Environmental Conservation (DEC). Once collected, materials removed from streets and catch basin sumps are regulated under the Solid Waste Management Rules promulgated by the Vermont ANR DEC. This procedure provides Burlington DPW employees with guidelines for the storage, handling, testing, and disposal of these materials.

Storage

All materials collected during street sweeping, stormwater pipe cleaning, and catch basin cleaning will be stored at the old Street Dept. facility, located at 339 Pine St. Materials collected during street sweeping are currently stored in a separate pile from materials collected during stormwater pipe and catch basin cleaning activities. Any collected material that shows obvious signs of pollution will be stored in a separate pile so that it does not contaminate the presumably "clean" piles collected during normal maintenance activities. Material piles that are suspect of contamination will also be tested separately from the presumably "clean" materials.

The material storage area will be maintained to ensure that collected materials do not become a source of pollution. Piles will be confined using concrete barriers, silt fence, and hay bales to ensure that sediment laden runoff does not leave the storage area.

Testing

Materials collected as part of street sweeping activities do not require testing before they can be used as indicated below. Prior to use, these materials must be screened to remove any trash collected as part of street sweeping. DPW currently uses a vibrating screen machine to remove trash from street sweepings and catch basin grit. DPW will have supplement hand tools and trash cans on site to remove visible trash that may have passed through the screen. After screening, these materials will be moved to a fill pile maintained by the DPW.

Materials collected as part of stormwater drainage pipe and catch basin cleaning must be tested for Volatile Organic Compounds (VOCs) using either EPA method 8021B or 8260B prior to being used as indicated below. A composite sample will be collected from the pile of collected materials and sent to a lab for analysis. Results will be compared to the Primary Groundwater

Quality Standards (enforcement standards) located in Appendix A of the Vermont ANR DEC Groundwater Protection Rule and Strategy. Using the EPA methods described above, the lower detection limits for some of these compounds in soil samples does not reach the levels specified in the Groundwater Rule (e.g. the lower detection limit for benzene in a soil sample is 13 ug/Kg and the Groundwater Standard is 5 ug/L). A sample whose result is at the lower detection limit of the methods specified will be considered a "non-detect". The testing results will also be sent to the Vermont ANR Solid Waste Management Program as they become available.

Materials that are below the thresholds identified in the Groundwater Projection Rule will then be screened to remove trash. After screening, these materials will be mixed into the street sweeping fill pile maintained by the DPW.

Materials will be tested, screened, and moved to the clean fill pile as necessary to ensure that the material storage area has adequate space for new materials coming into the facility.

Procedure for Material Containing VOCs

Materials tested using EPA method 8021B or 8260B that indicate VOC levels exceeding the Groundwater Quality Standards in the Vermont Groundwater Protection Rule will be moved to an isolated pile in the supplemental storage area at 339 Pine St. The DPW will attempt to treat the pile by mixing it in place with added organic matter until it tests clean. If the facility does not have sufficient space for treatment, the material will be trucked to a state approved landfill site.

Use of Collected Material

The primary disposal of clean and tested fill from the 339 Pine facilities includes transport of those materials to private farmland. The DPW will ensure good judgment in that the location for transport and deposition does not create other environmental hazards, in particular with regard to impacting waterways.

Secondary options of clean material use include common fill by the DPW or others who receive permission from the DPW. Alternatively, these materials can be blended with other materials (e.g. compost, manure) to create top soil or tree planting material for use by the DPW or others who receive permission from the DPW.

Policy Review and Schedule for Update

This plan will be updated as necessary to comply with State regulation, or to fit changing circumstances at the DPW facility. At a minimum, this policy will be reviewed once every 5 years when the City's Stormwater Management Plan is revised as part of the MS4 permit application.

Burlington Department of Public Works
Water Resources Division
Megan Moir, Division Director – Water Resources
235 Penny Lane
Burlington, VT 05401
(802) 863-4501

REQUEST FOR PROPOSALS
for
Catch Basin Cleaning Services

Date of Issuance:	April 22nd, 2020
Issued by:	City of Burlington, Department of Public Works
	Location: 235 Penny Lane, Burlington, VT 05401
Due Date for Proposals:	May 15th, 2020 at 2:00pm
Questions due:	May 5th, 2020 at 2:00pm
Issuing Point of Contact:	James Sherrard, Stormwater Coordinator 235 Penny Lane Burlington, VT 05401 (802) 503-7027 jsherrard@burlingtonvt.gov

I. INTRODUCTION

As part of the City's ongoing efforts to implement a robust and proactive stormwater infrastructure maintenance program, the City is seeking in this Request for Proposal ("RFP") to compliment internal catch basin cleaning efforts with the services of a private contractor to clean 800 catch basins between July 1st, 2020 until and October 31st, 2020.

The City is seeking a qualified catch basin cleaning contractor ("Contractor") to conduct catch basin cleaning and inspection (following DPW's inspection protocol) throughout the City for Fiscal Year2021 (July 1, 2020 – June 30, 2021) with the option to extend the contract for an additional term of one year (through Fiscal Year2022, July 1, 2021 – June 30, 2022).

II. SCOPE OF WORK

The City has constructed and is responsible for over 3,000 catch basins of which roughly 25% (approximately 800) are endeavored to be cleaned each calendar year. As maintenance needs increase with our aging infrastructure, and more of DPW Streets staff time is diverted to maintaining an increase in stormwater management best management practices ("BMP"s) such as sub-surface storage systems, the City recognizes the need to provide interim cleaning efforts to stay on track with our desired level of catch basin cleaning service. Provided as part of this RFP includes the catch basins which the City, at a minimum, will require the Contractor to clean and inspect. These locations are shown in Attachment H: Catch Basin Cleaning Locations.

a. Maintenance Services – include the cleaning of 800 catch basins (utilizing a vactor truck or equivalent

equipment) and the disposal of catch basin material at the assigned dumping location shown in Attachment I: Catch Basin Dumping Locations.

b. Inspection Services – Inspection & Cleaning reporting requirements are documented in Attachment J: Catch Basin Inspection Protocol and will require the contractor provide their own mobile device with the following minimum requirements:
    i. Android
        1. Android 5.0 (lollipop) or later
        2. Processor: ARMv7 or later
        3. Open GL ES 2.0 Support
    ii. iOS
        1. iOS 11 or later
        2. iPhone, iPad, or iTouch
    iii. Software setup and initial training for the Cities digital inspection protocol will be provided by City Staff.
c. Manual on Uniform Traffic Control Devices (MUTCD) compliance – The Contractor's proposal must document the ability to meet all MUTCD requirements during catch basin cleaning activities.
d. Reporting – a final report containing the following information is required upon completion of the cleaning effort:
    i. (1) Electronic excel table containing all catch basin cleaning records and associated inspection attributes from field inspection form (Attachment J: Catch Basin Inspection Protocol).

III. RESPONSE FORMAT

Contractors are encouraged to be concise. All proposals must include, at a minimum, the following:

1. Completed and signed (by authorized representative) bid form (Attachment B: Bid Request BID FORM – Catch Basin Cleaning Services) including contact phone number(s), prices for labor and equipment for a period of two (**2**) years from the above proposal date and list of any specialty equipment or technologies.
2. Signed Livable Wage, Outsourcing, and Union Deterrence Certifications with the bid sheet and described in the Supplemental General Conditions.

Note that the selected Contractors shall be also required to submit insurance certificates, and may be asked to provide a client list if they have not already done work in the City of Burlington.

IV. PROPOSAL EVALUATION & CONTRACTOR SELECTION

Proposals will be reviewed and evaluated by City staff based on the information provided in the proposal. Additional information may be requested prior to final selection (see section V.b.). It is anticipated that a decision may be made within 30 days of the due date. The selected Contractors will generally be ranked in order of rate per unit for the services needed. The City reserves the right; however, to take into account responsiveness as well as past performance in determining which Contractor will be selected first and given the opportunity to perform the work. Should the first selected Contractor be unable or unwilling to perform the needed service, the City will proceed to the next Contractor with the lowest acceptable bid as necessary to meet the needs of the City.

V. SUBMISSIONS

a. Deadline for Receipt of Bids

All replies and quotes in response to this RFP must be received via email , or in a sealed envelope clearly marked "**Catch Basin Cleaning Services"** to the address and point of contact (shown below) no later than 2:00 pm, on May 15th, 2020, at which time all submitted materials will be opened and recorded. Bids will not be opened publically. *Electronic proposals are **STRONGLY PREFERRED** as long as they are received by the point of contact by the required deadline.*

James Sherrard, Stormwater Coordinator
235 Penny Lane
Burlington, VT 05401
(802) 503-7027
jsherrard@burlingtonvt.gov

Late proposals will not be accepted under any circumstances. It is the responsibility of the firm submitting replies and proposals to ensure that the point of contact has received a completed proposal by the required deadline.

b. Answers to Questions and Revisions to Request for Proposal

Questions concerning this RFP must be made via email to James Sherrard, jsherrard@burlingtonvt.gov, Stormwater Program Coordinator by May 5th, at 2:00 PM. It is the responsibility of the prospective bidders to contact **James Sherrard** via email to verify receipt of questions. Based upon such inquiry the City may choose to issue an Addendum. Any revisions, addendums and answers to questions received at least a week before the due date will be posted to the City's website in the same location as the original RFP announcement. In addition, revisions will be posted on the City's RFP web page http://burlingtonvt.gov/RFP/. It is advised that Contractors sign up for the GovDelivery notification (https://public.govdelivery.com/accounts/VTBURLINGTON/subscriber/new) so that they will be notified of any changes to the RFP page.

VI. AGREEMENT REQUIREMENTS

a. The selected Contractor will be required to execute a contract with the City on the terms and conditions required by the City in the Draft Agreement (Attachment A: Draft Services Agreement), including but not limited those in the Burlington Contractor Conditions (Attachment C: Burlington Standard Contract Conditions). The selected Contractor will be required to adhere to pertinent City Ordinances relating to labor practices surrounding the work, including the Burlington Livable Wage, Outsourcing, and Union Deterrence Ordinances. These are provided in the Attachments section for your reference.

b. Contractors submitting proposals agree to:

1. Provide normal and overtime hourly rates for labor and equipment, markup percentages for materials and subcontractors (if applicable), plus other requested information on the Bid Sheet. In lieu of filling out labor and equipment rates on the bid sheet, Contractors can attach a pre-made sheet(s) with time & materials pricing.
2. Maintain ability to respond to requests, and notify the City if at any time they will not be available.
3. Understand that no minimum amount of work is implied or guaranteed under this invitation.
4. Perform work in accordance with applicable rules, regulations, codes, and ordinance of local, state and federal authorities, and in accordance with the requirements of public utility corporations having jurisdiction over the work. The use of herbicides/pesticides is strictly prohibited.
5. Obtain necessary permits, utility markings via Dig Safe (http://www.digsafe.com/), licenses and certificates and give notices as required during the performance of the work. All local Right of Way (ROW) permit fees shall be waived.
6. Provide or hire traffic control as necessary.

VII. LIMITATIONS OF LIABILITY

The City assumes no responsibility or liability for costs incurred by parties responding to this Request for Proposals, or responding to any further requests for interviews, additional data, etc., prior to the issuance of the contract.

VIII. COSTS ASSOCIATED WITH PROPOSAL

Any costs incurred by any person or entity in preparing, submitting, or presenting a proposal are the sole responsibility

of that person or entity. The City will not reimburse any person or entity for any costs incurred.

IX. INDEMNIFICATION

Any party responding to this Request for Proposals is acting in an independent capacity and not as an officer or employee of the City. Any party responding to this Request for Proposals will be required to indemnify, defend, and hold harmless the City, its officers, and employees from all liability and any claims, suits, expenses, losses, judgments, and damages arising as a result of the responding party's acts and/or omissions in or related to the submission of the response.

X. REJECTION OF PROPOSALS

The City reserves the right to reject any or all proposals, to negotiate with one or more parties, or to award the contract to the proposal the City deems will meet its best interests, even if that proposal is not the lowest bid. The City reserves the right to re-advertise for additional proposals and to extend the deadline for submission of the proposals. This Request for Proposals in no way obligates the City to award a contract.

XI. OWNERSHIP OF DOCUMENTS

Any materials submitted to the City in response to this Request for Proposals shall become the property of the City unless another arrangement is made by written agreement between the City and the responding party. The responding party may retain copies of the original documents.

XII. PUBLIC RECORDS

Any and all records submitted to the City, whether electronic, paper, or otherwise recorded, are subject to the Vermont Public Records Act. The determination of how those records must be handled is solely within the purview of City. All records the responding party considers to be trade secrets, as that term is defined by subsection 317(c)(9) of the Vermont Public Records Act, or that the responding party otherwise seeks to have the City consider as exempt must be identified clearly and specifically at the time of submission. It is not sufficient to merely state generally that a proposal is proprietary, contains a trade secret, or is otherwise exempt. Particular records, pages, and sections which are believed to be exempt must be specifically identified as such and must be separated from other records with a convincing explanation and rationale sufficient to justify each exemption from release consistent with Section 317 of Title 1 of the Vermont Statutes Annotated.

XIII. PARTNERSHIPS

Contractors may partner with other firms, local or otherwise, in order to provide the best possible proposal for ensuring quality and efficient completion of the project tasks.

XIV. WORK SCHEDULE

This contract is for acquiring services for on-call landscaping maintenance and installations. When this type of work is required to be performed within the City's right-of-way and on public property, the City will notify the full list of approved Contractors via email with a scope of work that needs to be performed. The City will then execute a Work Assignment Agreement with the selected Contractor.

XV. COMPLIANCE WITH LAW

All proposals and work completed under a proposal must be performed in accordance with applicable rules, regulations, codes, and ordinances of local, state, and federal authorities. All such proposals and work completed must also be performed in accordance with the requirements of public utility corporations having jurisdiction over the work performed.

XVI. NOTICE TO BIDDERS – PUBLIC HEALTH EMERGENCY CLAUSE

Bidders are advised that public health emergencies, as declared by the City, the State of Vermont, or the Federal

Government, including the current pandemic of Novel Coronavirus (COVID–19), may introduce significant uncertainty into the project, including disruption of timelines or revised practices. Contractors shall consider public health emergencies as they develop project schedules and advance the work.

The City may require a public health emergency plan be submitted as part of the bid. This plan will contain:

1) Measures to manage risk and ensure that potential impacts to safety and mobility are mitigated in accordance with health and safety standards and guidelines proposed by local, state, and federal agencies (see attached Draft Contract Section 15 and Attachment G: Supplemental Safety Performance Standards for Public Health Emergencies);
2) A schedule for possible updates to the plan in advance of the start of work (see attached Draft Contract Section 15); and
3) Means to adjust the schedule and sequence of work should the emergency change in nature or duration.

The City will have sole discretion to approve, deny, or require changes to this plan as a condition of consideration of the bid. While the Contractor is responsible for ensuring that the project or site is stable and in a safe and maintainable condition, the City will have the right to inspect all preparatory, in-progress, and final work to ensure compliance with health and safety standards and may at any time require the contractor/consultant to stop work until it becomes compliant.

If a public health emergency is declared, the City will not be responsible for any delays related to the sequence of operations or any expenses or losses incurred as a result of any delays. Any delays related to public emergencies, including the current pandemic of Novel Coronavirus (COVID-19), will be excusable, but will not be compensable.

XVII. LIST OF ATTACHMENTS

A. Draft Services Agreement
B. Basic Bid Request BID FORM – Catch Basin Cleaning Services
C. Burlington Standard Contractor Conditions
D. Livable Wage Ordinance Certification
E. Outsourcing Ordinance Certification
F. Union Deterrence Ordinance Certification
G. Supplemental Safety Performance Standards for Public Health Emergencies
H. Catch Basin Cleaning Locations
I. Catch Basin Dumpling Locations
J. Catch Basin Inspection Protocol

CITY OF BURLINGTON
SERVICES AGREEMENT

This Services Agreement ("Agreement") is entered into by and between the City of Burlington, Vermont ("the City"), and Wind River Environmental, LLC ("Contractor"), a Delaware corporation with a designated office business address of 46 Lizotte Drive, Suite 1000, Marlborough, MA, 01752 and registered with the Vermont Secretary of State to conduct business in Vermont, and with a registered agent address of 100 North Main Street, Suite 2, Barre, Vermont, 05641.

Contractor and the City agree to the terms and conditions of this Agreement.

1. DEFINITIONS

The following terms shall be construed and interpreted as follows:

A. "Agreement Documents" means all the documents identified in section 4 of this Agreement.

B. "Effective Date" means the date on which this Agreement is approved and signed by the City, as shown on the signature page.

C. "Party" means the City or Contractor and "Parties" means the City and Contractor.

D. "Services" means Catch Basin Cleaning work.

E. "Public Health Emergency" means public health emergencies, as declared by the City, the State of Vermont, or the Federal Government.

F. "Public Health Emergency Plan" ("Plan") means the plan described in section 15.B. of this Agreement (Creation of Public Health Emergency Plan & Health and Safety Performance Standards), along with the specifications contained in the Agreement Documents as defined in Section 4 below.

G. "Work" means the services described in section 5 of this Agreement, along with the specifications contained in the Agreement Documents as defined in section 4 below.

2. RECITALS

A. Authority. Each Party represents and warrants to the other that the execution and delivery of this Agreement and the performance of such Party's obligations have been duly authorized.

B. Consideration. The Parties acknowledge that the mutual promises and covenants contained herein and other good and valuable consideration are sufficient and adequate to support this Agreement.

C. Purpose. The City seeks to employ the Contractor to conduct regular, routine maintenance on catch basins throughout the City.

3. EFFECTIVE DATE, TERM, AND TERMINATION

A. Effective Date. This Agreement shall not be valid or enforceable until the Effective Date. The City shall not be bound by any provision of this Agreement before the Effective Date and shall have no obligation to pay Contractor for any performance or expense incurred before the Effective Date or after the expiration or termination of this Agreement.

B. Term. This Agreement and the Parties' respective performance shall commence on the Effective Date and expire on October 31, 2020 or upon the satisfaction of the City, unless sooner terminated as provided herein. This Agreement may be extended for one (1) additional one (1) year term, upon the mutual agreement of the Parties. An additional term shall commence upon the expiration of the initial term. Parties may renegotiate pricing for this additional term, and any change in pricing must be accepted by the City and effectuated by amendment as described in Attachment C, Section 17 (Changes & Amendments) prior to the commencement of an additional term. All other terms and provisions contained within this Agreement during an additional term shall remain the same and as described herein.

4. AGREEMENT DOCUMENTS

The Agreement Documents are hereby adopted, incorporated by reference, and made part of this Agreement. The intention of the Agreement Documents is to establish the necessary terms, conditions, labor, materials, equipment, and other items necessary for the proper execution and completion of the Work to ensure the intended results.

The following documents constitute the Agreement Documents:

Attachment A: Request for Proposals dated April 22, 2020
Attachment B: Contractor's Response to Request for Proposals dated May 15, 2020
Attachment C: Burlington Contractor Conditions
Attachment D: Burlington Livable Wage Ordinance Certification
Attachment E: Burlington Outsourcing Ordinance Certification
Attachment F: Burlington Union Deterrence Ordinance Certification
Attachment G: Contractor's Certificate of Insurance
Attachment H: Public Health Emergency Plan

5. SCOPE OF WORK

The Contractor shall perform the services listed in Attachments A (Request for Proposals) and B (Contractor's Response to Request for Proposals).

6. PAYMENT FOR SERVICES

A. Amount. The City shall pay the Contractor for completion of the Work in accordance with Attachment B (Contractor's Response to Request for Proposals).

Contractor agrees to accept this payment as full compensation for performance of all services and expenses incurred under this Agreement.

B. Payment Schedule. The City shall pay the Contractor in the manner and at such times as set forth in the Agreement Documents. The City seeks to make payment within thirty days of receipt of an invoice and any backup documentation requested under section 6D below.

C. Maximum Limiting Amount. The total amount that may be paid to the Contractor for all services and expenses under this Agreement shall not exceed the maximum limiting amount of $68,975 over the period of one (1) fiscal year. The City shall not be liable to Contractor for any amount exceeding the maximum limiting amount without duly authorized written approval.

D. Invoice. Contractor shall submit one copy of each invoice, including rates and a detailed breakdown by task for each individual providing services, and backup documentation for any equipment or other expenses to the following:

James Sherrard
Stormwater Program Coordinator
235 Penny Lane
Burlington, VT 05401
jsherrard@burlingtonvt.gov

The City reserves the right to request supplemental information prior to payment. Contractor shall not be entitled to payment under this Agreement without providing sufficient backup documentation satisfactory to the City.

E. Non-Appropriation. The obligations of the City under this Agreement are subject to annual appropriation by the Burlington City Council. If no funds or insufficient funds are appropriated or budgeted to support continuation of payments due under this Agreement, the Agreement shall terminate automatically on the first day of the fiscal year for which funds have not been appropriated. The Parties understand and agree that the obligations of the City to make payments under this Agreement shall constitute a current expense of the City and shall not be construed to be a debt or a pledge of the credit of the City. Agreement. The decision whether or not to budget and appropriate funds during each fiscal year of the City is within the discretion of the Mayor and City Council of the City.

The City shall deliver written notice to Contractor as soon as practicable of any non-appropriation, and Agreement Contractor shall not be entitled to any payment or compensation of any kind for work performed after the City has delivered written notice of non-appropriation.

7. COMPLIANCE WITH LAWS

The Parties, and any subcontractors approved under this Agreement, shall comply with all applicable laws, statutes, ordinances, rules, regulations, and/or requirements of federal, state, and local governments and agencies thereof.

8. BINDING EFFECT AND CONTINUITY

This Agreement shall be binding upon and shall inure to the benefit of the Parties, their' respective heirs, successors, representatives, and assigns. If a dispute arises between the Parties, each Party will continue to perform its obligations under this Agreement during the resolution of the dispute, until the Agreement is terminated in accordance with its terms.

9. SEVERABILITY

The invalidity or unenforceability of any provision of this Agreement or the Agreement Documents shall not affect the validity or enforceability of any other provision, which shall remain in full force and effect, provided that the Parties can continue to perform their obligations under this Agreement in accordance with the intent of this Agreement.

10. ENTIRE AGREEMENT

This Agreement, including the Agreement Documents, constitutes the entire agreement and understanding of the Parties with respect to the subject matter of this Agreement. Prior or contemporaneous additions, deletions, or other changes to this Agreement shall not have any force or effect whatsoever, unless embodied herein or pursuant to Attachment C, Section 17 (Changes and Amendments) below.

11. NO THIRD PARTY BENEFICIARIES

This Agreement does not and is not intended to confer any rights or remedies upon any person or entity other than the Parties. Enforcement of this Agreement and all rights and obligations hereunder are reserved solely to the Parties. Any services or benefits which third parties receive as a result of this Agreement are incidental to this Agreement, and do not create any rights for such third parties.

12. ASSIGNMENT

Contractor shall not sublet or assign this Work, or any part of it, without the written consent of the City. If any subcontractor is approved, Contractor shall be responsible and liable for all acts or omissions of that subcontractor for any Work performed. If any subcontractor is approved, Contractor shall be responsible to ensure that the subcontractor is paid as agreed and that no lien is placed on any City property.

13. WAIVER

A Party's failure or delay in exercising any right, power, or privilege under this Agreement, whether explicit or by lack of enforcement, shall not operate as a waiver, nor shall any single or partial exercise of any right, power, or privilege preclude any other or further exercise of such right, power, or privilege.

14. FORCE MAJEURE

Neither Party to this Agreement shall be liable to the other for any failure or delay of performance of any obligation under this Agreement to the extent the failure or delay is caused by acts or events beyond its reasonable control that render performance illegal or impossible ("Force Majeure"). To assert Force Majeure, the nonperforming party must prove that a) it made all reasonable efforts to remove, eliminate, or minimize the cause of delay or damage, b) diligently pursued performance of its obligations, c) substantially fulfilled all obligations that could be fulfilled, and d) timely notified the other part of the likelihood or actual occurrence of a Force Majeure event.

15. PUBLIC HEALTH EMERGENCY

A. Contractor is advised that public health emergencies, as declared by the City, the State of Vermont, or the Federal Government, including the current pandemic of Novel Coronavirus (COVID–19), may introduce significant uncertainty into the contracted services. Contractor must comply with all local, state, federal orders, directives, regulations, guidance, advisories during a public health emergency. Contractor shall adhere to the below provisions and consider public health emergencies as they develop schedules and advance the work.

B. Creation of Public Health Emergency Plan & Health and Safety Performance Standards. The Contractor shall create a public health emergency plan. The Contractor shall be responsible for following this plan and ensuring that the services or site is stable and in a safe and maintainable condition.
    a. Public Health Emergency Plan: The Public Health Emergency Plan will contain:
        i. Measures to manage risk and mitigate potential impacts to the health and safety of the public, the City, Contractor workers and sub-Contractor workers;
        ii. Explicit reference to health and safety performance standards and mandates provided by the City, the State of Vermont, the Federal

government, and other relevant local, regional, state, and federal, international governmental entities (see, Appendix A), with such health and safety performance standards and mandates adequately considered and addressed in the plan;

iii. A schedule for possible updates to plan in advance of the start of Work (see Section 15.B.b.iii. below); and

iv. Means to adjust the schedule and sequence of work should the emergency change in nature or duration.

b. Review and Acceptance of Plan:

i. Contractor must provide the plan to the City by the Effective Date of this agreement.

ii. The City shall have sole discretion to approve, deny, or compel the bidder to make certain changes to the plan.

iii. If a state of emergency is declared, the Contractor shall provide updated plans to the City for the City's approval prior to Work and at the following intervals: 1 month prior to Work, 2 weeks prior to Work, 1 week prior to Work, and 1 day prior to Work.

iv. The City may revisit the plan at any time to verify compliance with obligations that arise under a state of emergency.

C. Enforcement & Stoppage of Work. If Contractor fails to comply with either 1) the approved public health emergency plan, or 2) any local, state, federal orders, directives, regulations, guidance, or advisories during a public health emergency, the City may stop Work under the Contract until such failure is corrected. Such failure to comply shall constitute breach of the Agreement pursuant to Section 21 (City's Option to Terminate). The City shall have sole discretion in determining if Contractor is compliant with the above.

Upon stoppage of work, the City may allow Work to resume, at a time determined by the City, under this Agreement if such failure to comply is adequately corrected. The City shall have sole discretion in determining if Contractor has adequately corrected its failure to comply with the above. Upon any resumption of Work, the Parties shall negotiate in good faith an equitable adjustment to reflect the reasonable impacts on Contractor resulting from such Work stoppage, complying with Attachment C, Section 17 (Changes & Amendments).

If Contractor's breach of Agreement has not been cured within [thirty (30)/fourteen (14)] days after commencement of such Work stoppage, then City shall be entitled to terminate this Contract pursuant to Section 21.2 (City's Option to Terminate, Termination for Cause).

D. City Liability Relating to Potential Delays. If a public health emergency is declared, the City will not be responsible for any delays related to the sequence of operations or any expenses or losses incurred as a result of any delays. Any delays related to a public health emergency will be excusable, but will not be compensable.

16. CHOICE OF LAW

Vermont law, and rules and regulations issued pursuant thereto, shall be applied in the interpretation, execution, and enforcement of this Agreement. Any provision included or incorporated herein by reference which conflicts with said laws, rules, and regulations shall be null and void. Any provision rendered null and void by operation of this provision shall not invalidate the remainder of this Agreement to the extent capable of execution.

17. JURISDICTION

All suits or actions related to this Agreement shall be filed and proceedings held in the State of Vermont.

18. ARM'S LENGTH

This Agreement has been negotiated at arm's length, and any ambiguity in any of its terms or provisions shall be interpreted in accordance with the intent of the Parties and not against or in favor of either the City or Contractor.

19. SECTION & ATTACHMENT HEADINGS

The article and attachment headings and throughout this Agreement are for the convenience of City and Contractor and are not intended nor shall they be used to construe the intent of this Agreement or any part hereof, or to modify, amplify, or aid in the interpretation or construction of any of the provisions hereof.

— Signatures follow on the next page —

20. SIGNATURE

Persons signing for the Parties hereby swear and affirm that they are authorized to act on behalf of their respective Party and acknowledge that the other Party is relying on their representations to that effect.

Contractor
Wind River Environmental, LLC

By: Jen Miller

Date: 12-11-2020

City of Burlington
Public Works Department

DocuSigned by:

By: SCSpencer
16A952D842EE4B5...

Chapin Spencer
Director of The Public Works Department

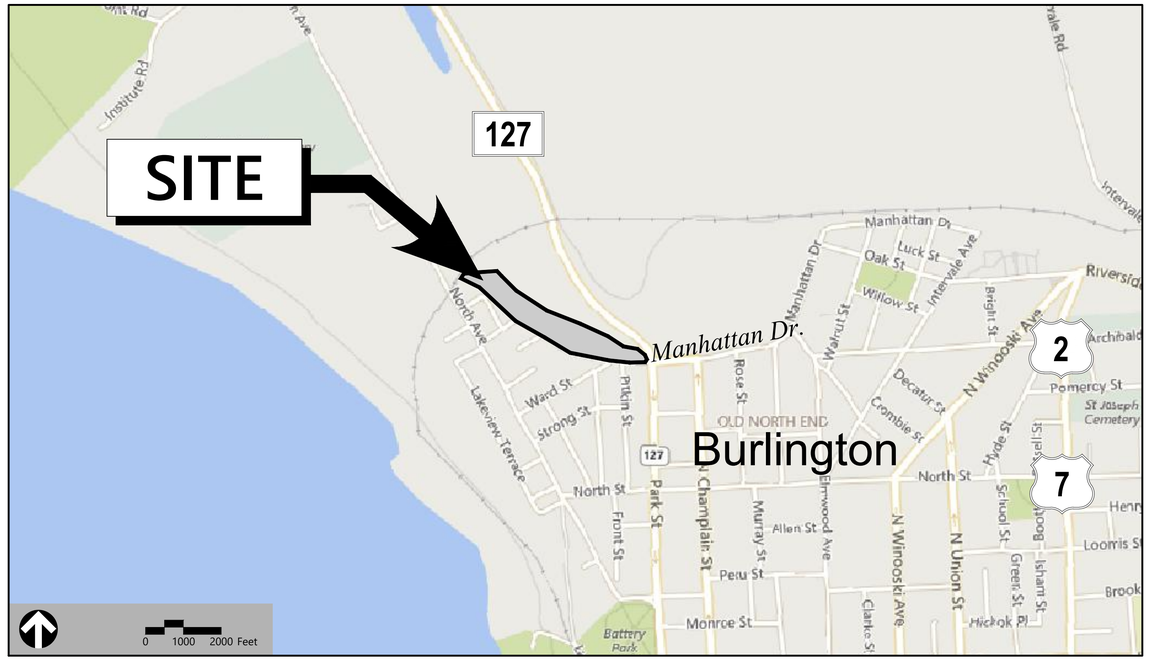
Date: 7/2/2020

Site Plans

Issued for	100% Design Submittal
Date Issued	Jun. 17, 2019
Latest Issue	Jun. 17, 2019

City of Burlington Manhattan Drive Stormwater Outfall Improvements

Manhattan Drive
Burlington, Vermont



vhb.com

vhb

40 IDX Dr
Building 100 Suite 200
South Burlington, VT 05403
802.497.6100

Owner:

City of Burlington VT
149 Church St,
Burlington, VT 05401

Sheet Index

No.	Drawing Title	Latest Issue
C-0.01	Legend and General Notes	6/17/2019
C-0.02	Low Risk Site Handbook	6/17/2019
SV-1	Existing Conditions Plan	6/17/2019
C-1.01	Phasing Plan 1	6/17/2019
C-1.02	Phasing Plan 2	6/17/2019
C-2.00	Toe-Berm Section Plan	6/17/2019
C-2.01	Grading and Drainage Plan 1	6/17/2019
C-2.02	Grading and Drainage Plan 2	6/17/2019
C-2.03	Channel Profile	6/17/2019
C-2.04	Proposed Grading Cross Sections 1	6/17/2019
C-2.05	Proposed Grading Cross Sections 2	6/17/2019
C-2.06	Proposed Grading Cross Sections 3	6/17/2019
C-3.01	Erosion and Sediment Control Plan 1	6/17/2019
C-3.02	Erosion and Sediment Control Plan 2	6/17/2019
C-4.01	Site Details 1	6/17/2019
C-4.02	Site Details 2	6/17/2019
L-1	Class II Wetland and Buffer Enhancement Plan 1	6/17/2019
L-2	Class II Wetland and Buffer Enhancement Plan 2	6/17/2019

STATE OF VERMONT
NICHOLAS CHRISTOPHER RICHARDS
NO. 133820
CIVIL
LICENSED PROFESSIONAL ENGINEER
6/17/19

VHB Project : 58126.01 BTV Stormwater Outfalls
Issued for : 100% Design Submittal 06/17/2019

\\VHB\GBL\PRO\SBURLINGTON\58126.00 BTV DPW STORMWATER\CAD\LD\PLANSET\58126.00-COV 18 June 2019

Legend

Exist.	Prop.	
		RIGHT-OF-WAY/PROPERTY LINE
		LIMIT OF DISTURBANCE
		NATURAL RESOURCE STUDY AREA
		GRAVEL ROAD
		BUILDING
		STEEL GUARDRAIL
		TREE LINE
		FENCE
		RIPRAP
		STONE TOE BERM
132.75 ×	132.75 ×	SPOT ELEVATION
12"D	12"D	BORING LOCATION
		DRAIN
OHW	OHW	OVERHEAD WIRE
3"G	G	GAS
E	E	ELECTRIC
		CATCH BASIN CONCENTRIC
		DRAINAGE MANHOLE
4	4	MINOR CONTOUR
20	20	MAJOR CONTOUR
HYD	HYD	FIRE HYDRANT
		UTILITY POLE
		GUY POLE
		GUY WIRE & ANCHOR
		MATCHLINE
		LIMIT OF DISTURBANCE/PROJECT DEMARCATION FENCE
		SILT FENCE
		WETLAND
		TEMPORARY STAGING AREA
		STABILIZED CONSTRUCTION EXIT
		50' WETLAND BUFFER
		ACCESS DRIVES
		TEMPORARY SOIL STOCKPILE
		SOIL BOUNDARY

Abbreviations

General

APPROX	APPROXIMATE
BIT	BITUMINOUS
BS	BOTTOM OF SLOPE
CONC	CONCRETE
EL	ELEVATION
ELEV	ELEVATION
EX	EXISTING
LOD	LIMIT OF DISTURBANCE
MAX	MAXIMUM
MIN	MINIMUM
NTS	NOT TO SCALE
PROP	PROPOSED
REM	REMOVE
R&R	REMOVE AND RESET
TS	TOP OF SLOPE
TYP	TYPICAL

Utility

CB	CATCH BASIN
CMP	CORRUGATED METAL PIPE
DMH	DRAIN MANHOLE
DIP	DUCTILE IRON PIPE
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HYD	HYDRANT
INV	INVERT ELEVATION
I=	INVERT ELEVATION
PVC	POLYVINYLCHLORIDE PIPE
RCP	REINFORCED CONCRETE PIPE
R=	RIM ELEVATION
RIM=	RIM ELEVATION
UP	UTILITY POLE

Notes

General

1. CONTRACTOR SHALL NOTIFY "DIG-SAFE" (1-888-344-7233) AT LEAST 72 HOURS BEFORE EXCAVATING.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SECURITY AND JOB SAFETY. CONSTRUCTION ACTIVITIES SHALL BE IN ACCORDANCE WITH OSHA STANDARDS AND LOCAL REQUIREMENTS.
3. AREAS DISTURBED DURING CONSTRUCTION AND NOT RESTORED WITH IMPERVIOUS SURFACES (BUILDINGS, PAVEMENTS, WALKS, ETC.) SHALL RECEIVE MINIMUM 6 INCHES LOAM AND SEED.
4. WORK WITHIN THE LOCAL RIGHTS-OF-WAY SHALL CONFORM TO LOCAL MUNICIPAL STANDARDS. WORK WITHIN STATE RIGHTS-OF-WAY SHALL CONFORM TO THE LATEST EDITION OF THE VTRANS STANDARD SPECIFICATION FOR CONSTRUCTION.
5. UPON AWARD OF CONTRACT, CONTRACTOR SHALL MAKE NECESSARY CONSTRUCTION NOTIFICATIONS AND APPLY FOR AND OBTAIN NECESSARY PERMITS, PAY FEES, AND POST BONDS ASSOCIATED WITH THE WORK INDICATED ON THE DRAWINGS, IN THE SPECIFICATIONS, AND IN THE CONTRACT DOCUMENTS. DO NOT CLOSE OR OBSTRUCT ROADWAYS, SIDEWALKS, AND FIRE HYDRANTS, WITHOUT APPROPRIATE PERMITS. CITY EXCAVATION PERMIT WILL BE REQUIRED FROM THE CONTRACTOR FOR ANY WORK THAT IMPACTS THE CITY RIGHT OF WAY.
6. TRAFFIC SIGNAGE AND PAVEMENT MARKINGS SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
7. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
8. IN THE EVENT THAT SUSPECTED CONTAMINATED SOIL, GROUNDWATER, AND OTHER MEDIA ARE ENCOUNTERED DURING EXCAVATION AND CONSTRUCTION ACTIVITIES BASED ON VISUAL, OLFACTORY, OR OTHER EVIDENCE, THE CONTRACTOR SHALL STOP WORK IN THE VICINITY OF THE SUSPECT MATERIAL TO AVOID FURTHER SPREADING OF THE MATERIAL, AND SHALL NOTIFY THE OWNER IMMEDIATELY SO THAT THE APPROPRIATE TESTING AND SUBSEQUENT ACTION CAN BE TAKEN.
9. CONTRACTOR SHALL PREVENT DUST, SEDIMENT, AND DEBRIS FROM EXITING THE SITE AND SHALL BE RESPONSIBLE FOR CLEANUP, REPAIRS AND CORRECTIVE ACTION IF SUCH OCCURS.
10. DAMAGE RESULTING FROM CONSTRUCTION LOADS SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO OWNER.
11. CONTRACTOR SHALL CONTROL STORMWATER RUNOFF DURING CONSTRUCTION TO PREVENT ADVERSE IMPACTS TO OFF SITE AREAS, AND SHALL BE RESPONSIBLE TO REPAIR RESULTING DAMAGES, IF ANY, AT NO COST TO OWNER.
12. THIS PROJECT DISTURBS MORE THAN ONE ACRE OF LAND AND FALLS WITHIN THE NPDES CONSTRUCTION GENERAL PERMIT (CGP) PROGRAM AND EPA JURISDICTION. PRIOR TO THE START OF CONSTRUCTION CONTRACTOR IS TO FILE A CGP NOTICE OF INTENT WITH THE EPA AND PREPARE A STORMWATER POLLUTION PREVENTION PLAN IN ACCORDANCE WITH THE NPDES REGULATIONS. CONTRACTOR SHALL CONFIRM THE OWNER HAS ALSO FILED A NOTICE OF INTENT WITH THE EPA.

Utilities

1. THE LOCATIONS, SIZES, AND TYPES OF EXISTING UTILITIES ARE SHOWN AS AN APPROXIMATE REPRESENTATION ONLY. THE OWNER OR ITS REPRESENTATIVE(S) HAVE NOT INDEPENDENTLY VERIFIED THIS INFORMATION AS SHOWN ON THE PLANS. THE UTILITY INFORMATION SHOWN DOES NOT GUARANTEE THE ACTUAL EXISTENCE, SERVICEABILITY, OR OTHER DATA CONCERNING THE UTILITIES, NOR DOES IT GUARANTEE AGAINST THE POSSIBILITY THAT ADDITIONAL UTILITIES MAY BE PRESENT THAT ARE NOT SHOWN ON THE PLANS. PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY AND DETERMINE THE EXACT LOCATIONS, SIZES, AND ELEVATIONS OF THE POINTS OF CONNECTIONS TO EXISTING UTILITIES AND, SHALL CONFIRM THAT THERE ARE NO INTERFERENCES WITH EXISTING UTILITIES AND THE PROPOSED UTILITY ROUTES, INCLUDING ROUTES WITHIN THE PUBLIC RIGHTS OF WAY.
2. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, OR EXISTING CONDITIONS DIFFER FROM THOSE SHOWN SUCH THAT THE WORK CANNOT BE COMPLETED AS INTENDED, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED IN WRITING TO THE OWNER'S REPRESENTATIVE FOR THE RESOLUTION OF THE CONFLICT AND CONTRACTOR'S FAILURE TO NOTIFY PRIOR TO PERFORMING ADDITIONAL WORK RELEASES OWNER FROM OBLIGATIONS FOR ADDITIONAL PAYMENTS WHICH OTHERWISE MAY BE WARRANTED TO RESOLVE THE CONFLICT.
3. SET RIMS, INVERTS OF DRAINS, AND DITCHES IN ACCORDANCE WITH ELEVATIONS ON THE GRADING AND DRAINAGE PLANS.
4. RIM ELEVATIONS FOR DRAIN MANHOLES, AND OTHER SUCH ITEMS, ARE APPROXIMATE AND SHALL BE SET/RESET AS FOLLOWS:
   A. LOAM AND SEED, AND OTHER EARTH SURFACE AREAS: ONE INCH ABOVE SURROUNDING AREA AND TAPER EARTH TO THE RIM ELEVATION.
5. CONTRACTOR SHALL MAKE ARRANGEMENTS FOR AND SHALL BE RESPONSIBLE FOR PAYING FEES FOR POLE RELOCATION AND FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE, FIRE ALARM, AND ANY OTHER PRIVATE UTILITIES, WHETHER WORK IS PERFORMED BY CONTRACTOR OR BY THE UTILITIES COMPANY.
6. UTILITY PIPE MATERIALS SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED ON THE PLAN:
   A. STORM DRAINAGE PIPES SHALL BE HIGH DENSITY POLYETHYLENE
8. CONTRACTOR SHALL EXCAVATE AND BACKFILL TRENCHES FOR GAS IN ACCORDANCE WITH GAS COMPANY'S REQUIREMENTS.
9. ALL DRAINAGE AND STRUCTURE INTERIOR DIAMETERS (4' MIN.) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS AND LOCAL MUNICIPAL STANDARDS. FOR MANHOLES THAT ARE 20 FEET IN DEPTH AND GREATER, THE MINIMUM DIAMETER SHALL BE 5 FEET.

Layout and Materials

1. PROPOSED BOUNDS AND ANY EXISTING PROPERTY LINE MONUMENTATION DISTURBED DURING CONSTRUCTION SHALL BE SET OR RESET BY A PROFESSIONAL LICENSED SURVEYOR.
2. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL VERIFY EXISTING GROUND ELEVATIONS ADJACENT TO DRAINAGE OUTLETS TO ASSURE PROPER TRANSITIONS BETWEEN EXISTING AND PROPOSED FACILITIES.

Demolition

1. CONTRACTOR SHALL REMOVE AND DISPOSE OF EXISTING MANMADE SURFACE FEATURES WITHIN THE LIMIT OF WORK INCLUDING BUILDINGS, STRUCTURES, PAVEMENTS, SLABS, CURBING, FENCES, UTILITY POLES, SIGNS, ETC. UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
2. EXISTING UTILITIES SHALL BE TERMINATED, UNLESS OTHERWISE NOTED, IN CONFORMANCE WITH LOCAL, STATE AND INDIVIDUAL UTILITY COMPANY STANDARD SPECIFICATIONS AND DETAILS. THE CONTRACTOR SHALL COORDINATE UTILITY SERVICE DISCONNECTS WITH THE UTILITY REPRESENTATIVES.
3. CONTRACTOR SHALL DISPOSE OF DEMOLITION DEBRIS IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, ORDINANCES AND STATUTES.
4 THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING THE DETAILED SCOPE OF DEMOLITION BEFORE SUBMITTING ITS BID/PROPOSAL TO PERFORM THE WORK AND SHALL MAKE NO CLAIMS AND SEEK NO ADDITIONAL COMPENSATION FOR CHANGED CONDITIONS OR UNFORESEEN OR LATENT SITE CONDITIONS RELATED TO ANY CONDITIONS DISCOVERED DURING EXECUTION OF THE WORK.
5. UNLESS OTHERWISE SPECIFICALLY PROVIDED ON THE PLANS OR IN THE SPECIFICATIONS, THE ENGINEER HAS NOT PREPARED DESIGNS FOR AND SHALL HAVE NO RESPONSIBILITY FOR THE PRESENCE, DISCOVERY, REMOVAL, ABATEMENT OR DISPOSAL OF HAZARDOUS MATERIALS, TOXIC WASTES OR POLLUTANTS AT THE PROJECT SITE. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR ANY CLAIMS OF LOSS, DAMAGE, EXPENSE, DELAY, INJURY OR DEATH ARISING FROM THE PRESENCE OF HAZARDOUS MATERIAL AND CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE ENGINEER FROM ANY CLAIMS MADE IN CONNECTION THEREWITH. MOREOVER, THE ENGINEER SHALL HAVE NO ADMINISTRATIVE OBLIGATIONS OF ANY TYPE WITH REGARD TO ANY CONTRACTOR AMENDMENT INVOLVING THE ISSUES OF PRESENCE, DISCOVERY, REMOVAL, ABATEMENT OR DISPOSAL OF ASBESTOS OR OTHER HAZARDOUS MATERIALS.

Erosion Control

1. CONTACT CITY OF BURLINGTON DPW STORMWATER ADMINISTRATOR AT LEAST 24 HOURS PRIOR TO START OF CONSTRUCTION ACTIVITY (802) 540-1748.
2. INSTALL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO EARTH DISTURBANCE. EROSION CONTROL MEASURES SHALL BE INSPECTED AND REPAIRED DAILY IN ORDER TO MINIMIZE THE DISCHARGE OF SEDIMENT TO THE CITY DRAINAGE SYSTEM. MAINTAIN SEDIMENT CONTROLS UNTIL SITE IS FULLY STABILIZED.
3. THE ACCESS POINTS TO THE PROJECT AND NEARBY PORTIONS OF SURROUNDING CITY STREETS SHALL BE INSPECTED DAILY AND PRIOR TO FORECAST PRECIPITATION EVENTS. SEDIMENT DEPOSITED BY VEHICLE TRACKING SHALL BE REMOVED BY SWEEPING AS NEEDED AND PRIOR TO FORECAST PRECIPITATION.
4. NO VEHICLE OR EQUIPMENT PARKING OR MATERIAL STAGING SHALL OCCUR WITHIN THE CITY ROW WITHOUT PERMISSION FROM THE CITY OF BURLINGTON DEPARTMENT OF PUBLIC WORKS.
5. THE NEW AND EXISTING STORMWATER DRAINAGE SYSTEM SHALL BE FREE FROM SEDIMENT AND CONSTRUCTION DEBRIS AT THE COMPLETION OF CONSTRUCTION, AND PRIOR TO TRANSFER OF THE SITE TO THE OWNER.
6. DISTURBED AREAS SHALL BE STABILIZED WITH TOPSOIL, SEED AND MULCH, STONE, CONCRETE, PAVEMENT, OR OTHER APPROVED MEANS WITHIN 7 DAYS OF INITIAL DISTURBANCE.
7. SILT FENCE OR OTHER APPROVED SILT BARRIER SHALL BE INSTALLED AT THE DOWNSLOPE PERIMETER OF ALL SOILS STOCKPILES.
8. THE CONTRACTOR SHALL TAKE ALL REASONABLE MEANS NECESSARY TO KEEP THE NEW STORMWATER SYSTEM FREE OF SEDIMENT AND DEBRIS DURING THE CONSTRUCTION PERIOD. DO NOT ALLOW RUNOFF FROM DISTURBED AREAS TO DRAIN THESE FEATURES UNTIL THEY HAVE RECEIVED FINAL STABILIZATION.
9. CONTRACTOR SHALL BE FULLY RESPONSIBLE TO CONTROL CONSTRUCTION SUCH THAT SEDIMENTATION SHALL NOT AFFECT REGULATORY PROTECTED AREAS, WHETHER SUCH SEDIMENTATION IS CAUSED BY WATER, WIND, OR DIRECT DEPOSIT.
10. CONTRACTOR SHALL PERFORM CONSTRUCTION SEQUENCING SUCH THAT EARTH MATERIALS ARE EXPOSED FOR A MINIMUM OF TIME BEFORE THEY ARE COVERED, SEEDED, OR OTHERWISE STABILIZED TO PREVENT EROSION.
11. UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER, CONTRACTOR SHALL REMOVE AND DISPOSE OF EROSION CONTROL MEASURES AND CLEAN SEDIMENT AND DEBRIS FROM ENTIRE DRAINAGE AND SEWER SYSTEMS.

Existing Conditions Information

1. BASE PLAN: PARCEL DATA BASED OFF OF THE PARCEL LINES SHOWN ON THIS PLAN ARE FROM THE VTRANS PARCEL DATABASE AND ARE APPROXIMATE ONLY. THIS IS NOT A BOUNDARY SURVEY. THE TOPOGRAPHY AND PHYSICAL FEATURES ARE BASED ON AN ACTUAL FIELD SURVEY PERFORMED ON THE GROUND BY KREBS AND LANSING, STANTECH, AND VGCI LIDAR DATA
   A. DELINEATION OF THE WETLANDS AND PLACEMENT OF THE FLAGS WAS PERFORMED BY: ALLISON SLANEY, PATTI KALLFELZ-WERTZ, OF VHB, 2019
   B. FLAGS MARKING THE WETLANDS WERE LOCATED BY: JUDD VEAR, OF VHB
2. TOPOGRAPHY: ELEVATIONS ARE BASED ON NAD83.
3. GEOTECHNICAL DATA INCLUDING BORING LOCATIONS AND ELEVATIONS WERE OBTAINED FROM S.W. COLE ENGINEERING INC OF WILLISTON VERMONT.

Document Use

1. THESE PLANS AND CORRESPONDING CADD DOCUMENTS ARE INSTRUMENTS OF PROFESSIONAL SERVICE, AND SHALL NOT BE USED, IN WHOLE OR IN PART, FOR ANY PURPOSE OTHER THAN FOR WHICH IT WAS CREATED WITHOUT THE EXPRESSED, WRITTEN CONSENT OF VHB. ANY UNAUTHORIZED USE, REUSE, MODIFICATION OR ALTERATION, INCLUDING AUTOMATED CONVERSION OF THIS DOCUMENT SHALL BE AT THE USER'S SOLE RISK WITHOUT LIABILITY OR LEGAL EXPOSURE TO VHB.
2. CONTRACTOR SHALL NOT RELY SOLELY ON ELECTRONIC VERSIONS OF PLANS, SPECIFICATIONS, AND DATA FILES THAT ARE OBTAINED FROM THE DESIGNERS, BUT SHALL VERIFY LOCATION OF PROJECT FEATURES IN ACCORDANCE WITH THE PAPER COPIES OF THE PLANS AND SPECIFICATIONS THAT ARE SUPPLIED AS PART OF THE CONTRACT DOCUMENTS.
3. SYMBOLS AND LEGENDS OF PROJECT FEATURES ARE GRAPHIC REPRESENTATIONS AND ARE NOT NECESSARILY SCALED TO THEIR ACTUAL DIMENSIONS OR LOCATIONS ON THE DRAWINGS. THE CONTRACTOR SHALL REFER TO THE DETAIL SHEET DIMENSIONS, MANUFACTURERS' LITERATURE, SHOP DRAWINGS AND FIELD MEASUREMENTS OF SUPPLIED PRODUCTS FOR LAYOUT OF THE PROJECT FEATURES.

vhb.com
vhb
40 IDX Dr
Building 100 Suite 200
South Burlington, VT 05403
802.497.6100

City of Burlington, VT Manhattan Drive Stormwater Outfall Improvements

Manhatton Drive
Burlington, Vermont

No.	Revision	Date	Appvd.

Designed by CHS | Checked by NCH

Issued for: 100% Design Submittal | Date: Jun. 17, 2019

Not Approved for Construction

Drawing Title: Legend and General Notes

Drawing Number: C-0.01

STATE OF VERMONT NICHOLAS CHRISTIAN HALE NO. 13820 CIVIL LICENSED PROFESSIONAL ENGINEER

Sheet 1 of 18

Project Number: 58126.01

The Low Risk Site Handbook
for
Erosion Prevention and Sediment Control

VERMONT ENVIRONMENTAL CONSERVATION

August 2006

The Low Risk Site Handbook for Erosion Prevention and Sediment Control

Any construction activity that disturbs 1 or more acres of land, or is part of a larger development plan that will disturb 1 or more acres, requires a Vermont state permit for stormwater discharges from construction sites.

Construction General Permit 3-9020 guides an applicant in the determination of the potential risk to water quality from the construction activity and categorizes the applicant's activity as Low Risk, Moderate Risk, or that which requires an Individual Permit.

The standards in this handbook serve as the required Erosion Prevention and Sediment Control Plan for construction sites determined to be "Low Risk" under GP-3-9020.

Contact Information

Vermont Department of Environmental Conservation
Watershed Management Division
One National Life Drive - Main Building - 2nd Floor
Montpelier, VT 05620-3522
Tel: 802-828-1535
Fax: 802-828-1544
dec.vermont.gov/watershed/stormwater

Table of Contents

Section 1: Introduction

What is erosion prevention and sediment control? 1
Do I need a permit? 2
Application Process 2

Section 2: The Requirements

1. Mark Site Boundaries 3
2. Limit Disturbance Area 5
3. Stabilize Construction Exit 7
4. Install Silt Fence 11
5. Divert Upland Runoff 15
6. Slow Down Channelized Runoff 19
7. Construct Permanent Controls 23
8. Stabilize Exposed Soil 25
9. Winter Stabilization 29
10. Stabilize Soil at Final Grade 33
11. Dewatering Activities 35
12. Inspect Your Site 37

Section 3: Additional Resources

How to calculate slope 39
How to estimate area 39

UPDATE

Rolled Erosion Control Product (RECP) materials have the potential to ensnare animals such as snakes and birds, which can lead to injury or fatality. This has been observed to be most problematic in products with chemically-bound joints in the supporting mesh.

Accordingly, only woven and interlinked products are approved for use in temporary RECP applications.

(See Tables 4.3 and 4.4 of the Vermont Standards & Specifications for Erosion Prevention and Sediment Control)

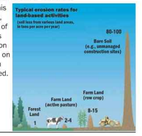
Section 1
Introduction

What is erosion prevention and sediment control?

Sediment washing into streams is one of the largest water quality problems in Vermont. Sediment can kill or weaken fish and other organisms and adversely impact aquatic habitat.

On most construction sites, vegetation that holds the soil in place and protects it from erosive forces of rain and runoff is removed, leaving large areas of soil exposed to the elements. During rainfall or snowmelt, the exposed soil may be easily eroded and transported to nearby streams, lakes, or wetlands.

To prevent this from happening, a small number of simple practices to prevent erosion and contain soil on the construction site must be used.



Do I need a permit?

Any construction activity that disturbs 1 or more acres of land, or is part of a larger development plan that will disturb 1 or more acres, requires a Vermont state permit for stormwater discharges from construction sites.

Application Process

1. Obtain a copy of the permit and determine the Risk Category of the proposed project. The permit is available online at: dec.vermont.gov/watershed/stormwater
2. Submit the Notice of Intent (NOI) form, notifying the Department of your intent to begin construction. **Submit the NOI to DEC at least 60 days before you plan to begin construction to allow sufficient time for processing.*
3. Upon receipt of written authorization from DEC, you are covered under the permit and may begin construction.
4. If your project is determined to be "Low Risk", you must follow this handbook for erosion prevention and sediment control on your construction site.
5. If your site is not classified as Low Risk, then you must follow the Department guidance in GP 3-9020 for Moderate Risk activities or those requiring an Individual Permit.

Section 2
The Requirements

1. Mark Site Boundaries

Purpose:

Mark the site boundaries to identify the limits of construction. Delineating your site will help to limit the area of disturbance, preserve existing vegetation and limit erosion potential on the site.

Requirements:

You must physically mark the limits of construction.

How to comply:

Before beginning construction, walk the site boundaries and flag trees, post signs, or install orange safety fence.

Fence is required on any boundary within 50 feet of a stream, lake, pond or wetland, unless the area is already developed (existing roads, buildings, etc.)

Properly placed barrier tape marks the boundaries and limits of construction on this site.

2. Limit Disturbance Area

Purpose:

Limit the amount of soil exposed at one time to reduce the potential erosion on site.

Requirements:

The permitted disturbance area is specified on the site's written authorization to discharge. Only the acreage listed on the authorization form may be exposed at any given time.

How to comply:

Plan ahead and phase the construction activities to ensure that no more than the permitted acreage is disturbed at one time.

Be sure to properly stabilize exposed soil with seed and mulch or erosion control matting before beginning work in a new section of the site.

This residential subdivision is being constructed in phases. To limit the total disturbance area, only a few home sites are under construction at one time.

3. Stabilize Construction Entrance

Purpose:

A stabilized construction entrance helps remove mud from vehicle wheels to prevent tracking onto streets.

Requirements:

If there will be any vehicle traffic off of the construction site, you must install a stabilized construction entrance before construction begins.

Construction entrance detail. Entrance/exit pad must keep mud from tracking onto both paved and dirt roads.

How to install:

Rock Size: Use a mix of 1 to 4 inch stone
Depth: 8 inches minimum
Width: 12 feet minimum
Length: 40 feet minimum (or length of driveway, if shorter)
Geotextile: Place filter cloth under entire gravel bed

Maintenance:

Redress with clean stone as required to keep sediment from tracking onto the street.

Good stabilized construction entrance. Adequate width to accommodate construction traffic and prevent mud tracking onto neighboring streets. Ensure that the pad is 8 inches deep and 40 feet long.

Poor construction exit. Rock pad is poorly constructed; rock is too small. Use filter fabric under 1 - 4 inch rock. No mud should be tracked onto roads.

Rock sizing and placement look OK for residential site, and very little mud appears on the road. The pad should be at least 8 inches thick and 12 feet wide. Ensure that pad is used as the entrance and exit points - note track marks near curb. Entire area needs seed and mulch.

Rock pad was installed properly with right sized rock, but lack of filter fabric underliner is causing rock to spread and sink into the soil. Note tracking of mud onto road. Mud tracked on roadways violates the permit requirements and is a potential legal liability.

4. Install Silt Fence

Purpose:

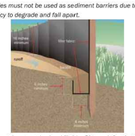
Silt fences intercept runoff and allow suspended sediment to settle out.

Requirements:

Silt fence must be installed:

- on the downhill side of the construction activities
- between any ditch, swale, storm sewer inlet, or waters of the State and the disturbed soil

** Hay bales must not be used as sediment barriers due to their tendency to degrade and fall apart.*



Remember: stakes go on the downhill side. Dig trench first, install fence in downhill side of trench, tuck fabric into trench, then backfill on the uphill side (the side toward the bare soil area).

Where to place:

- Place silt fence on the downhill edge of bare soil. At the bottom of slopes, place fence 10 feet downhill from the end of the slope (if space is available).
- Ensure the silt fence catches all runoff from bare soil.
- Maximum drainage area is ¼ acre for 100 feet of silt fence.
- Install silt fence across the slope (not up and down hills!)
- Install multiple rows of silt fence on long hills to break up flow.
- Do not install silt fence across ditches, channels, or streams or in stream buffers.

How to install silt fence:

- Dig a trench 6 inches deep across the slope
- Unroll silt fence along the trench
- Ensure stakes are on the downhill side of the fence
- Join fencing by rolling the end stakes together
- Drive stakes in against downhill side of trench
- Drive stakes until 16 inches of fabric is in trench
- Push fabric into trench; spread along bottom
- Fill trench with soil and pack down

Maintenance:

- Remove accumulated sediment before it is halfway up the fence.
- Ensure that silt fence is trenched in ground and there are no gaps.

Very good use of continuous "super" (reinforced) silt fence. Note that wire fencing is installed between the filter fabric and the posts.

Good use of J-hook in silt fence to trap sediment in water running along the fence. Sediment must be removed before it reaches halfway to top of fence.

Very good installation of multiple silt fences on long slope. Turn ends of fencing uphill to prevent bypass. Leave silt fences up until grass is well established on all areas of the slope. Re-seed bare areas as soon as possible. Remove or spread accumulated sediment and remove silt fence after all grass is up.

Poor installation of silt fencing. Silt fence must be trenched in along bottom. Hay bales are not approved as sediment barriers.

5. Divert Upland Runoff

Purpose:

Diversion berms intercept runoff from above the construction site and direct it around the disturbed area. This prevents "clean" water from becoming muddied with soil from the construction site.

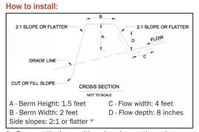
Requirements:

If stormwater runs onto your site from upslope areas and your site meets the following two conditions, you must install a diversion berm before disturbing any soil.

1. You plan to have one or more acres of soil exposed at any one time (excluding roads).
2. Average slope of the disturbed area is 20% or steeper.*

Berms and ditches divert clean upland runoff around construction sites and reduce erosion and sedimentation problems. Stabilize berms and ditches after construction.

How to install:



A - Berm Height: 1.5 feet
B - Berm Width: 2 feet
Side slopes: 2:1 or flatter *
C - Flow width: 4 feet
D - Flow depth: 8 inches

1. Compact the berm with a shovel or earth-moving equipment.
2. Seed and mulch berm or cover with erosion control matting immediately after installation.
3. Stabilize the flow channel with seed and straw mulch or erosion control matting. Line the channel with 4 inch stone if the channel slope is greater than 20%*.
4. Ensure the berm drains to an outlet stabilized with riprap. Ensure that there is no erosion at the outlet.
5. The diversion berm shall remain in place until the disturbed areas are completely stabilized.

* See page 39 for slope calculations.

Good construction, seeding, and stabilization of diversion berm. Note that diversion ditch is lined with grass on flatter part of slope, and with rock on steeper part.

Well built vegetated berm diverting runoff. Diversion berms and ditches should be seeded after construction. Use matting if slopes are steep.

Good installation of rock-lined berm to divert rain runoff around residential construction site on steep slope near a river. Diversion ditches can be lined with grass if channel slopes are 5% or less, and with 4 inch stone if they are steeper.

6. Slow Down Channelized Runoff

Purpose:

Stone check dams reduce erosion in drainage channels by slowing down the stormwater flow.

Requirements:

If there is a concentrated flow (e.g. in a ditch or channel) of stormwater on your site, then you must install stone check dams. Hay bales must not be used as check dams.

How to install:

Height: No greater than 2 feet. Center of dam should be 9 inches lower than the side elevation
Side slopes: 2:1 or flatter (see p.39 for slope calculation)
Stone size: Use a mixture of 2 to 9 inch stone
Width: Dams should span the width of the channel and extend up the sides of the banks
Spacing: Space the dams so that the bottom (toe) of the upstream dam is at the elevation of the top (crest) of the downstream dam. This spacing is equal to the height of the check dam divided by the channel slope.

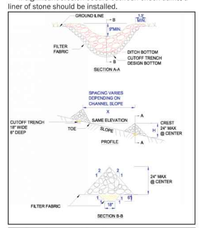
Spacing (in feet) = Height of check dam (in feet) / Slope in channel (ft/ft)

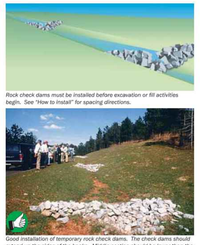
Maintenance:

Remove sediment accumulated behind the dam

as needed to allow channel to drain through the stone check dam and prevent large flows from carrying sediment over the dam.

If significant erosion occurs between check dams, a liner of stone should be installed.





Rock check dams must be installed before excavation or fill activities begin. See "How to Install" for spacing directions.

Good installation of temporary rock check dams. The check dams should extend up the sides of the banks. Middle section should be lower than the sides. Clean out sediment as it accumulates. Remove check dams after site and channel are stabilized with vegetation.

Hay bales must not be used as check dams due to their high failure rates.

7. Construct Permanent Controls

Purpose:

Permanent stormwater treatment practices are constructed to maintain water quality, ensure groundwater flows, and prevent downstream flooding. Practices include detention ponds and wetlands, infiltration basins, and stormwater filters.

Requirements:

If the total impervious* area on your site, or within the common plan of development, will be 1 or more acres, you must apply for a State Stormwater Discharge Permit and construct permanent stormwater treatment practices on your site. These practices must be installed before the construction of any impervious surfaces.

How to comply:

Contact the Vermont Stormwater Program and follow the requirements in the Vermont Stormwater Management Manual.

The Stormwater Management Manual is available at: dec.vermont.gov/watershed/stormwater

**An impervious suface is a manmade surface, including, but not limited to, paved and unpaved roads, parking areas, roofs, driveways, and walkways, from which precipitation runs off rather than infiltrates.*

This wet pond is designed to treat stormwater runoff, recharge groundwater, regulate the flow of water into nearby streams, and prevent downstream flooding.

Install all permanent stormwater treatment practices before constructing any impervious surfaces on site. This stormwater wetland treats stormwater runoff from the adjacent parking lot.

8. Stabilize Exposed Soil

Purpose:

Seeding and mulching, applying erosion control matting, and hydroseeding are all methods to stabilize exposed soil. Mulches and matting protect the soil surface while grass is establishing.

Requirements:

All areas of disturbance must have temporary or permanent stabilization within 7, 14, or 21 days of initial disturbance, as stated in the project authorization. After this time, any disturbance in the area must be stabilized at the end of each work day.

The following exceptions apply:

- Stabilization is not required if earthwork is to continue in the area within the next 24 hours and there is no precipitation forecast for the next 24 hours.
- Stabilization is not required if the work is occurring in a self-contained excavation (i.e. no outlet) with a depth of 2 feet or greater (e.g. house foundation excavation, utility trenches).

All areas of disturbance must have permanent stabilization within 48 hours of reaching final grade (See page 33).

How to comply:

Prepare bare soil for seeding by grading the top 3 to 6 inches of soil and removing any large rocks or debris.

Seeding Rates for Temporary Stabilization
April 15 - Sept. 15 -- Ryegrass (annual or perennial: 20 lbs/acre)
Sept. 15 - April 15 -- Winter rye: 120 lbs/acre

Seeding Rates for Final Stabilization:

Choose from:	Variety	lbs./acre	lbs./1000 sq.ft.
Birdsfoot trefoil	Empire/ Pardee	5[1]	0.10
or			
Common white clover plus	Common	8	0.20
Tall Fescue plus	KY-31/Rebel	10	0.25
Redtop or	Common	2	0.05
Ryegrass (perennial)	Pennfine/Linn	5	0.10

[1] - Mix 2.5 each of Empire and Pardee OR 2.5 lbs. of Birdsfoot and 2.5 lbs. white clover per acre.

Mulching Rates
April 15 - Sept.15 – Hay or Straw: 1 inch deep (1-2 bales/1000 s.f.)
Sept.15 - April 15 – Hay or Straw: 2 in. deep (2-4 bales/1000 s.f.)

Erosion Control Matting
As per manufacturer's instructions

Hydroseed
As per manufacturer's instructions

Excellent stabilization of large slopes to limit the area of disturbance. Make sure to install erosion control matting within 48 hours of grading to ensure good contact between soil and mat.

Good tracking up and down slope. Tracking slows down runoff and promotes infiltration. More mulch is needed.

Hydroseeding exposed soil is a good option for stabilizing large areas. Hydroseed is a mixture of seed, fertilizer, water and a tackifier to hold the seed in place before it germinates.

Excellent application of hay mulch. Good mulch cover and sediment barrier around soil stockpile.

9. Winter Stabilization

Purpose:

Managing construction sites to minimize erosion and prevent sediment loading of waters is a year-round challenge. In Vermont, this challenge becomes even greater during the late fall, winter, and early spring months.

'Winter construction' as discussed here, describes the period between October 15 and April 15, when erosion prevention and sediment control is significantly more difficult.

Rains in late fall, thaws throughout the winter, and spring melt and rains can produce significant flows over frozen and saturated ground, greatly increasing the potential for erosion.

Requirements for Winter Shutdown:

For those projects that will complete earth disturbance activities prior to the winter period (October 15), the following requirements must be adhered to:

1. For areas to be stabilized by vegetation, seeding shall be completed no later than September 15 to ensure adequate growth and cover.
2. If seeding is not completed by September 15, additional non-vegetative protection must be used to

Stabilization and seeding of slopes before winter will reduce or eliminate erosion in the spring. The grass on this slope is holding the soil in place and promoting infiltration of the melting snow.

stabilize the site for the winter period. This includes use of Erosion Control Matting or netting of a heavy mulch layer. Seeding with winter rye is recommended to allow for early germination during wet spring conditions.

3. Where mulch is specified, apply roughly 2 inches with an 80-90% cover. Mulch should be tracked in or stabilized with netting in open areas vulnerable to wind.

Requirements for Winter Construction

If construction activities involving earth disturbance continue past October 15 or begin before April 15, the following requirements must be adhered to:

1. Enlarged access points, stabilized to provide for snow stockpiling.
2. Limits of disturbance moved or replaced to reflect boundary of winter work.
3. A snow management plan prepared with adequate storage and control of meltwater, requiring cleared snow to be stored down slope of all areas of disturbance and out of stormwater treatment structures.
4. A minimum 25 foot buffer shall be maintained from perimeter controls such as silt fence.
5. In areas of disturbance that drain to a water body within 100 feet, two rows of silt fence must be installed along the contour.
6. Drainage structures must be kept open and free of snow and ice dams.

7. Silt fence and other practices requiring earth disturbance must be installed ahead of frozen ground.
8. Mulch used for temporary stabilization must be applied at double the standard rate, or a minimum of 3 inches with an 80-90% cover.
9. To ensure cover of disturbed soil in advance of a melt event, areas of disturbed soil must be stabilized at the end of each work day, with the following exceptions:
   - If no precipitation within 24 hours is forecast and work will resume in the same disturbed area within 24 hours, daily stabilization is not necessary.
   - Disturbed areas that collect and retain runoff, such as house foundations or open utility trenches.
10. Prior to stabilization, snow or ice must be removed to less than 1 inch thickness.
11. Use stone to stabilize areas such as the perimeter of buildings under construction or where construction vehicle traffic is anticipated. Stone paths should be 10--20 feet wide to accommodate vehicular traffic.

7. Silt fence and other practices requiring earth disturbance must be installed ahead of frozen ground.
8. Mulch used for temporary stabilization must be applied at double the standard rate, or a minimum of 3 inches with an 80-90% cover.
9. To ensure cover of disturbed soil in advance of a melt event, areas of disturbed soil must be stabilized at the end of each work day, with the following exceptions:
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   - Disturbed areas that collect and retain runoff, such as house foundations or open utility trenches.
10. Prior to stabilization, snow or ice must be removed to less than 1 inch thickness.
11. Use stone to stabilize areas such as the perimeter of buildings under construction or where construction vehicle traffic is anticipated. Stone paths should be 10--20 feet wide to accommodate vehicular traffic.

How to comply:

Bring the site or sections of the site to final grade as soon as possible after construction is completed. This will reduce the need for additional sediment and erosion control measures and will reduce the total disturbed area.

For seeding and mulching rates, follow the specifications under Rule 8, "Stabilizing Exposed Soil".

Within 48 hours of final grading, erosion control matting and mulch have been applied.

11. Dewatering Activities

Purpose:

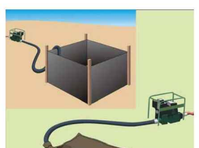
Treat water pumped from dewatering activities so that it is clear when leaving the construction site.

Requirements:

Water from dewatering activities that flows off of the construction site must be clear. Water must not be pumped into storm sewers, lakes, or wetlands unless the water is clear.

How to comply:

Using sock filters or sediment filter bags on dewatering discharge hoses or pipes, discharge water into silt fence enclosures installed in vegetated areas away from waterways. Remove accumulated sediment after the water has dispersed and stabilize the area with seed and mulch.



Water is pumped from the construction site into a silt fence enclosure on a vegetated area or into a sock filter away from waterways.

12. Inspect Your Site

Purpose:

Perform site inspections to ensure that all sediment and erosion control practices are functioning properly. Regular inspections and maintenance of practices will help to reduce costs and protect water quality.

Requirements:

Inspect the site at least once every 7 days and after every rainfall or snowmelt that results in a discharge from the site. Perform maintenance to ensure that practices are functioning according to the specifications outlined in this handbook.

In the event of a noticeable sediment discharge from the construction site, you must take immediate action to inspect and maintain existing erosion prevention and sediment control practices. Any visibly discolored stormwater runoff to waters of the State must be reported.

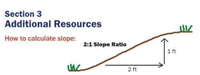
Forms for reporting discharges are available at: dec.vermont.gov/watershed/stormwater

Example Site Inspection Form	Y	N
1. Boundary Limits		
• Site boundary markers are up and visible		
• Disturbance is only occurring within marked boundaries		
2. Limit Disturbance Area		
• Only the acreage listed on the Authorization to Discharge is disturbed at one time		
3. Construction Entrance		
• Off-site tracking of mud prevented		

Example Site Inspection Form	Y	N
4. Sediment Barriers		
• Silt fence is trenched into ground with no gaps		
• Accumulated sediment is less than ½ way up the fence		
5. Diversion Berms		
• All upland stormwater is diverted around the site		
6. Check Dams		
• Check dams are in place and stretch the width of the channel		
• Channels are stable with no erosion		
8. Stabilize Exposed Soil		
• Seed and mulch, and/or erosion control blankets are being used in accordance with the permit requirements		
9. Winter Stabilization		
• After September 15, all disturbed areas have been seeded and mulched to 3 inches deep, or covered in erosion control blankets.		
• For ongoing construction, exposed soil is mulched prior to forecasted rain events.		
10. Stabilize Soil at Final Grade		
• Within 48 hours of establishing final grade, soil is seeded and mulched or covered in erosion control matting		
Water flowing off the site		
• Water is free of sediment (water is clear)		

Section 3
Additional Resources

How to calculate slope:



Approximate Slope Conversions			
Steepness	**Percent**	**Slope ratio (ft/ft)**	**Degrees**
Very steep	100%	1:1	45°
	50%	2:1	27°
Moderate	33%	3:1	18°
	25%	4:1	14°
	10%	10:1	6°
Slight	5%	20:1	3°

How to estimate disturbance area:

1 acre = 43,560 square feet = 4,840 square yards

Area in acres (width in feet x length in feet)						
↓ w / l →	100	150	200	300	400	500
100	0.2	0.3	0.5	0.7	0.9	1.1
150	0.3	0.5	0.7	1.0	1.4	1.7
200	0.5	0.7	0.9	1.4	1.8	2.3
300	0.7	1.0	1.4	2.1	2.8	3.4
400	0.9	1.4	1.8	2.8	3.7	4.6
500	1.1	1.7	2.3	3.4	4.6	5.7

Acknowledgements

Design details and standards for sediment and erosion control practices have been adapted from the New York State Standards and Specifications for Erosion and Sediment Control. August 2005.

Photographs and illustrations provided by Tetra Tech, Kim Greenwood, Don Lake, Jim Pease, and Hydrograss Technologies.

This document has been adapted from the *Kentucky Erosion Prevention and Sediment Control Field Guide* produced by the Tetra Tech Water Resources Division in Fairfax VA for the Kentucky Division of Conservation and Division of Water. Inquiries regarding this publication should be directed to Barry Tenning, Tetra Tech, 1060 Eaton Place, Suite 340, Fairfax VA 22030 (703.385.6000).

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Vermont Department of Environmental Conservation
Watershed Management Division
One National Life Drive – Main Building - 2nd Floor
Montpelier, VT 05620-3522
Tel: 802-828-1535
Fax: 802-828-1544
dec.vermont.gov/watershed/stormwater

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vhb
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Building 100 Suite 200
South Burlington, VT 05403
802.497.6100

City of Burlington, VT
Manhattan Drive Stormwater Outfall Improvements

Manhatton Drive
Burlington, Vermont

No.	Revision	Date	Appvd.

Designed by CHS
Checked by NCH
Issued for 100% Design Submittal
Date Jun. 17, 2019

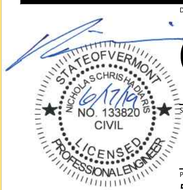
Not Approved for Construction

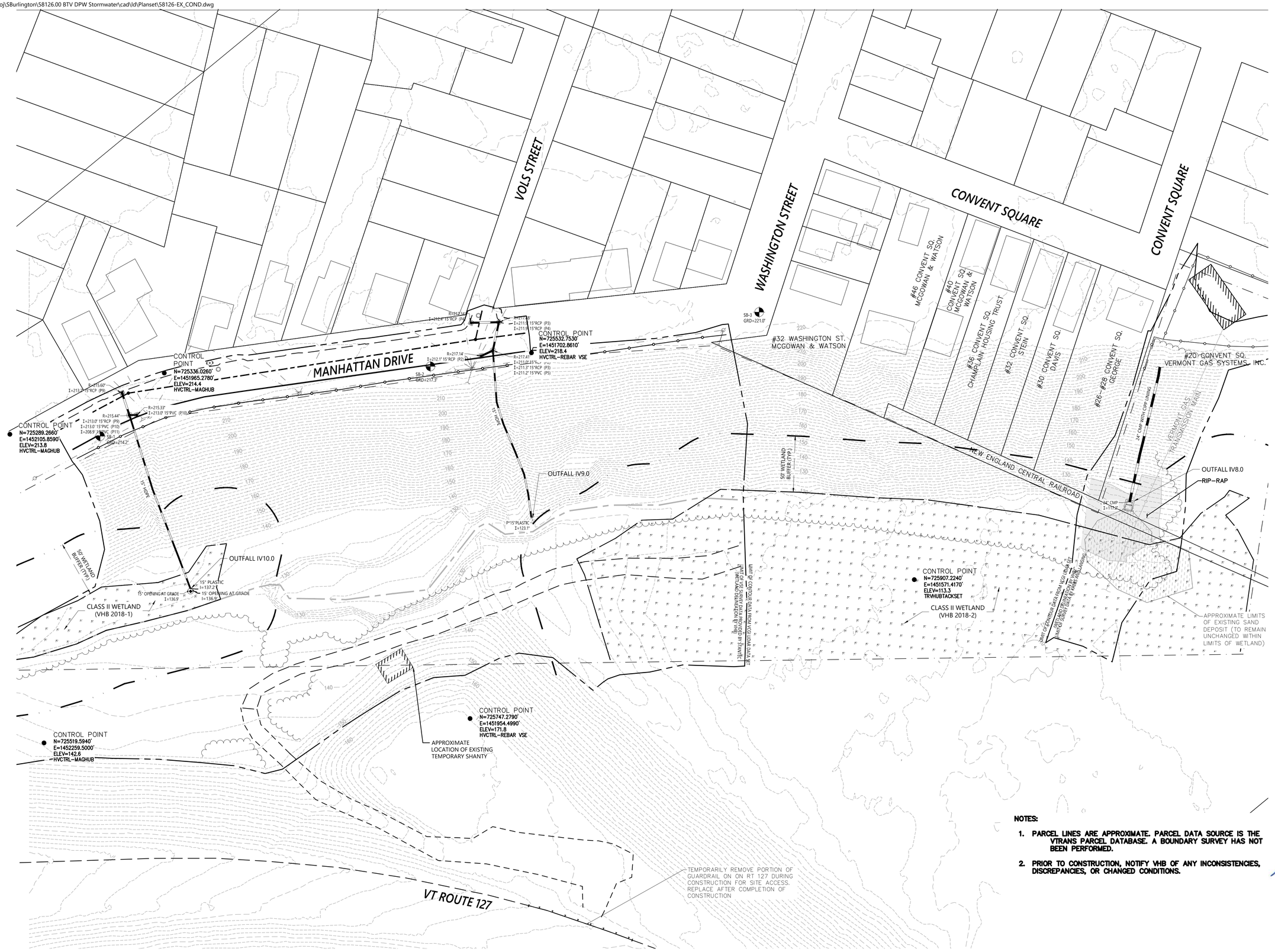
Drawing Title
Low Risk Site Handbook

Drawing Number
C-0.02

Sheet 2 of 18

Project Number
58126.01





NOTES:

1. **PARCEL LINES ARE APPROXIMATE. PARCEL DATA SOURCE IS THE VTRANS PARCEL DATABASE. A BOUNDARY SURVEY HAS NOT BEEN PERFORMED.**
2. **PRIOR TO CONSTRUCTION, NOTIFY VHB OF ANY INCONSISTENCIES, DISCREPANCIES, OR CHANGED CONDITIONS.**

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0 20 40 80 Feet

City of Burlington, VT
Manhattan Drive Stormwater Outfall Improvements

Manhatton Drive
Burlington, Vermont

No.	Revision	Date	Appvd.
1	100% Plan Set	6/12/2019	NCH

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Issued for **100% Design Submittal** | Date **Jun. 17, 2019**

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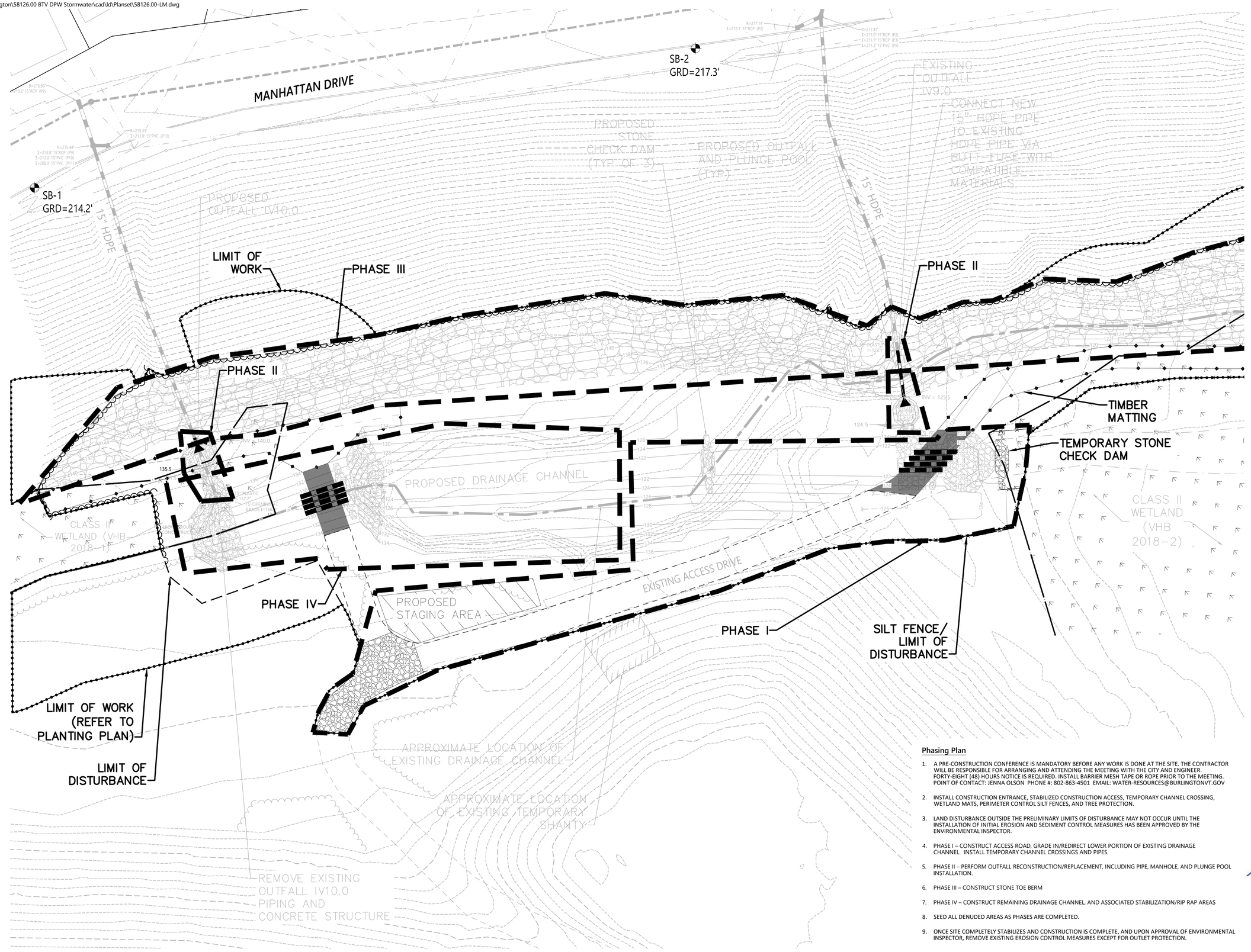
Drawing Title
Existing Conditions Plan

Drawing Number
SV-1

Sheet 3 of 18

Project Number 58126.01



Phasing Plan

1. A PRE-CONSTRUCTION CONFERENCE IS MANDATORY BEFORE ANY WORK IS DONE AT THE SITE. THE CONTRACTOR WILL BE RESPONSIBLE FOR ARRANGING AND ATTENDING THE MEETING WITH THE CITY AND ENGINEER. FORTY-EIGHT (48) HOURS NOTICE IS REQUIRED. INSTALL BARRIER MESH TAPE OR ROPE PRIOR TO THE MEETING. POINT OF CONTACT: JENNA OLSON PHONE #: 802-863-4501 EMAIL: WATER-RESOURCES@BURLINGTONVT.GOV
2. INSTALL CONSTRUCTION ENTRANCE, STABILIZED CONSTRUCTION ACCESS, TEMPORARY CHANNEL CROSSING, WETLAND MATS, PERIMETER CONTROL SILT FENCES, AND TREE PROTECTION.
3. LAND DISTURBANCE OUTSIDE THE PRELIMINARY LIMITS OF DISTURBANCE MAY NOT OCCUR UNTIL THE INSTALLATION OF INITIAL EROSION AND SEDIMENT CONTROL MEASURES HAS BEEN APPROVED BY THE ENVIRONMENTAL INSPECTOR.
4. PHASE I – CONSTRUCT ACCESS ROAD, GRADE IN/REDIRECT LOWER PORTION OF EXISTING DRAINAGE CHANNEL. INSTALL TEMPORARY CHANNEL CROSSINGS AND PIPES.
5. PHASE II – PERFORM OUTFALL RECONSTRUCTION/REPLACEMENT, INCLUDING PIPE, MANHOLE, AND PLUNGE POOL INSTALLATION.
6. PHASE III – CONSTRUCT STONE TOE BERM
7. PHASE IV – CONSTRUCT REMAINING DRAINAGE CHANNEL, AND ASSOCIATED STABILIZATION/RIP RAP AREAS
8. SEED ALL DENUDED AREAS AS PHASES ARE COMPLETED.
9. ONCE SITE COMPLETELY STABILIZES AND CONSTRUCTION IS COMPLETE, AND UPON APPROVAL OF ENVIRONMENTAL INSPECTOR, REMOVE EXISTING EROSION CONTROL MEASURES EXCEPT FOR OUTLET PROTECTION.

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City of Burlington, VT
Manhattan Drive Stormwater Outfall Improvements

Manhatton Drive
Burlington, Vermont

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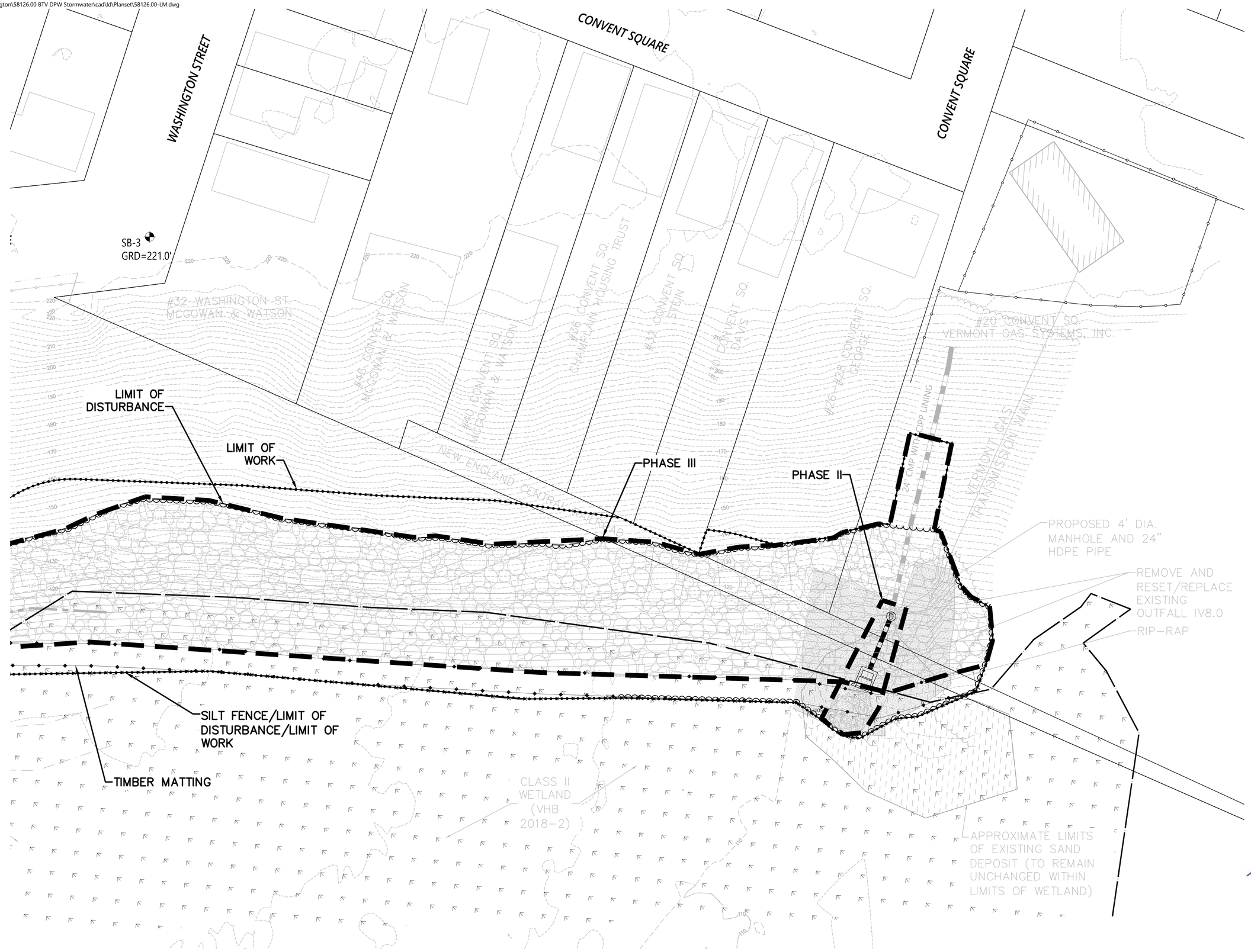
Drawing Title
Phasing Plan (1 of 2)

Drawing Number
C-1.01

Sheet 4 of 18

Project Number
58126.01

STATE OF VERMONT NICHOLAS CHRISTIAN HALE NO. 133820 CIVIL LICENSED PROFESSIONAL ENGINEER



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City of Burlington, VT
Manhattan Drive Stormwater Outfall Improvements

Manhatton Drive
Burlington, Vermont

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Drawing Title: Phasing Plan (2 of 2)

Drawing Number: C-1.02

Sheet 5 of 18

Project Number: 58126.01

STATE OF VERMONT
NICHOLAS C. HRISTAKOS
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CIVIL
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South Burlington, VT 05403
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City of Burlington, VT
Manhattan Drive Stormwater Outfall Improvements

Manhatton Drive
Burlington, Vermont

No.	Revision	Date	Appvd.

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Drawing Title
Toe-Berm Section Plan

Drawing Number
C-2.00

Sheet 6 of 18

Project Number
58126.01

STATE OF VERMONT
NICHOLAS CHRISTIAN HALE-SILLS
NO. 133820
CIVIL
LICENSED PROFESSIONAL ENGINEER

MANHATTAN DRIVE

SB-1
GRD=214.2'

SB-2
GRD=217.3'

PROPOSED OUTFALL IV10.0

15" HDPE

50' WETLAND BUFFER (TYP.)

PROPOSED STONE CHECK DAM (TYP OF 3)

PROPOSED OUTFALL AND PLUNGE POOL (TYP)

EXISTING OUTFALL IV9.0

CONNECT NEW 15" HDPE PIPE TO EXISTING HDPE PIPE VIA BUTT-FUSE WITH COMPATIBLE MATERIALS

PROPOSED DRAINAGE CHANNEL

CLASS II WETLAND (VHB 2018-1)

CLASS II WETLAND (VHB 2018-2)

E-STONE, TYPE I (TYP.)

PROPOSED STAGING AREA

EXISTING ACCESS DRIVE

PROPOSED GRAVEL TEMPORARY ACCESS DRIVE

APPROXIMATE LOCATION OF EXISTING DRAINAGE CHANNEL

APPROXIMATE LOCATION OF EXISTING TEMPORARY SHANTY

LIMIT OF DISTURBANCE

REMOVE EXISTING OUTFALL IV10.0 PIPING AND CONCRETE STRUCTURE

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0 10 20 40 Feet

City of Burlington, VT
Manhattan Drive Stormwater Outfall Improvements

Manhatton Drive
Burlington, Vermont

No.	Revision	Date	Appvd.

Designed by CHS | Checked by NCH

Issued for: 100% Design Submittal — Date: Jun. 17, 2019

Not Approved for Construction

Drawing Title: Grading and Drainage Plan (1 of 2)

Drawing Number: C-2.01

STATE OF VERMONT
NICHOLAS CHRISTIAN HALE-SILLS
NO. 133820
CIVIL
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Sheet 7 of 18

Project Number: 58126.01

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WASHINGTON STREET

CONVENT SQUARE

CONVENT SQUARE

SB-3
GRD=221.0'

#32 WASHINGTON ST.
MCGOWAN & WATSON

#46 CONVENT SQ.
MCGOWAN & WATSON

#40 CONVENT SQ.
MCGOWAN & WATSON

#36 CONVENT SQ.
CHAMPLAIN HOUSING TRUST

#32 CONVENT SQ.
STEIN

#30 CONVENT SQ.
DAVIS

#26-#28 CONVENT SQ.
GEORGE

#20 CONVENT SQ.
VERMONT GAS SYSTEMS, INC.

50' WETLAND BUFFER (TYP.)

NEW ENGLAND CENTRAL RAILROAD

24" CMP WITH CIPP LINING

VERMONT GAS TRANSMISSION MAIN

PROPOSED 4' DIA. MANHOLE AND 24" ADS SANITITE HP OF APPROVED EQUAL PIPE

INV = 117.2

REMOVE AND RESET/REPLACE EXISTING OUTFALL IV8.0

INV = 112.0

RIP-RAP

LIMIT OF DISTURBANCE

CLASS II WETLAND (VHB 2018-2)

APPROXIMATE LIMITS OF EXISTING SAND DEPOSIT (TO REMAIN UNCHANGED WITHIN LIMITS OF WETLAND)

0 10 20 40 Feet

City of Burlington, VT
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Drawing Title
Grading and Drainage Plan (2 of 2)

Drawing Number
C-2.02

STATE OF VERMONT
NICHOLAS C. HIRSCHMAN
NO. 133820
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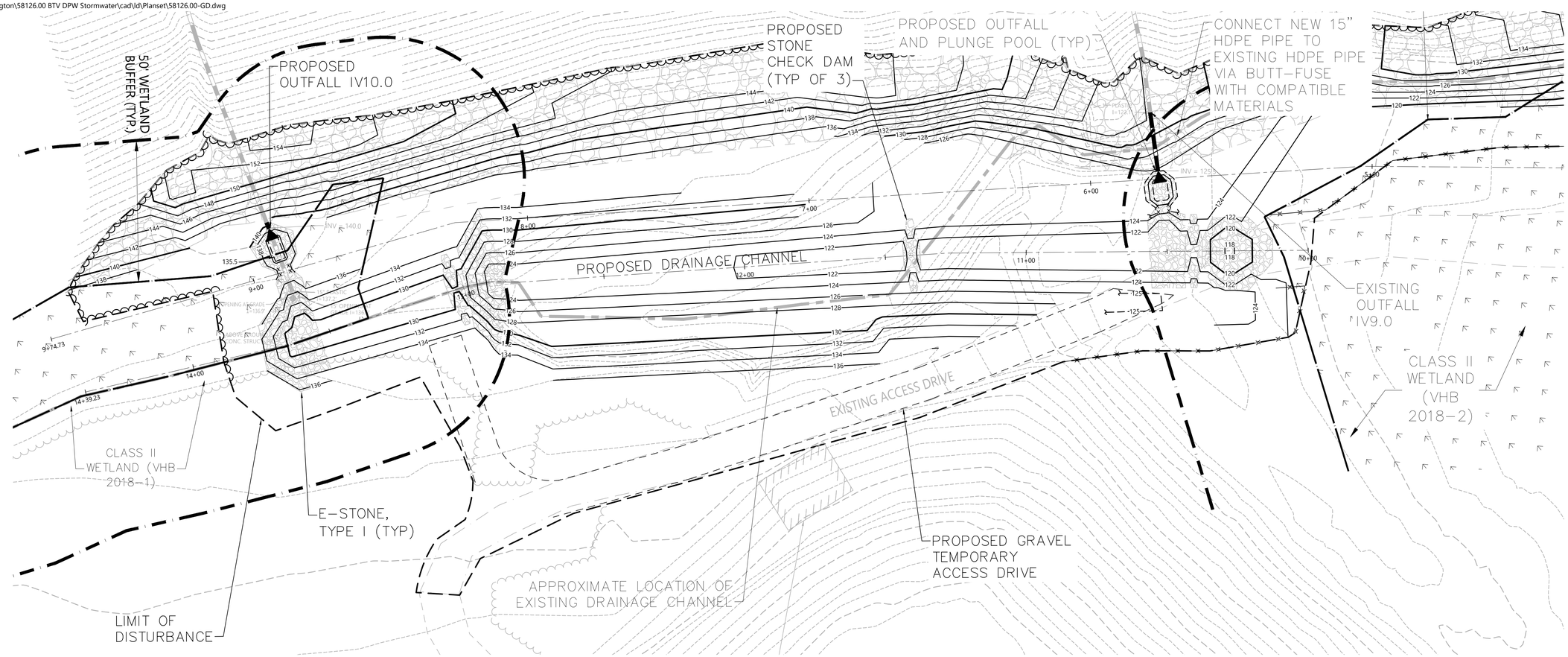
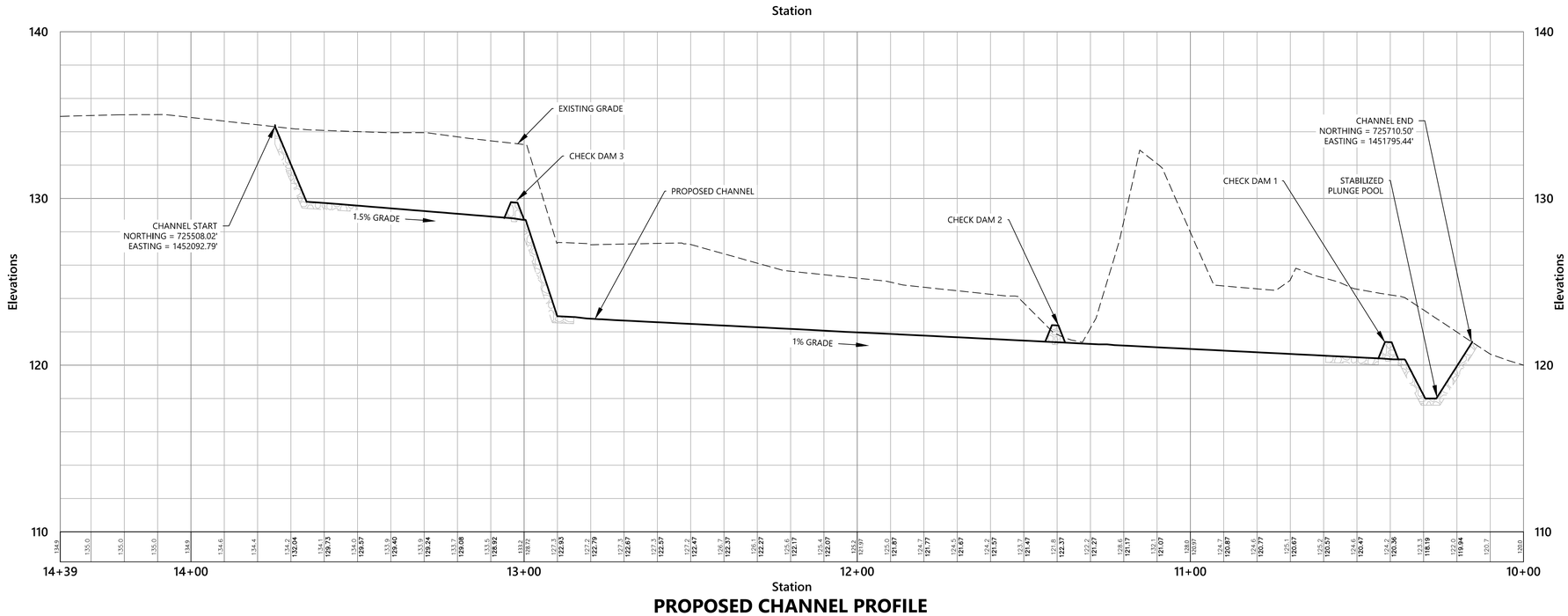
Sheet 8 of 18

Project Number
58126.01





PROPOSED CHANNEL PROFILE

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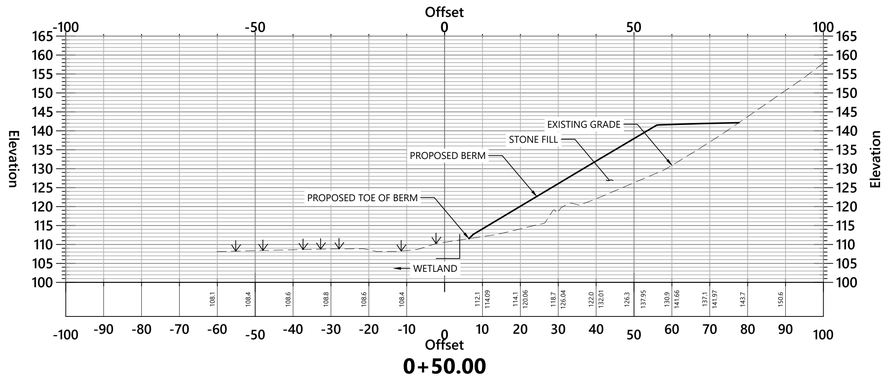
Drawing Title: Channel Profile

Drawing Number: C-2.03

Sheet 9 of 18

Project Number: 58126.01



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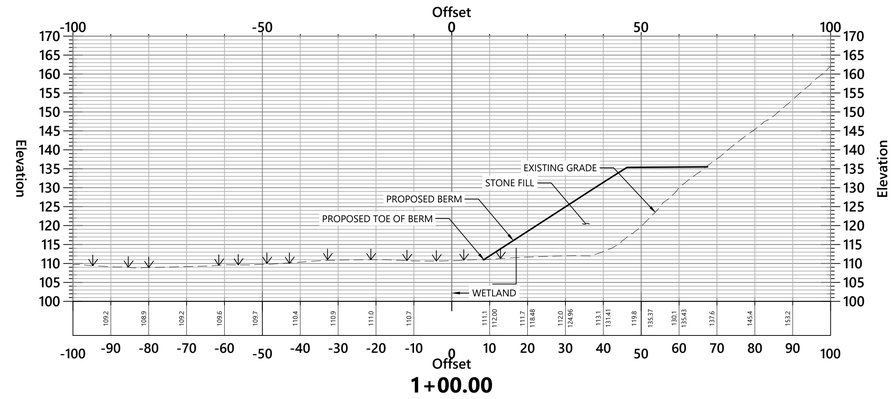

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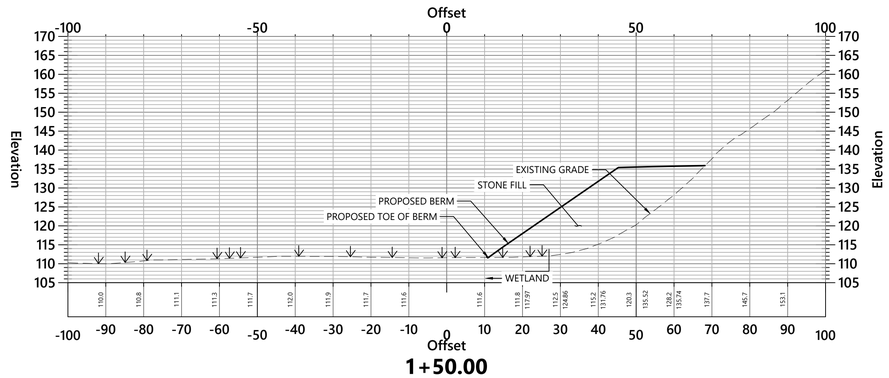

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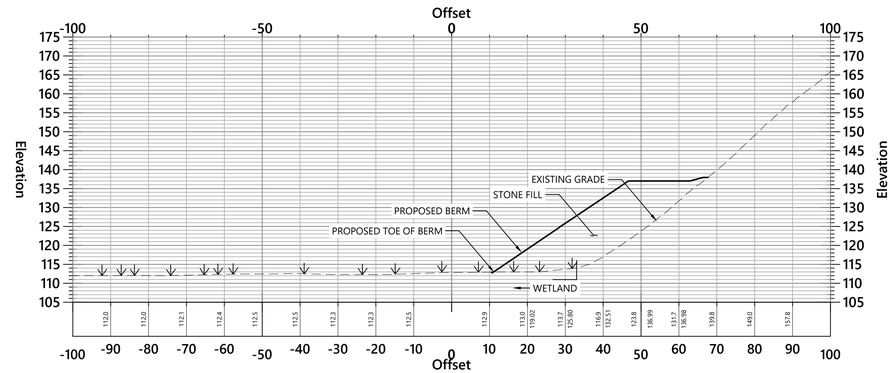

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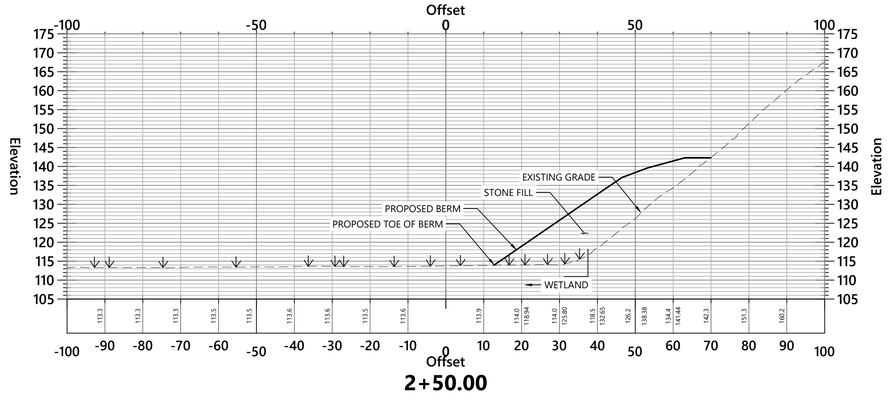

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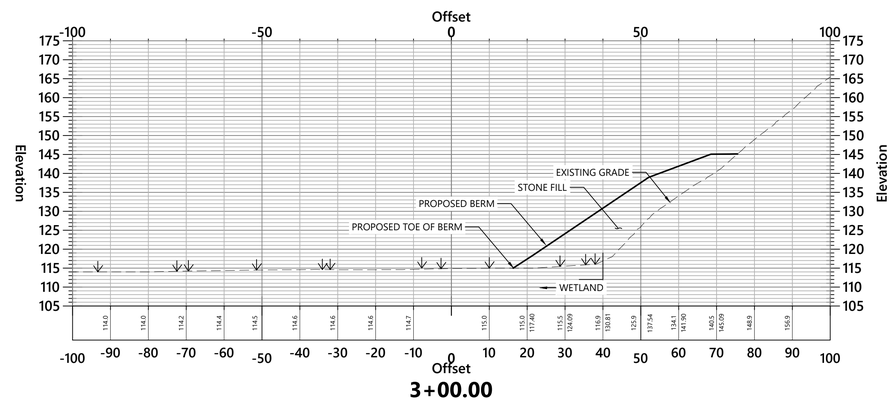

3+00.00

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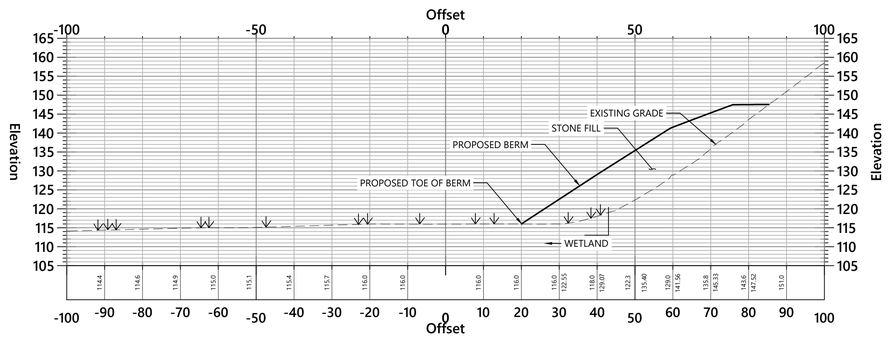
Drawing Title
Proposed Grading Cross Sections 1

Drawing Number
C-2.04

STATE OF VERMONT NICHOLAS CHRISTIAN HALE SILLS NO. 133820 CIVIL LICENSED PROFESSIONAL ENGINEER

Sheet 10 of 18

Project Number
58126.01



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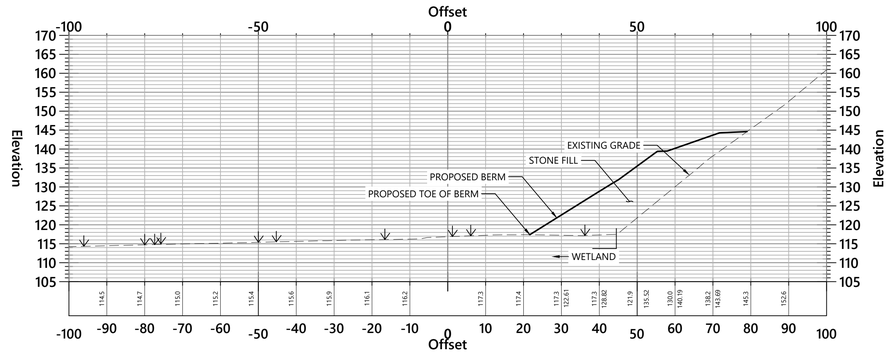

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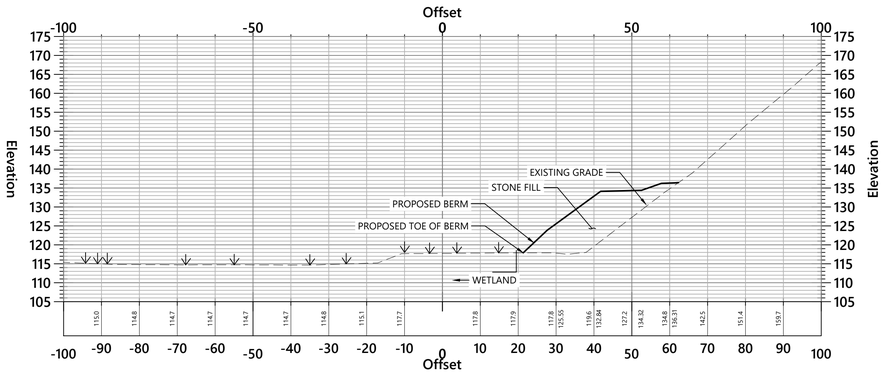

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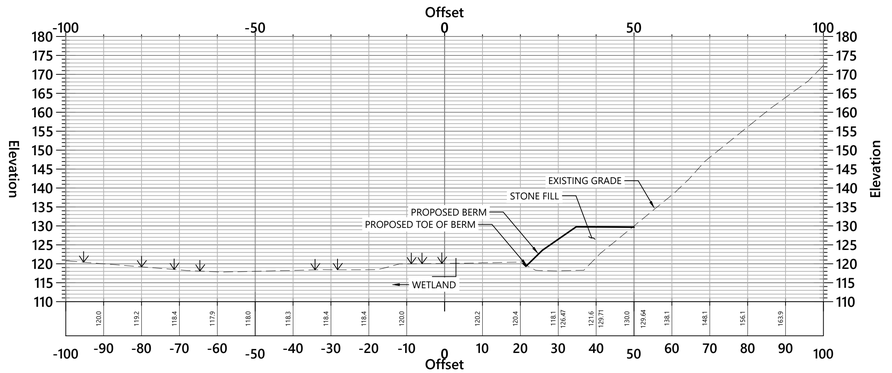

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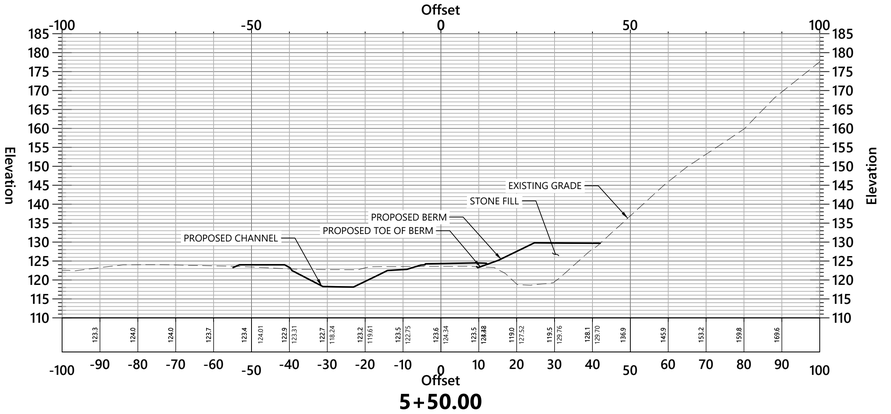

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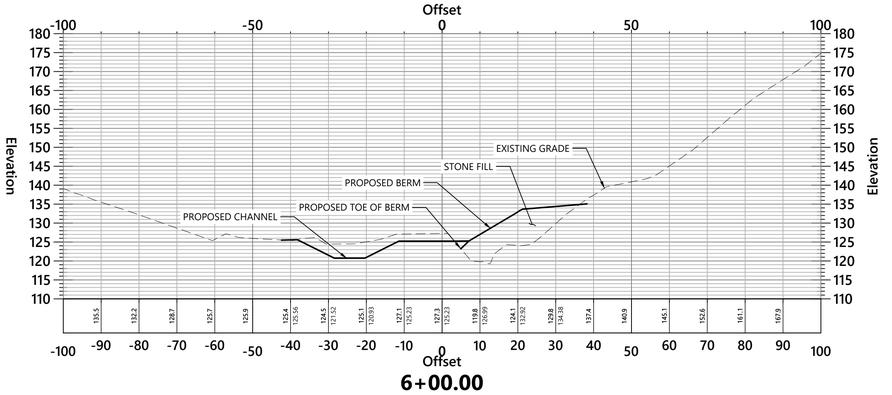

6+00.00

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Drawing Title
Proposed Grading Cross Sections 2

Drawing Number
C-2.05

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NO. 133820
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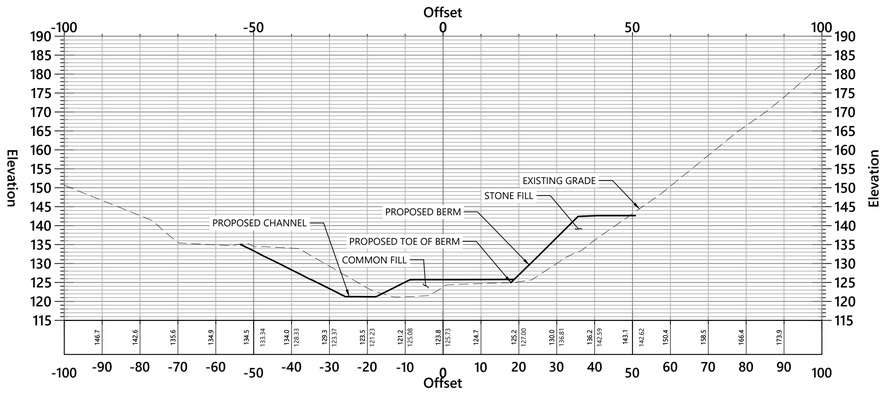
Sheet 11 of 18

Project Number
58126.01



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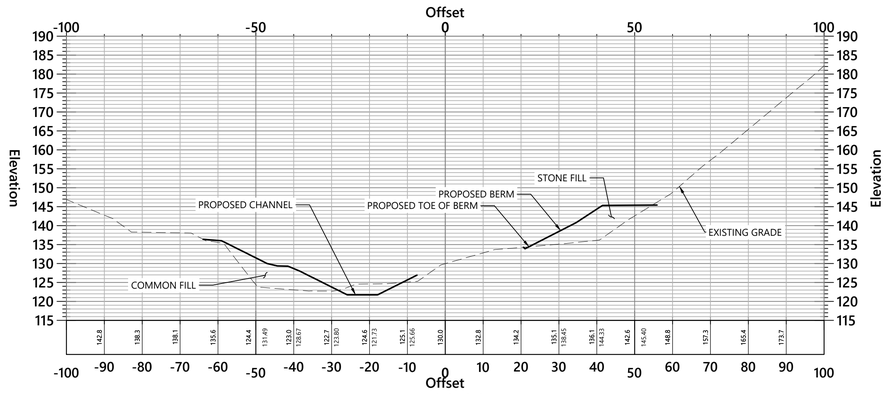

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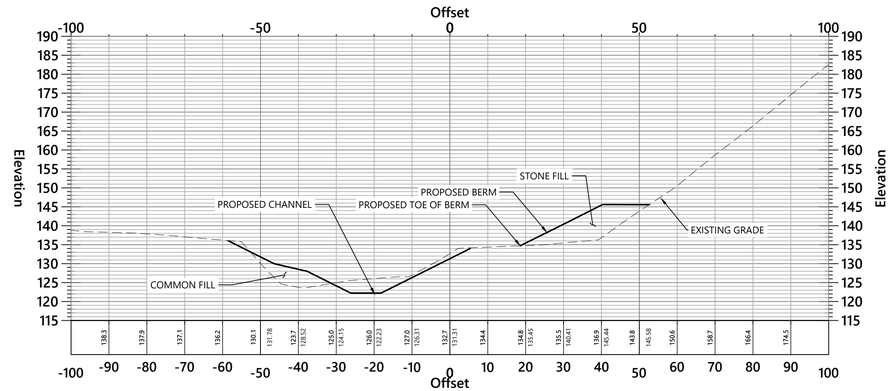

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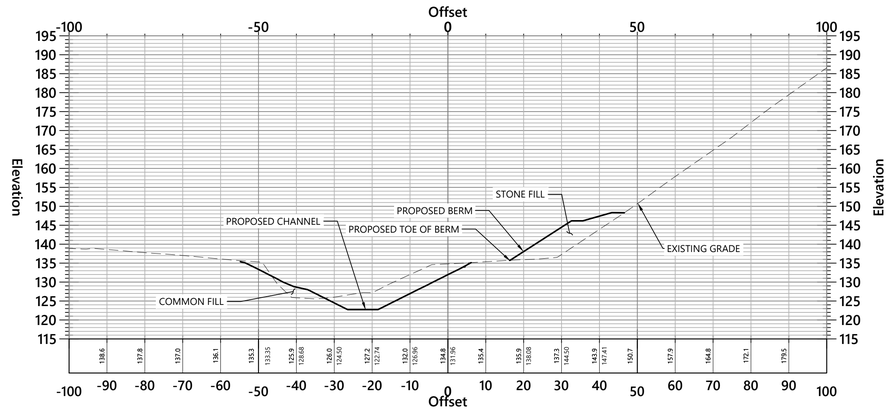

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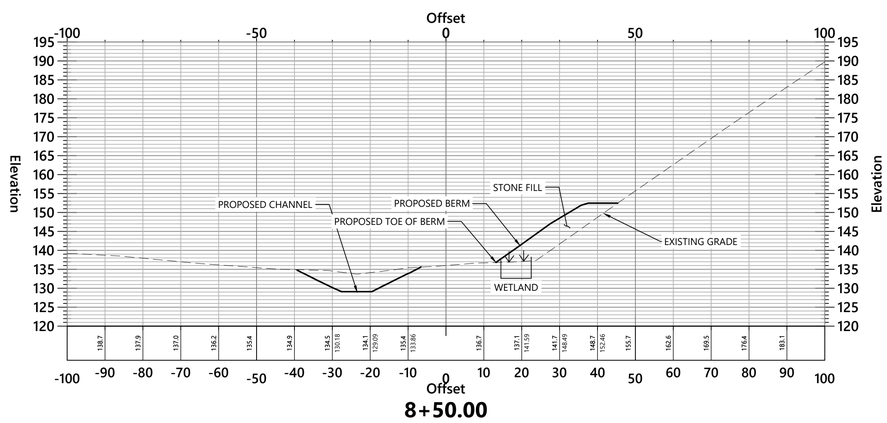

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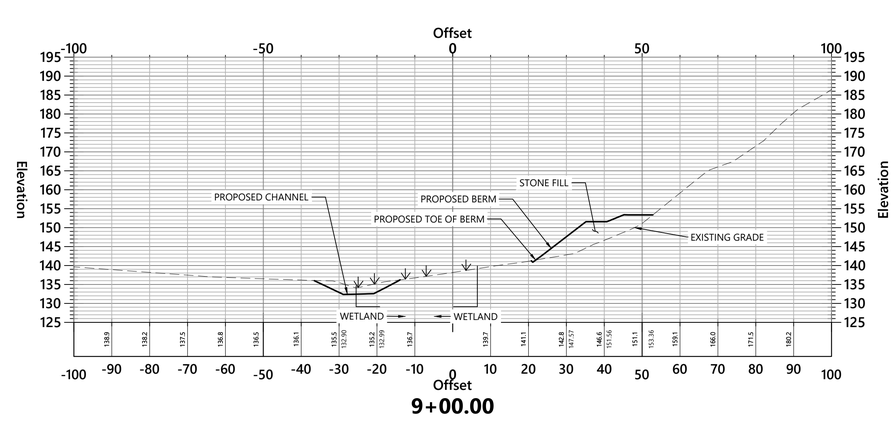

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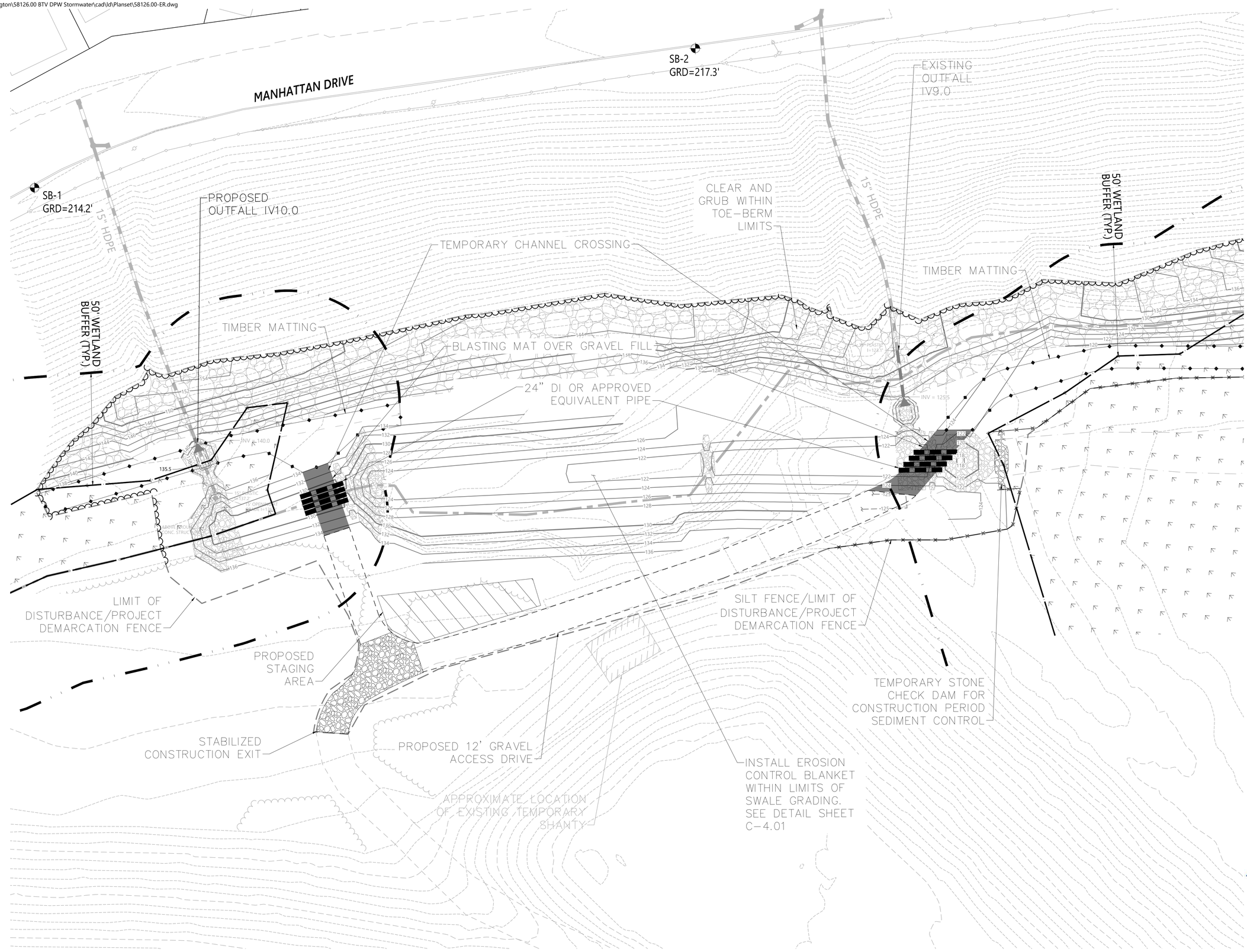
Drawing Title
Proposed Grading Cross Sections 3

Drawing Number
C-2.06

Sheet 12 of 18

Project Number
58126.01



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0 10 20 40 Feet

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Drawing Title
Erosion and Sediment Control Plan (1 of 2)

Drawing Number
C-3.01

STATE OF VERMONT
NICHOLAS CHRISHAM
NO. 133820
CIVIL
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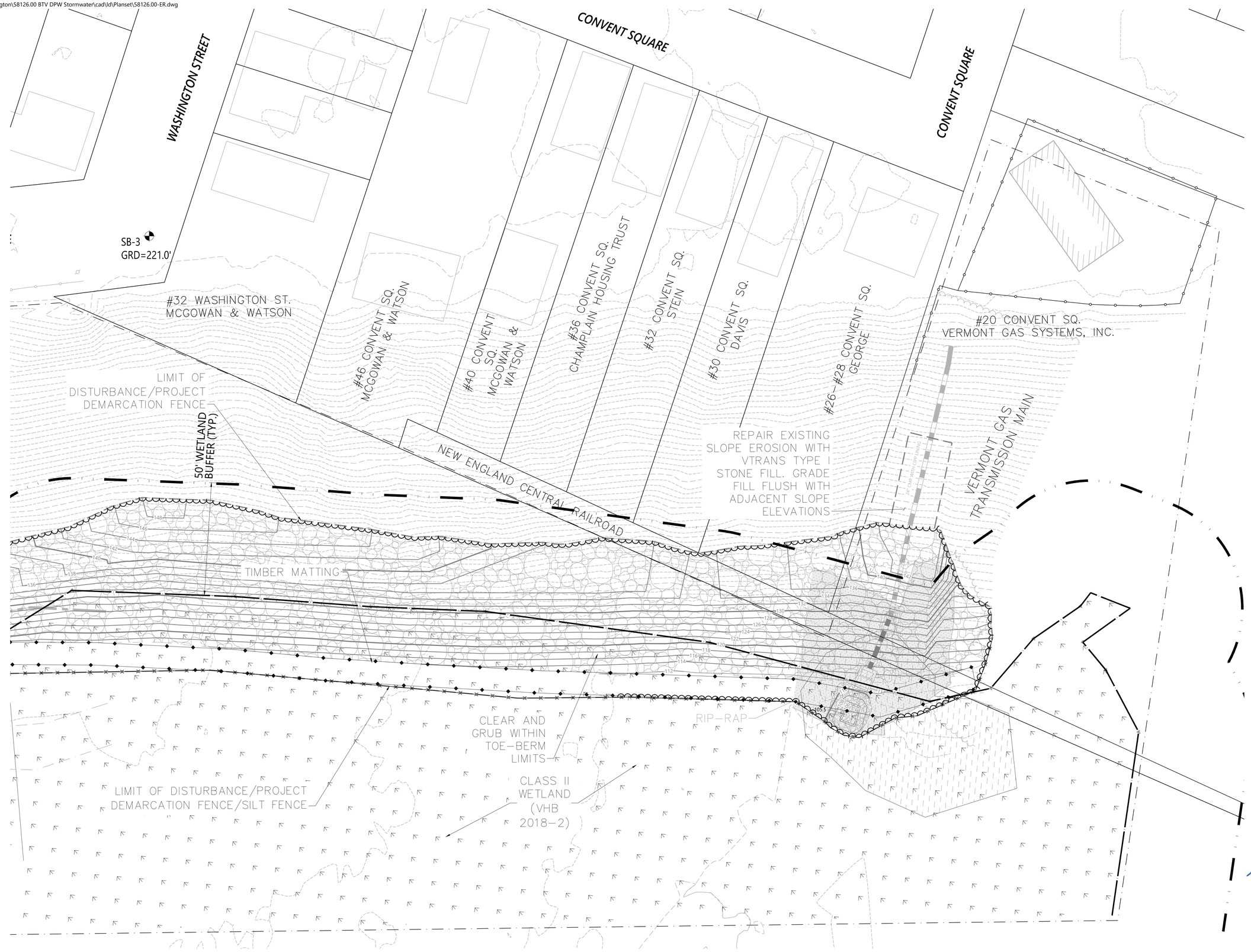
Sheet 13 of 18

Project Number
58126.01



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0 10 20 40 Feet

City of Burlington, VT
Manhattan Drive Stormwater Outfall Improvements

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Burlington, Vermont

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Drawing Title
Erosion and Sediment Control Plan (2 of 2)

Drawing Number
C-3.02

STATE OF VERMONT
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LICENSED PROFESSIONAL ENGINEER

Sheet 14 of 18

Project Number
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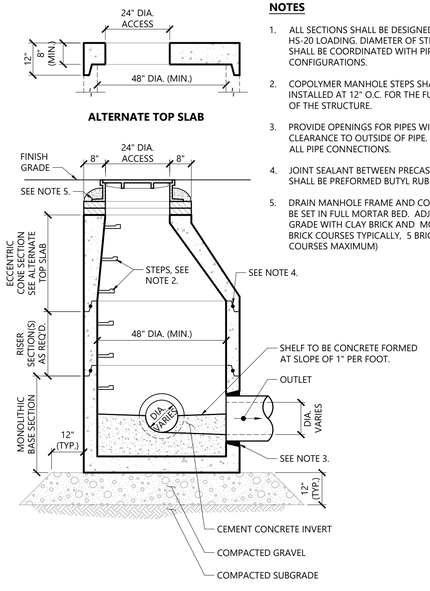


NOTES

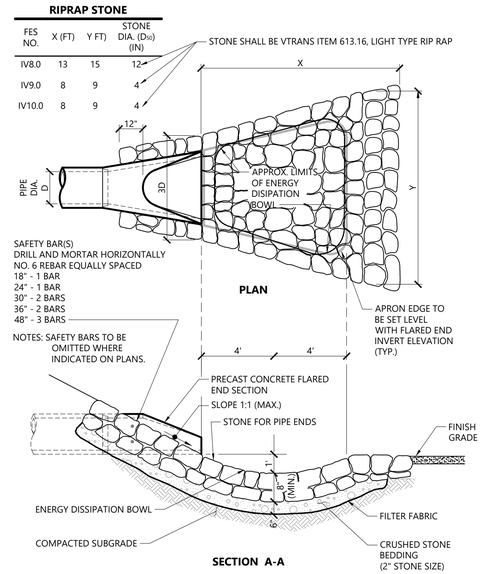
1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING. DIAMETER OF STRUCTURES SHALL BE COORDINATED WITH PIPE CONFIGURATIONS.
2. COPOLYMER MANHOLE STEPS SHALL BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE.
3. PROVIDE OPENINGS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
4. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
5. DRAIN MANHOLE FRAME AND COVER SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM)

Drain Manhole (DMH) 1/16

N.T.S. Source: VHB LD_115

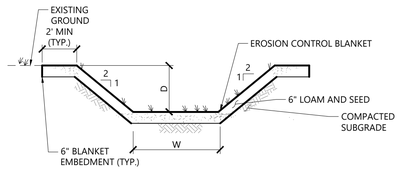
RIPRAP STONE

FES NO.	X (FT)	Y FT)	STONE DIA. (D_{50}) (IN)
IV8.0	13	15	12
IV9.0	8	9	4
IV10.0	8	9	4



Flared End Section (FES) with Stone Protection 3/19

N.T.S. Source: VHB REV LD_134

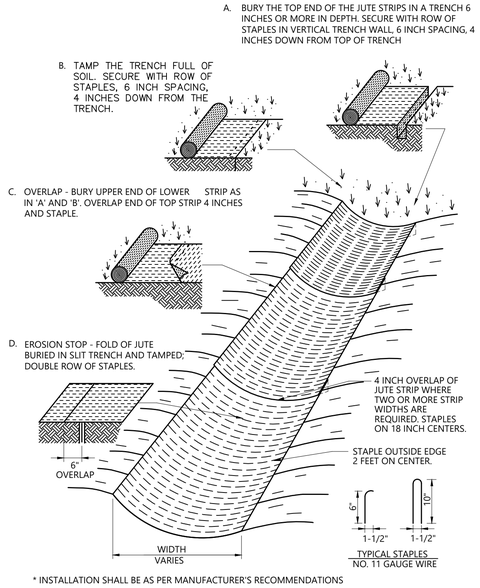


SWALE TABLE

SWALE DESIGNATION	W (FT)	D (FT)
MIN X-SECT.	8	4.5

Grassed Swale 1/16

N.T.S. Source: VHB REV LD_171



* INSTALLATION SHALL BE AS PER MANUFACTURER'S RECOMMENDATIONS

Erosion Control Blanket Swale Installation 08/16

N.T.S. Source: VHB LD_681-VT

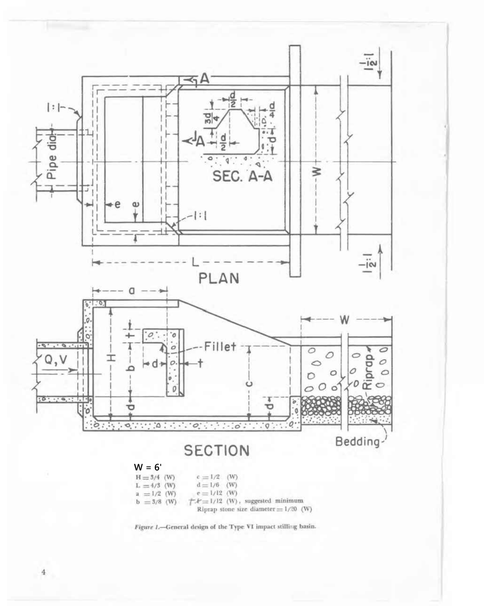
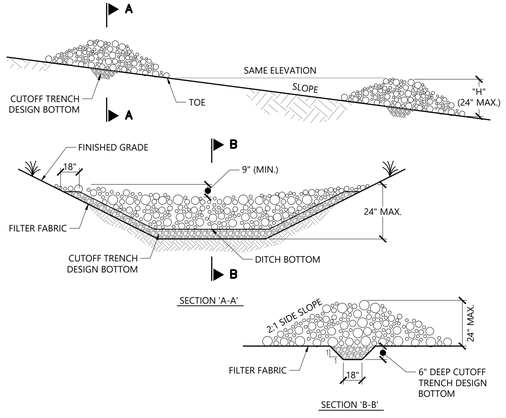


Figure 1.—General design of the Type VI impact stilling basin.

4

USBR Type IX Energy Dissipator 04/19

N.T.S. Source: USDOI LD_



NOTES

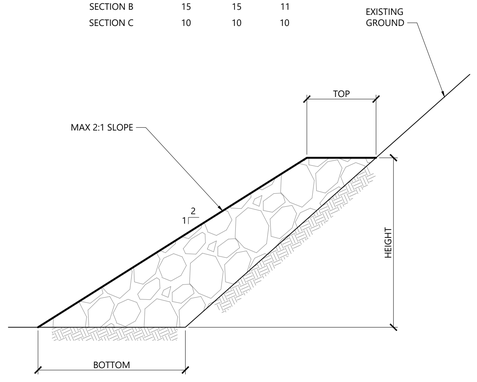
1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES, GRADES AND LOCATIONS SHOWN IN THE PLAN USING A WELL GRADED STONE MATRIX 2 TO 9 INCHES IN SIZE.
2. SET SPACING OF CHECK DAMS AS INDICATED ON PLANS.
3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.

Stone Check Dam 08/16

N.T.S. Source: VHB LD_VT

BERM TABLE

BERM DESIGNATION	TOP (FT)	BOTTOM (FT)	HEIGHT (FT)
SECTION A	16	21	24
MODIFIED SECTION A	21	24	18
SECTION B	15	15	11
SECTION C	10	10	10

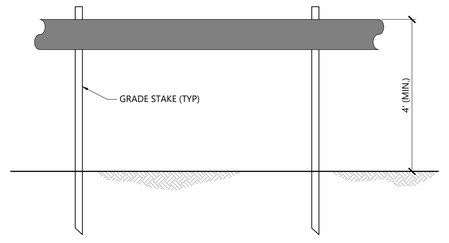


NOTES

1. STONE FILL SHALL BE VTRANS ITEM 613.11, STONE FILL, TYPE II

Stone Toe-Berm 4/19

N.T.S. Source: VHB REV LD



NOTES

1. BARRIER MESH TAPE OR ROPE SHALL BE INSTALLED ALONG THE PERIMETER OF THE PROJECT AREA TO DEMARCATE THE LIMIT OF DISTURBANCE. NO EARTHWORK OR STORAGE OF MATERIALS SHALL BE CONDUCTED BEYOND THIS LIMIT WITHOUT PRIOR APPROVAL FROM THE OSPC.
2. USE 3" ORANGE BARRIER MESH TAPE OR 1/2" YELLOW POLYPROPYLENE ROPE.
3. WITHIN 50' OF WATER RESOURCE AREAS, USE 2-3 ROWS OF TAPE OR ROPE. BEYOND 50' OF WATER RESOURCE AREAS USE 1 ROW OF TAPE OR ROPE.
4. TAPE OR ROPE MAY BE FASTENED TO STAKES, TREES, OR OTHER APPROPRIATE FIXED OBJECTS.
5. PROJECT DEMARCATION SHALL NOT CROSS ACTIVE ACCESS ROUTES (E.G. ROADS). PROJECT DEMARCATION MAY CROSS RESOURCES AREAS WITH EXCEPTION OF LARGER WATER BODIES WHERE IT IS NOT FEASIBLE OR ADVISABLE.
6. PROJECT DEMARCATION SHALL REMAIN IN PLACE AND BE MAINTAINED/REPLACED AS NEEDED UNTIL FINAL STABILIZATION IN THE AREA HAS BEEN ACHIEVED.

Barrier Mesh Tape or Rope 08/16

N.T.S. Source: VHB REV LD_VT

City of Burlington, VT Manhattan Drive Stormwater Outfall Improvements

Manhatton Drive
Burlington, Vermont

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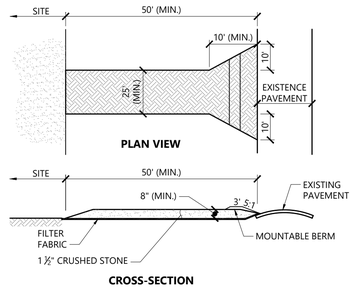
Drawing Title: Site Details 1

Drawing Number: C-4.01

Sheet 15 of 18

Project Number: 58126.01

STATE OF VERMONT NICOLE C. SCHRIBMAN 6/17/2019 NO. 133820 CIVIL LICENSED PROFESSIONAL ENGINEER



NOTES

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

Stabilized Construction Exit

1/16

N.T.S. Source: VHB LD_682-VT

PERMANENT SEEDING

1. SEE SEEDDING SPECIFICATIONS FOR RECOMMENDED SEED MIXES. USE RIPARIAN AND WETLAND SEEDING MIX WITHIN 50 FEET OF STREAM CROSSINGS AND IN DISTURBED WETLAND AREAS. USE UPLAND NATURAL COMMUNITY MIX WITHIN AREAS IDENTIFIED AS SIGNIFICANT NATURAL COMMUNITIES. USE PERMANENT SEEDING MIX FOR ALL OTHER DISTURBED,UPLAND AREAS. SEE VERMONT STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION AND SEDIMENT CONTROL FOR ADDITIONAL SEED MIXTURES.
2. AREA TO BE SEEDED MUST BE ROUGH GRADED AND SLOPES PHYSICALLY STABLE; CHISELING OR DISKING MAY BE NEEDED IF SOIL IS COMPACTED.
3. SEEDING METHOD TO RESULT IN GOOD SOIL TO SEED CONTACT.
4. PERMANENT SEEDING TO OCCUR PRIOR TO SEPTEMBER 15TH UNLESS WEATHER PERMITS SEEDING BEYOND SEPTEMBER 15TH.
5. AFTER SEEDING, MULCH THE AREA WITH HAY OR STRAW AT 2 TONS/AC (APPROX 90 LBS/1,000 SF OR 2 BALES/1,000 SF); SEE MULCH DETAIL AND SPECIFICATIONS.
6. MULCH ANCHORING MAY BE NEEDED WHERE WIND OR AREAS OF CONCENTRATED WATER ARE POSSIBLE.
7. WOOD FIBER HYDROMULCH OR OTHER SPRAYABLE PRODUCTS APPROVED FOR EROSION CONTROL MAY BE USED IF APPLIED ACCORDING TO MANUFACTURERS' SPECIFICATIONS.
8. IRRIGATION MAY BE NEEDED TO FACILITATE GRASS GROWTH AND ESTABLISH ADEQUATE GRASS COVER.

MULCH MATERIAL AND APPLICATION

MULCH MATERIAL	QUALITY STANDARDS	PER 1,000 SQ-FT	PER ACRE	DEPTH OF APPLICATION
WOOD CHIPS OR SHAVINGS	AIR DRIED, FREE OF OBJECTIONABLE MATERIAL	500 – 900 LBS	10 – 20 TONS	2" – 7"
WOOD FIBER CELLULOSE (PARTIALLY DIGESTED WOOD FIBERS)	MADE FROM NATURAL WOOD USUALLY WITH GREEN DYE AND DISPERSING AGENT	50 LBS	2,000 LBS	N/A
GRAVEL, CRUSHED STONE OR SLAG	WASHED; SIZE 2B OR 3A – 1 1/2"	9 CY	405 CY	3"
HAY OR STRAW	AIR-DRIED; FREE OF UNDESIRABLE SEEDS AND COARSE MATERIALS	90 – 100 LBS, 2–3 BALES	2 TONS (100–120 BALES)	COVER ABOUT 90% SURFACE
COMPOST	UP TO 3" PIECES, MODERATELY TO HIGHLY STABLE	3 – 9 CY	3 – 9 CY	1–3"
Erosion Control Mix	WELL-GRADED MIXTURE OF PARTICLE SIZES. ORGANIC CONTENT BETWEEN 80–100% DRY WEIGHT. PARTICLE SIZE SHALL PASS 6" SCREEN (100%)	*Slopes 3(Hz.):1(Vert.) = 2 inch depth plus additional 1/2 inch depth per 20 ft. of slope up to 100 ft. **Slopes between 3(Hz.):1(Vert.) and 2(Hz.):1(Vert.) = 4 inch depth plus additional 1/2 inch per 20 ft. of slope up to 100 ft. ***Slopes steeper than 2(Hz.):1(Vert.) applicability to specific site and mulch depth to be reviewed and approved prior to use by OPSC or EPSC Specialist		

1. APPLY TACKIFIER AS NEEDED TO MINIMIZE POTENTIAL FOR MULCH TO BLOW AWAY.
2. MULCH MUST NOT CONTAIN INVASIVE PLANT SPECIES. (SEEDS OR SEEDLINGS)
3. TACKIFIER MAY BE WATER, NETTING, OR SIMILAR.
4. OTHER THAN EROSION CONTROL MIX, MULCH IS NOT TO BE INSTALLED ON SLOPES > 3:1.

Seeding and Mulching Notes and Specifications

08/16

N.T.S. Source: VHB LD_VT

TEMPORARY SEEDING MIX

TYPE	SEASON	RATE (LBS/ACRE)
RYEGRASS (ANNUAL OR PERENNIAL)	APRIL 15 – SEPTEMBER 15	20
"AROOSTOOK" WINTER RYE	SEPTEMBER 15 – APRIL 15	90

PERMANENT SEEDING MIX*

TYPE	SEASON	RATE (LBS/ACRE)
BIROSFOOT TREFOIL(1)**	APRIL 15 – SEPTEMBER 15	5
COMMON WHITE CLOVER (1)**	APRIL 15 – SEPTEMBER 15	8
TALL FESCUE (2)	APRIL 15 – SEPTEMBER 15	10
REDTOP (3)	APRIL 15 – SEPTEMBER 15	2
RYEGRASS (PERENNIAL) (3)	APRIL 15 – SEPTEMBER 15	5

*PERMANENT SEEDING MIX IS A COMBINATION OF BIROSFOOT TREFOIL OR COMMON WHITE CLOVER PLUS TALL FESCUE PLUS REDTOP OR RYEGRASS (PERENNIAL), I.E. PERMANENT SEEDING MIX = (1) + (2) + (3). (SEE PAGE 4.27 OF THE VERMONT STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION AND SEDIMENT CONTROL.) ** ADD INOCULANT IMMEDIATELY PRIOR TO SEEDING

RIPARIAN AND WETLAND SEEDING MIX

TYPE	SEASON	RATE (LBS/ACRE)
"WET MEADOW AND DETENTION BASIN"* OR APPROVED EQUAL	APRIL 15 –SEPTEMBER 15	35

*SEED SPECIFIED IS FROM VERMONT WETLAND PLANT SUPPLY AND COMPOSED OF THE FOLLOWING SPECIES: PANICUM VIRGATUM, ELYMUS VIRGINICUS, FESTUCA RUBRA, CAREX VULPINOIDEA, CAREX SCOPARIA, SCIRPUS CYPERINUS, SCIRPUS ATROVIRENS, BIDENS CERNUA, EUPATORIUM PERFOLIATUM, EUPATORIADELPHUS MACULATUS, JUNCUS EFFUSUS, ONOCLEA SENSIBILIS, VERBENA HASTATA, SYMPHYOTRICHUM NOVAE–ANGLIAEA

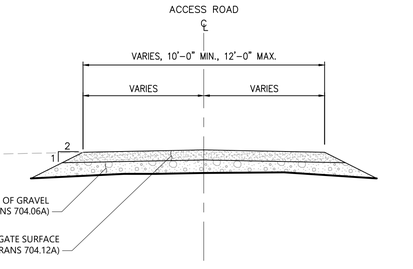
UPLAND NATURAL COMMUNITY MIX

TYPE	SEASON	RATE (LBS/ACRE)
"VERMONT CONSERVATION AND WILDLIFE"* OR APPROVED EQUIVALENT	APRIL 15 –SEPTEMBER 15	25

*SEED SPECIFIED IS, IN PART, FROM VERMONT WETLAND PLANT SUPPLY AND COMPOSED OF THE FOLLOWING SPECIES: ELYMUS VIRGINICUS, FESTUCA RUBRA, SCHIZACHYRIUM SCOPARIUM, ANDROPOGON GERARDII, PANICUM CLANDESTINUM, SORGHASTRUM NUTANS, ASCLEPIA SYRIACA, VERBENA HASTATA, EUPATORIUM FISTULOSUM, EUTHAMIA GRAMINIFOLIA, SOLIDAGO JUNCEA, SYMPHYOTRICHUM NOVAE–ANGLIAE
NOTE: SEE MIX SHOULD EXCLUDE BOTH CHAMAECRISTA FASCICULATA AND HELIOPSIS HELIANTHOIDES, WHICH ARE BOTH COMMONLY INCLUDED IN THIS COMMERCIAL MIX.

TEMPORARY SEEDING

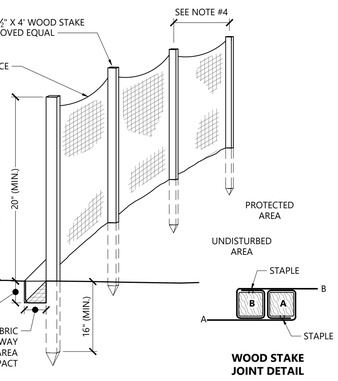
1. AREA TO BE SEEDED MUST BE ROUGH GRADED AND SLOPES PHYSICALLY STABLE.
2. SEEDING METHOD TO RESULT IN GOOD SOIL TO SEED CONTACT.
3. AFTER SEEDING, MULCH THE AREA WITH HAY OR STRAW AT 2 TONS/AC (APPROX 90 LBS/1,000 SF OR 2 BALES/1,000 SF); SEE MULCH DETAIL AND SPECIFICATIONS.
4. MULCH ANCHORING MAY BE NEEDED WHERE WIND OR AREAS OF CONCENTRATED WATER ARE POSSIBLE.
5. WOOD FIBER HYDROMULCH OR OTHER SPRAYABLE PRODUCTS APPROVED FOR EROSION CONTROL MAY BE USED IF APPLIED ACCORDING TO MANUFACTURERS' SPECIFICATIONS.



Typical Proposed Access Road Section

11/17

N.T.S. Source: VHB LD_



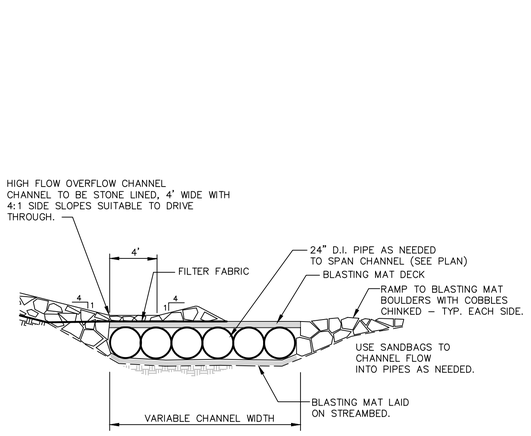
NOTES

1. WOVEN WIRE FENCE REINFORCEMENT IS REQUIRED WITHIN 50 FT UPSLOPE OF RECEIVING WATERS.
2. WHERE REQUIRED FENCE SHALL BE WOVEN WIRE, MIN. 14 GAUGE WITH A 6" MESH OPENING SHALL BE USED.
3. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N OR APPROVED EQUIVALENT.
4. POST SPACING FOR WIRE BACKED FENCE SHALL BE 10 FT. MAX. FOR FILTER CLOTH FENCE WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4 FT. FOR FILTER CLOTH FENCE WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6 FT.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY 6 INCHES AND FOLDED.
6. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE OR APPROVED EQUIVALENT.
7. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.
8. SILT FENCE SHALL NOT BE USED TO DEMARCATE LIMITS OF DISTURBANCE.

Silt Fence/ Reinforced Silt Fence Barrier

08/16

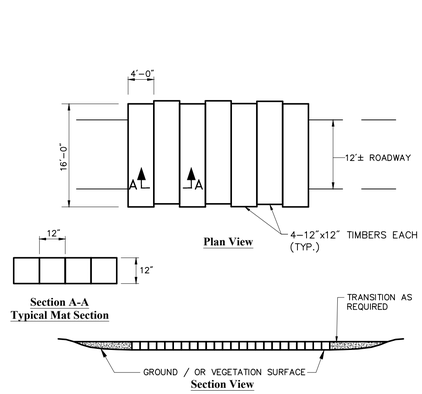
N.T.S. Source: VHB LD_650-VT



Temporary Channel Crossing

04/19

N.T.S. Source: VHB LD_



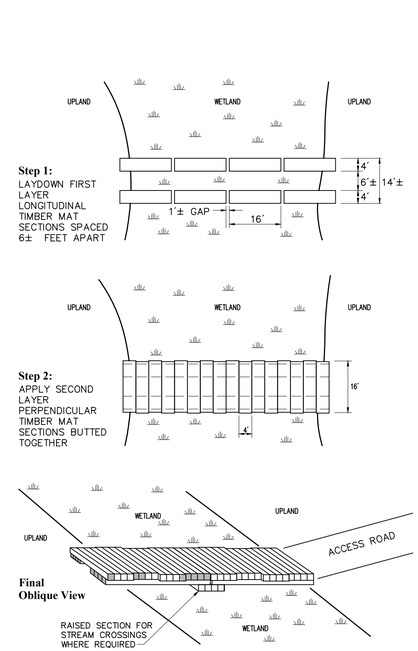
Notes:

1. TO BE INSTALLED WHERE NECESSARY IN WETLAND FOR ACCESS FOR CONSTRUCTION. ALTERNATIVE CONSTRUCTION MATTING (E.G., RUBBER MATS) MAY BE SUBSTITUTED FOR TIMBER MATTING.
2. PREPARATION FOR INSTALLATION OF TIMBER MATS WILL CONSIST OF CUTTING TALL WOODY SPECIES AND TRIMMING SHRUBS IF CONDITIONS REQUIRE. VEGETATION ROOT MASS IS TO REMAIN UNDISTURBED. MATS TO BE PLACED TO MAINTAIN NATURAL SOIL CONTOURS/CONDITIONS.
3. TIMBER SECTIONS TO BE SECURED TOGETHER WITH NO SPACES BY BOLTS, NAILS, STRAPS OR OTHER APPROPRIATE METHODS.
4. TIMBER MATS TO BE REMOVED UPON COMPLETION OF PROJECT AND AREA RESTORED TO NEAR ORIGINAL CONDITIONS PER EPSC PLANS
5. SNOW/ICE REMOVAL BY MECHANICAL METHODS: NO DEICING SALT OR CHEMICALS TO BE USED. LIGHT APPLICATION OF SAND FOR TRACTION ACCEPTABLE SO AS RESIDUE DOES NOT ACCUMULATE IN WETLAND.
6. MATS ARE TO BE IN PLACE FOR MINIMUM DURATION FEASIBLE.

Construction Matting - Timber Mat Typ.

04/19

N.T.S. Source: VHB LD_



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City of Burlington, VT Manhattan Drive Stormwater Outfall Improvements

Manhatton Drive
Burlington, Vermont

No.	Revision	Date	Appvd.

Designed by CHS | Checked by NCH

Issued for: 100% Design Submittal | Date: Jun. 17, 2019

Not Approved for Construction

Drawing Title: Site Details 1

Drawing Number: C-4.02

Sheet 16 of 18

Project Number: 58126.01

Proposed Supplemental Plantings (Area A-1)

Class II Buffer - 300 stems/acre

Species	Common Name	Recommended Planting Size	Plant Type	Wetland Indicator Status	Approximate Quantity
Acer rubrum	red maple	18-24"	bare root	FAC	18
Cornus sericea	red osier dogwood	18-24"	bare root	FACW	18
Populus deltoides	eastern cottonwood	18-24"	bare root	FAC	18
Salix bebbiana	Beb williow	18-24"	bare root	FACW	18
			Total # of Proposed Stems		72
			Total Area in Acres		0.24

Proposed Supplemental Plantings (Area A-2)

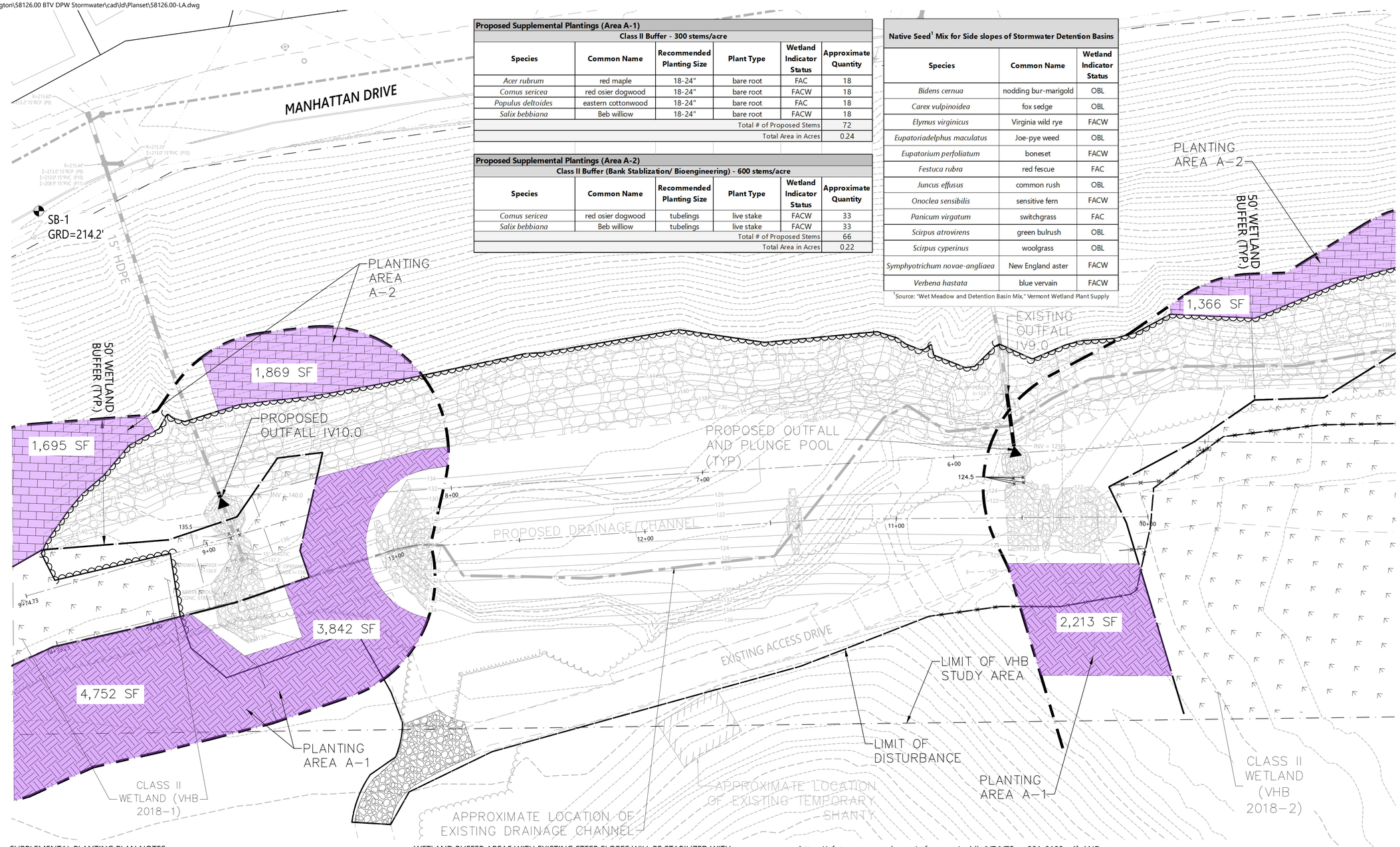
Class II Buffer (Bank Stablization/ Bioengineering) - 600 stems/acre

Species	Common Name	Recommended Planting Size	Plant Type	Wetland Indicator Status	Approximate Quantity
Cornus sericea	red osier dogwood	tubelings	live stake	FACW	33
Salix bebbiana	Beb williow	tubelings	live stake	FACW	33
			Total # of Proposed Stems		66
			Total Area in Acres		0.22

Native Seed[1] Mix for Side slopes of Stormwater Detention Basins

Species	Common Name	Wetland Indicator Status
Bidens cernua	nodding bur-marigold	OBL
Carex vulpinoidea	fox sedge	OBL
Elymus virginicus	Virginia wild rye	FACW
Eupatoriadelphus maculatus	Joe-pye weed	OBL
Eupatorium perfoliatum	boneset	FACW
Festuca rubra	red fescue	FAC
Juncus effusus	common rush	OBL
Onoclea sensibilis	sensitive fern	FACW
Panicum virgatum	switchgrass	FAC
Scirpus atrovirens	green bulrush	OBL
Scirpus cyperinus	woolgrass	OBL
Symphyotrichum novae-angliaea	New England aster	FACW
Verbena hastata	blue vervain	FACW

[1]Source: "Wet Meadow and Detention Basin Mix," Vermont Wetland Plant Supply



SUPPLEMENTAL PLANTING PLAN NOTES:

1. SUPPLEMENTAL PLANTING NOTES ARE PROPOSED FOR TWO (2) CLASS II WETLAND BUFFERS (AREA A 1-2). ACREAGE OF EACH PLANTING, SPECIES TYPE AND STEM COUNTS ARE LOCATED IN "PROPOSED SUPPLEMENTAL PLANTINGS" TABLE ON THIS PLAN.
2. THE PURPOSE OF THE PLANTING PLAN IS TO MITIGATE FOR CLASS II WETLAND BUFFER IMPACTS WHICH WOULD RESULT FROM PROJECT CONSTRUCTION; AS WELL AS TO ENHANCE THE CONDITION AND FUNCTIONS OF THE ON-SITE CLASS II WETLAND BUFFERS WHERE PLANTINGS WILL OCCUR, WHICH HAVE BEEN DISTURBED BY PRESENT AND/OR PAST LANDUSE.
3. ALL AREAS OF DISTURBANCE WILL BE RE-SEEDED WITH A NATIVE SEED MIX TO BE DESIGNATED BY THE CONTRACTOR APPROPRIATE FOR UPLAND OR WETLAND HABITAT AS APPLICABLE. PRIOR TO SHRUB/ TREE PLANTINGS, AREAS OF REPLANTING OUTSIDE OF THE LOD WILL BE SEEDED WITH A NATIVE SEED MIX APPROPRIATE FOR SIDE SLOPES OF STORMWATER DETENTION BASINS AND DISTRIBUTED AT APPROXIMATELY 35LBS PER ACRE, SPECIES DETAIL IS PROVIDED ON THIS PLAN. AREAS WITH STEEP SLOPES WILL BE FURTHER STABILIZED WITH EROSION CONTROL MATTING.
4. THE SUPPLEMENTAL PLANTINGS WILL NOT BE SUBJECT TO VEGETATION MANAGEMENT.
5. WETLAND BUFFER AREAS WITH EXISTING STEEP SLOPES WILL BE STABILIZED WITH BIO-ENGINEERING APPROPRIATE SPECIES WHICH PRODUCE DENSE ROOT SYSTEMS TO PROMOTE BANK STABILITY.
6. PLANTING MATERIALS WILL BE FROM A LOCAL, NEW ENGLAND SOURCE WITH NATIVE PLANT COLLECTIONS AND SEED BANKS WITH ECOLOGICAL AND CLIMATE APPROPRIATE VARIETIES.
7. PLANTINGS WILL OCCUR SPRING OR FALL FOLLOWING PROJECT CONSTRUCTION, DEPENDING ON CONSTRUCTION SCHEDULE (SPRING OR FALL TYPICALLY YIELD MORE FAVORABLE SOIL MOISTURE CONDITIONS FOR PLANTING AND ESTABLISHMENT, AND CAN THEREFORE MINIMIZE TRANSPLANT SHOCK).
8. WITHIN DESIGNATED PLANTING AREAS, SHRUBS SHOULD BE INSTALLED TO RESULT IN AN APPROXIMATE 300 STEMS/ACRE DENSITY, DISTRIBUTED EVENLY ACROSS THE PLANTING AREAS AS CONDITIONS ALLOW. DESIGNATED PLANTING AREAS FOR BANK STABILITY, SHOULD RESULT IN A MINIMUM 600 STEMS/ACRE DENSITY.
9. PLANTING INSTALLATION DETAILS FROM GUIDANCE IN USDA NATURAL RESOURCES CONSERVATION SERVICE (NRCS). SPECIFICATION GUIDE SHEET FOR RIPARIAN FOREST BUFFER. AVAILABLE ONLINE AT: https://efotg.sc.egov.usda.gov/references/public/VT/VTSpec391-0109.pdf. AND https://dec.vermont.gov/sites/dec/files/wsm/wetlands/docs/Riparian%20Planting%20Guide%20Final%201-8-16.pdf AND VT DEC GUIDANCE FOR "NATIVE VEGETATION FOR LAKESHORE, STREAMSIDES, AND WETLAND BUFFERS"
10. FINAL SPECIES COMPOSITION WILL DEPEND ON AVAILABILITY AT THE TIME PLANTING OCCURS. ALL SPECIES WILL BE ECOLOGICALLY AND CLIMATE APPROPRIATE, FROM LOCAL, NEW ENGLAND SOURCES.
11. SPECIES COMPOSITION BASED UPON SPECIES FOUND ON SITE AS WELL AS OTHER HABITAT APPROPRIATE SPECIES THAT WILL ENHANCE THE WETLAND BUFFER AREAS AND PROVIDE A GREATER ABUNDANCE OF SPECIES AND RICHNESS ON SITE.

Area A-1 Supplemental Class II Wetland Buffer Planting Area = ~10,500 SF (0.24 AC)

Area A-2 Supplemental Class II Wetland Buffer Planting Area = ~9,500 SF (0.22 AC)

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0 10 20 40 Feet

City of Burlington, VT Manhattan Drive Stormwater Outfall Improvements

Manhatton Drive
Burlington, Vermont

No.	Revision	Date	Appvd.

Designed by CHS | Checked by ADL

Issued for: 100% Design Submittal — Date: Jun. 17, 2019

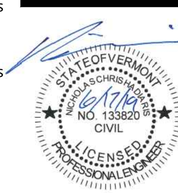
Not Approved for Construction

Drawing Title: **Class II Wetland and Buffer Enhancement Plan (1 of 2)**

Drawing Number: **L-1**

Sheet 17 of 18

Project Number: 58126.01



Proposed Supplemental Plantings (Area A-1)

Class II Buffer - 300 stems/acre

Species	Common Name	Recommended Planting Size	Plant Type	Wetland Indicator Status	Approximate Quantity
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Populus deltoides	eastern cottonwood	18-24"	bare root	FAC	18
Salix bebbiana	Beb williow	18-24"	bare root	FACW	18
				Total # of Proposed Stems	72
				Total Area in Acres	0.24

Proposed Supplemental Plantings (Area A-2)

Class II Buffer (Bank Stablization/ Bioengineering) - 600 stems/acre

Species	Common Name	Recommended Planting Size	Plant Type	Wetland Indicator Status	Approximate Quantity
Cornus sericea	red osier dogwood	tubelings	live stake	FACW	33
Salix bebbiana	Beb williow	tubelings	live stake	FACW	33
				Total # of Proposed Stems	66
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Native Seed[1] Mix for Side slopes of Stormwater Detention Basins

Species	Common Name	Wetland Indicator Status
Bidens cernua	nodding bur-marigold	OBL
Carex vulpinoidea	fox sedge	OBL
Elymus virginicus	Virginia wild rye	FACW
Eupatoriadelphus maculatus	Joe-pye weed	OBL
Eupatorium perfoliatum	boneset	FACW
Festuca rubra	red fescue	FAC
Juncus effusus	common rush	OBL
Onoclea sensibilis	sensitive fern	FACW
Panicum virgatum	switchgrass	FAC
Scirpus atrovirens	green bulrush	OBL
Scirpus cyperinus	woolgrass	OBL
Symphyotrichum novae-angliaea	New England aster	FACW
Verbena hastata	blue vervain	FACW

[1]Source: "Wet Meadow and Detention Basin Mix," Vermont Wetland Plant Supply

SB-3
GRD=221.0'

50' WETLAND BUFFER (TYP.)

PLANTING AREA A-2

4,532 SF

IN DESIGNATED WETLAND BUFFER AREAS (A-2), SELECTIVE BIO-ENGINEERING SPECIES HAVE BEEN CHOSEN TO PROMOTE BANK STABILIZATION THROUGH DENSE ROOTING SYSTEMS

LIMIT OF DISTURBANCE

APPROXIMATE LOCATION OF OPEN WATER LIMITS

APPROXIMATE LIMITS OF EXISTING SAND DEPOSIT (TO REMAIN UNCHANGED WITHIN LIMITS OF WETLAND)

CLASS II WETLAND (VHB 2018-2)

LIMIT OF VHB STUDY AREA

24" CMP WITH CIPP LINING

Area A-1 Supplemental Class II Wetland Buffer Planting
Area = ~10,500 SF (0.24 AC)

Area A-2 Supplemental Class II Wetland Buffer Planting
Area = ~9,500 SF (0.22 AC)

0 10 20 40 Feet

City of Burlington, VT
Manhattan Drive Stormwater Outfall Improvements

Manhatton Drive
Burlington, Vermont

No.	Revision	Date	Apprvd.

Designed by CHS | Checked by ADL

Issued for: 100% Design Submittal
Date: Jun. 17, 2019

Not Approved for Construction

Drawing Title
Class II Wetland and Buffer Enhancement Plan (2 of 2)

Drawing Number
L-2

Sheet 18 of 18

Project Number
58126.01

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STATE OF VERMONT
NICHOLAS SCHRIVER
NO. 133820
CIVIL
LICENSED PROFESSIONAL ENGINEER

Burlington Department of Public Works
Water Resources Division
Stormwater Program
(802) 863-4501
stormwater@burlingtonvt.gov

November 4, 2019

Kristine Stepenuck
University of Vermont
81 Carrigan Dr
Burlington VT 05405

Dear Kris,

We are writing to express willingness on the part of the City of Burlington, Vermont, to collaborate with you on the proposed research effort to assess water quality impacts as a result of change winter maintenance practices in the Centennial Brook watershed and an unnamed adjacent watershed draining the UVM campus. Burlington maintains 95 miles of paved roads in both residential areas our downtown core, as well as 127 miles of sidewalk across the city.

With support of the grant to access consultation recommendations for use of sustainable practices, we are committed to sharing salt usage rates during the study period for the areas of these watersheds that we manage. Further, with support of the grant to aid in obtaining needed equipment and supplies, we are willing to work collaboratively with other participating municipalities, schools and private contractors engaged in winter maintenance in Chittenden County to implement practices that help to reduce use of salt, such as use of liquid deicers. Ultimately, we look forward to having data to assess if changed practices result in water quality improvements over time.

Sincerely,

Jenna Olson
Water Policy & Programs Manager
Burlington DPW

Lee Perry
Assistant Director of Maintenance
Burlington DPW

Burlington Department of Public Works
Water Resources Division
Megan Moir, Division Director – Water Resources
235 Penny Lane
Burlington, VT 05401
(802) 863-4501

REQUEST FOR PROPOSALS
for
Stormwater Landscaping Services

Date of Issuance:	March 11, 2020
Issued by:	City of Burlington, Department of Public Works
Site Visit:	March 20, 2020 at 1:00pm
	Location: 235 Penny Lane, Burlington VT 05401
Due Date for Proposals:	April 3, 2020 at 2:00pm
Questions due:	March 24, 2020 at 4:30pm
Issuing Point of Contact:	James Sherrard, Stormwater Coordinator 235 Penny Lane Burlington, VT 05401 (802) 503-7027 jsherrard@burlingtonvt.gov

I. INTRODUCTION

As part of the City's ongoing efforts to improve water quality, we have constructed many surface stormwater management systems known as rain gardens or 'bioretention systems.' These systems are vegetated gardens designed to collect and infiltrate rain water from City roadways, parking areas, and sidewalks. In addition to the bioretention systems included in this Request for Proposal (RFP) the City is seeking maintenance assistance with more traditional landscaped areas known as 'greenways'.

The City is seeking a qualified Landscaping Contractor to conduct regular, routine maintenance on surface bioretention systems and other landscape areas throughout the City for FY21 (July 1, 2020 – June 30, 2021) with the option to extend the contract for an additional term of one year (through FY22, July 1, 2021 – June 30, 2022)

II. SCOPE OF WORK

The City has constructed and is responsible for twenty-three (23) bioretention systems to date, with construction of seventeen (17) additional systems planned for 2020 and an estimated 6 systems planned for construction in calendar year 2021. The City is additionally responsible for 32 greenway beds in 9 distinct locations. Provided as part of this RFP are a "Base Bid" request and a "Add Alternate" request. The Base Bid Request includes the areas which the City, at a minimum, will require a Contractor to maintain. The Add Alternate areas are those which we ask for pricing to maintain, but would confirm which, if any, would be assigned to the Contractor at a later date. Attachment H provides a summary

of Base/Alternate Level of Service locations, location names, types, and bed sizes. Attachment I provides mapped locations of each system.

a. Maintenance services are broken into three categories, residential, downtown core, and greenway. The mandatory minimum site visit frequency from June 1st – September 30th for those three categories are as follows:
   1. Residential: Monthly
   2. Downtown Core: Bi-weekly (once every two weeks)
   3. Greenway: Monthly

b. Maintenance activities for all areas are as follows:
   1. Intermittent site visits (as defined above) where the following activities should be performed if the need is visibly evident,
      a. Watering
         i. Greenways are not areas requiring watering. Bioretention systems require watering for the three weeks immediately following a new planting and during the months of July-September when a period of 7 calendar days has passed without a 24-hr rain event greater than a quarter of an inch.
      b. Removal of sediment, leaves, trash, and other accumulated debris at garden inlets and within the garden area,
      c. Weeding,
      d. Raking / repair of minor eroded areas.
      e. Addition of compost as side-dressings to plants as needed,
      f. Procurement of replacement plants to maintain existing species diversity and system coverage. If a replacement plants variety is unknown by the Contractor please contact Vincent (VJ) Comai [vcomai@burlingtonvt.gov] for confirmation.
         i. If, not due to negligence on the part of the Contractor, more than ¼ of the plants in any given system require replacement during a growing season the costs for the plants above ¼ may be charged as a change order to the bid value.
      g. Installation of replacement plants.
   2. During Monthly site visits inspect and repair the following if required,
      a. Replacement of stone at inlet areas,
      b. Replacement of pea gravel or woody mulch if depth of mulch is less than 2”,
   3. Pruning,
      a. Bi-weekly if required,
      b. and seasonally to prepare perennial plants for wintering
      c. No trees should be pruned as part of this contract
   4. Mowing (this activity is solely required in greenways).
   5. Notice and Reporting – a schedule shall be submitted to the City before work occurs in the spring that details the anticipated workplan. Reports shall be submitted with invoices as to which sites were serviced for each billing cycle.

III. RESPONSE FORMAT

Contractors are encouraged to be concise. All proposals must include, at a minimum, the following:

1. Completed and signed (by authorized representative) bid form including contact phone number (s), prices for labor and equipment for a period of **2** years from the above proposal date and list of any specialty equipment or technologies.
2. Signed Livable Wage, Outsourcing, and Union Deterrence Certifications with the bid sheet and described in the Supplemental General Conditions.

Note that the selected Contractors shall be also required to submit insurance certificates, and may be asked to provide a client list if they have not already done work in the City of Burlington.

IV. PROPOSAL EVALUATION & CONTRACTOR SELECTION

Proposals will be reviewed and evaluated by City staff based on the information provided in the proposal. Additional information may be requested prior to final selection. It is anticipated that a decision will be made within 30 days of the due date. The selected Contractors will generally be utilized in order of rate per unit for the services needed. The City reserves the right; however, to take into account responsiveness as well as past performance in determining which Contractor will be selected first and given the opportunity to perform the work. Should the first selected Contractor be unable or unwilling to perform the needed service, the City will proceed down the list of responsive Contractors as necessary to meet the needs of the City.

V. SUBMISSIONS

a. DEADLINE FOR RECEIPT OF BIDS

All replies and quotes in response to this RFP must be received via email, or in a sealed envelope clearly marked **"Stormwater Landscaping Services"** to the address and point of contact no later than 2:00 pm, by the above due date and time, at which time all submitted materials will be opened and recorded. *Electronic proposals are preferred as long as they are received by the point of contact by the required deadline.*

Late proposals will not be accepted under any circumstances. It is the responsibility of the firm submitting replies and proposals to ensure that the point of contact has received a completed proposal by the required deadline.

b. ANSWERS TO QUESTIONS AND REVISIONS TO REQUEST FOR PROPOSAL

Questions concerning this RFP must be made via email to James Sherrard, jsherrard@burlingtonvt.gov, Stormwater Program Coordinator. It is the responsibility of the prospective bidders to contact **James Sherrard** via email to verify receipt of questions. Based upon such inquiry the City may choose to issue an Addendum. Any revisions, addendums and answers to questions received at least a week before the due date will be sent to Contractors who directly received this Invitation. In addition, revisions will be posted on the City's RFP web page http://burlingtonvt.gov/RFP/. It is advised that Contractors sign up for the GovDelivery notification so that they will be notified of any changes to the RFP page.

c. SITE VISIT

A site visit to a limited number of systems is planned for March 20th at 1:00 p.m. – participants should plan to meet in the first floor lobby of 235 Penny Lane, Burlington VT 05401. Interested Contractors may attend by responding to James Sherrard at (802) 503-7027 or jsherrard@burlingtonvt.gov. Interested Contractors are also welcome to visit the reference sites on their own.

VI. AGREEMENT REQUIREMENTS

a. The selected Contractor will be required to execute a contract with the City on the terms and conditions required by the City in the Draft Agreement (Attachment A), including but not limited those in the Burlington Contractor Conditions (Attachment C).

b. Contractors submitting proposals agree to:

1. Provide normal and overtime hourly rates for labor and equipment, markup percentages for materials and subcontractors (if applicable), plus other requested information on the Bid Sheet. In lieu of filling out labor and equipment rates on the bid sheet, Contractors can attach a pre-made sheet(s) with time & materials pricing.
2. Maintain ability to respond to requests, and notify the City if at any time they will not be available.
3. Understand that no minimum amount of work is implied or guaranteed under this invitation.
4. Provide either a performance bond or irrevocable letter of credit within thirty (30) days of executing the contract.

5. Perform work in accordance with applicable rules, regulations, codes, and ordinance of local, state and federal authorities, and in accordance with the requirements of public utility corporations having jurisdiction over the work. The use of herbicides/pesticides is strictly prohibited.
6. Obtain necessary permits, utility markings (Dig Safe), licenses and certificates and give notices as required during the performance of the work. All local Right of Way (ROW) permit fees shall be waived.
7. Provide or hire traffic control as necessary.

VII. LIMITATIONS OF LIABILITY

The City assumes no responsibility or liability for costs incurred by parties responding to this Request for Proposals, or responding to any further requests for interviews, additional data, etc., prior to the issuance of the contract.

VIII. COSTS ASSOCIATED WITH PROPOSAL

Any costs incurred by any person or entity in preparing, submitting, or presenting a proposal are the sole responsibility of that person or entity. The City will not reimburse any person or entity for any costs incurred.

IX. INDEMNIFICATION

Any party responding to this Request for Proposals is acting in an independent capacity and not as an officer or employee of the City. Any party responding to this Request for Proposals will be required to indemnify, defend, and hold harmless the City, its officers, and employees from all liability and any claims, suits, expenses, losses, judgments, and damages arising as a result of the responding party's acts and/or omissions in or related to the submission of the response.

X. REJECTION OF PROPOSALS

The City reserves the right to reject any or all proposals, to negotiate with one or more parties, or to award the contract to the proposal the City deems will meet its best interests, even if that proposal is not the lowest bid. The City reserves the right to re-advertise for additional proposals and to extend the deadline for submission of the proposals. This Request for Proposals in no way obligates the City to award a contract.

XI. OWNERSHIP OF DOCUMENTS

Any materials submitted to the City in response to this Request for Proposals shall become the property of the City unless another arrangement is made by written agreement between the City and the responding party. The responding party may retain copies of the original documents.

XII. PUBLIC RECORDS

Any and all records submitted to the City, whether electronic, paper, or otherwise recorded, are subject to the Vermont Public Records Act. The determination of how those records must be handled is solely within the purview of City. All records the responding party considers to be trade secrets, as that term is defined by subsection 317(c)(9) of the Vermont Public Records Act, or that the responding party otherwise seeks to have the City consider as exempt must be identified clearly and specifically at the time of submission. It is not sufficient to merely state generally that a proposal is proprietary, contains a trade secret, or is otherwise exempt. Particular records, pages, and sections which are believed to be exempt must be specifically identified as such and must be separated from other records with a convincing explanation and rationale sufficient to justify each exemption from release consistent with Section 317 of Title 1 of the Vermont Statutes Annotated.

XIII. <u>PARTNERSHIPS</u>

Contractors may partner with other firms, local or otherwise, in order to provide the best possible proposal for ensuring quality and efficient completion of the project tasks.

XIV. <u>WORK SCHEDULE</u>

This contract is for acquiring services for on-call landscaping maintenance and installations. When this type of work is

required to be performed within the City's right-of-way and on public property, the City will notify the full list of approved Contractors via email with a scope of work that needs to be performed. The City will then execute a Work Assignment Agreement with the selected Contractor.

XV. COMPLIANCE WITH LAW

All proposals and work completed under a proposal must be performed in accordance with applicable rules, regulations, codes, and ordinances of local, state, and federal authorities. All such proposals and work completed must also be performed in accordance with the requirements of public utility corporations having jurisdiction over the work performed.

XVI. LIST OF ATTACHMENTS

- **A. Draft Contractor Agreement**
- **B. Contractors Proposal**
- **C. Burlington Contractor Conditions**
- **D. Livable Wage Ordinance Certification**
- **E. Outsourcing Ordinance Certification**
- **F. Union Deterrence Ordinance Certification**
- **G. Certificate of Insurance**
- **H. System Names, Attributes, and Location**
- **I. System Location Map**
- **J. Basic Bid Request BID FORM – Stormwater Landscape Services**

CITY OF BURLINGTON
FINAL SERVICES AGREEMENT

This Contractor Agreement ("Agreement") is entered into by and between the City of Burlington, Vermont ("the City"), and Paragon ("Contractor"), a Vermont corporation located at 1000 East Road, Colchester VT, 05446.

Contractor and the City agree to the terms and conditions of this Agreement.

1. DEFINITIONS

The following terms shall be construed and interpreted as follows:

A. "Agreement Documents" means all the documents identified in section 4 of this Agreement.

B. "Effective Date" means the date on which this Agreement is approved and signed by the City, as shown on the signature page.

C. "Party" means the City or Contractor and "Parties" means the City and Contractor.

D. "Services" means stormwater landscaping work.

E. "Public Health Emergency" means public health emergencies, as declared by the City, the State of Vermont, or the Federal Government.

F. "Public Health Emergency Plan" ("Plan") means the plan described in section 15.B. of this Agreement (Creation of Public Health Emergency Plan & Health and Safety Performance Standards), along with the specifications contained in the Agreement Documents as defined in Section 4 below.

G. "Work" means the services described in section 5 of this Agreement, along with the specifications contained in the Agreement Documents as defined in section 4 below.

2. RECITALS

A. Authority. Each Party represents and warrants to the other that the execution and delivery of this Agreement and the performance of such Party's obligations have been duly authorized.

B. Consideration. The Parties acknowledge that the mutual promises and covenants contained herein and other good and valuable consideration are sufficient and adequate to support this Agreement.

C. Purpose. The City seeks to employ the Contractor to conduct regular, routine maintenance on surface bioretention systems throughout the City.

3. EFFECTIVE DATE, TERM, AND TERMINATION

A. Effective Date. This Agreement shall not be valid or enforceable until the Effective Date. The City shall not be bound by any provision of this Agreement before the Effective Date and shall have no obligation to pay Contractor for any performance or expense incurred before the Effective Date or after the expiration or termination of this Agreement.

B. Term. This Agreement and the Parties' respective performance shall commence on the Effective Date and expire on June 30, 2022 or upon the satisfaction of the City, unless sooner terminated as provided herein. This Agreement may be extended for one (1) additional one (1) year term, upon the mutual agreement of the Parties. An additional term shall commence upon the expiration of the initial term. Parties may renegotiate pricing for this additional term, and any change in pricing must be accepted by the City and effectuated by amendment as described in Attachment C, Section 17 (Changes & Amendments) prior to the commencement of an additional term. All other terms and provisions contained within this Agreement during an additional term shall remain the same and as described herein.

4. AGREEMENT DOCUMENTS

The Agreement Documents are hereby adopted, incorporated by reference, and made part of this Agreement. The intention of the Agreement Documents is to establish the necessary terms, conditions, labor, materials, equipment, and other items necessary for the proper execution and completion of the Work to ensure the intended results.

The following documents constitute the Agreement Documents:

Attachment A: Request for Proposals dated March 11, 2020
Attachment B: Contractor's Response to Request for Proposals dated April 2, 2020
Attachment C: Burlington Contractor Conditions
Attachment D: Burlington Livable Wage Ordinance Certification
Attachment E: Burlington Outsourcing Ordinance Certification
Attachment F: Burlington Union Deterrence Ordinance Certification
Attachment G: Contractor's Certificate of Insurance

5. SCOPE OF WORK

The Contractor shall perform the services listed in Attachments A (Request for Proposals) and B (Contractor's Response to Request for Proposals).

6. PAYMENT FOR SERVICES

A. Amount. The City shall pay the Contractor for completion of the Work in accordance with Attachment B (Contractor's Response to Request for Proposals).

Contractor agrees to accept this payment as full compensation for performance of all services and expenses incurred under this Agreement.

B. Payment Schedule. The City shall pay the Contractor in the manner and at such times as set forth in the Agreement Documents. The City seeks to make payment within thirty days of receipt of an invoice and any backup documentation requested under section 6D below.

C. Maximum Limiting Amount. The total amount that may be paid to the Contractor for all services and expenses under this Agreement shall not exceed the maximum limiting amount of $8,182 over the period of two fiscal years for the **BASE BID**. The City shall not be liable to Contractor for any amount exceeding the maximum limiting amount without duly authorized written approval.

D. Invoice. Contractor shall submit one copy of each invoice, including rates and a detailed breakdown by task for each individual providing services, and backup documentation for any equipment or other expenses to the following:

James Sherrard
Stormwater Program Coordinator
235 Penny Lane
Burlington, VT 05401
jsherrard@burlingtonvt.gov

The City reserves the right to request supplemental information prior to payment. Contractor shall not be entitled to payment under this Agreement without providing sufficient backup documentation satisfactory to the City.

E. Non-Appropriation. The obligations of the City under this Agreement are subject to annual appropriation by the Burlington City Council. If no funds or insufficient funds are appropriated or budgeted to support continuation of payments due under this Agreement, the Agreement shall terminate automatically on the first day of the fiscal year for which funds have not been appropriated. The Parties understand and agree that the obligations of the City to make payments under this Agreement shall constitute a current expense of the City and shall not be construed to be a debt or a pledge of the credit of the City. Agreement. The decision whether or not to budget and appropriate funds during each fiscal year of the City is within the discretion of the Mayor and City Council of the City.

The City shall deliver written notice to Contractor as soon as practicable of any non-appropriation, and Agreement Contractor shall not be entitled to any payment or compensation of any kind for work performed after the City has delivered written notice of non-appropriation.

7. COMPLIANCE WITH LAWS

The Parties, and any subcontractors approved under this Agreement, shall comply with all applicable laws, statutes, ordinances, rules, regulations, and/or requirements of federal, state, and local governments and agencies thereof.

8. BINDING EFFECT AND CONTINUITY

This Agreement shall be binding upon and shall inure to the benefit of the Parties, their' respective heirs, successors, representatives, and assigns. If a dispute arises between the Parties, each Party will continue to perform its obligations under this Agreement during the resolution of the dispute, until the Agreement is terminated in accordance with its terms.

9. SEVERABILITY

The invalidity or unenforceability of any provision of this Agreement or the Agreement Documents shall not affect the validity or enforceability of any other provision, which shall remain in full force and effect, provided that the Parties can continue to perform their obligations under this Agreement in accordance with the intent of this Agreement.

10. ENTIRE AGREEMENT

This Agreement, including the Agreement Documents, constitutes the entire agreement and understanding of the Parties with respect to the subject matter of this Agreement. Prior or contemporaneous additions, deletions, or other changes to this Agreement shall not have any force or effect whatsoever, unless embodied herein or pursuant to Attachment C, Section 17 (Changes and Amendments) below.

11. NO THIRD PARTY BENEFICIARIES

This Agreement does not and is not intended to confer any rights or remedies upon any person or entity other than the Parties. Enforcement of this Agreement and all rights and obligations hereunder are reserved solely to the Parties. Any services or benefits which third parties receive as a result of this Agreement are incidental to this Agreement, and do not create any rights for such third parties.

12. ASSIGNMENT

Contractor shall not sublet or assign this Work, or any part of it, without the written consent of the City. If any subcontractor is approved, Contractor shall be responsible and liable for all acts or omissions of that subcontractor for any Work performed. If any subcontractor is

approved, Contractor shall be responsible to ensure that the subcontractor is paid as agreed and that no lien is placed on any City property.

13. WAIVER

A Party's failure or delay in exercising any right, power, or privilege under this Agreement, whether explicit or by lack of enforcement, shall not operate as a waiver, nor shall any single or partial exercise of any right, power, or privilege preclude any other or further exercise of such right, power, or privilege.

14. FORCE MAJEURE

Neither Party to this Agreement shall be liable to the other for any failure or delay of performance of any obligation under this Agreement to the extent the failure or delay is caused by acts or events beyond its reasonable control that render performance illegal or impossible ("Force Majeure"). To assert Force Majeure, the nonperforming party must prove that a) it made all reasonable efforts to remove, eliminate, or minimize the cause of delay or damage, b) diligently pursued performance of its obligations, c) substantially fulfilled all obligations that could be fulfilled, and d) timely notified the other part of the likelihood or actual occurrence of a Force Majeure event.

15. PUBLIC HEALTH EMERGENCY

A. Contractor is advised that public health emergencies, as declared by the City, the State of Vermont, or the Federal Government, including the current pandemic of Novel Coronavirus (COVID–19), may introduce significant uncertainty into the contracted services. Contractor must comply with all local, state, federal orders, directives, regulations, guidance, advisories during a public health emergency. Contractor shall adhere to the below provisions and consider public health emergencies as they develop schedules and advance the work.

B. Creation of Public Health Emergency Plan & Health and Safety Performance Standards. The Contractor shall create a public health emergency plan. The Contractor shall be responsible for following this plan and ensuring that the services or site is stable and in a safe and maintainable condition.
    a. Public Health Emergency Plan: The Public Health Emergency Plan will contain:
        i. Measures to manage risk and mitigate potential impacts to the health and safety of the public, the City, Contractor workers and sub-Contractor workers;
        ii. Explicit reference to health and safety performance standards and mandates provided by the City, the State of Vermont, the Federal government, and other relevant local, regional, state, and federal, international governmental entities (see, Appendix A), with such health and safety performance standards and mandates adequately considered and addressed in the plan;

iii. A schedule for possible updates to plan in advance of the start of Work (see Section 15.B.b.iii. below); and
iv. Means to adjust the schedule and sequence of work should the emergency change in nature or duration.

b. Review and Acceptance of Plan:
i. Contractor must provide the plan to the City by the Effective Date of this agreement.
ii. The City shall have sole discretion to approve, deny, or compel the bidder to make certain changes to the plan.
iii. If a state of emergency is declared, the Contractor shall provide updated plans to the City for the City's approval prior to Work and at the following intervals: 1 month prior to Work, 2 weeks prior to Work, 1 week prior to Work, and 1 day prior to Work.
iv. The City may revisit the plan at any time to verify compliance with obligations that arise under a state of emergency.

C. Enforcement & Stoppage of Work. If Contractor fails to comply with either 1) the approved public health emergency plan, or 2) any local, state, federal orders, directives, regulations, guidance, or advisories during a public health emergency, the City may stop Work under the Contract until such failure is corrected. Such failure to comply shall constitute breach of the Agreement pursuant to Section 21 (City's Option to Terminate). The City shall have sole discretion in determining if Contractor is compliant with the above.

Upon stoppage of work, the City may allow Work to resume, at a time determined by the City, under this Agreement if such failure to comply is adequately corrected. The City shall have sole discretion in determining if Contractor has adequately corrected its failure to comply with the above. Upon any resumption of Work, the Parties shall negotiate in good faith an equitable adjustment to reflect the reasonable impacts on Contractor resulting from such Work stoppage, complying with Attachment C, Section 17 (Changes & Amendments).

If Contractor's breach of Agreement has not been cured within [thirty (30)/fourteen (14)] days after commencement of such Work stoppage, then City shall be entitled to terminate this Contract pursuant to Section 21.2 (City's Option to Terminate, Termination for Cause).

D. City Liability Relating to Potential Delays. If a public health emergency is declared, the City will not be responsible for any delays related to the sequence of operations or any expenses or losses incurred as a result of any delays. Any delays related to a public health emergency will be excusable, but will not be compensable.

16. CHOICE OF LAW

Vermont law, and rules and regulations issued pursuant thereto, shall be applied in the interpretation, execution, and enforcement of this Agreement. Any provision included or incorporated herein by reference which conflicts with said laws, rules, and regulations shall be null and void. Any provision rendered null and void by operation of this provision shall not invalidate the remainder of this Agreement to the extent capable of execution.

17. JURISDICTION

All suits or actions related to this Agreement shall be filed and proceedings held in the State of Vermont.

18. ARM'S LENGTH

This Agreement has been negotiated at arm's length, and any ambiguity in any of its terms or provisions shall be interpreted in accordance with the intent of the Parties and not against or in favor of either the City or Contractor.

19. SECTION & ATTACHMENT HEADINGS

The article and attachment headings and throughout this Agreement are for the convenience of City and Contractor and are not intended nor shall they be used to construe the intent of this Agreement or any part hereof, or to modify, amplify, or aid in the interpretation or construction of any of the provisions hereof.

— Signatures follow on the next page —

20. SIGNATURE

Persons signing for the Parties hereby swear and affirm that they are authorized to act on behalf of their respective Party and acknowledge that the other Party is relying on their representations to that effect.

Contractor
(Name of Contractor)

By: _____

Date: 5-11-2020

City of Burlington
Public Works Department

DocuSigned by:

By: _____
16A952D842EF4B5...

Chapin Spencer
Director of The Public Works Department

Date: 5/14/2020

PO: 2021-00002541

Invoice

Specialized Stormwater Solutions LLC

11 Acorn Ln
Cumberland, ME 04021

Date	Invoice #
12/8/2020	1563

Bill To

James Sherrard
City Of Burlington, VT
149 Church Street
Burlington, VT 05401

Ship To

James Sherrard
City Of Burlington, VT
149 Church Street
Burlington, VT 05401

P.O. Number	Terms	Rep	Ship	Via	F.O.B.	Project
2021-00002353			12/8/2020			

Quantity	Item Code	Description	Price Each	Amount
	SUV/B.I.R.D. Com...	SUV & BIRD Porous Pavement System One complete system for routing and restorative maintenance of porous pavements and other stormwater green infrastructure. Includes the following: SUV - Stand-alone equipment for routine vacuum maintenance of porous pavements and other Stormwater Green Infrastructure; including Stand-on vacuum unit, adjustable porous pavement vacuum contact nozzle, cyclonic separator / filter bag, debris collection trailer, handheld Bio-Maintenance attachment. (See Attached Sheet) BIRD - Attachment for SUV including complete B.I.R.D. vacuum head and associated hoses air/water supply and vacuum hose complete with hose mobility aide (+/- 40ft.) Note: The BIRD attachment requires the power a combination sewer cleaning truck (i.e. Vactor truck) for vacuum and cleaning water pressure.	36,900.00	36,900.00
	SUV Wear Part Pac...	Recommended Wear Parts for SUV - See attached.	1,210.00	1,210.00
	BIRD Wear Part Pa...	Recommended Wear Parts for BIRD - See attached.	1,801.00	1,801.00

Please note: Our address has changed -

11 Acorn Ln - Cumberland, ME 04021

Total $39,911.00

SPECIALIZED STORMWATER SOLUTIONS

Recommended Wear Parts Packages

BIRD	Unit Price	Recommended Quantity for Customer Stock	Cost
Rota-caster Omni-directional Wheel	$ 39.00	4	$ 156.00
Brush Skirts (set of 2)	$ 145.00	2	$ 290.00
UHMW Plastic Wear Plates (set of 2)	$ 85.00	2	$ 170.00
Turbo Nozzle	$ 125.00	2	$ 250.00
Rebuild Kit - Turbo Nozzle	$ 50.00	10	$ 500.00
In-line Filter - Turbo Nozzle	$ 26.00	10	$ 260.00
Hose Protection Ring	$ 35.00	5	$ 175.00
BIRD RECOMMENDED WEAR PARTS PACKAGE TOTAL			$ 1,801.00

SUV	Unit Price	Recommended Quantity for Customer Stock	Cost
Rota-caster Omni-directional Wheel	$ 39.00	4	$ 156.00
Omni-wheel axel bolt	$ 4.50	2	$ 9.00
Pick-up Head Rubber Skirt Set	$ 60.00	1	$ 60.00
Vacuum Hose - Aux Hand Hose (6-inch, hose only)	$ 195.00	1	$ 195.00
Vacuum Hose - To Debris Trailer (10-inch)	$ 260.00	1	$ 260.00
Filter Bag - 50 micron (inner)	$ 120.00	2	$ 240.00
Filter Bag - 25 micron (outer)	$ 145.00	2	$ 290.00
SUV RECOMMENDED WEAR PARTS PACKAGE TOTAL			$ 1,210.00