Memorandum

To: Vermont Gas Systems / Addison Natural Gas Project ("ANGP") Phase 1 Project File

Date: July 28, 2016

Project #: 57563.00

From: Joshua Sky, Senior Scientist

Re: ANGP Phase 1 – Parcel LLN 155 Harsh Sunflower Avoidance Plan

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Introduction

At the request of Vermont Gas Systems, Inc. ("VGS") VHB has prepared the following Harsh Sunflower Avoidance Plan for the Addison Natural Gas Project – Phase 1 ("Project"). This plan provides a detailed process for avoiding further impacts to the Harsh Sunflower (*Helianthus strumosus*, State Rank S2, Threatened) plants located on the Parcel LLN 155, currently owned by VGS. On Monday July 18, 2016 VGS contractor (Michels) cut existing vegetation in an approximately 2- to 3-foot wide path along the eastern edge of the mainline corridor, outside of the Project corridor, during some survey work to support the planned horizontal directional drill ("HDD") to avoid the Harsh Sunflower on LLN 155. Although this action did not cause earth disturbance, it resulted in the inadvertent cutting and trampling of a number of Harsh Sunflower plants.

EPSC inspectors discovered this cutting on the afternoon of July 18 and reported these observations to VGS. Upon learning of the impact to the sunflower, VGS immediately suspended construction on the site, reported the incident to the Vermont Department of Fish & Wildlife ("DFW") on July 19, and implemented a series of measures outlined in Mr. John St. Hilaire's email (See the Attachment) to Jon Kart on the morning of July 21. Mr. Kart responded on the evening July 21 with specific additional measures to be taken by VGS before resuming construction activities as follows:

1. Develop and submit a Harsh Sunflower Avoidance Plan to ANR/FWD;
2. Coordinate with ANR/FWD on review and approval of the Harsh Sunflower Avoidance Plan;
3. ANR/FWD Site Inspection to review Harsh Sunflower plant locations; and
4. Ongoing compliance monitoring and daily reporting with a pre-approved qualified environmental compliance monitor for the duration of work on LLN 155.

The natural resource information contained in this plan is based on natural resource inventory data collected on LLN 155 during VHB's initial inspection in 2012 and subsequent inspections by VHB and Gilman and Briggs Environmental during the summer of 2016. Project details and the description of the wireline placement process are based on a HDD concept plan and email communication as provided by Michels.

Wireline Placement

Since the initial intrusion into the harsh sunflower was initiated by the placement of the HDD wireline outside of the LOD, Michels has developed a specific wireline construction sequence that details the installation, operation and removal process for the off corridor wireline:

- Wireline route reviewed for harsh sunflower by qualified botanist (completed 7/22/16)

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

- Wireline route staked and flagged for review by ANR/DFW site visits (completed 7/22/16)
- Wireline route captured by GPS for inclusion on Sunflower Avoidance Plan (completed 7/22/16)
- No clearing / weed whacking will be necessary for layout of wireline
- 2-3 people required for layout of wireline for the drill. Foot traffic only – no vehicle traffic necessary
    - A pre-approved qualified environmental compliance monitor will accompany Michels during the wireline installation
    - When line is laid out, another surveyor will walk the line and obtain GPS information of wireline layout
    - No further traffic or inspection of wireline is necessary during construction unless there is damage to the wireline that need to be repaired.
- 2-3 people will remove line and stakes after HDD Is complete.
    - A pre-approved qualified environmental compliance monitor will accompany Michels during the wireline removal

The wireline that is placed above the pipe within the project corridor will largely be placed on ground outside of the harsh sunflower populations that is cleared and stripped. However, there are two locations of harsh sunflower population (shown as 2016-RTE-HS-01a and 2016-RTE-HS-02 on the attached plan) that the wireline must pass through. Each of these locations is currently fenced off and there will be no foot or vehicular traffic allowed during construction, including pre- and post-construction activities. The wireline will be suspended over these areas from the construction fencing or from adjacent staking outside of the sunflower areas thus preventing any potential impacts.

Harsh Sunflower Avoidance Plan

The purpose of the Harsh Sunflower Avoidance Plan is to prevent impacts to the sunflower while HDD construction work, including pre- and post-construction activities, is occurring on the property. No pedestrian, vehicular or any other access is allowed with the areas of harsh sunflower within or outside of the Project corridor. Through the measures described below, any risk of cutting, trampling, removing or otherwise foreseeable harm to the sunflower will be prevented.

The sunflower avoidance plan contains the following elements:

A. Harsh Sunflower avoidance site plan

This plan (see Attachment) depicts the locations of the Harsh Sunflower populations in relation to Project limits of disturbance ("LOD") in relation to all of the elements of the planned work. This includes the demarcation and protective measures for the Harsh Sunflowers, the location of the HDD components including the drill location,

pullback area and temporary wire line[1] placement required to conduct the drill. It also shows the location of the construction access over the proposed HDD.

B. Demarcation of all Harsh Sunflower populations in the field

A qualified VHB botanist has reviewed the previous Harsh Sunflower delineations conducted during June and early July 2016 and field investigated remaining areas in proximity to planned construction work associated with the planned HDD, including wire line locations. As of July 25, these locations have been field identified within the project corridor with signage and have been protected with a double barrier of orange construction fencing installed in May 2016 and a green barrier fence installed on July 25, 2016. Before construction resumes the green barrier fence will be inspected and where necessary it will be moved to allow for a minimum 5-foot buffer between the sunflower population and LOD within the Project Corridor. Harsh sunflowers located outside of the Project corridor are demarcated with pink flagging strung between wooden stakes to provide a continuous barrier to avoid inadvertent intrusion by foot traffic as shown on the Harsh Sunflower Avoidance Plan. In combination, the pink flagging and construction fencing completely enclose the sunflower populations in order to prevent accidental intrusion. Photographs of the sunflower demarcation are provided in the Attachment.

Protective demarcation measures installed for the harsh sunflower will not be removed until construction in the area is completed and the sunflowers have entered their fall/winter dormant phase and not before October 15. During demarcation removal foot traffic through the sunflower population will still be avoided and vehicle traffic will be prohibited, but any inadvertent intrusion necessary to remove the demarcation would not harm or impact the dormant plants. Removal of the demarcation fencing, staking and ribbon will be conducted by hand under the supervision of a pre-approved qualified environmental compliance monitor. Materials removed will be carried to the nearest project access point and loaded into a vehicle for proper reuse or disposal.

C. Training of all work crews, current and future, on Harsh Sunflower demarcation and avoidance

All contractors that conduct work, including pre-and post-HDD activities, on site will be required to review the Harsh Sunflower Avoidance Plan and will be briefed on the location and description of filed demarcation of the Harsh Sunflower. Beginning on the day of resumption of construction on the subject parcel, construction crews will participate in a daily tailboard meeting that will include a sunflower briefing for the duration of the HDD. All vehicular traffic on the construction access above the HDD in proximity to the Harsh Sunflower will be kept to a minimum by blocking off the access with flagging and fencing and will only be allowed at the direction of the site supervisor and under the direct supervision of a pre-approved qualified Environmental Compliance Monitor (see below). The July 22, 2016 survey of the of the HDD wire line outside the LOD has been conducted with the review

[1] The wire line is used so that the drill operator can steer the drill bit. Two wires (standard 10 gauge electric wire) are placed on the ground surface: one of the wires is placed within the LOD atop the alignment. The second wire is offset from the first wire (potentially outside the LOD), paralleling the drill path. A third wire is installed within the drill itself. This system sends a signal back to the operator, providing the necessary information for proper steering.

and approval of a qualified botanist capable of identifying the Harsh Sunflower and or other protected plants and reviewed by ANR/DFW staff during on July 25, 2016.

It should be noted that within the past several days, Michels has conducted refresher training in the wake of this event including refresher environmental training for all foreman; and refresher training for the entire Peyser HDD, which touched upon all of the items discussed above, including locations of Harsh Sunflower, requirements to work within the LOD, and general environmental requirements and awareness.

All contractors that conduct construction work on site will receive a copy of the sunflower avoidance plan. This includes current contractors and any additional contractors that may perform other duties such as inspections, site stabilization and removal of the sunflower demarcation (see above) following the completion of work.

D. An approved full time Environmental Compliance Monitor ("ECM") to be present on site at all times that workers are present

A trained VHB staff person will serve as the ECM for this work. This person will have the authority to advise the VGS construction team regarding the need to stop work on site in the event any Harsh Sunflower plants are observed to be at risk of being harmed. The ECM will be present at all times work is being performed in the vicinity of the Harsh Sunflower populations on Parcel LLN 155. This includes all remaining construction activities on the parcel, including pre-HDD work to final site stabilization. The ECM will monitor activity on site for the purpose of avoiding impacts to the Harsh Sunflower and will provide daily reports to ANR/FWD. In addition the ECM will conduct the sunflower avoidance training detailed above and will monitor the condition of and Harsh Sunflower demarcation and make recommendation for immediate repairs if needed. The ECM will be responsible for notifying ANR/DFW if any additional impacts to the sunflower were to occur. Notification, if needed, would occur during the same day that the impact occurred.

The following staff members (Resumes attached) from VHB will conduct the environmental monitoring:

Field Support: One or more pre-approved ECM will be present on site at all times during construction to conduct monitoring and reporting and compliance with the Sunflower Avoidance Plan. Staff have been divided in to two groups based on the type of activity and relative risk to the sunflower. An individual listed in Group 1 will be required to be on site when contractor activity is required outside of the Project corridor (depicted as LOD on Harsh Sunflower Avoidance Site Plan) or within the sunflower populations within the Project corridor. At this time this activity is only anticipated to include the placement and removal of the wireline and the removal of the demarcation following construction. At all other times an individual from Group 2 will be present on site. The ECM will also complete the daily monitoring and reporting. It is anticipated that Michles will infrequently need foot or vehicle access on the portion of the Project corridor over the HDD that is already cleared, and Group 2 ECMs will accompany the contractors during this activity. Group 2 ECMs have been trained in the identification of the harsh sunflower and the Harsh Sunflower Avoidance Plan. Both Group 1 and Group 2 ECMs will immediately advise VGS and its contractors to cease activity and notify DFW if any sunflower plants are at risk of harm. ANR/DFW pre-

approval is required for any additional environmental compliance monitoring staff that VGS desires to add or substitute for the individuals identified below.

Group 1 ECM List:

Joshua Sky, Senior Scientist

Adam Crary, Senior Wetland Scientist

Carla Fenner, Environmental Scientist

Mike Ingram, Environmental Specialist

Group 2 ECM List:

Max Forbes, Environmental Services Intern

Jenna Nash, Environmental Services Intern

Conclusion

VHB has developed this plan at the request of ANR and VGS to prevent further impacts to the Harsh Sunflower on the subject parcel. With the diligent implementation of the protective steps described herein, we are confident that this Harsh Sunflower Avoidance Plan will be successful in achieving this objective.

Attachment

1. John St. Hilaire email to Jon Kart dated July 21, 2016
2. Sunflower Avoidance Plan Sheet
3. Sunflower Demarcation Photographs
4. ECM Resumes

ATTACHMENT

Sky, Josh

From: John St.Hilaire <jsthilaire@vermontgas.com>
Sent: Thursday, July 21, 2016 7:46 AM
To: Jon.kart@vermont.gov
Subject: Vermont Gas update on inadvertent taking

Hi Jon

My name is John St. Hilaire and I am the executive sponsor of the Addison Natural Gas Project. I'm writing this email to update you on the status of Vermont Gas activities as they relate to the sunflower.

As you know, late Monday afternoon our contractor (Michels) cut a path along the eastern edge of our mainline corridor during some survey work to support the planned HDD for the Peyser site. This action resulted in the inadvertent taking of a number of Harsh Sunflower plants. [We met with Bob Popp yesterday to review the impacts and determine an accurate count of plant impacts.] Upon learning of this event, we instructed the contractor to immediately stop all work at this location and notified the Agency, as well as the DPS and the PSB.

Over the course of the last two days, we have worked collaboratively with Michels to conduct a root cause analysis of this event to understand what occurred, the root causes that lead to the event, and the necessary actions to be taken to prevent something like this from happening again. While the root cause analysis identified several contributing factors, we have identified the primary cause of this event as a failure in Michels internal procedures regarding HDD work planning and communication of critical environmental risks between management staff and the field crews. To correct this procedural gap, Michels has implemented the following corrective actions:

Action Item:	**Responsible Party:**	**Status:**
HDD Crew Stand down (2 days)	Michels	**Completed**
Additional training - review environmental memo/guidelines with all HDD crews. Additional training will be held 7/21 with all crew foremen.	Michels	**Completed**
Broaden weekly All-Hands Safety Meeting (each Saturday) to cover environmental protection and safeguards.	Michels	**Ongoing – Will commence 7-23-16**
Confirm proper LOD and protective resource demarcation on ROW.	Michels	**Completed**
Conduct daily environmental checklist (this is similar to the safety JSA that is done by each crew prior to commencing work)	Michels	**Ongoing – Will commence 7-21-16**
Establish project communication protocol between Michels Management and Field Employees.	Michels	**7-20-16**
Conduct Daily Environmental Briefing with crew leaders (0600 hours)	Michels	**Ongoing – Will commence 7-20-16**
Hold formal planning meeting with HDD Crew prior to mobilization of future HDDs, including Peyser.	Michels	**Ongoing**

We have spent considerable time and effort to ensure that Michels' leadership and field crews have received refresher training, particularly in regards to protection of critical resources and requirements that all work is to be within the LOD. Moreover, the corrective actions Michels has now implemented, most notably a daily environmental checklist, as well as additional work planning, will help ensure that an incident like this does not occur again.

Given development and implementation of these corrective actions over the course of the two-day stand down, we are allowing the Michels HDD crew to resume work tomorrow at the Peyser location. As Michels returns to work, the following should be noted:

- The HDD crews will set up on both ends of the span to be drilled, well outside the areas where the sunflower has been identified and flagged
- Any travel within the corridor is on a well established path, and the flower areas remain well marked, as well as the LOD along both sides of the corridor
- Activity for tomorrow only includes mobilization. We will evaluate field activities tomorrow, and if work proceeds smoothly the corrective actions are successfully implemented, then we intend on allowing Michels to proceed with drilling activities on Friday.
- We will have an environmental monitor at Peyser during all mobilization activities and pre-drill work to provide the evaluation discussed in the bullet point above.
- Wire does have to be run along the edge of the corridor to enable the HDD crew to "steer" the drill, but this will be done under the supervision of our VHB Ecologist to ensure that the path remains well outside any of the plant areas

In closing, we understand the serious nature of this inadvertent taking, and we believe we have responded decisively and quickly to investigate the incident and implement comprehensive corrective actions to prevent a reoccurrence of this type of event.

John St.Hilaire
VP Operations and Executive Sponsor ANGP
Vermont Gas Systems, Inc

Notes: While work is being conducted on site an Envinromental Compliance Monitor will be responsible for implementing the Harsh Sunflower Avoidance Plan

Outside of the LOD the harsh sunflower is demarcated with pink flagging and an additional protective buffer has been applied to avoid inadvertent intrusion by foot traffic.

Limited Access Over HDD Install Barrier Fencing

HDD Wire Line 2 Offset From HDD

HDD Pullback

HDD Entry

2016-RTE-HS-01 S2/S3/Threatened

2016-RTE-HS-01a S2/S3/Threatened

2016-RTE-HS-03 S2/S3/Threatened

Limited Access Over HDD Install Barrier Fencing

2012-PW-68 (Class III)

Within the LOD the harsh sunflower populations are demarcated by orange construction fencing and signage to prevent intrusion by foot or vehicular traffic.

HDD Exit

Over HDD access

2016-RTE-HS-01 S2/S3/Threatened

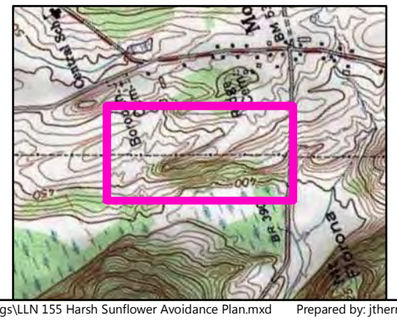
2016-RTE-HS-02 S2/S3/Threatened

Potential Bat Tree Flagged for Avoidance No Impact

HDD Wire Line 1 Over HDD

LLN: 153.03
LLN: 153.01
LLN: 153
LLN: 154
LLN: 155
LLN: 156.01
LLN: 154.02
LLN: 159
LLN: 156
LLN: 160
LLN: 154.01
LLN: 161.02
CEDAR LN
HOLLOW RD
K43

Sources: Background Imagery from VCGI (2013)
ANR (Agency of Natural Resources - Various Dates);
CHA (Clough Harbour and Associates - 2012-2015);
FWD (VT Fish and Wildlife Deptartment - 2015);
G&B (Gilman and Briggs Environmental - 2012-2015);
Michels (2016);
VCGI (Vermont Center for Geographic Information - Various Dates);
VELCO (Vermont Electric Power Company - 2012);
VHB (Vanasse Hangen Brustlin - 2012-2016);
VTrans (Vermont Agency of Transportation - 2015).



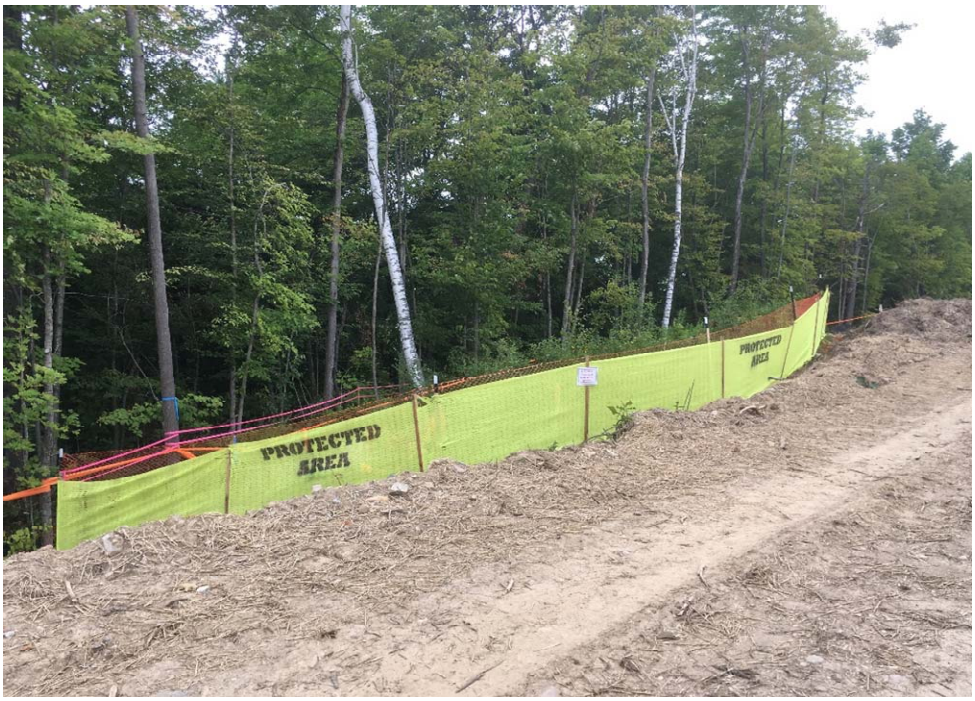
- HDD Wire Line (VHB)
- Over HDD Access (VHB)
- HDD Pullback Area (Michels)
- Harsh Sunflower Demarcation Limits (VHB)
- Study Area (VHB)
- Proposed Transmission Mainline (CHA)
- Wetland (VHB)
- Stream Centerline (VHB)
- Stream Top of Bank or Slope (VHB)
- Ditch (VHB)
- Potential Bat Tree (VHB)
- 50 ft. Class II Wetland Buffer (VHB)
- RTE Plant Area (G&B)
- VELCO Structure Location (VELCO)
- Transmission Lines (VELCO)
- VSWI Wetland (ANR)
- RTE Species/Communities (VT FWD)
- Stream (VHD)
- 2 ft. Contour (VCGI)
- 10 ft. Contour (VCGI)
- Limits of Disturbance (CHA)

150 75 0 150 Feet

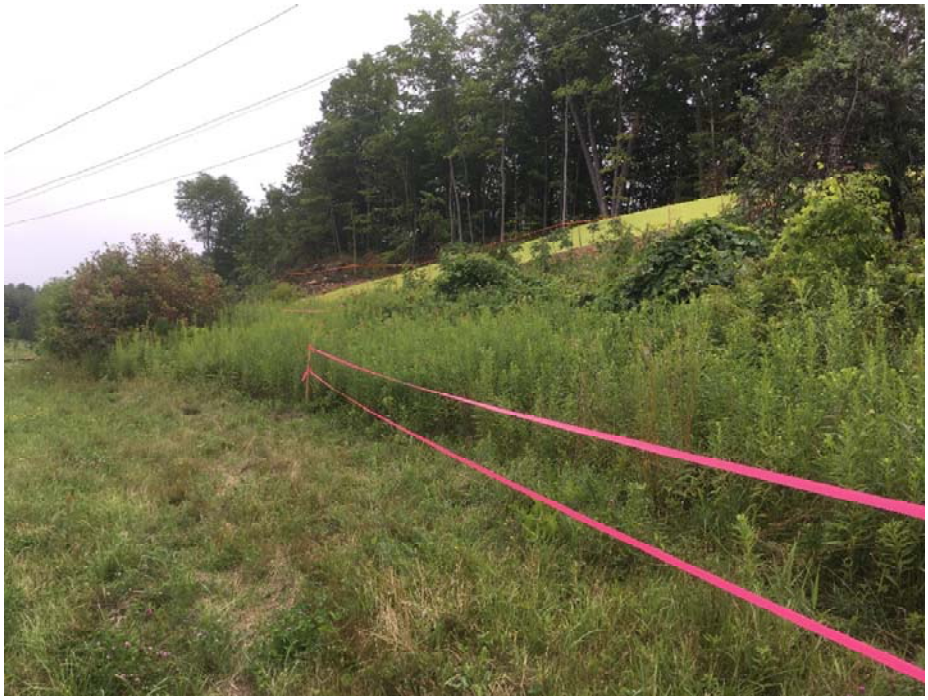
Vermont Gas - ANGP Phase I
Parcel LLN 155
Harsh Sunflower Avoidance Site Plan
Monkton, Vermont

DRAFT: July 22, 2016

\\vtnfdata\projects\57563.00 VGS Addison Expansion\GIS\Project\VT Takings\LLN 155 Harsh Sunflower Avoidance Plan.mxd Prepared by: jtherrien



Photograph 1: Harsh sunflower area within Project corridor marked by high visibility green fencing with "Protected Area" lettering.



Photograph 2: Harsh sunflower areas outside of Project corridor marked with double row of pink tape.

MAXWELL A. FORBES

53 North Willard Street
Burlington VT, 05401
781-640-7630
Maxwell.a.forbes@gmail.com

EDUCATION

Bachelors of Science in Environmental Science: Specialization: Mountain Systems Science
University of Vermont, Burlington, Vermont - Expected Graduation: 2017

WORK EXPERIENCE

Experience
VHB Environmental Services Intern, June 2016-present

- Regularly assists in the field performing wetland and water delineations, wildlife and vegetation surveys, invasive species monitoring, and other environmental assessments
- Performs data entry and analysis to assist in the completion of project deliverables including ArcGIS mapping, United States Army Corps of Engineers wetland determination data forms, floristic inventories, and delineated waters summary tables

Customer Service Specialist - Outdoor Gear Exchange/Gearx.com, Burlington VT, March 2015 – Present

- Responsible for meeting the needs of customers, managing the register station and register staff, opening and closing the store and assisting managers with operations

Marketing Intern – College Outside, May 2015 – Present

- Manage marketing and communications for College Outside including website publications, social media, Email marketing, and events
- Coordinate marketing campaigns with vendors
- Manage a team of 8 part-time website content publication contributors

LEADERSHIP & VOLUNTEER POSITIONS

University of Vermont Outing Club

- Rock and ice climbing trip leader, 2013 – Present
- Ice Climbing Site Management and Anchor Construction (SMAC) Leadership Development Program Coordinator
- TREK Wilderness Orientation Climbing Leader

Middle School Science Olympiad Program

- Coolidge Middle School Science Olympiad Team, Volunteered over 850 hours as event coach, 2009 – 2013
- Parker Middle School Science Olympiad Team, Co-Founded and led the team, 2012 – 2013

Boy Scouts of America, 2006-2013

- Eagle Scout, May 2013
- National Youth Leadership Training Program, July 2011

CERTIFICATIONS

- Certified Single Pitch Instructor, American Mountain Guides Association, May 2015
- Wilderness First Aid Certified, Solo Institute for Wilderness Medicine, April 2014

TECHNICAL SKILLS

- Proficient operation of both Microsoft and Macintosh operating Systems
- Proficient operation of Microsoft Office Suite and Adobe Photoshop Lightroom
- Advanced social media and marketing skills specializing in MailChimp, Blogger, WordPress, Facebook and Instagram
- Working knowledge of Adobe Photoshop, Illustrator, InDesign and Dreamweaver
- Working knowledge of Geographic Information Systems, particularly ArcGIS
- Working knowledge of Computer Aided Design, including SolidWorks, AutoCAD, and ProEngineer
- Working knowledge of programming languages HTML, Java, Python, C# and Matlab

Jenna Nash

31 Hungerford Terrace, Burlington, VT 05401
(814) 602-0297 || jnash1@uvm.edu 4550
Scott Road, East Springfield, PA 16411

Education

University of Vermont, Burlington, VT
Bachelor of Science Degree majoring in Environmental Science, anticipated December 2016 Honors:
Presidential Scholarship, Dean's List 2012–2013
Cumulative GPA: 3.15

Experience

VHB Environmental Services Intern, June 2016-present

- Regularly assists in the field performing wetland and water delineations, wildlife and vegetation surveys, invasive species monitoring, and other environmental assessments
- Performs data entry and analysis to assist in the completion of project deliverables including ArcGIS mapping, United States Army Corps of Engineers wetland determination data forms, floristic inventories, and delineated waters summary tables

Gap Inc. Sales associate, hired May 2014

- Excels in having full knowledge of product and brand
- Development of merchandising skills, visual presentation of product, and customer service skills

UVM Dining Services Waterman Manor Server and bartender, hired July 2015

- Excels in maintaining organization and performing all duties in a fast-paced and continually changing environment while providing excellent customer service
- Works individually and as a part of a team to serve a range of small dinner parties to upscale banquets
- Certified alcohol server

Technical Skills

Proficient using ArcGIS, Microsoft Office, and AutoCAD with a working knowledge of Matlab and Stella Systems Modeling

Leadership Experience

Panhellenic President, *UVM Panhellenic Council Executive Board,* 2016

- Head of the executive board that governs UVM's largest women's organization
- Development of skills in time management, delegation, collaboration, public speaking, and problem solving

Vice President of Standards, *UVM Panhellenic Council Executive Board,* 2015

- Developed skills and exceled in problem solving, conflict resolution, mediation, and crisis/risk management
- Head of the Judicial Board, edited UVM's Panhellenic Constitution and Bylaws and wrote a Code of Ethics
- Collaborated in planning and led an orientation for the 200+ new members of the Greek community

Active Member, *Kappa Alpha Theta Women's Fraternity – Lambda Chapter,* joined November 2012

- **Event Director,** Fall 2013–Spring 2014
  Organized and worked with local businesses in the planning of events for 100+ chapter members, leader of the chapter's risk management team, developed programming to improve the safety of members
- **Member Development Committee** Class representative, 2013
  Served on the five-person committee to ensure the well-being, safety, and morale of the entire chapter as well as every individual member
- **2013 Emerging Leader's Institute,** Lambda Chapter delegate

Vice President of Public Relations and Marketing, *UVM Jews in Greek Life,* 2013

Community Service and Philanthropy

Philanthropy Committee Member, *Kappa Alpha Theta – Lambda Chapter*

- Aid in the organization, planning, and execution of annual events including a Thanksgiving dinner and talent show to benefit the Court Appointed Special Advocates (CASA)

Event Aide, *UVM Rallython*

- Assist in the running of Rallython and performing any required tasks
- Serve as the liaison between the UVM Panhellenic Council and the Rallython Executive Board

Animal caretaker and socializer, *All Breed Animal Rescue*

Challah baker, *UVM Challah for Hunger*

- Baking and selling challah in order to benefit the Chittenden Emergency Food Shelf and the American Jewish World Service in an effort to end world hunger

Michael Ingram

Environmental Scientist

Education

MS, Geology, University of Vermont, 2015

BS, Geology, University of Vermont, 2011

Mike is an Environmental Scientist position in VHB's South Burlington, Vermont, office. He works as a Construction Inspector, Environmental Monitor, and Environmental Scientist, employing a diverse set of skills including field observations and reporting, GIS mapping, plan reading, and working on multiple projects simultaneously, as well as trouble shooting and solving time sensitive issues.

5 years of professional experience

Vermont Gas Systems – Addison Natural Gas Project Construction Phase

Mike is the environmental scientist/Erosion Prevention and Sediment Control ("EPSC") Specialist for this natural gas pipeline construction project that includes transmission mainline and access routes, laydown/staging areas, gate stations, mainline valve sites, Vergennes distribution mainline, and Middlebury distribution mainline. He provides Environmental permit compliance monitoring and assistance to the construction team regarding environmental permit compliance, as well as on-going coordination with the project environmental team regarding environmental permit conditions and compliance, environmental training for contractors, and general coordination with Vermont Department of Environmental Conservation ("DEC") and US Army Corps of Engineers ("USACE").

Vermont Gas Systems – Gauthier Wetland Fill Removal

Mike provided EPSC recommendations to stabilize a site of wetland fill during the winter of 2016 and provided oversight of the installation of the EPSC measures. In the spring of 2016 he worked directly with the contractor by providing oversight of the wetland fill removal and restoration to ensure additional impacts to the wetland were minimized and that restoration efforts would result in a revitalized wetland. He also screened the removed soils with a Photo Ionization Detector ("PID") to determine if any contamination was present.

National Grid – Harriman Station 8 Substation

Mike fulfilled the role of Environmental and EPSC Inspector on this substation expansion project located near the Deerfield River in southern Vermont. He conducted weekly site visits and provided recommendations to the client to maintain compliance with DEC and USACE permits.

Vermont Rail Systems – Shelburne Transload Facility

Mike provides on-going support and recommendations with respect to the EPSC Plan and DEC permits. He also developed the Stormwater Pollution Prevention Plan ("SWPPP") for future obtainment of a Multisector General Permit ("MSGP"). Developing the SWPPP involved identifying potential pollutant sources and working closely with the client and stormwater design engineers to ensure the operational facility adheres to local and regional environmental regulations.

VTrans, State Roads and Highways, Vermont

While employed at another firm, Mike performed environmental services for the Vermont Agency of Transportation (VTrans). He performed watershed delineation using ArcGIS for culverts and bridges requiring replacement or repair on VTrans road

projects; developed data management protocols for receiving field data and sending watershed basin characteristic data; and reviewed technical reporting for culvert design and AOP recommendations.

Burke Mountain Resort, Permitting & Mapping
While employed at another firm, Mike worked on a mountain development. He carried out Act 250 permitting for trail lighting; Act 250 permitting for 8 miles of mountain bike trails, 9 wooden bridge stream crossings, and 22 wooden/dirt features; and Act 250 permitting for trail re-grading and the construction of a new pump house. He created/compiled maps into Google Earth of the wastewater system; compiled Act 250 permit conditions from 1971 until current and created a compliance checklist for the mountain operations. Mike also mapped the boundaries and centerlines of all ski and mountain bike trails by GPS and GIS to quantify acres and miles of recreation.

Newport State Airport
Prior to joining VHB, Mike worked on a $7M airport development as Environmental Monitor for 76 acres of logging in forested wetlands to ensure compliance with project plans and USACE, DEC and Act 250 permits. He also performed tracking of logging progress, disturbed areas, locations of primary and secondary haul roads, and EPSC measures with GIS maps.

Waterbury Contaminated Soils
Prior to joining VHB, Mike worked on the repair and upgrade of town storm water system and response to a spill at the Waterbury Fire Department. He delineated the extent of petroleum contaminated soils and performed removal oversight; coordinated with state and local officials on the degree of contamination and removal process; and submitted summary reports and site maps to the DEC.

Milton I-89 and Windsor I-91 Design Build Projects
Prior to joining VHB, Mike was a Construction Inspector on a two interstate bridge replacement projects. He reviewed and performed inspection of erosion prevention and sediment control (EPSC) measures; performed dry swale with permeable soil inspection; and inspected all construction activities for conformance to the plans and project specifications. He performed elevation and location surveys included subgrades, forms, drainage structures, bearing seats, and beam camber profiles. Mike performed material tracking, sample scheduling, and material certifications verification. He also reviewed and inspected access roads, including road grade survey, erosion control procedures and bank stabilization, as well as inspected cofferdam installation, dewatering and water filtration systems.

462 Shelburne Road Construction
Prior to joining VHB, Mike performed construction services for a commercial development that included the demo of a 60 unit motel complex and office buildings, excavation of foundations, and grading of a 100 space parking lot. Mike also installed and maintained site wide EPSC measures.

Joshua L. Sky, GISP

Senior Scientist/GIS Manager

Education

MS, Forestry, University of Vermont, 2005

BS, Environmental Science, Principia College, 1996

Registrations

Geographic Information System Professional (GISP)

Josh is a Senior Scientist focusing on energy projects and is also the GIS Manager at VHB Vermont. He specializes in obtaining natural resource based permits for large and small scale energy projects from pipelines to renewables. Permit experience includes Vermont Act 250, Section 248, Vermont DEC program permits, US Army Corps Section 404 and 10 permits, FEMA, and NEPA. In addition to his project work he oversees the use of GIS in the Vermont office including cartography, spatial analytical problem solving, hydrologic model support, database development, and custom model development. Josh supervises a small team of full-time GIS technician/staff scientists and provides support for other GIS users in the office, as well as supervises mobile data collection.

16 years of professional experience

Vermont Gas Systems, Addison Rutland Natural Gas Project – Phase 1, Chittenden and Addison Counties, VT

Josh is the assistant project manager for the proposed Vermont Gas Systems – Addison Natural Gas Project (ANGP Phase 1), which includes 42 miles of 12-inch transmission pipeline, 3 metering and regulation stations, 5 miles of distribution mainline, and local distribution networks in Vergennes and Middlebury, Vermont. Mr. Sky worked closely with VGS to obtain the necessary permits including a Certificate of Public Good from the VT Public Service Board, an individual Vermont Wetland Permit, a construction stormwater permit, stream alteration permit, section 401 water quality certification, and USACE Section 404 and Section 10 permit under an aggressive schedule and the Project is currently under construction.

TDI-NE, New England Clean Power Link (NECPL) Electric Transmission Line, Grand Isle and Rutland Counties, VT

TDI-NE, a privately held company, is developing the New England Clean Power Link (NECPL) project to deliver 1,000 megawatts (MW) of hydro-electric power generated in Canada to the United States. Jesse is serving as the Data Manager for the GIS/CAD data for the project. Josh provides regulatory support an coordination between the GIS team members.

Lamoille Valley Rail Trail, Lamoille Valley, VT

For the Vermont Association of Snow Travelers (VAST), Josh served as the Environmental Task Manager for an ambitious project to convert a 93-mile rail corridor across northern Vermont to a four-season multi-use trail traversing 17 communities, from St. Johnsbury to Swanton. He prepared environmental and cultural documentation along the entire corridor to support the VTrans Local Transportation Facilities process in anticipation of obtaining a Categorical Exclusion approval. Josh was also responsible for the management of field data collection, resource data management and resource mapping for this project that included rehabilitation or replacement of more than 80 bridges and public outreach and close coordination with the permitting agencies.

Stratton Mountain Resort, Water Quality Remediation Plan, Stratton, VT

Josh has been the primary author and guide for the SWQRP since 2007 and has worked closely with Stratton to present base flow and event-based water quality sampling, monitoring, and reporting, and data compilation of streams at Stratton Mountain Resort as part of the resort-wide water quality remediation plan. Stratton is currently entering into the final phase of the SWQRP with all but one stream in compliance with Vermont water quality standards.

Sheffield Wind Project, Sheffield, VT

Josh provided assistance for construction and operational phase stormwater permitting to First Wind (formerly UPC Wind Management, LLC) for a proposed wind farm project in Sheffield, Vermont, consisting of 16 turbines with a project capacity of 40 MW. The applicant modified the project through the course of Section 248 review, and VHB was tasked with evaluating changes in potential project impacts to meet Vermont Department of Environmental Conservation permitting requirements. VHB completed a detailed field reconnaissance and initial watershed resources assessment, utilizing existing information and available GIS mapping to prepare an extensive resource base map. Josh led the resource flagging effort with supervision of field crew and oversight of data collection, as well as oversight of all mapping used for documentation and exhibits in the Vermont 248 process and subsequent appeal. In August 2007, a Certificate of Public Good (CPG) was issued approving the project.

National Grid, GP33 Improvement Project Natural Resources Survey, New Hampshire and Vermont

On behalf of National Grid, VHB conducted a natural resources assessment for the G-33 Line Improvement Project. Within the existing G-33 69 kV transmission line right-of-way (ROW), along proposed off-ROW access routes, construction staging areas, and log drop sites beginning at the hydrostation in Bellows Falls, Vermont and terminating at the Vernon hydrostation in Vernon, Vermont. The entire ROW is approximately 30-miles long, with approximately 10-miles located in New Hampshire and 20-miles in Vermont. The assessment included a wetland and stream survey, wetland functions and values assessment, a Rare, Threatened, and Endangered (RTE) plant species survey, and survey for potential Rare Irreplaceable Natural Areas (RINA). A natural resource report was prepared for permitting effort. For this project, Josh provided data analysis, management, and associated mapping for permitting and reporting.

Deerfield Wind Project, Searsburg and Readsboro, VT

Josh managed the data collection effort and oversaw all mapping required for support of the Deerfield Wind Project, which represented a much-needed long-term source of power for Vermont and the region. VHB conducted an initial assessment of stormwater management approaches as part of the Section 248 Vermont Public Service Board review process for the client, Iberdrola Renewables. Specific activities involved an assessment and design of stormwater management practices for construction and operational phases of the project in order to meet Vermont Department of Environmental Conservation (DEC) permitting, planning, and design requirements.

Burlington Stormwater Utility, Burlington, VT

The City of Burlington established a Stormwater Utility in 2009 through a public ordinance. The utility collects a stormwater fee from property owners based on the

amount of impervious surface present on their property. VHB worked with the Stormwater Utility to establish continuity between the parcel-based impervious cover information and the assessor's database. Josh developed and implemented quality assurance and quality control procedures to ensure data continuity and accuracy. Josh provided the Stormwater Utility the updated information in time for the first billing cycle, as well as provided support for the Utility when individual property owners sought confirmation of the amount of impervious surface within their property

Stratton Mountain Resort, Styles Brook and Middle and East Branch of Tributary 1 to Stratton Lake Stream Geomorphic Assessment, Stratton Mountain, VT

Under the Stratton Water Quality Remediation Plan (SWQRP) Josh directed a Phase 2 SGA for Styles Brook and the Middle and East Branches of Tributary 1 to Stratton Lake. The Phase 2 SGA consisted of identifying bankfull features, conducting a partial pebble count, surveying cross sections, etc. As a result of the SGA and bridge/culvert assessments conducted by VHB, other problem areas contributing to the water quality impacts were identified. The results of the SGA survey were used to craft additional remedial measures designed to bring Styles Brook and Tributary 1 to Stratton Lake into compliance with VWQS including attainment of Class B Aquatic Life use support.

Adam R. Crary, PWS, PWD

Senior Wetland Scientist

Education

BS, Natural Resources and Natural History and Ecology, University of Maine, 2000

Registrations

Professional Wetland Scientist (SWS-PCP)

Professional Wetlands Delineator (VDPOR)

Approved Rare Plant Surveyor (USFWS), VA

OSHA 10 HR Construction Safety, Feb. 2008

Wilderness First Responder (former certification)

Affiliations/Memberships

Society of Wetland Scientists

Southern Appalachian Botanical Society

New England Wildflower Society

NEWFS Plant Conservation Volunteer

Adam has worked as a federal park ranger, a research assistant, a stream ecologist, a wetland ecologist, a botanist, and a project manager. He has performed ecological services in 12 states and one U.S. territory on both large- and small-scale public and private projects. Adam has worked on remote as well as urban sites, multi-state linear utility projects, as well as county-wide assessment initiatives. He is responsible for managing or providing oversight on projects focused on ecological resource inventory or involving federal or state environmental permitting, as well as managing wetland and ecological services and technical staff and providing expert natural resources testimony for energy projects primarily in Vermont and the northeast.

18 years of professional experience

Kingdom Community Wind Project, Lowell, Westfield, and Jay, VT

Adam served as the Project Manager for the natural resources assessments conducted by VHB in support of the Section 248 filing for a CPG from the VT PSB as well as collateral environmental permits. Field assessments included wetland/waters delineations and VWR classifications, wetland function and value assessments, rare flora and natural community surveys, vernal pool surveys, and mitigation site assessments. Assisted in the development of project testimony and preparations for PSB hearings. Permitting tasks included close coordination with the Project engineer, developer, VT ANR, USACE, and preparation of Individual Permit applications and mitigation packages. This project involved a 21 turbine wind farm on 4-miles of the Lowell Mountain ridge, with a 16+ mile transmission line upgrade, which was approved and began construction in less than 2 years from substantial resource assessment work.

VELCO, K41 Transmission Line, Irasburg to Highgate, VT

Adam served as overall Project Manager for a comprehensive natural resources survey for the approximately 51-mile Vermont Transco, LLC (VELCO) transmission line, which runs through numerous towns in northern Vermont. In addition to managing field staff, he also led rare, threatened, and endangered (RTE) plant and habitat assessment field surveys. He provided oversight, and prepared and provided QA/QC on technical documents submitted on behalf of VELCO summarizing the results of these surveys, in support of a Section 248 filing.

South Burlington Solar Farm, South Burlington, VT

Adam served as Task Manager and Lead Field Ecologist in conduct of first preliminary, then detailed natural resources assessments for the largest solar generation facility at the time in Vermont. Natural resources assessments included a delineation of wetlands and waters, detailed natural community mapping, vernal pool surveys, and development of a buffer vegetation management plan. Adam provided pre-filed testimony for the successful receipt of a Certificate of Public Good (CPG) from the VT Public Service Board, and oversaw the successful procuring of U.S. Army Corps of Engineers (USACE) Section 404 and VT Department of Environmental Conservation (DEC) Conditional Use Determination (CUD) permits. The project was approved and began construction less than nine months from inception.

AllEarth Renewables, VT B&GS Solar Projects, VT

Adam served as the Project manager and expert natural resources witness providing consulting, design, and permitting support as part of a Vermont Buildings and General Services contract to develop solar energy generation projects primarily on VBGS-owned lands across Vermont. The net-metered projects, with VBGS as the off-taker, range from 150 to 500kw in size. Due to the reduced project scale, Adam guided development of an innovative natural resource assessment method to streamline the site investigations and reporting while meeting VT Section 248 statutory requirements as well as Project schedules.

Green Mountain Power 3307 Line Replacement, Winooski, VT

Adam served as the Project Manager of the natural resources assessments and provided Vermont Agency of Natural Resources (ANR) coordination and expert testimony on the Section 248 Natural Resources criteria for the line segment re-aligned following 2011 Winooski River flood damage. Several natural resources are present in the study area in association with the Winooski River, and Adam worked with the Project Engineer to minimize natural resource impacts and concerns from the VT ANR, which included developing a unique approach to address RTE plants via a post-CPG permit condition.

VELCO Structure Condition Improvement Project, VT (throughout)

Adam served as the Project Manager for this Project which involved detailed natural resources inventory of existing transmission lines to support VELCO's permitting and project planning. The work involved inventory of wetland/water resources and significant natural communities as well as a structure flood risk assessment for approximately 107 miles of transmission line in 2013 and 85 miles in 2014, completed within strict schedule constraints.

Other examples of Vermont Natural Resources and Environmental Permitting Projects

Transportation Infrastructure (VAST Lamoille Valley Rail Trail; VTrans bridge, culvert, and highway projects, Bennington Rail to Trail, Hinesburg Path, Colchester Double-Divergent Interchange)

Utility Infrastructure (VELCO transmission and substation projects, VELCO Statewide Radio, GMP Gorge Generating Station, GMP 3325 Line, CVPS Reconductoring projects, National Grid projects, Waitsfield Waterline, various VEC Substation Projects, VT Gas Addison Expansion project, TDI/NECPL ~150 mile new transmission line, National Grid 3315 Line Replacement Project, GMP White River Junction Substation/Transmission Line project, Canaan Water Line project

Renewable Energy (Beaver Wood Energy Pownal and North Springfield Projects, St. Albans Solar, IBM RTC Solar, EGPNA Sheldon Solar, AER VBGS statewide solar projects, Encore Redevelopment solar projects, VEC solar projects, SunEdison Champlain Valley Solar Farm)

Commercial/Res. Development (Moran Plan, Hannaford Hinesburg, Commonwealth Dairy, Quechee Lakes, South Burlington Market Street, Northfield Savings Bank Berlin, Halifax Quarry, South Burlington Trader Joes)

Adam R. Crary, PWS, PWD

Ski Resort Development (Jay Peak, Killington, Mt. Snow, Killington, Timber Creek at Okemo)

Carla A Fenner

Environmental Scientist

Education

BS, Natural Resource Management, University of Hawaii, 2008

Affiliations/Memberships

New England Wildflower Society, New England Plant Conservation Program, 2013

Society of Wetland Scientists, New England and Mid-Atlantic, 2014

New England Botanical Club, 2015

Carla is an Environmental Scientist with a focus on wetland delineation, plant ecology, and regulatory compliance. She frequently works on permit preparation, floristic inventories, threatened and endangered species field surveys, mitigation planning, vegetation management planning, and data analysis. Prior to joining VHB, Carla was a Soil Conservationist at the USDA Natural Resources Conservation Service. In this role Carla worked on comprehensive natural resource conservation plans and implementation oversight on projects across southern Vermont, Her responsibilities included delivery of federal conservation programs; a role that included complex technical biological work and contract administration on more than $1,000,000 of federal contracts. While Carla provides services in a broad range of natural resource management disciplines, the emphasis of her work focuses on wetland and botanical science as well as wildlife habitat management.

9 years of professional experience

Central Hudson Gas and Electric, H&SB Electric Transmission Lines Rebuild Project, Kingston to Greenport, NY

This project focused on obtaining a Certificate of Public Good for this existing overhead transmission line upgrade/maintenance from the North Catskill Substation approximately 23.1 miles south to the Hurley Avenue Substation. The project area included the 150-foot wide Right-of-Way (ROW) with additional adjacent investigation areas outside the 150-foot corridor. Carla facilitated data collection for the duration of the project, and as the wetland and stream delineations task leader, she oversaw the collection of field data and provided regular, detailed progress reports for delivery to the client. Subsequent to field work, Carla provided support to GPS data processing and technical analysis of field data to be developed into a vegetation management plan for the entire project area.

Mount Snow Master Plan – Phase I – Carinthia

In support of Phase I of a Master Plan to redevelop the Carinthia Base Area at Mount Snow Resort, Carla conducted wetland and stream delineations as well as detailed wildlife habitat surveys on tracts of land located at and adjacent to the Carinthia Base Area, associated with the construction of a new snowmaking pond referred to as West Lake, and for a feasibility study on approximately 60 acres in the vicinity of the resort. Carla also played a key role in the Act 250 process and collateral environmental permitting for Carinthia.

Village of Hyde Park Electric Department, Waterhouse Solar Project

Carla conducted wetland and stream delineations, floristic inventory and wildlife habitat assessments in support of the development of a solar project to benefit members of the Hyde Park Electric Department cooperative. In addition to wetland and other natural resources field assessments, Carla's responsibilities included development of a detailed vegetation management plan, agency coordination, natural resources reporting and testimony before the Public Service Board in support of a Certificate of Public Good, and a Vermont Individual Wetland Permit for the project.

Vermont Telecommunications Authority – Vermont Cellular Resiliency Project
The Cellular Resiliency Project was a statewide project implemented to establish disaster resilient, solar powered cellular and Wi-fi telecommunications infrastructure in 10 rural towns and along approximately 133 miles of underserved roadways. Carla completed field surveys for rare, threatened, and endangered species, wetlands, streams and floodplains, and ecologically significant natural communities for 7 of the 10 rural towns in the Project, as well as data collection along approximately 100 miles of the Project's resiliency corridors. Carla also supported this Project through extensive technical reporting, data management, coordination with state regulatory agencies, and the production of NEPA compliance documentation.

Green Mountain Power, Various Substation and Linear Reconductorig Projects

Carla has conducted numerous field studies, wetland delineations, rare flora surveys, natural resource reporting, wetland permitting, and development of resource mitigation and monitoring plans for substation reconstruction, decommissioning, and relocation projects as well as for linear reconductoring and other transmission and distribution line projects. Her work on GMP projects has been spread across many regions in Vermont and exceeding 10 miles of linear project distance.

Vermont Gas Systems, Addison Natural Gas Project Phase 1, Colchester to Middlebury, VT

In support of this 41 mile project, Carla provided wetland delineation, data management, and field survey and mapping of non-native invasive plant populations as well as rare plant surveys, which contributed to a comprehensive vegetation management plan. Carla's work on this project has also included the development of mitigation plans for rare, threatened, and endangered animal and plant species as well as agency coordination and permit development.

NRG Systems, Master Plan, Hinesburg, VT

Carla conducted stream delineations, natural community and upland wildlife habitat inventories, invasive plant surveys, and riparian zone vegetation assessments in support of a Master Plan on a large parcel of undeveloped land in Hinesburg, VT. Carla followed her field efforts with development of multiple technical memoranda that were submitted for review by state regulators, master plan developers, and the town planning board, and that discussed the presence and significance of natural resources as well as the permitting implications, development constraints, and opportunities for mitigation.

USDA Natural Resources Conservation Service, Soil Conservationist, Rutland, VT

Prior to joining VHB, Carla was a Soil Conservationist at the USDA Natural Resources Conservation Service. In this role Carla worked on comprehensive natural resource conservation plans, wetland delineation and functional assessments for regulatory compliance, and was responsible for the delivery of federal conservation programs in three Vermont counties; a role that included technical natural resource management planning and contract administration on more than $1,000,000 of federal contracts.