

proposal's staffing chart. Any change in ARCHITECT personnel must be approved by the Owner in writing at least thirty days in advance of the requested change.

- D. The ARCHITECT, upon execution of this agreement, shall designate a representative authorized to act on its behalf with respect to the project, and this representative shall be approved by the Owner. The ARCHITECT shall examine documents submitted by the Owner, Construction Manager, the Owner's other consultants, Contractors, and vendors and shall render decisions pertaining thereto promptly, to avoid unreasonable delay in the progress of the project.
- E. The ARCHITECT shall coordinate its services and documents with services and documents provided by the Owner, the Construction Manager, CM/GC, and the Owner's other consultants. The ARCHITECT shall provide prompt written notice to the Owner if the ARCHITECT becomes aware of any error, omission, or inconsistency in such services or information.
- F. The ARCHITECT shall act with a reasonable and professional standard of care, as set forth in General Provision I. A. Additional costs to the Project caused by errors or omissions of the ARCHITECT shall be borne by the ARCHITECT.
- G. The ARCHITECT shall work with jurisdictional authorities required to approve the Construction Documents and the entities providing utilities to the project. The ARCHITECT shall respond to their requirements as well as notify the Owner of potential conflicts.
- H. Drawings are to be stamped and signed in PDF format and an unstamped set in both .rvt and .dwg format with a complete set of specifications in Microsoft Word, to the Owner. The ARCHITECT shall also submit all .dwg documents to the Owner in AutoCAD 2004 format or newer with all items embedded including Xrefs and photos. ARCHITECT shall verify compatibility with the State's CADD unit prior to using any AutoCAD specialty software suite or product (civil, mechanical, map, etc.). The ARCHITECT shall furnish all custom support cad files (fonts, line types, plot styles, etc.) to the Owner. All drawings shall include a configured layout tab with sheet border and viewports for printing. The ARCHITECT shall submit all electronic files to the State on an optical disc, CD or DVD in a format suitable for use by the Department of Buildings and General Services.

The ARCHITECT may, in the course of providing services under the terms of this Agreement, provide copies of drawings, specifications or other documents, including the documents of the ARCHITECT's Consultants, in electronic or digital format (tapes, diskettes, CDs, electronic copies, or file attachments to electronic mail), to the State or others, for convenience or informational purposes. Electronic files of the documents are not substitutes for the signed and sealed Contract Documents in printed, hard copy form issued by the ARCHITECT. Electronic files are not Contract Documents. The State (or other user, with permission of the State), referring to electronic files should be particularly alert for inaccuracies, which may result from electronic transmission or translation, or inappropriate use or modification of electronic files without the ARCHITECT's knowledge. Any information or data obtained or derived from electronic files to create shop drawings or other submissions must be compared with the hard paper Construction Documents issued by the ARCHITECT for construction. Use of electronic documents for any reason is at the user's sole risk. In all cases the hard paper Construction Documents shall be given precedence in the event any discrepancies between the hard copy copies issued by the ARCHITECT and any electronic transmitted documents are discovered. The user of such electronic transmitted documents shall notify the ARCHITECT immediately upon its knowledge of such discrepancies.

- I. Written reports delivered under the terms of this agreement shall be printed using both sides of the paper.

II. The Owner shall compensate the ARCHITECT, in accordance with the Terms and Conditions of this Agreement in the following manner:

A. Basic Services Lump Sum Fee

FOR THE ARCHITECT'S BASIC SERVICES, as described in Paragraph 1.1, a Lump Sum of One million two hundred ninety five thousand dollars (\$1,295,000.00), payable in portions described in Paragraph 6.2.

PLUS

- B. FOR THE ARCHITECT'S REIMBURSABLE EXPENSES, amounts expended as defined in Article 5, an initial budget of \$68,000.00 has been established.
- C. FOR THE ARCHITECT'S ADDITIONAL SERVICES, as described in Paragraph 1.3, an initial budget of \$105,000 has been established.
- D. THE TIME AND FURTHER CONDITIONS OF PAYMENT shall be as described in Article 6.

III. THE ARCHITECT shall complete those duties set forth in Paragraphs 1.1 through 1.1.62 of this Agreement on or before December 1, 2018, which shall be one year after the date of Final Completion.

- A. It is understood that any delay caused by the Owner shall result in a corresponding extension of the period specified herein. It is the obligation of the ARCHITECT to notify Owner of the delay and to initiate a change order amending and extending the date in paragraph III immediately above.
- B. The ARCHITECT shall submit at no cost to the Owner a current and complete .rvt, .dwg and pdf file of the entire set of project documents, as well as one triplicate set for the Owner's review and approval, at the end of each phase of the Project, and in addition to this, one (1) complete set of reproducible as-built record prints before the end of the Warranty/Documentation Phase. (See format details above.) Payments for Basic Services to ARCHITECT will not be authorized without this documentation.

TERMS AND CONDITIONS OF AGREEMENT BETWEEN OWNER AND ARCHITECT

ARTICLE 1

ARCHITECT'S SERVICES

1.1 BASIC SERVICES \$ 1,295,000

- 1.1.1 The ARCHITECT's Basic Services consist of the eight phases described below. Except as specifically provided for herein, the ARCHITECT shall provide to the Owner all landscape architectural services as well as civil, structural, fire safety, mechanical, plumbing, and electrical engineering in connection with the Project. The ARCHITECT's Basic Services shall also include sustainable design and commissioning services as detailed elsewhere, as well as consulting on laboratory safety and renewable energy systems for the project. The ARCHITECT shall provide all services necessary to complete each phase of the project.
- 1.1.2 For the purpose of this project, "sustainable design" is design that aims to conserve resources, save energy, and reduce pollution, thereby improving the quality of Vermonters' lives, environment, and finances. The Owner will measure these objectives using LEED's criteria. The ARCHITECT shall provide a design that achieves LEED's Gold standard. At this time the ARCHITECT will not certify the project through LEED.
- 1.1.3 The ARCHITECT shall provide a design that meets Efficiency Vermont's Advanced Performance program requirements as specified in the Initial Information, subject to the Standard of Care. The ARCHITECT shall be responsible for Efficiency Vermont's certification of the project, including all consultations, coordination, documentation, submissions, and presentations.
- 1.1.4 Life-cycle cost, or long-term cost of ownership and operation, shall be a primary criterion in the selection and design of all project elements, including building systems (such as mechanical and envelope), site improvements, and on-site renewable energy generation. "Life-cycle cost" shall mean the present value purchase price of an item, plus the replacement cost, plus or minus the salvage value, plus the present value of operation and maintenance costs, plus the energy and environmental externalities' costs or benefits. [3 VSA 2291.a.1 (2013)] For the purpose of this project, the analysis period for mechanical systems is set at 25 years. Architectural

systems, such as structure and envelope, should strive for a life of at least 40 years. The ARCHITECT shall prepare life-cycle cost analyses for the Owner, as outlined by Phase below.

1.1.5 For the purpose of this agreement, the elements of the project are categorized for life-cycle costing:

Building envelope (including openings)	Basic Services, as described by Phase
Mechanical systems (HVAC incl DDC)	Basic Services, as described by Phase
Fit up (see Appendix for definition)	Additional Services
Site improvements (including equipment)	Additional Services
Conveyances	Additional Services
Generators and surge protectors	Additional Services
Foundation and structure	n/a, aim for life over 40 years
Fire Safety	n/a, aim for life over 40 years
Compressed air, vacuum, gas systems	n/a, aim for life over 40 years
Data/Communications/Security	n/a, technology hard to predict

1.1.6 The ARCHITECT shall ensure, subject to the Standard of Care, the project complies with all applicable codes and guidelines in effect at the time of permit applications, including but not limited to:

- Vermont regulations, available online at <http://firesafety.vermont.gov/Standards> Note this project will be permitted under 2015 IBC and NFPA.
- 2011 Vermont Commercial Building Energy Standards available online at http://www.ecodes.biz/ecodes_support/Free_Resources/2011Vermont/Commercial/2011VT_Comm_Energy_main.htm Note this code will transition to its 2014 edition before the project is permitted. A draft will be available in mid-June, and finalized by October 2014.
- The ARCHITECT, as directed by the Owner, shall incorporate STATE OF VERMONT DEPARTMENT OF BUILDINGS AND GENERAL SERVICES DESIGN GUIDELINES into the project specifications and design. An interim version of this document, dated July 3, 2014, will be used for this project.
- Site-specific local, regional and state land use regulations.
- Federal regulations, including FEMA requirements.
- Regulations and certifications specific to the building's use.

1.1.7 It is understood, however, that various governmental codes and regulations are subject to varying and sometimes contradictory interpretation. The ARCHITECT shall exercise its professional skill and care consistent with General Provision I. A. herein, to provide a design that complies with such regulations and codes. The ARCHITECT shall manage the BIM platform during all phases and shall track the number of the project's RFIs and change orders during construction.

1.1.8 The ARCHITECT shall design, specify, and provide commissioning services for finishes (such as flooring and carpet), all cabinetry, shelving, appliances, and for all laboratory equipment (fixed or movable) such as, but not limited to, benches, tables, hoods, and autoclaves. Specific fixed instruments shall be agreed upon during Programming Phase.

1.1.9 The ARCHITECT shall provide a Concept Phase and Schematic Design Phase inventory of and budget for office furniture, lobby and common area furniture, office equipment, movable instruments, laboratory stools, lab carts, and all other items needed to fully occupy and utilize the building for its intended purpose, in a separate category called Furnishings. The purpose of this is to provide an allowance for furnishings in the Legislative budget for the project. Any furnishings-related services after Schematic Design Phase ends may be considered Additional Services. BGS staff will develop an inventory and budget for supplies such as glassware.

1.1.10 The ARCHITECT shall coordinate the integration of any selected on-site or on-building renewable energy systems into elements of the Work, even if the systems themselves are outside the scope of the project.

- 1.1.11 The ARCHITECT shall consult with the Owner, together with building occupants and Agency administration, to develop a comprehensive space program for the project, starting with the 5/27/14 program provided by the Owner. The final program should anticipate ten years' growth for the laboratory. The ARCHITECT shall advise best practices for each specialty as well as the common areas. The program should be complete and detailed, including equipment (fixed and movable) and furnishings throughout the building.
- 1.1.12 The ARCHITECT will coordinate with BGS as BGS develops the supplies inventory and overall budget for the building.
- 1.1.13 The ARCHITECT shall consult with the Owner and Efficiency Vermont to establish the Basis of Design, based on BGS Design Guidelines, BGS Space Management Guidelines, LEED manuals, ASHRAE 90.1, Vermont Commercial Building Energy Standard, ASHRAE Advanced Energy Design Guide for Small to Medium Office Buildings, and other guides that are identified for the use of the building.
- 1.1.14 The ARCHITECT shall prepare an inventory of furnishings as described in Paragraph 1.1.9.

CONCEPTUAL DESIGN PHASE \$ 64,750

- 1.1.15 The ARCHITECT shall confirm the details of the final space program with the Owner, and the ARCHITECT and the Owner shall confirm such requirements in writing.
- 1.1.16 The ARCHITECT shall prepare Conceptual Design Studies consisting of drawings and other documents illustrating the scale and relationship of Project components for, and until approval by, the Owner.
- 1.1.17 The ARCHITECT shall conduct meetings with the Owner, Efficiency Vermont, and members of the design team designated by the Owner to evaluate the conceptual designs against the Basis of Design and refine the designs so that they better meet the objectives.
- 1.1.18 The completed conceptual design shall include:
- overall layout and organization;
 - preliminary architectural elements;
 - preliminary structural design, showing grids and type of members;
 - enough modeling for mechanical systems to begin comparative analysis;
 - preliminary fit-up inventory, including fixed lab equipment (like hoods), fixed cabinetry/storage;
 - preliminary site design, including strategy for storm water management;
 - options for on-property energy generation;
 - preliminary analysis of various mechanical systems and energy generation options, using energy modelling and other tools, to show comparable life cycle costs as defined in Basic Services and BTU usage.
- 1.1.19 The ARCHITECT shall prepare for the Owner an initial accounting of how the Project responds to the Basis of Design, LEED-Gold and Efficiency Vermont's criteria.
- 1.1.20 The ARCHITECT shall submit to the Owner a statement of probable Cost of Work based on current area, volume or other generalized unit costs for, and until approved by, the Owner.
- 1.1.21 The ARCHITECT shall submit a preliminary statement of probable cost for Furnishings.
- 1.1.22 In addition, the ARCHITECT shall provide the Owner a preliminary statement of probable cost for the project, on or before 24 November, 2014. If conceptual design is complete by this date, that statement of probable cost may be used.

SCHEMATIC DESIGN PHASE \$ 129,500

- 1.1.23 The ARCHITECT shall prepare, from the approved Conceptual Design Studies and subsequent revisions, Schematic Design Studies consisting of drawings and other documents illustrating the scale and relationship of Project components for and until approval by the Owner.

- 1.1.24 The ARCHITECT shall conduct meetings with the Owner, Efficiency Vermont, and members of the design team designated by the Owner to further evaluate the project design and details against the Basis of Design. The ARCHITECT shall analyze and present system options based on life-cycle costs, simple payback period, LEED criteria, and Efficiency Vermont criteria.
- 1.1.25 The completed schematic design shall include:
- architectural layout and organization, including typical design elements;
 - envelope assembly, structure, and MEP systems, identified and schematically laid out to allow for estimating operational costs and life-cycle cost analysis;
 - outline specifications;
 - structural design, including sizing members that may limit mechanical systems;
 - schematic approach to all HVAC system elements;
 - updated fit-up inventory, including fixed lab equipment (like hoods), fixed cabinetry/storage;
 - site design ready for permitting, including storm water management;
 - analysis of on-property energy generation and final decisions for any building systems to be used, using energy modelling and other tools.
- 1.1.26 The ARCHITECT shall submit to the Owner a statement of probable Cost of Work based on proposed components' and systems' unit costs for, and until approved by, the Owner.
- 1.1.27 The ARCHITECT shall update the cost of Furnishings.
- 1.1.28 The ARCHITECT shall prepare for the Owner an updated accounting of how the Project responds to LEED-Gold and Efficiency Vermont's criteria.
- 1.1.29 The ARCHITECT shall calculate the projected cost to operate and maintain the building's envelope over a period of 40 years, and its mechanical systems over a period of 25 years. This is defined as the sum of life cycle costs for the building's systems and components. This calculation is not meant to be exhaustive, and it should not include routine labor (like cleaning). Elements that have a longer life than the analysis period should be identified as a benefit. The ARCHITECT shall also calculate the typical building's BTU usage by season, excluding lab equipment plug loads as described in Initial Information.
- 1.1.30 In addition, the ARCHITECT shall also submit to the Owner a statement of the Owner's probable cost for on-site energy generating systems.
- 1.1.31 If this phase extends beyond January 15, 2015, the ARCHITECT shall provide mid-month cost updates to the Legislature. These may be short statements stating changes by CSI division and foreseen cost consequences.

DESIGN DEVELOPMENT PHASE \$ 194,250

- 1.1.32 The ARCHITECT shall prepare from the approved Schematic Design Studies and subsequent revisions, the Design Development Documents consisting of a three-dimensional modeled building that incorporates BIM and associated drawings (including at least architectural, landscaping, civil, structural, mechanical, plumbing, electrical, finishes, equipment, specialties, and renewable energy infrastructure), as well as outline specifications following Construction Specification Institute "CSI" Format and other necessary documents to fix and describe the size and character of the entire Project as to its site, structural, mechanical, plumbing, and electrical systems, materials and other such essentials as may be appropriate, for, and until approved by, the Owner.
- 1.1.33 Upon request by Owner, the ARCHITECT shall review the Owner's proposed contract with the Construction Manager and provide comments and feedback to the Owner in a timely manner.
- 1.1.34 The ARCHITECT shall conduct meetings with the Owner, the Construction Manager, Efficiency Vermont, and members of the design team designated by the Owner to finalize details of how the project meets the Basis of Design.
- 1.1.35 The ARCHITECT shall prepare a revised accounting of how the Project responds to LEED and Efficiency Vermont criteria and shall submit the Design Development Phase documents to Efficiency Vermont for review.
- 1.1.36 The ARCHITECT shall provide the necessary labor, documentation, and other support required by the Owner's

Construction Manager in determining a budget for the Cost of Work, for and until the Owner approves the budget. The ARCHITECT shall review the Construction Manager's estimates and shall report to the Owner any material inaccuracies and inconsistencies noted.

- 1.1.37 The ARCHITECT shall prepare, submit, and obtain preliminary approval for the project's Design Development Phase documents (drawings and outline specifications) from VT Division of Fire Safety.
- 1.1.38 Upon request by Owner, The ARCHITECT shall provide the necessary labor, documentation, and other support required by the Owner in filing required documents for the approval of other governmental and certifying authorities having jurisdiction over the Project. This assistance shall include representation at all hearings.
- 1.1.39 The ARCHITECT shall revise its statement of envelope and mechanical system life-cycle costs for the project's systems if significant system details change.

CONSTRUCTION DOCUMENTS PHASE \$ 453,250

- 1.1.40 The ARCHITECT shall prepare from the approved Design Development Documents, including any revisions requested by the Owner, the Construction Documents consisting of a three-dimensional modeled building that incorporates BIM and associated working drawings (including at least architectural, landscaping, civil, structural, mechanical, plumbing, and electrical; finishes, equipment, specialties, and renewable energy infrastructure), and specifications (following CSI Format) setting forth in detail the requirements for the construction of the entire Project; for, and until approved by, the Owner.
- 1.1.41 The ARCHITECT shall provide the necessary labor, documentation, and other support required by the Owner in the preparation of its agreement with the independent Commissioning Agent.
- 1.1.42 The ARCHITECT shall use detailed energy modelling to optimize final mechanical design. The ARCHITECT shall prepare a revised accounting of how the Project responds to LEED and Efficiency Vermont criteria and shall submit the bid set, at 90% completion of the contract documents, to Efficiency Vermont for construction review.
- 1.1.43 The ARCHITECT shall provide the necessary labor, documentation, and other support required by the Construction Manager in updating the Cost of Work.
- 1.1.44 The ARCHITECT shall prepare, submit, and obtain final approval for the project's bid set (drawings and full specifications) from VT Division of Fire Safety.
- 1.1.45 Upon request, The ARCHITECT shall provide the necessary labor, documentation, and other support required by the Owner in filing required documents for the approval of other governmental and certifying authorities having jurisdiction over the Project. This assistance shall include representation at all hearings.

BIDDING OR NEGOTIATION PHASE \$ 64,750

- 1.1.46 The ARCHITECT, following the Owner's approval of the Construction Documents and of the latest Cost of Work estimate, shall provide the Owner with any information, assistance, or revised contract documents necessary for the Owner to obtain bids or negotiated proposals, award, and prepare construction contracts. The ARCHITECT shall assist in the preparation of bidding forms, the Conditions of the Contract, and agreements with contractors and consultants.
- 1.1.47 Since this project will possibly use multiple contractors, bids may be issued through the duration of construction. This phase will therefore run concurrently with the Construction Phase, until the Owner determines in writing that Bidding is complete.

CONSTRUCTION PHASE - ADMINISTRATION OF THE CONSTRUCTION CONTRACT (S) \$ 259,000

- 1.1.48 The Construction Phase will commence with the award of a Construction Contract to the first contractor and will terminate on the date the ARCHITECT issues its final certificate of payment. In any event, the construction phase will not extend more than 60 days beyond the substantial completion date unless extended by change order. If such extension occurs additional costs due to the ARCHITECT shall be negotiated with the Owner.

- 1.1.49 The ARCHITECT shall work with the Owner during the construction of the Project to provide the administration of the contract between the Owner and the CM/GC in accordance with the terms herein and consistent with the contract between the Owner and the CM/GC. The extent of The ARCHITECT'S duties and responsibilities and the extent of the ARCHITECT's authority as assigned in those contracts may only be modified by written Change Order to this Contract.
- 1.1.50 The ARCHITECT shall, at all times, have access to the work wherever it is in preparation or progress.
- 1.1.51 The ARCHITECT shall make weekly visits to the Project site, and shall make further visits when reasonably requested by the Owner, to follow the progress and quality of the work performed and to determine if progress and quality are in accordance with the Contract Documents. The ARCHITECT shall be responsible for project meeting minutes. In addition to this, the ARCHITECT shall periodically report its findings thereon to the Owner, at such times as in the exercise of its professional judgment such findings are appropriate and at least monthly, at the conference provided for in Paragraph 1.1.54, and further at such times as the Owner may reasonably request. The ARCHITECT shall not be required to make exhaustive or continuous on-site inspections, except as required in the exercise of the ARCHITECT'S professional judgment for said reports.
- 1.1.52 The ARCHITECT shall not be responsible for the construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the Work, nor shall the ARCHITECT be responsible for the Contractors' failure to perform the Work in accordance with the requirements of the Contract Documents except as provided for herein specifically between the Owner and the ARCHITECT.
- 1.1.53 Where the term ARCHITECT is used in Paragraphs 1.1.49 and 1.1.51 it shall include those sub-consultants when work is being performed in their area of expertise. For example, the Mechanical Engineer shall inspect the under slab plumbing before it is backfilled. The sub-consultants shall also be required to periodically inspect the progress of construction for conformance with the contract documents and verify such to the ARCHITECT, before the ARCHITECT issues the certificate of payment for that pay period.
- 1.1.54 Based upon its determination and reports made under Paragraph 1.1.51 of this Agreement and upon the CM/GC's applications for payment, the ARCHITECT shall once every month, after an on-site conference between the Owner, the CM/GC, and the ARCHITECT, determine the amount then owing to the CM/GC and shall then issue a certificate of payment for the amount agreed upon. The issuance of a Certificate for Payment shall constitute a representation by the ARCHITECT to the Owner, based on such ARCHITECT's determination and report and the data supplied to it by the CM/GC (without affecting its duties defined in Paragraph 1.1.51), that the work has progressed to the point indicated; that the quality of the work is in accordance with the Contract Documents; and that the CM/GC is entitled to such payment in the amount certified. The issuance of such certificate shall not affect any obligations of the CM/GC to the Owner. By issuing a certificate for payment, the ARCHITECT shall not be deemed to represent that it has made any examination to ascertain how and for what purpose the CM/GC has used the monies paid on account of the contract sum. ARCHITECT shall not accept any part of the work on behalf of the Owner; ARCHITECT may only recommend acceptance. Final acceptance is a right reserved solely to the Owner.
- 1.1.55 The ARCHITECT shall maintain a record of the applications and certificates for payment for the project.
- 1.1.56 The ARCHITECT shall be, in the first instance, the interpreter of the requirements of all Contract Documents, and shall have authority to authorize the CM/GC to proceed with, or stop work on, or reject, any component of the project after consultation and agreement with the Owner. With the Owner's written approval, the ARCHITECT shall have the authority to require inspection or testing of the Work in accordance with the provisions of the Contract Documents, whether or not such Work is fabricated, installed, or completed. The ARCHITECT shall not be liable to the Owner for any loss or cost that is caused by any decision made by the ARCHITECT in the reasonable exercise of its professional judgment if the ARCHITECT acts with the Owner's approval.
- 1.1.57 Interpretations and decisions of the ARCHITECT shall be consistent with the intent of, and reasonably inferable from, the Contract Documents and shall be in writing or in the form of drawings.
- 1.1.58 The ARCHITECT shall review and respond to shop drawings, samples, and other submissions of the CM/GC as in conformance with the design concept and information in the Contract Documents and the designs and plans relating to the project until approved or not requiring re-submission. The ARCHITECT shall also review the submittal log at construction meetings and report to the Owner on a monthly basis its findings thereon.
- 1.1.59 The ARCHITECT shall prepare all change orders and supporting data for the Owner's approval.

- 1.1.60 The ARCHITECT shall conduct inspections to determine the Dates of Substantial Completion and Final Completion, and shall receive written guarantees, inspection records, lien waivers, O+M manuals, energy certificates, and related documents assembled by the CM/GC and shall issue a final certificate of payment in accordance with Paragraph 1.1.54.

WARRANTY & DOCUMENTATION PHASE \$ 64,750

- 1.1.61 The ARCHITECT shall complete all tasks defined above in "Description of Project-Wide Responsibilities for Commissioning."
- 1.1.62 The ARCHITECT shall prepare and submit the final as-built documents, both digital and hard copies, as defined in the General Provisions III.B. The ARCHITECT shall include redlines, edits, and shop drawings provided by the CM/GC and equipment/material suppliers for all disciplines.

1.2 ADDITIONAL SERVICES

The following services are not covered in Paragraphs 1.1 or 1.2. If any of these Additional Services are authorized in writing by the Owner, they shall be provided by the ARCHITECT and paid for by the Owner as hereinbefore provided. To avoid delay in construction, the ARCHITECT shall notify the Owner with reasonable promptness of the need for these services and explain the facts and circumstances creating the need. If the Owner determines the additional services are not needed, the Owner shall give prompt written notice of this decision without obligation to compensate the ARCHITECT for that service.

- 1.2.1 Revising previously approved Drawings, Specifications or other documents to accomplish changes not initiated by the ARCHITECT, except as provided in Paragraphs 1.1.29 and 3.5.1.
- 1.2.2 Providing planning surveys, site evaluations, or comparative studies of prospective sites.
- 1.2.3 Providing the required services to execute all Owner-initiated Change Orders.
- 1.2.4 Preparing documents for alternate bids requested by the Owner.
- 1.2.5 Providing estimates of Cost of Work after the conclusion of the Schematic Design Phase.
- 1.2.6 Providing consultation concerning replacement of any work damaged by fire or other cause during construction and furnishing professional services of the type set forth in Section 1.1 as may be required in connection with the replacement of such work.
- 1.2.7 Providing professional services made necessary by the default of a Contractor in the performance of the Construction Contract.
- 1.2.8 Providing Basic Services after the Contract Time has been exceeded by more than sixty (60) days through no fault of the ARCHITECT.
- 1.2.9 Providing services not caused by errors, inconsistency or an omission of the ARCHITECT after final payment to the CM/GC.
- 1.2.10 Providing furnishings-related services beyond those described in Basic Services.
- 1.2.11 Providing life-cycle cost analysis beyond those services described in Basis Services.

ARTICLE 2

THE OWNER'S RESPONSIBILITIES

- 2.1 The Owner may at its option secure the services of a person or persons known as a Clerk-of-the-Works, referred to herein as a "Clerk". The Clerk(s) shall, for all purposes of this Agreement, report and be solely responsible to the Owner. The Owner may at any time dismiss the Clerk(s) for cause or convenience; however, any such action

shall not affect the Owner's and ARCHITECT's obligations under this Agreement. In such event, the Owner shall use their best efforts to secure the services of a Clerk or Clerks under this paragraph as soon as is practicable if the Owner deems it necessary.

- 2.2 The Clerk(s) shall make continuous and complete on-site inspections of the work performed on the Project, to the extent reasonable under all the circumstances. The on-site inspections of the work performed and any reports prepared by the Clerk(s) will be made available to the ARCHITECT for use in making its Determination and Report under this Agreement, however the use of the Clerk's on-site inspections or reports does not relieve the ARCHITECT from its obligations under paragraph 1.1.51 of this Agreement. It is solely the responsibility of the ARCHITECT to ensure that the work has progressed to the point indicated and that the quality of the work is in accordance with the Contract Documents. Further, through such on-site observations by the Clerk(s), the ARCHITECT shall endeavor to provide protection for the Owner against defects in the Work, but the furnishing of such Clerk(s) shall not: (1) make the ARCHITECT responsible for the CM/GC's failure to perform the Work in accordance with the Contract Documents; or (2) relieve the ARCHITECT from its obligation to exercise due diligence and ensure that the work has progressed to the point indicated and that the quality of the work is in accordance with the Contract Documents.
- 2.3 The Owner shall furnish site documentation and shall be responsible for environmental testing, geotechnical testing (such as borings, pits, percolation tests, bearing tests, and seismic evaluation), including their cost. The Owner shall also be responsible for structural, mechanical, chemical and other laboratory tests, inspections and reports required by law or this Contract, including the cost of all approvals/permits. The Owner shall obtain all permits and certifications except for those of the Vermont Division of Fire Safety.
- 2.4 The ARCHITECT shall be entitled to rely upon the accuracy of the reports and tests described in Paragraph 2.3.
- 2.5 Owner shall secure for itself such legal, accounting and insurance counseling services as may be necessary for the Project and such auditing services as the Owner may require.
- 2.8 The Owner shall coordinate the services of its own consultants. Upon the ARCHITECT's request, the Owner shall provide copies of contracts between the Owner and its consultants. The Owner shall require its consultants to maintain professional liability insurance and/or other insurance appropriate to the service provided.

ARTICLE 3

CONSTRUCTION COST

- 3.1 Cost of Work is defined as the total cost to the Owner to construct all elements of the Project designed or specified by the ARCHITECT and shall include the contractors' general conditions costs, overhead, and profit. The Cost of Work includes the cost of the CM/GC and its consultants only during the Construction Phase, including compensation, reimbursable expenses, overhead, and profit at the job site. Cost of Work does not include the fees of the ARCHITECT and the Owner's consultants (including independent Commissioning Agent and the Construction Manager before construction begins), the cost of the land, rights-of-way, or other costs which are the responsibility of the Owner as provided in Paragraph 2.3. The Owner shall require the Construction Manager and CM/GC to include contingencies for price escalation, market conditions, and other factors that may affect costs.
- 3.2 Labor furnished by the Owner for the Project, however, with respect only to the construction of such components thereof as have been designed by the ARCHITECT, shall be included in the Cost of Work at current market rates. Materials and equipment furnished by the Owner shall be included at current market prices, except that used materials and equipment shall be included as if purchased new for the Project.
- 3.3 Statements of Probable Construction Cost prepared by the ARCHITECT shall be consistent with the Standard of Care. It is recognized, however, that neither the ARCHITECT nor the Owner has any control over the cost of labor, materials, or equipment, over construction contractors' methods of determining bid prices, or over competitive bidding or market conditions. Accordingly, the ARCHITECT cannot and does not guarantee that bids will not vary from any Statement of Probable Construction Cost or other cost estimate prepared by it.
- 3.4 If the Construction Manager's estimate of the Cost of Work at the conclusion of the Design Development Phase exceeds the Owner's budget for the Cost of Work, the Owner shall: (a) give written approval for an increase in the budget, (b) revise the scope of work in consultation with the ARCHITECT and Construction Manager, or (c) implement any other mutually acceptable alternative. If the Owner chooses to reduce the scope of work, (b), the ARCHITECT without additional compensation shall incorporate the required modifications in the Construction

Documents Phase services. This modification of the project documents shall be the limit of the ARCHITECT's responsibility in Basic Services. Any subsequent changes made during Construction Documents Phase shall be billed as an additional service, except when the change is initiated by the ARCHITECT in scope, basic systems, kinds/quality of materials, finishes or equipment.

- 3.5 At the end of Construction Document phase, or during Bidding Phase, if the Construction Manager's Detailed Cost Estimate or the lowest responsible bid exceeds the most recent statement of Probable Construction Cost, the Owner shall (1) give written approval of an increase in the construction cost, or (2) authorize rebidding the Project, or (3) cooperate in revising the Project scope and quality as required to reduce the probable construction cost, (4) discontinue the project and pay the ARCHITECT as specified in Paragraph 6.6 up to and through Bidding or Negotiation Phase. In the case of (3), the ARCHITECT, without additional charge, shall modify all drawings and specifications as necessary to bring the most recent qualified bid within the latest Statement of Probable Construction Cost; provided, however, that the ARCHITECT will not be liable to the Owner for any loss or cost incurred by the Owner caused by the delay arising from the making of such modifications.

ARTICLE 4

HOURLY BILLING RATES

- 4.1 Hourly billing rates of employees engaged on the Project by the ARCHITECT include architects, engineers, designers, job captains, draftsmen, specification writers and typists, in consultation, research and design in producing models, drawings, specifications and other documents pertaining to the Project, and in services during construction at the site. Quoted hourly rates must include financial benefits paid to staff, and these quoted rates must be fully burdened, meaning no multipliers will be added after the stated cost.
- 4.2 All hourly billing rates shall be held constant throughout the term of the agreement. Hourly rates may be adjusted if the Project extends more than six months beyond the Contract Time as agreed upon in General Provisions III.

ARTICLE 5

REIMBURSABLE EXPENSES

- 5.1 The expenses that ARCHITECT shall be reimbursed for, and their costs, are listed in Attachment B.
- 5.2 All expense rates shall be held constant throughout the term of the agreement. Expense rates may be adjusted if the Project extends more than six months beyond the Contract Time as agreed upon in General Provisions III.

ARTICLE 6

PAYMENTS TO THE ARCHITECT

- 6.1 Payments on account of the ARCHITECT's Basic Services shall be made as follows:
- 6.2 Monthly payments shall be made to the ARCHITECT by the Owner within 30 days of the receipt by the Owner of an itemized invoice in accordance with this Agreement. Progress payments for Basic Services shall be in proportion to the services performed within each phase of service, not to exceed the sums stated above for each phase.
- The agreed-upon sum for Warranty/Documentation Phase services is proportioned to include a retainage to ensure that the design (not installation or performance) meets the requirements of Efficiency Vermont's Advanced Performance program, both as set forth in the Initial Information and agreed upon in the Basis of Design. The parties agree that the sum will not exceed \$38,000 and that the rebates will be secured within the first three months of the warranty stage of the Project.
- 6.4 In all events, the ARCHITECT shall submit its completed itemized accounting of all costs monthly to the Owner, and the Owner shall make all payments within 30 days of receipt of the invoice.

- 6.5 No deductions shall be made from the ARCHITECT's compensation on account of penalty, liquidated damages, or other sums withheld from payments to the CM/GC.
- 6.6 If the Project is suspended for more than three months or abandoned in whole or in part, the ARCHITECT shall be paid its compensation for services performed prior to receipt of written notice from the Owner of such suspension or abandonment, together with Reimbursable Expenses then due and all terminal expenses resulting from such suspension or abandonment.
- 6.7 The owner has 30 days from the date the owner receives an Invoice with full and complete supporting documentation to exercise its right to bill or credit adjustments made necessary by internal audits and quality assurance checks.

ARTICLE 7

ARCHITECT'S ACCOUNTING RECORDS

- 7.1 Records of the ARCHITECT's Direct Personnel, Consultant and Reimbursable Expenses pertaining to the Project, and records of accounts between the Owner and the CM/GC, shall be kept on a generally recognized accounting basis and shall be available to the Owner or its authorized representative at mutually convenient times, at no additional cost to the Owner.

ARTICLE 8

TERMINATION OF AGREEMENT

- 8.1 This Agreement may be terminated by either party upon the giving of seven (7) days written notice to the other party. In the Event of termination by the Owner for any reason other than a failure to perform on the part of the ARCHITECT, the ARCHITECT shall be entitled to receive payment for the actual services rendered and for sums it irrevocably committed to the date of notice of termination. In the event that the ARCHITECT shall be irrevocably committed to purchase any materials, supplies, or other tangible articles, the Owner shall be entitled to receive all such materials, supplies, or tangible articles when paid for. In the event of termination on the part of the ARCHITECT, the ARCHITECT shall be entitled to receive payment for services and disbursements actually rendered or paid to the date of notice of termination, less any expenses which the Owner may incur as a result of the termination by the ARCHITECT over and above the total sum agreed to herein. In the event that the ARCHITECT shall have been paid in full for services and expenses previously rendered or paid as of the date of notice of termination, the ARCHITECT agrees to promptly pay the Owner the additional expense above referred to upon submission of statement of such expense to the ARCHITECT by the Owner.
- 8.2 It is understood that a breach on the part of the Owner of this Agreement shall be sufficient reason for the ARCHITECT to be relieved of the additional expense referred to in this paragraph.
- 8.3 Notwithstanding any of the foregoing, the Owner's obligations under this Agreement shall cease when the funds appropriated for this Agreement are expended.

ARTICLE 9

OWNERSHIP OF DOCUMENTS

- 9.1 Ownership of Documents: All products of ARCHITECT's work, including all drawings, specifications, estimates, and all other documents, including shop drawings, calculations, etc., prepared at any time in connection with the Project, are the sole property of the Owner, upon payment of sums due and owing, whether the work is executed or not and may not be copyrighted or resold by the ARCHITECT.
- 9.1.1 Any Intellectual Property of the ARCHITECT which is already in existence at the time this Agreement is signed, which may be shared with the Owner during the performance of work under this Agreement, shall remain the Intellectual Property of the ARCHITECT.

PLAN SECURITY CERTIFICATION

- 9.2 The ARCHITECT acknowledges that the plans pertaining to this project have been declared exempt from public record inspection for security reasons and have been disclosed to vendors as per 1 V.S.A. §317(c)(32) for the performance of the Work specified herein. The ARCHITECT hereby expressly acknowledges and agrees to disclose plans only to a licensed architect, engineer, or contractor who is bidding on or performing work on or related to buildings, facilities, infrastructures, systems, or other structures owned, operated, or leased by the State.
- 9.3 Furthermore, ARCHITECT agrees to abide by BGS Administrative Policy # 35 and any existing or future directives set forth by the State concerning the copying or distribution of the plans. Fraud, misrepresentation, falsification, or concealing or covering up material facts relating to compliance with these directives may result in one or more of the following actions: termination of the contract(s), suspension of bidding privileges, withholding, deducts, forfeiture of security bonds, and criminal prosecution punishable by imprisonment of up to five years and/or up to a \$10,000 fine as per 13 V.S.A. §3016.

ARTICLE 10

SUCCESSORS AND ASSIGNS

- 10.1 The ARCHITECT hereby agrees that it will not assign the performance of this Agreement to any other architect not specifically mentioned herein without the prior written consent of the Owner, provided, however, that this Agreement will inure to the benefit of and be binding upon the partners, successors, assigns or legal representatives of the ARCHITECT.
- 10.2 The ARCHITECT hereby agrees that it shall personally perform, or personally supervise, all of the services or work in connection with the Project as are designated as the duties and obligations of the ARCHITECT under this Agreement, and further, the ARCHITECT agrees that it is solely responsible for the performance of the services herein, designated as those of the ARCHITECT.

ARTICLE 11

TAXES

- 11.1 The State is exempt from all sales and federal excise taxes. The ARCHITECT will be responsible for the payment of any sales, consumer, use and other similar taxes for the Work or portions thereof provided by the ARCHITECT which are legally enacted for the duration of the agreement, whether or not yet effective.

ARTICLE 12

CHANGES TO ARCHITECT AGREEMENT

- 12.1 The State may increase, decrease, or alter the work or materials, or it may otherwise modify the specifications or conditions of the project to be furnished hereunder, and any changes occasioned thereby, including any changes in amounts to be paid hereunder, shall be in the form of a change order which shall be agreed to and approved in writing by the Commissioner of the Department of Buildings and General Services, and which shall become a part of this Agreement. Verbal instructions, from any source, shall not be valid. No claim or defense may be made under the Agreement with respect to such changes unless agreed to in writing.

ARTICLE 13

GENERAL

- 13.1 This project will likely use FEMA funding. Therefore this project is subject to and must comply with Federal Emergency Management Agency (FEMA) requirements under 44 CFR 13.36. Federal agencies are permitted to

require changes, remedies, changed conditions, access and records retention, suspension of work, and other clauses approved by the Office of Federal Procurement Policy. As such, the ARCHITECT must comply with the following provisions and supplemental specifications of 44 CFR 13.36 (i) identified below as part of this agreement.

- 13.1.1 Administrative, contractual, or legal remedies in instances where the ARCHITECT violates or breaches contract terms, and provide for such sanctions and penalties as may be appropriate.
- 13.1.2 Termination for cause and for convenience by the grantee or sub-grantee including the manner by which it will be effected and the basis for settlement.
- 13.1.3 Compliance with Executive Order 11246 of September 24, 1965, entitled "Equal Employment Opportunity" as amended by Executive Order 11375 of October 13, 1967, and as supplemented in Department of Labor regulations (41 CFR chapter 60).
- 13.1.4 Compliance with the Copeland Anti-Kickback Act (18 U.S.C. 874) as supplemented in Department of Labor regulations (29 CFR Part 3).
- 13.1.5 Compliance with Sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-330) as supplemented by Department of Labor regulations (29 CFR Part 5).
- 13.1.6 Notice of awarding agency requirements and regulations pertaining to reporting.
- 13.1.7 Notice of awarding agency requirements and regulations pertaining to patent rights with respect to any discovery or invention which arises or is developed in the course of or under such contract.
- 13.1.8 Awarding agency requirements and regulations pertaining to copyrights and rights in data.
- 13.1.9 Access by the grantee, the sub-grantee, the Federal grantor agency, the Comptroller General of the United States, or any of their duly authorized representatives to any books, documents, papers, and records of the ARCHITECT which are directly pertinent to that specific contract for the purpose of making audit, examination, excerpts, and transcriptions.
- 13.1.10 Retention of all required records for three years after grantees or sub-grantees make final payments and all other pending matters are closed.
- 13.1.11 Compliance with all applicable standards, orders or requirements issued under section 306 of the Clean Air Act (42 U.S.C. 1857(h)), section 508 of the Clean Water Act (33 U.S.C. 1368), Executive Order 11738, and Environmental Protection Agency regulations (40 CFR part 15). (Contracts, subcontracts, and sub-grants of amounts in excess of \$100,000.)
- 13.1.12 Mandatory standards and policies relating to energy efficiency which are contained in the Vermont energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub. L. 94-163, 89 Stat. 871).
- 13.2 The ARCHITECT is responsible for any and all FEMA and/or Federal reporting requirements associated with this project.

ARTICLE 14

GENERAL

- 14.1 This Agreement consists of 29 pages including the following attachments which are incorporated herein.

ATTACHMENT A: Schedule for Agreed-Upon Values for Additional Services

ATTACHMENT B: Schedule for Reimbursable Expenses and Hourly Rates

ATTACHMENT C: Standard State Provisions for Contracts and Grants, a preprinted form (revision dated 09/02/14).

ATTACHMENT D: Standard State Provisions - ARCHITECT/Engineer Professional Service Agreement (dated 04/12/2011)

- 14.2 Order of Precedence: Any ambiguity, conflict or inconsistency in the Contract Documents shall be resolved according to the following order of precedence:
- (1) Standard Agreement
 - (2) Attachment D (Standard State Provisions - ARCHITECT/Engineer Professional Service Agreement)
 - (3) Attachment C (Standard Contract Provisions for Contracts and Grants)
 - (4) Attachment A (Schedule of Agreed-Upon Values for Additional Services)
 - (5) Attachment B (Schedule of Reimbursable Expenses and Hourly Rates)
- 14.3 The obligations and duties contained in Articles, 4, 5, 11, and 13 of this Agreement shall apply to the ARCHITECT's consultants as well as to the ARCHITECT. The ARCHITECT agrees to include Articles 4, 5, 11, and 13 in all its subcontracts.
- 14.4 Paragraph headings are inserted for convenience only and are not to be relied upon for content.

This Agreement executed the day and year first written above.

OWNER:


By: E-SIGNED by Michael J. Obuchowski
on 2014-12-06 15:41:30 GMT

Name: Michael J. Obuchowski

Title: _____

Date: Commissioner
Building & General Services

ARCHITECT

By: 

Name: RICHARD HRYCIAK

Title: PRINCIPAL

Date: 12.4.14

ATTACHMENT A: SCHEDULE OF AGREED-UPON VALUES FOR ADDITIONAL SERVICES

\$ 10,500	Maximum additional amount for site-related design at Randolph, Vermont
\$ 60,000	Additional cost to LEED-certify the project
\$ 18,000	Additional cost to provide a statement of probable Cost of Work at the end of Design Development Phase
\$ 16,500	Additional cost to provide a statement of probable Cost of Work at the end of Construction Document Phase

ATTACHMENT B: SCHEDULE OF REIMBURSABLE EXPENSES AND HOURLY RATES

1. Reimbursable Expenses

Reimbursable expenses may be incurred and charged during additional scope of services work. They include and are limited to:

Out of town travel	Per IRS (currently \$0.55/mile)
Meals	\$35 per diem
Lodging	\$120 per diem
Reproductions	B&W letter \$0.09
	Color letter \$0.50
	B&W 11x17 \$0.18
	B&W 30x42 \$1.66
	Color plot \$5.95/sf
Renderings	\$2,500 per presentation rendering
Models	\$100/hr model builder (total varies by type and scale)

No other expenses may be incurred or charged for any service.

2. Hourly Rates

<u>Category</u>	<u>Hrly. Rates</u>
Cannon Design	
Principal	\$275.00
Senior Vice President	\$250.00
Vice President	\$225.00
Associate Vice President	\$200.00
<u>Integrated Design Services</u>	
Professional IV	\$185.00
Professional III	\$155.00
Professional II	\$140.00
Professional I	\$105.00
Technician IV	\$110.00
Technician III	\$100.00
Technician II	\$ 90.00
Technician I	\$ 80.00
Administrative Support	\$ 70.00
Freeman French Freeman	
Designer	\$ 70.00
Job Captain	\$ 80.00
Interiors	\$ 90.00
Project Architect	\$ 95.00
Project Manager	\$ 105.00
Design Principal	\$ 120.00
Principal	\$ 135.00
Wagner Hodgson	
Principal /Partner	\$115.00
Senior Landscape Architect	\$ 80.00

Landscape Architect	\$ 70.00
Support Staff	\$ 45.00

VHB

Director of Land Development	\$175.00
Senior Project Manager	\$135.00
Project Engineer 1	\$ 85.00
Project Engineer 2	\$105.00
CAD Tech	\$ 85.00
Hydrologist	\$105.00
Survey/Hour	\$ 65.00

Knight Consulting Engineers

Expert Witness	\$160.00
Principal Engineer 1	\$135.00
Principal Engineer 2	\$115.00
Senior Engineer	\$100.00
Professional Engineer/ Designer/ Project Manager	\$ 90.00
Assistant Engineer/ Senior Draftsman	\$ 75.00
Draftsman/ Engineering Technician	\$ 57.00
Construction Engineer/ Senior Technician	\$ 69.00
Administrative Assistant	\$ 45.00
Senior Technician/ Construction Engineer (OT)	\$ 89.00
Engineering Technician	\$ 69.00

Howe Engineers

Principal/Partner	\$170.00
Project Director	\$155.00
Project Manager	\$135.00
Senior Engineer	\$125.00
Associate Engineer/Consultant	\$110.00
Fire Protection Consultant	\$100.00
Fire Protection Designer	\$ 90.00
CAD Technician	\$ 75.00
Administrative Assistant	\$ 50.00

Haley & Aldrich

EH&S Consultant	\$200.00
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Hallam – ICS

John Butterfield	\$120.00
Elizabeth Ford Wilkins	\$115.00

Zero by Degrees

All staff	\$100.00
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RWDI

Principal / Project Director	\$300.00
Senior Project Manager	\$225.00
Project Manager	\$150.00

Engineering Specialist	\$225.00
Senior Engineer	\$150.00
Project Engineer	\$125.00
Technologist	\$110.00
Modeller	\$110.00
Administrative Assistant	\$ 75.00
Wind Tunnel/Hour	\$400.00
Water Flume/Hour	\$150.00

Vermeulens

Principals	\$265.00
Director	\$205.00
Associate	\$205.00
Senior Project Managers	\$175.00
Senior Estimators	\$175.00
Intermediate Estimator	\$145.00
Estimators	\$115.00

ATTACHMENT A: SCHEDULE OF VALUES FOR BIDDED ADDITIONAL SERVICES

\$ 10,500	Maximum additional amount for unknown site at time of bid (Randolph site)
\$ 60,000	Additional cost to LEED-certify the project
\$ 18,000	Additional cost to provide a statement of probable Cost of Work at the end of Design Development Phase
\$ 16,500	Additional cost to provide a statement of probable Cost of Work at the end of Construction Document Phase

ATTACHMENT B: SCHEDULE OF REIMBURSABLE EXPENSES AND HOURLY RATES

1. Reimbursable Expenses

Reimbursable expenses may be incurred and charged during additional scope of services work. They include and are limited to:

Out of town travel	Per IRS (currently \$0.55/mile)
Meals	\$35 per diem
Lodging	\$120 per diem
Reproductions	B&W letter \$0.09
	Color letter \$0.50
	B&W 11x17 \$0.18
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Senior Project Managers	\$175.00
Senior Estimators	\$175.00
Intermediate Estimator	\$145.00
Estimators	\$115.00

ATTACHMENT C: STANDARD STATE PROVISIONS FOR CONTRACTS AND GRANTS

1. **Entire Agreement:** This Agreement, whether in the form of a Contract, State Funded Grant, or Federally Funded Grant, represents the entire agreement between the parties on the subject matter. All prior agreements, representations, statements, negotiations, and understandings shall have no effect.
2. **Applicable Law:** This Agreement will be governed by the laws of the State of Vermont.
3. **Definitions:** For purposes of this Attachment, "Party" shall mean the Contractor, Grantee or Subrecipient, with whom the State of Vermont is executing this Agreement and consistent with the form of the Agreement.
4. **Appropriations:** If this Agreement extends into more than one fiscal year of the State (July 1 to June 30), and if appropriations are insufficient to support this Agreement, the State may cancel at the end of the fiscal year, or otherwise upon the expiration of existing appropriation authority. In the case that this Agreement is a Grant that is funded in whole or in part by federal funds, and in the event federal funds become unavailable or reduced, the State may suspend or cancel this Grant immediately, and the State shall have no obligation to pay Subrecipient from State revenues.
5. **No Employee Benefits For Party:** The Party understands that the State will not provide any individual retirement benefits, group life insurance, group health and dental insurance, vacation or sick leave, workers compensation or other benefits or services available to State employees, nor will the state withhold any state or federal taxes except as required under applicable tax laws, which shall be determined in advance of execution of the Agreement. The Party understands that all tax returns required by the Internal Revenue Code and the State of Vermont, including but not limited to income, withholding, sales and use, and rooms and meals, must be filed by the Party, and information as to Agreement income will be provided by the State of Vermont to the Internal Revenue Service and the Vermont Department of Taxes.
6. **Independence, Liability:** The Party will act in an independent capacity and not as officers or employees of the State.

The Party shall defend the State and its officers and employees against all claims or suits arising in whole or in part from any act or omission of the Party or of any agent of the Party. The State shall notify the Party in the event of any such claim or suit, and the Party shall immediately retain counsel and otherwise provide a complete defense against the entire claim or suit.

After a final judgment or settlement the Party may request recoupment of specific defense costs and may file suit in Washington Superior Court requesting recoupment. The Party shall be entitled to recoup costs only upon a showing that such costs were entirely unrelated to the defense of any claim arising from an act or omission of the Party.

The Party shall indemnify the State and its officers and employees in the event that the State, its officers or employees become legally obligated to pay any damages or losses arising from any act or omission of the Party.
7. **Insurance:** Before commencing work on this Agreement the Party must provide certificates of insurance to show that the following minimum coverages are in effect. It is the responsibility of the Party to maintain current certificates of insurance on file with the state through the term of the Agreement. No warranty is made that the coverages and limits listed

herein are adequate to cover and protect the interests of the Party for the Party's operations. These are solely minimums that have been established to protect the interests of the State.

Workers Compensation: With respect to all operations performed, the Party shall carry workers' compensation insurance in accordance with the laws of the State of Vermont.

General Liability and Property Damage: With respect to all operations performed under the contract, the Party shall carry general liability insurance having all major divisions of coverage including, but not limited to:

Premises - Operations
Products and Completed Operations
Personal Injury Liability
Contractual Liability

The policy shall be on an occurrence form and limits shall not be less than:

\$1,000,000 Per Occurrence
\$1,000,000 General Aggregate
\$1,000,000 Products/Completed Operations Aggregate
\$ 50,000 Fire/ Legal/Liability

Party shall name the State of Vermont and its officers and employees as additional insureds for liability arising out of this Agreement.

Automotive Liability: The Party shall carry automotive liability insurance covering all motor vehicles, including hired and non-owned coverage, used in connection with the Agreement. Limits of coverage shall not be less than: \$1,000,000 combined single limit.

Party shall name the State of Vermont and its officers and employees as additional insureds for liability arising out of this Agreement.

8. **Reliance by the State on Representations:** All payments by the State under this Agreement will be made in reliance upon the accuracy of all prior representations by the Party, including but not limited to bills, invoices, progress reports and other proofs of work.
9. **Requirement to Have a Single Audit:** In the case that this Agreement is a Grant that is funded in whole or in part by federal funds, the Subrecipient will complete the Subrecipient Annual Report annually within 45 days after its fiscal year end, informing the State of Vermont whether or not a Single Audit is required for the prior fiscal year. If a Single Audit is required, the Subrecipient will submit a copy of the audit report to the granting Party within 9 months. If a single audit is not required, only the Subrecipient Annual Report is required.

For fiscal years ending before December 25, 2015, a Single Audit is required if the subrecipient expends \$500,000 or more in federal assistance during its fiscal year and must be conducted in accordance with OMB Circular A-133. For fiscal years ending on or after December 25, 2015, a Single Audit is required if the subrecipient expends \$750,000 or more in federal assistance during its fiscal year and must be conducted in accordance with 2 CFR Chapter I, Chapter II, Part 200, Subpart F. The Subrecipient Annual Report is required to be submitted within 45 days, whether or not a Single Audit is required.

10. **Records Available for Audit:** The Party shall maintain all records pertaining to performance under this agreement. "Records" means any written or recorded information, regardless of physical form or characteristics, which is produced or acquired by the Party in

the performance of this agreement. Records produced or acquired in a machine readable electronic format shall be maintained in that format. The records described shall be made available at reasonable times during the period of the Agreement and for three years thereafter or for any period required by law for inspection by any authorized representatives of the State or Federal Government. If any litigation, claim, or audit is started before the expiration of the three year period, the records shall be retained until all litigation, claims or audit findings involving the records have been resolved.

11. Fair Employment Practices and Americans with Disabilities Act: Party agrees to comply with the requirement of Title 21 V.S.A. Chapter 5, Subchapter 6, relating to fair employment practices, to the full extent applicable. Party shall also ensure, to the full extent required by the Americans with Disabilities Act of 1990, as amended, that qualified individuals with disabilities receive equitable access to the services, programs, and activities provided by the Party under this Agreement. Party further agrees to include this provision in all subcontracts.

12. Set Off: The State may set off any sums which the Party owes the State against any sums due the Party under this Agreement; provided, however, that any set off of amounts due the State of Vermont as taxes shall be in accordance with the procedures more specifically provided hereinafter.

13. Taxes Due to the State:

- a. Party understands and acknowledges responsibility, if applicable, for compliance with State tax laws, including income tax withholding for employees performing services within the State, payment of use tax on property used within the State, corporate and/or personal income tax on income earned within the State.
- b. Party certifies under the pains and penalties of perjury that, as of the date the Agreement is signed, the Party is in good standing with respect to, or in full compliance with, a plan to pay any and all taxes due the State of Vermont.
- c. Party understands that final payment under this Agreement may be withheld if the Commissioner of Taxes determines that the Party is not in good standing with respect to or in full compliance with a plan to pay any and all taxes due to the State of Vermont.
- d. Party also understands the State may set off taxes (and related penalties, interest and fees) due to the State of Vermont, but only if the Party has failed to make an appeal within the time allowed by law, or an appeal has been taken and finally determined and the Party has no further legal recourse to contest the amounts due.

14. Child Support: (Applicable if the Party is a natural person, not a corporation or partnership.) Party states that, as of the date the Agreement is signed, he/she:

- a. is not under any obligation to pay child support; or
- b. is under such an obligation and is in good standing with respect to that obligation; or
- c. has agreed to a payment plan with the Vermont Office of Child Support Services and is in full compliance with that plan.

Party makes this statement with regard to support owed to any and all children residing in Vermont. In addition, if the Party is a resident of Vermont, Party makes this statement

with regard to support owed to any and all children residing in any other state or territory of the United States.

- 15. Sub-Agreements:** Party shall not assign, subcontract or subgrant the performance of this Agreement or any portion thereof to any other Party without the prior written approval of the State. Party also agrees to include in all subcontract or subgrant agreements a tax certification in accordance with paragraph 13 above.
- 16. No Gifts or Gratuities:** Party shall not give title or possession of any thing of substantial value (including property, currency, travel and/or education programs) to any officer or employee of the State during the term of this Agreement.
- 17. Copies:** All written reports prepared under this Agreement will be printed using both sides of the paper.
- 18. Certification Regarding Debarment:** Party certifies under pains and penalties of perjury that, as of the date that this Agreement is signed, neither Party nor Party's principals (officers, directors, owners, or partners) are presently debarred, suspended, proposed for debarment, declared ineligible or excluded from participation in federal programs, or programs supported in whole or in part by federal funds.

Party further certifies under pains and penalties of perjury that, as of the date that this Agreement is signed, Party is not presently debarred, suspended, nor named on the State's debarment list at: <http://bgs.vermont.gov/purchasing/debarment>
- 19. Certification Regarding Use of State Funds:** In the case that Party is an employer and this Agreement is a State Funded Grant in excess of \$1,001, Party certifies that none of these State funds will be used to interfere with or restrain the exercise of Party's employee's rights with respect to unionization.

(End of Standard Provisions)

Attachment D

Standard State Provisions

Architect/Engineer Professional Service Agreement

Attachment C, Paragraph 6 is deleted in its entirety and replaced with the following:

6. Independence, Liability, Indemnity:

- A. The Party will act in an independent capacity and not as officers or employees of the State.
- B. This Agreement requires the Party to provide professional services in the design and/or engineering of all or a part of the Project to which this Agreement relates. This is not an Agreement for construction services. However, construction administration, observation or certification services may be required on the part of the Party if this Agreement so provides. Before commencing work on this Agreement and throughout the term of this Agreement, the Party shall procure and maintain professional liability insurance for all services performed under this Agreement, with minimum coverage as required by the Agency of Administration but not less than \$1,000,000 per claim and \$2,000,000 policy aggregate.
- C. The Party shall defend the State and its officers and employees against all claims or suits arising in whole or in part from any act or omission of the Party or of any agent of the Party in providing "non-professional services" under this Agreement. As used herein, "non-professional services" means services provided under this Agreement other than professional services relating to the design and/or engineering of all or part of the project. The State shall notify the Party in the event of any such claim or suit covered by this Subsection C, and the Party shall immediately retain counsel and otherwise provide a complete defense against the entire claim or suit arising out of "non-professional services" provided under this Agreement.
- D. Notwithstanding anything to the contrary set forth in Subsection C above, the Party shall not be obligated to defend the State and its officers and employees against claims or suits arising from the Party's provision of engineering design services or architectural design services. However, the Party's obligation to defend the State and its officers and employees against all claims or suits arising out of "non-professional services" provided under this Agreement as provided in Subsection C above and the Party's other obligations under Attachment C shall remain in effect.
- E. The Party agrees to indemnify and hold the State, its officers and employees, harmless from and against monetary damages to third parties, together with reasonable costs, expenses and attorney's fees incurred and paid by the State in defending claims by third parties (collectively "Damages") but only in the event and to the extent such Damages are incurred and paid by the State as the proximate cause of negligent acts, errors or omissions ("Professional Negligence") by the Party, its employees, agents, consultants and subcontractors, in providing the professional services required under this Agreement.

F. As used herein, "Professional Negligence" or "negligent acts, errors or omissions" means a failure by the Party to exercise that degree of skill and care ordinarily possessed by a reasonably prudent design professional practicing in the same or similar locality providing such services under like or similar conditions and circumstances.

G. The Party shall indemnify the State and its officers and employees in the event that the State, its officers or employees become legally obligated to pay any damages or losses arising from any act or omission of the Party arising from the provision of "non-professional services" (as defined herein) under this Agreement.

H. The Party shall not be obligated to indemnify the State for any Damages incurred by the State attributable to the State's own negligent acts, errors or omissions or the negligent acts, errors or omissions of its officers, agents or employees, or the acts, errors, omissions or breach of Agreement by persons or entities other than the Party, its employees, agents, consultants and subcontractors.

I. After a final judgment or settlement the Party may request recoupment of specific defense costs and may file suit in Washington Superior Court requesting recoupment. The Party shall be entitled to recoup costs only upon a showing that such costs were entirely unrelated to the defense of any claim arising from an act or omission of the Party.

CONCEPTUAL DESIGN PACKAGE



State of Vermont
Agencies of Agriculture and Natural Resources
COLLABORATIVE LABORATORY

December 17, 2014
Project No: 004614.00

CANNONDESIGN

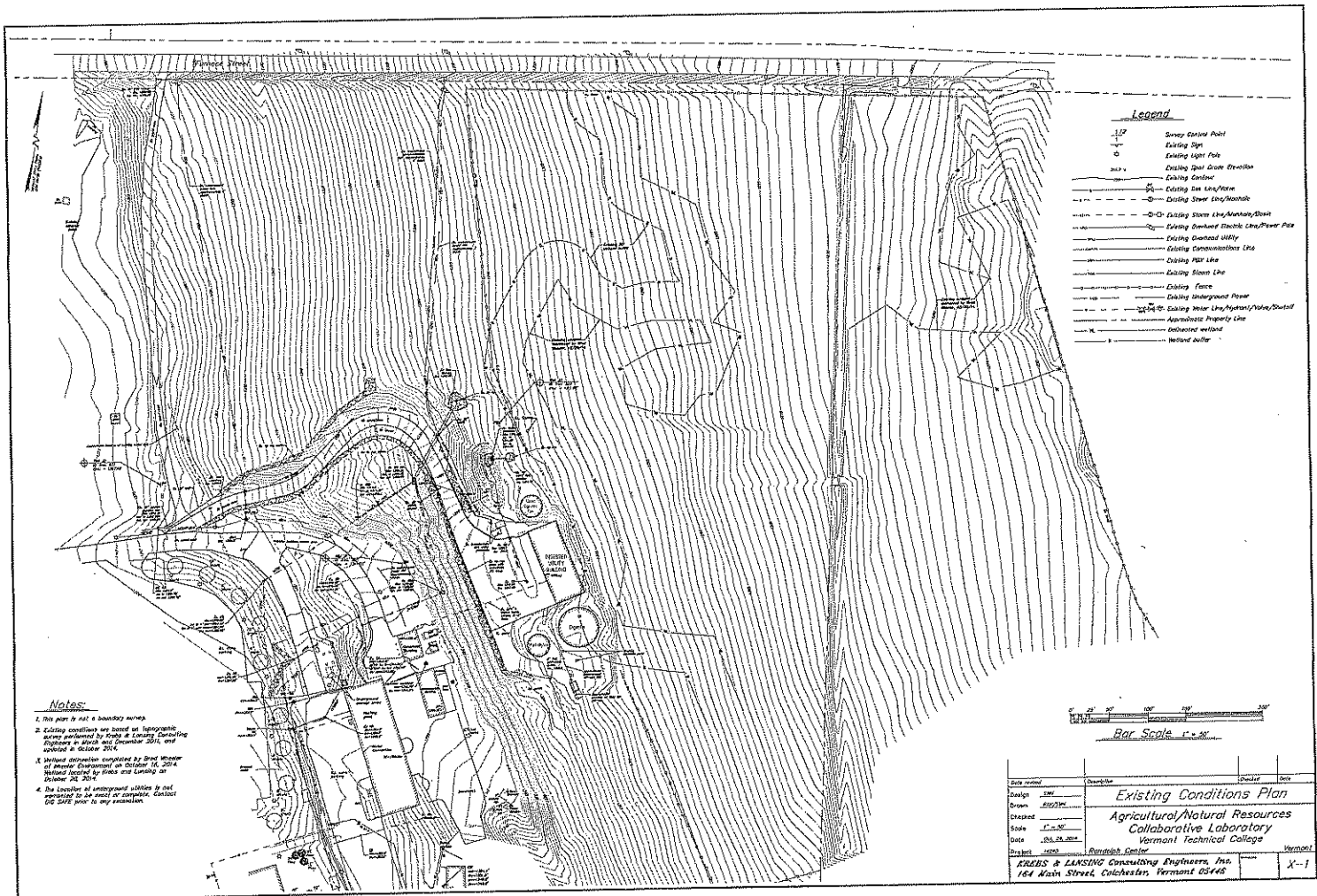
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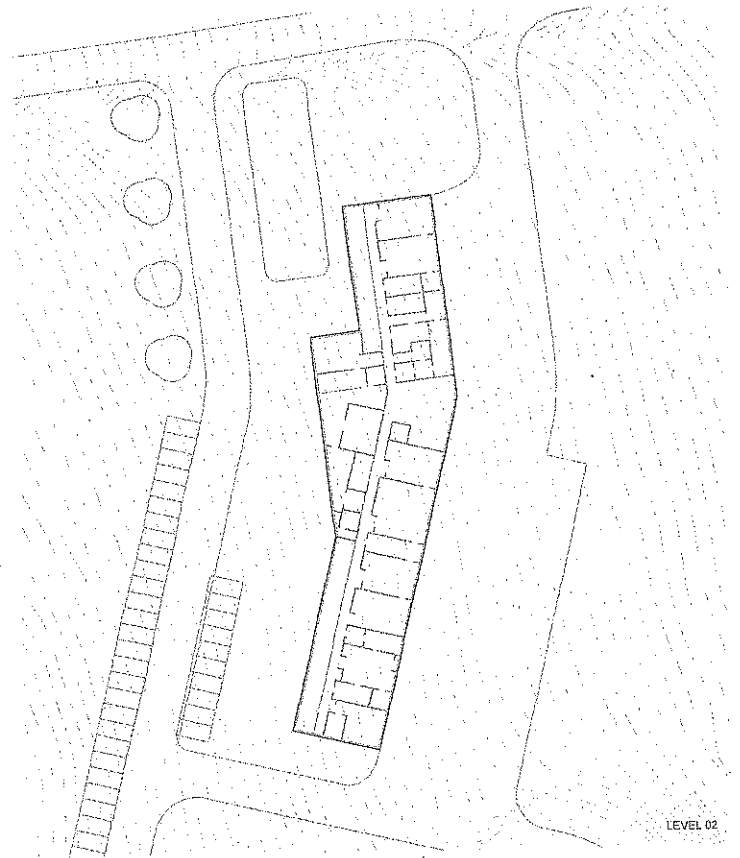
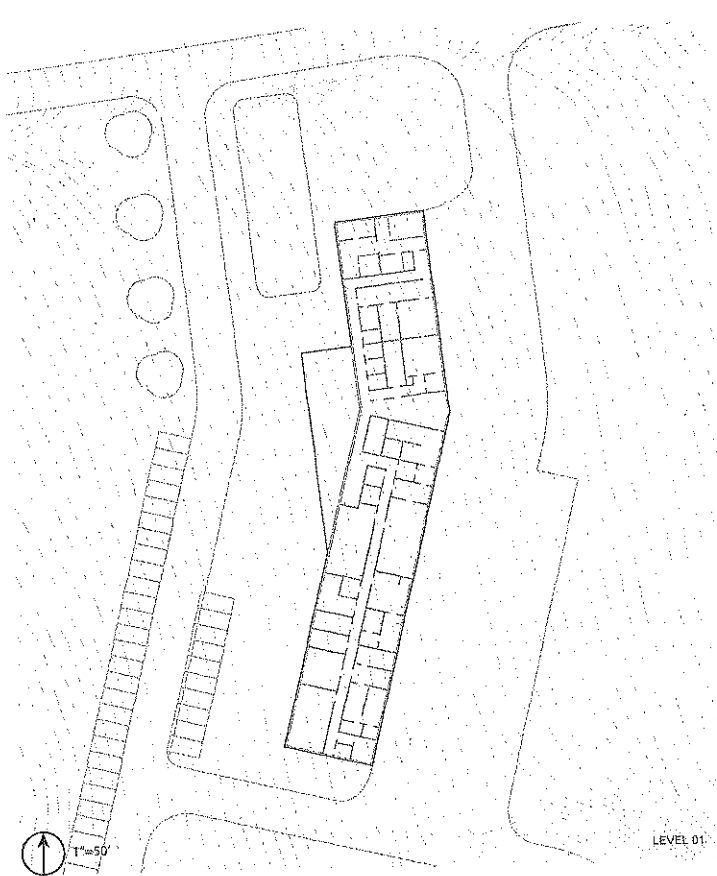
- A. Basis of Design (BoD) document
- B. LEED checklist
- C. Narratives
- D. Drawings
- E. Project Estimate (including alternates and energy costs)
- F. Room Data Sheets
- G. Space Program
- H. Laboratory Equipment List
- I. Plumbing Fixture Count Analysis

Section D

Drawings

Site
Landscape
Architecture
Laboratory Planning
Structure





PLANS

Issue Date: 12/17/2014

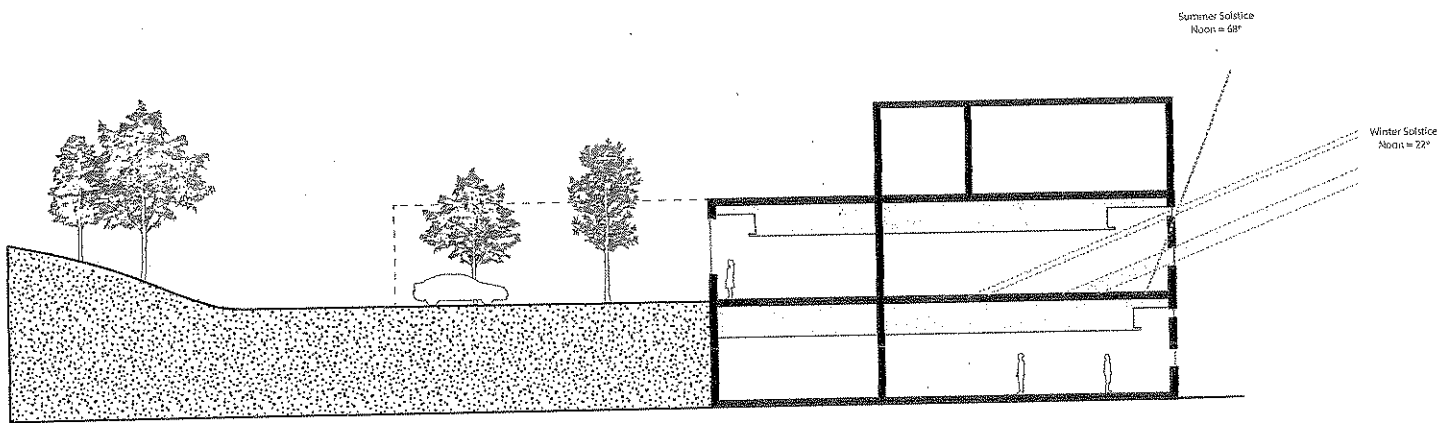
Project No: 004614.00

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State of Vermont
Agencies of Agriculture
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COLLABORATIVE
LABORATORY

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LONGITUDINAL SECTION

Issue Date: 12/12/2014

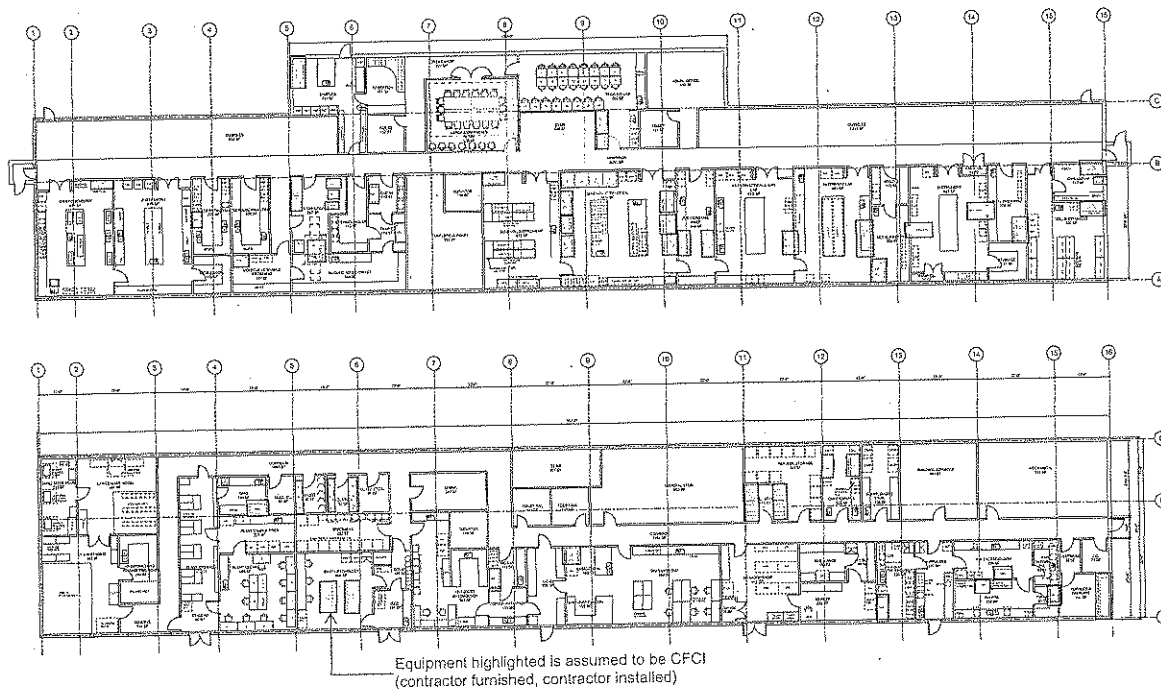
Project No: 004614.00

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**COLLABORATIVE
LABORATORY**

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PLANS TO BE USED FOR EQUIPMENT AND FURNITURE QUANTITIES, AND OVERALL PROGRAM DISTRIBUTION,
REFER TO ARCHITECTURAL PLANS/ELEVATIONS/RENDERINGS FOR REVISED PLAN/SPATIAL CONFIGURATION

LABORATORY LAYOUT & EQUIPMENT PLAN

Issue Date: 12/17/2014

Project No: 004614.00

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State of Vermont
Agencies of Agriculture
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**COLLABORATIVE
LABORATORY**

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Section G

Space Program

CANNONDESIGN

Space Program - State of Vermont Agencies of Agriculture and Natural Resources									
Department	Space Type	Section/Program	Room	Quantity	nsf	11/14/2014 SV standards	8GS 5/27/2014	11/14/14 Scheme	BGS Delta
						nsf	nsf	nsf	nsf
	Lab	I/O Nutrients	Nutrients Lab				600	684	84
	Lab	I/O Metals	Metals Prep (ppb-ppt) class 100				400	229	(171)
	Lab		airlock				-	113	113
	Lab		Metals Prep (ppm)				-	229	229
	Lab		storage				-	113	113
	Lab		Instruments				300	637	337
	Lab		Chiller Room				100	20	(80)
	Lab	I/O Non-Automated	Grinding & Fertilizer Prep				75	166	91
	Lab		Grinding & Fertilizer Prep Vest.				-	56	56
	Lab		NA Extraction				400	672	272
	Lab		Wet Lab				475	-	(475)
	Lab	Organics	Semi-Volatiles Extraction (F)					1,034	1,034
	Lab	Organics	Automated Extraction				475	-	(475)
	Lab		Manual Extraction				600	-	(600)
	Lab		Organic Prep / Overflow Extraction (G)				200	346	146
	Lab		Chlorophyll Room / Formulations (H)				340	226	(114)
	Lab		TO-11 Extraction/ HPLC Instrument				350	-	(350)
	Lab		Semi-Volatiles Instruments (E)				375	1,034	659
	Lab		Volatile Instruments (B)				280	530	250
	Lab		Flex Lab (I)				280	-	(280)
	Lab		Can Cleaning and Storage (A)				200	147	(53)
	Lab		Gas Cylinder Room (D)				150	111	(39)
Core Chemistry	Office	Offices	Full-time	4	150	48	600	192	(408)
	Office		Part-time workstations	2	30	48	60	96	36
	Office support		Common Printer Area	1	75		75	50	(25)
Core Chemistry	Office	Offices	Full-time	4		48	-	192	192
	Office		Part-time workstations	2		48	-	96	96
			SUBTOTAL CORE CHEMISTRY				6,335	6,973	638
Core Biology									
	Lab	Microbiology	Dairy Chemistry & Thermocyclers				754	674	(80)
	Lab		Storage				80	113	33
	Lab		Dairy Micro				580	675	95
	Lab		Serology/Mastitis				290	229	(61)
	Lab		Food Pathogen				290	229	(61)
	Lab	Molecular Biology	Molecular Clean Prep				108	112	4
	Lab		Template PCR Addition				153	112	(41)
	Lab		Thermocyclers				-	173	173
	Lab		Molecular sample receiving				-	177	177
	Lab		Nucleic Acid Extraction & Homogenization (BSL2+)				216	348	132
	Lab	BSL3	Autoclave Room				90	-	(90)
	Lab		Autoclave Service				81	-	(81)
	Lab		Shower / Decontamination				81	-	(81)
	Lab		Changing Room				45	-	(45)
	Lab	GMO	GMO Grinding				144	144	-
	Office	offices	Office	5	75	48	375	240	(135)
	Office	offices	Office	0	0		-	-	-
			SUBTOTAL CORE BIOLOGY				3,287	3,226	(61)
		Air Quality							
	Lab		Sample Prep				250	232	(18)
	Lab		AP Balance Room				120	139	19
	Lab		AP Balance Room Filter Prep A/L				-	88	88
	Lab		Shop & Storage				384	441	57
	Lab		Pump Area				25	26	1
	Lab		Desk Area				240	-	(240)
	Office		Hotel/Touch down stations	2			-	-	-
			SUBTOTAL AIR QUALITY				1,019	926	(93)
		Watershed Management							
	Lab		Unloading / Loading				325	231	(94)
	Lab		Login / Calibration				150	105	(45)
	Lab		Taxonomy				625	664	39
	Lab		Basic Chemistry				125	105	(20)
	office		work areas	3	50	48	150	144	(6)
	office		work areas (Hotel)	2	50	40	100	80	(20)
			SUBTOTAL WATERSHED				1,475	1,329	(146)
		Plant Industry							
	Lab		Staging / Storage				450	465	15
	Lab		Sample Prep				100	229	129
	Lab		Clean Labs				450	466	16
	Office		Office	4	100	48	400	192	(208)

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Space Program - State of Vermont Agencies of Agriculture and Natural Resources

Department	Space Type	Section/Program	Room	Quantity	nsf	11/14/2014 SV standards	BGS 5/27/2014	11/14/14 Scheme	BGS Delta
						nsf	nsf	nsf	nsf
	Office		Hotel	2		40		80	80
	Office		Touch Down in lab	2					
			SUBTOTAL PLANT INDUSTRY				1,400	1,432	32
		Forest Biology							
	Lab		Entomology Lab				300	583	283
	Lab		Forest Pathology Lab				100	113	13
	Lab		Forest Pathology Clean Lab				50	113	63
	Office		Office - In lab	2					
	Office		Touch Down in lab	1					
			SUBTOTAL FOREST BIOLOGY				450	809	359
		Animal Pathology							
	Lab		Receiving and Samples				200	114	(86)
	Lab		Gown/Degown				200	109	(91)
	Lab		Necropsy				600	466	(134)
	Office		Offices	1	100	48	100	48	(52)
	Office		Hotel	2		40		80	80
			SUBTOTAL ANIMAL PATHOLOGY				1,100	817	(283)
		Fish & Wildlife							
	Lab		Processing				200	231	31
	Lab		Bacteriology				112	236	124
	Lab		Virology				240	230	(10)
	Lab		FA (dark) Room				48	89	41
	Lab		PCR suite						
	Lab		Master Mix Room				40	61	21
	Lab		Extraction Area				30	236	206
	Lab		Loading Area				40		(40)
	Lab		Amplification Area				30		(30)
	Office		Office	1	100	48	100	48	(52)
	Office		Office	2		48		96	96
	Office		Hotel	1		40		40	40
			SUBTOTAL FISH & WILDLIFE				840	1,267	427
		Weights and Measures							
	Lab		Large Mass Lab				400	481	81
	Lab		Small Mass Lab				300	217	(83)
	Lab		Hydrometer & Volumetric Room				300	203	(97)
	Office		Office	1	100	48	100	48	(52)
	Lab		Storage Staging and Prep				400	595	195
	Lab		Loading				100		(100)
			SUBTOTAL WEIGHTS AND MEASURES				1,600	1,544	(56)
	Office	Administration	Director	1	150		150	150	
	Office		Admin Offices	2	120	100	240	200	(40)
	Office support		Reception				200	177	(23)
	Lab support		Public Sample Receiving				200	414	214
	Office		Conference				650	535	(115)
	Office		Small Meeting / Focus Room				150	150	
	Office support		Training Lab / Classroom				800	705	(95)
	Office support		Lobby/Exhibit					717	717
	Office support		Common Printer Area					267	267
	Office support		Visiting QAO/IT Work station				50	40	(10)
			SUBTOTAL ADMINISTRATION				2,440	3,355	915
		Storage, Supplies, Commons							
	lab support		Refrigerated Storage				150		(150)
	lab support		Frozen Storage				225	342	117
	lab support		Autoclave / Washing				315	287	(28)
	lab support		Glassware Storage				120	91	(29)
	lab support		General Storage				1,000	893	(107)
	lab support		Hazardous Supply Storage				100	92	(8)
	lab support		Equipment Shop / Storage				300	226	(74)
	office		Analytical Common Space				200	591	391
	office		Chemical Common Space				200		(200)
	office		Biology Common Space				200		(200)
	lab		Specimen Collection				280	282	2
			SUBTOTAL STORAGE SUPPLIES & COMMONS				3,090	2,804	(286)
			TOTAL BUILDING NSF				23,036	24,482	1,446
		Maintenance, Utility, Waste							
	gsf		Restrooms				280	444	164
	gsf		Janitor				120	71	(49)
	gsf		Maintenance				100	227	127
	gsf		Maintenance Supply				100		(100)

CANNONDESIGN

Space Program - State of Vermont Agencies of Agriculture and Natural Resources

Department	Space Type	Section/Program	Room	Quantity	nsf	11/14/2014 SV standards	BGS 5/27/2014	11/14/14 Scheme	BGS Delta
					nsf	nsf		nsf	nsf
	gsf		Recycling				75	-	(75)
			Chem Hazardous Waste				100	90	(10)
	gsf		Bio Hazardous Waste				-	-	-
	gsf		Electrical Closets / room				200	329	129
	gsf		Data Closets / room				375	230	(145)
	gsf		Mechanical Rooms				800	781	(19)
	gsf		Water Treatment				50	-	(50)
	gsf		Building Loading Area				-	133	133
	gsf		Elevator and Equipment room				150	220	70
	gsf		Circulation				5,000	4,553	(447)
	gsf		Interior & Exterior Walls					2,080	2,080
			SUBTOTAL				7,350	9,158	1,808
			net/gross				75.8%	72.8%	
			TOTAL BUILDING GSF				30,386	33,640	3,254
			Heated Garage building				NIC	400	
			Woodchip Plant building				NIC	2,000	
			AHU airlock (on main building)					300	
			BUILDING TOTAL					36,340	



State of Vermont
Division for Historic Preservation
 One National Life Drive, Floor 6
 Montpelier, VT 05620-0501
www.HistoricVermont.org

[phone] 802-828-3211
 [division fax] 802-828-3206

*Agency of Commerce and
 Community Development*

January 22, 2015

Sandra Vitzthum
 Department of Buildings and General Services
 2 Governor Aikin Drive
 Montpelier, VT 05633-5801

Re: State of Vermont Agencies of Agriculture and Natural Resources Collaborative Laboratory Construction, Vermont Technical College, Furnace Street, Randolph Center, Vermont. Vermont Historic Preservation Act, Act 250 Land Use Permit # 3R0581 Amendment, and U.S. Department of Homeland Security Federal Emergency Management Agency Section 106 Review. .

Dear Ms. Vitzthum:

Thank you for the opportunity to comment on the above-referenced project.

The following comments will assist the State of Vermont Department of Buildings and General Services, the District #3 Environmental Commission, and the U.S. Department of Homeland Security Federal Emergency Management Agency (FEMA) in their review responsibilities under 22 V.S.A 14, Act 250, and Section 106 of the National Historic Preservation Act. The Division for Historic Preservation (Division) is providing FEMA and any other federal agency with the following comments pursuant to 36 CFR 800.4, regulations established by the Advisory Council on Historic Preservation to implement Section 106 of the National Historic Preservation Act. The Division is also reviewing this undertaking on behalf of the Vermont Advisory Council on Historic Preservation for the Vermont Historic Preservation Act, and for purposes of Criterion 8, 10 V.S.A. Chapter 151 (Act 250). The purpose of the Division's review for Act 250 is to provide the District # 3 Environmental Commission with the necessary information for them to make a positive finding under the "historic sites" aspect of Criterion 8.

In all cases, project review consists of identifying the projects potential impacts to historic buildings, structures, historic districts, historic landscapes and settings, and known or potential archeological resources.

The proposed project consists of the construction of a new laboratory facility within a 5.0 acre parcel of land located south of Furnace Street on the Vermont Technical College campus in Randolph, Vermont. The new facility is to replace the Agricultural Laboratory formerly located at the Waterbury State Office Complex that was damaged during Tropical Storm Irene. The new building footprint will utilize about a 0.5 acre section of the leased parcel. Related infrastructure will include a new access and parking and will occupy an additional 3 acres of land.

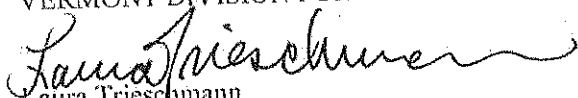
The Division conducted a site visit to the proposed development area on October 7, 2014. The overall parcel is situated on a sloping hillside to the west of Penny Brook, an upper tributary of the Second Branch of the White River, and is currently used as a cornfield. No archaeologically sensitive areas were identified in the project area during the field visit. In addition, desk review of the proposed project plans and building elevations indicates that the project will have no indirect adverse effect on the Langevin



S. Vitzthum
Page 2 of 2
June 22, 2014

House, a State Register listed property located at the end of Furnace Street to the east, or on the National Register-listed Randolph Center Historic District to the west of the proposed facility. Based on these considerations, the Division concludes that the Collaborative Laboratory Project will have **No Effect** on any historic properties that are listed in or eligible for inclusion in the State or National Registers of Historic Places. Thank you for your cooperation in protecting Vermont's irreplaceable archaeological and historic heritage. R. Scott Dillon reviewed this project and prepared this letter. I concur with the findings and conclusions described above.

Sincerely:
VERMONT DIVISION FOR HISTORIC PRESERVATION

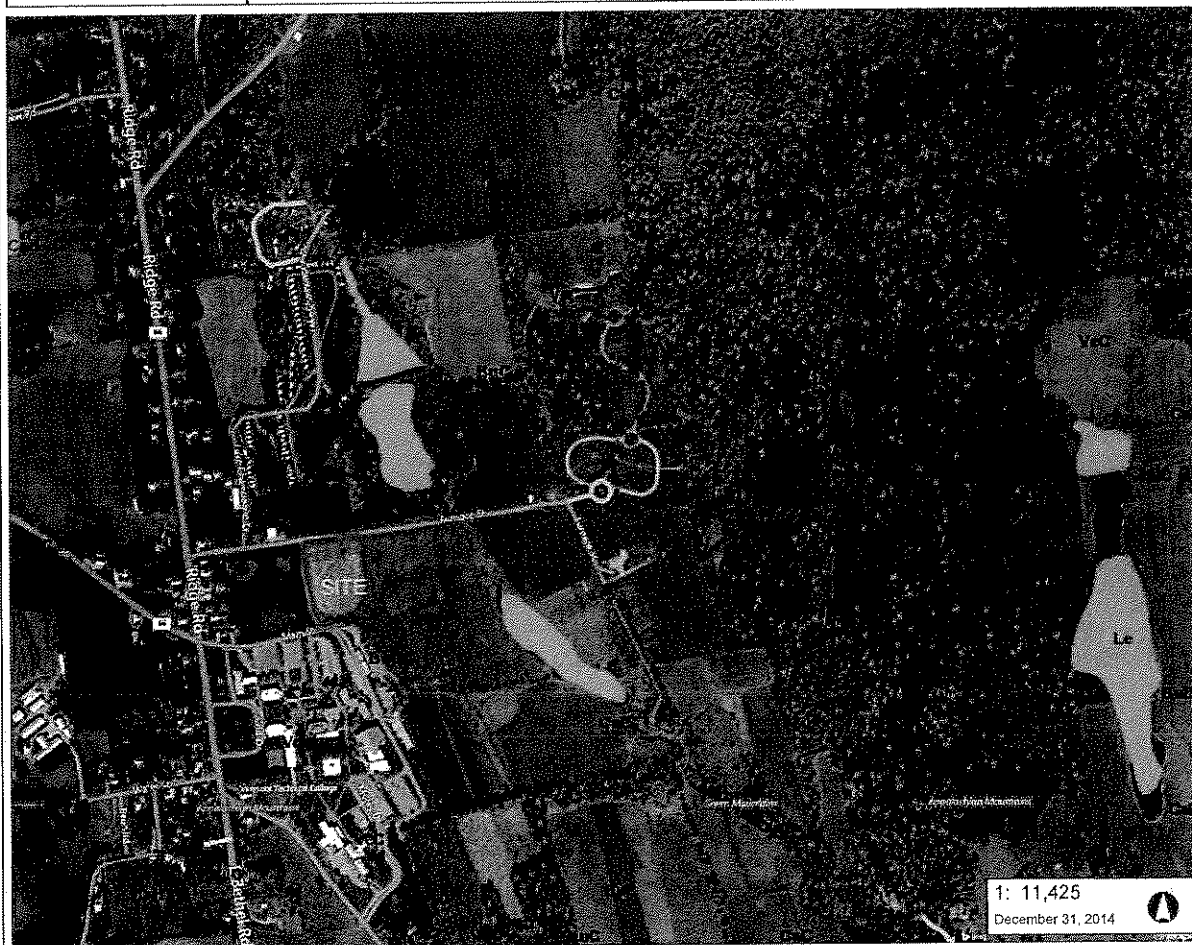

Laura Trieschmann
State Historic Preservation Officer



Natural Resources Atlas

Vermont Agency of Natural Resources

vermont.gov



1: 11,425

December 31, 2014



LEGEND

Class A Watersheds

- ☐ Class A(2) Public Water Supplies
- ☐ Class A(1) Ecological Waters

303(d) List of Impaired Stream

303(d) List of Impaired Lakes/f

303(d) List of Impaired Watersl

VT List of Priority Lakes and P

Part B (impaired TMDL not requirec

Part C (stressed needs more asses

Part D (impaired with approved TMI

Part E (altered exotic species)

Part F (altered flow regulation)

VT List of Priority Rivers and S

Part B (impaired TMDL not requirec

Part C (stressed needs more asses

Part D (impaired with approved TMI

Part E (altered exotic species)

Part F (altered flow regulation)

Part G (channel alteration)

Stormwater Impaired Watershe

Small MS4 (Municipal Separat

Systems) Area

Vernal Pools Confirmed - AEA

Vernal Pools Unconfirmed - AI

Wetlands - VSWI

Class 1 Wetland

Class 2 Wetland

DEC Managed Lands

NOTES

Map created using ANR's Natural Resources Atlas

580.0 0 290.00 580.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere

© Vermont Agency of Natural Resources

1" = 852 Ft. 1cm = 114 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

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

ATTACHMENT 17

Agencies of Agriculture and Natural Resources Collaborative Laboratory HISTORICAL SPACE USE ANALYSIS + PROPOSED DESIGN, January 27, 2015

	AUGUST 2011		FEASIBILITY STUDY		PROPOSED DESIGN	
Core Labs	15,375	Ag and ANR	5,825	Chemistry	6,973	Chemistry
			2,925	Biology	3,226	Biology
	<u>1,300</u>	<u>Classroom/Conference</u>	<u>4,200</u>	<u>Admin/Support</u>	<u>5,759</u>	<u>Admin/Support</u>
Sub-total	16,675	NET CORE	12,950	NET CORE	15,958 ²	NET CORE
Air Quality Lab (ANR)	1,100	+ 350 @ 3 South,Wbury	1,550		926 ³	
Watershed Mgmt (ANR)	2,150		2,100		1,329 ⁴	
Plant Industry (Agr)	1,300	+ 300 offsite storage	950		1,432 ⁵	
Forest Biology (FPR)	600		225		809 ⁶	
Animal Pathology (Agr)	0	(new program)	1,100		817 ⁷	
Fish & Wildlife (ANR)	600	+ 250 @ 10 South,Wbury	650		1,267 ⁸	
Weights & Measures (Agr)	900	+ offsite storage	1,700		1,944 ⁹	
TOTALS	23,325	NET AREA @ LaRosa	21,225	PROPOSED NET AREA	24,482	PROPOSED NET AREA
	<u>9,885</u>	<u>Unassigned</u>	<u>14,150</u>	<u>Unassigned</u>	<u>9,522</u>	<u>Unassigned</u>
	33,210 ¹	GROSS AREA @ LaRosa	35,375	PROPOSED GROSS AREA	34,004	PROPOSED GROSS AREA
	+ 900	Other sites				
	34,110	PRE-IRENE GROSS AREA				

Notes:

¹ FEMA used 30,148 sf rentable space in their funding calculations.

² The current design includes less office space due to evolving work environment design (cubicles and focus rooms, for example).

³ Air Quality has slightly decreased in size because it now has storage area elsewhere in the building. No function or capacity is affected.

⁴ Watershed Management now has storage and archive areas elsewhere in the building. No function or capacity is affected.

⁵ Plant Industry has increased in size due to recent legislation about GMOs and increased research on bees.

⁶ Forest Biology has slightly increased to improve its pathology testing and archival processing.

⁷ Animal Pathology is a new program in the building.

⁸ Fish & Wildlife is expanding its pathology testing.

⁹ Weights & Measures now includes a garage plus more testing capability.

ATTACHMENT 18

Agencies of Agriculture and Natural Resources Collaborative Laboratory STAFFING PLAN, January 27, 2015

	August 2011		Current through 2018		10-YEAR PLAN	
Core Labs						
Administrative	4		3		4	+ 2 PT
Chemistry	7	+ 2 T	8	+ 2 T	8	+ 2 PT
Biology	3		3		4	
(Sub total)	14 ¹	+ 2 T	14	+ 2 T	16	+ 4 PT
 Air Quality Lab (ANR)	1	+ 6 PT	1	+ 6 PT	1	+ 6 PT
Watershed Mgmt (ANR)	4	+ 1 PT + 2 T	3	+ 1 PT + 1 T	3	+ 1 PT + 1 T
Plant Industry (Agr)	4	+ 4 T	4	+ 7 T	4	+ 1 PT + 11 T
Forest Biology (FPR)	1	+ 1 PT + 3 T	1	+ 1 PT + 3 T	2	+ 1 PT + 3 T
Animal Pathology (Agr)	0	+ 2 PT	0	+ 2 PT	3	+ 2 PT
Fish & Wildlife (ANR)	2	+ 3 T	2	+ 1 T	2	+ 3 T
Weights & Measures (Agr)	1	+ 6 PT	1	+ 6 PT	1	+ 6 PT
 TOTALS	27²	+16 PT + 14 T	26	+16 PT + 14 T	32	+21 PT +18 T

Notes

- "PT" under Staff identifies employees who are in the lab part-time. They may be full-time staff.
- "T" under Staff identifies temporary/seasonal employees

¹ Core Lab staff had one position vacant at the time of TS Irene, and that position was erroneously left out of FEMA calculations. This position is and was essential to the laboratory's function and capacity. The total pre-Irene core lab staff count should have been 14.

² 26 FTE staff were identified in FEMA documents. The number should have been 27 for the reason described in (1) above.

³ Watershed Management has evolved since 2011 towards field staff who post data remotely. There has been no loss of function or capacity as a result.

ATTACHMENT 19

[illegible]

Johnson, Harriet

From: Schell, Robert
Sent: Wednesday, April 01, 2015 4:32 PM
To: Johnson, Harriet
Cc: Nagy, Ross
Subject: VT FSA Amendment - Appendix A -- Final for VT signature
Attachments: VT_FSA Amendment _ Exhibit A.docx

Hi Harriet, please see attached - we need to update the FEMA State Agreement (FSA) appendix A to reflect new representation. If you could please acquire the needed signatures it would be greatly appreciated. When complete, we would be happy to come over and get it. Thanks very much, Rob.

Robert Schell
Deputy Director
Vermont Division of Emergency Management
And Homeland Security

103 South Main St.
Waterbury VT, 05671-2101
800-347-0488
VTALERT.GOV



FEMA

**AMENDMENTS TO THE FOLLOWING FEMA-STATE AGREEMENTS FOR
VARIOUS MAJOR DISASTER DECLARATIONS IN VERMONT**

**FEMA-1790-DR, FEMA-1951-DR, FEMA-1995-DR, FEMA-4001-DR, FEMA-4022-DR,
FEMA-4043-DR, FEMA-4066-DR, FEMA-4120-DR, FEMA-4140-DR, FEMA-4163-DR,
and FEMA-4178-DR**

REPLACEMENT OF EXHIBIT A, STATE CERTIFICATION OFFICERS

This is Amendment Number #2 to the FEMA-State Agreement for major disaster FEMA-1790-DR, declared on September 12, 2008.

This is Amendment Number #2 to the FEMA-State Agreement for major disaster FEMA-1951-DR, declared on December 22, 2010.

This is Amendment Number #1 to the FEMA-State Agreement for major disaster FEMA-1995-DR, declared on June 15, 2011.

This is Amendment Number #2 to the FEMA-State Agreement for major disaster FEMA-4001-DR, declared on July 8, 2011.

This is Amendment Number #10 to the FEMA-State Agreement for major disaster FEMA-4022-DR, declared on September 1, 2011.

This is Amendment Number #1 to the FEMA-State Agreement for major disaster FEMA-4043-DR, declared on November 8, 2011.

This is Amendment Number #1 to the FEMA-State Agreement for major disaster FEMA-4066-DR, declared on June 22, 2012.

This is Amendment Number #1 to the FEMA-State Agreement for major disaster FEMA-4120-DR, declared on June 13, 2013.

This is Amendment Number #1 to the FEMA-State Agreement for major disaster FEMA-4140-DR, declared on August 2, 2013.


This is Amendment Number #1 to the FEMA-State Agreement for major disaster FEMA-4163-DR, declared on January 29, 2014.

This is Amendment Number #1 to the FEMA-State Agreement for major disaster FEMA-4178-DR, declared on June 11, 2014.

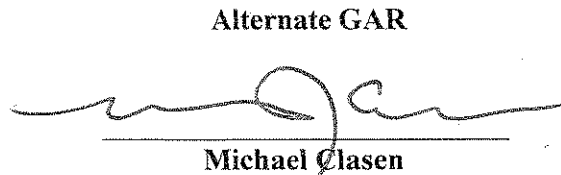
This amendment serves to replace Exhibit A for the eleven FEMA-State Agreements detailed above.

Exhibit A of the FEMA-State Agreements for FEMA-1790-DR, FEMA-1951-DR, FEMA-1995-DR, FEMA-4001-DR, FEMA-4022-DR, FEMA-4043-DR, FEMA-4066-DR, FEMA-4120-DR, FEMA-4140-DR, FEMA-4163-DR, and FEMA-4178-DR is amended as follows:

1. The Governor certifies that **Justin Johnson** is the Governor's Authorized Representative ("**GAR**") empowered to execute on behalf of the State of Vermont for all necessary documents for disaster assistance, including approval of subgrants and certification of claims for Public Assistance. **Michael Clasen** is the Alternate GAR and is similarly empowered. Their specimen signatures follow:

GAR


Justin Johnson

Alternate GAR


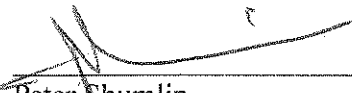
Michael Clasen

2. The GAR, named above, is responsible for State performance of hazard mitigation activities under this Agreement and, further, **Ray Doherty** is designated the State Hazard Mitigation Coordinator for the purposes of such hazard mitigation activities.
3. The Governor certifies that **Rob Schell** and **Ben Rose** are the State Coordinating Officer ("**SCO**") and Alternate SCO, respectively, who will act in cooperation with the Federal Coordinating Officer under this declared major disaster.
4. The Governor certifies that **Bill Lafferriere** is the representative of the State authorized to receive donations or loans of surplus property on behalf of the State and to execute certification, agreements, and other necessary documents with regard thereto.
5. The Governor certifies that **Justin Johnson** is the official of the State authorized to execute compliance reports, carry out compliance reviews, and distribute informational material as required by FEMA to ensure that all recipients of Federal disaster assistance are in full compliance with FEMA nondiscrimination regulations (located at 44 C.F.R. Part 7).
6. The Governor certifies that **Ben Rose** is the official of the State who will execute compliance reports, carry out compliance reviews, and distribute informational material as required by FEMA to ensure that all recipients of Federal disaster assistance are in compliance with the General Services Administration List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

All other paragraphs and Exhibits of the FEMA-State Agreements for FEMA-1790-DR, FEMA-1951-DR, FEMA-1995-DR, FEMA-4001-DR, FEMA-4022-DR, FEMA-4043-DR, FEMA-

4066-DR, FEMA-4120-DR, FEMA-4140-DR, FEMA-4163-DR, and FEMA-4178-DR remain unchanged, unless previously amended.

AGREED:



Peter Shumlin
Governor

Date: 8/10/15

Paul F. Ford
Acting Regional Administrator
FEMA Region I

Date: _____

PETER SHUMLIN
Governor



State of Vermont
OFFICE OF THE GOVERNOR

July 16, 2015

The Honorable Barack Obama
President of the United States
The White House
Washington, D. C.

Through: Mr. Paul Ford
Acting Regional Administrator
FEMA Region I
99 High Street
Boston, MA 02110

Dear Mr. President:

Under the provisions of Section 401 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. §§ 5121-5207 (Stafford Act), and implemented by 44 C.F.R. § 206.36, I respectfully request that you declare a Major Disaster for the State of Vermont for Public Assistance in Chittenden and Addison counties and Hazard Mitigation statewide as a result of Severe Storm and Flooding which occurred in northwestern Vermont on June 9, 2015.

On Thursday, June 9th, the National Weather Service (NWS) in Burlington, Vermont, issued a Severe Thunderstorm Watch and a Flood Watch for all of northern Vermont. A few hours later, a series of heavy showers and thunderstorms moved across the area, bringing 3 to 5 inches of rain in some locations. Antecedent conditions were saturated, because the region had already received 200 percent of normal precipitation for this time of year over the past month. Torrential rains on steep, mountainous slopes resulted in localized severe flash flooding and mudslides.

The National Weather Service provided timely and relevant warnings and information before, during, and after this incident. The meteorological factors and precursors for this incident are described in Enclosure D ("For the Record" Weather Summary Memo regarding June 9, 2015), from Scott Whittier, Warning Coordination Meteorologist for the NOAA/National Weather Service based in Burlington, Vermont.

On June 24, after collecting damage reports from local communities via Vermont's Regional Planning Commissions, Vermont's Director of Emergency Management and Homeland Security, Joe Flynn, wrote to FEMA Region 1 Acting Administrator Paul Ford requesting a Preliminary Damage Assessment (PDA) for Addison, Chittenden, and Franklin Counties. PDA teams composed of local, state and federal representatives convened at the Vermont Agency of Transportation District 5 offices on June 26, and site visits were conducted between June 26 and July 2. Final validated PDA totals were provided by FEMA to my staff on July 7.

The Honorable Barack Obama
President of the United States
July 16, 2015
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Final validated PDA totals statewide were \$1,344,742, significantly exceeding the statewide threshold indicator of \$1 million. In Chittenden County, Vermont's most populous county, damages were \$706,843, exceeding the county threshold indicator of \$557,300. In Addison County, damages were \$602,299, more than four times the county threshold indicator of \$131,083. There were also some damages in Franklin County, but they did not approach the county threshold indicator.

Within Addison and Chittenden counties, damages were concentrated in five very hard-hit towns: in Addison County, Starksboro (population 1,898) had \$365,713 in damage (\$192 per capita) and Weybridge (population 824) had \$236,586 in damage (\$287 per capita).

In Weybridge, there is still one residence on Gooseneck Road where access has not been restored. The residents are currently parking at a neighbor's home and trekking in every day. That road also serves as the only access to a 70+ acre cornfield which cannot be farmed at this time. *The estimated damages on Gooseneck Road are \$236,586; the town's entire annual road budget is \$397,000.* Scheduled repair projects will need to be canceled or postponed.

In Chittenden County, Bolton (population 971) had damages of \$287,992 (\$297 per capita), and Huntington (population 1,861) had damages of \$211,371 (\$114 per capita).

In Bolton, three of the town's four main roads were closed, temporarily cutting off the only access to Bolton Valley Resort, several neighborhoods, and the town's gravel pit. On Notch Road alone, the damages are estimated to add up to \$225,000. Over a hundred families were stranded with no access for several days. The town's entire annual road budget is \$430,800. Fortunately no emergency evacuations were required, damage to private property was limited to culvert, driveway and road washouts, and temporary repairs by the local road crew and hired contractors have since opened all roads to local traffic, at least to one lane; but Bolton incurred an estimated \$287,992 in damage to town roads, far exceeding what the town can afford to finance on its own. The Select Board has therefore requested state and federal public assistance.

In Huntington, Bean Road was one of four major roads that washed out. Repairs to Bean Road alone will cost over \$97,000; forty families rely on this road for access.

In Richmond, the water supply to more than 1,000 residents was compromised when a line to the water storage tank broke. The town issued a boil water notice which was in effect for three days, and both Camels Hump Middle and Richmond Elementary Schools had to be closed for one day, causing disruption and lost wages in the community. Restaurants, numerous business and at-risk populations were adversely affected by the lack of potable water. There are still a few homes on Greystone Road without access and this site will require considerable engineering to restore. In Starksboro, two houses on Ben Roberts Road were stranded without access for two days until a temporary fix was installed. The damages on that road of \$365,713 overwhelm the annual town road maintenance budget of \$452,000. It should also be noted that since Tropical Storm Irene, the Town of Richmond has had several Hazard Mitigation (404) projects, including home buy-outs and elevations. Although difficult to quantify, damages in Richmond could easily have

The Honorable Barack Obama
President of the United States
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been more severe if the community were not taking active steps to increase flood resiliency. It should also be noted that none of the damaged sites from this event were repeat sites from Tropical Storm Irene or any of the subsequent flooding disasters which have hit these communities, suggesting that Vermont's commitment to improving drainage structures through our Stream Alteration Permit Program is serving to reduce future costs.

The State Emergency Operations Plan (SEOP) was implemented during this event. Due to the rapid nature of the storm, the State Emergency Operations Center remained in Monitoring status. Pursuant to the SEOP, our Division of Emergency Management and Homeland Security (DEMHS) Watch Officer and Supervisory Watch Officer provided situational updates to the DEMHS Director, who informed me and my staff. The impacted communities followed their Local Emergency Operations Plans and report damages according to the State Emergency Operations Plan (SEOP) with the assistance of the Regional Planning Commissions. Fortunately, there were no deaths or major injuries reported, and no temporary shelters were opened.

Local Emergency Management Directors, road crews, and neighbors in the impacted communities worked late into the evening hours of June 9 to protect lives, relocate residents who were unable to get to or from their homes, and restore emergency access.

Early responders also included personnel from Vermont Agency of Transportation District 5 and river engineers from the Vermont Agency of Natural Resources, who were "on the scene" within hours of the flooding and provided initial assessment and advice to municipal officials.

With respect to Voluntary Agency Assistance, on June 16 our Recovery and Mitigation Section Chief contacted VOAD Coordinator and Vermont Disaster Relief Fund staff liaison Bill Elwell and Individual Assistance Coordinator Bob Costantino, who is housed in the Agency of Human Services, to provide an update on flood damage reports from residents in Barton, Richmond, and Westford. The Westford situation was a woman whose husband has medical needs and for whom emergency medical access has been necessary; they live on a badly damaged private road with 8 or 9 other families. This person was referred to the Vermont 211 hotline for assistance in accessing state assistance programs for which they may be eligible.

Based on the results of the PDA, 94% of the eligible damages were to roads, bridges, and culverts (Category C), 5% were for water supply damages (Category F), and less than 1% for emergency responses costs (Category B).

In the nearly four years since Tropical Storm Irene in August 2011 (DR4022), Vermont has experienced six more federal disasters: DR4066 (flooding in May 2012), DR4120 (flooding in May 2013), DR4143 (flooding in June-July, 2013), DR4163 (an ice storm in December 2013), DR4178 (flooding in seven northern counties in April, 2014), and DR4207 (severe winter storm of Dec. 9-12, 2014). This series of disasters, piled on top of the ongoing recovery efforts associated with DR4022 (Tropical Storm Irene), continue to severely stress and deplete local and state resources.

It should also be noted that all of the hardest-hit communities from this event were also impacted by Tropical Storm Irene in 2011. Furthermore, the communities of Bolton, Huntington, and Starksboro are still reeling financially from DR4207, the severe winter storm which hit most of Vermont in December 2014. Starksboro and Huntington each had more than \$100,000 of damages from that event. Furthermore, the Chittenden County communities of Bolton, Huntington, and Richmond incurred damages during DR4140, the flooding of July 2013. The local portion of non-federal share for these multiple disasters has placed significant strain on local budgets and property taxes.

Not only are the infrastructure costs of the June 9 event beyond the financial capabilities of the impacted communities, they also exceed the currently available financial resources of the State of Vermont. The State's Town Highway Emergency Fund budgeted it already almost \$300,000 over budget for the new State Fiscal Year which began July 1, and the State relies on this fund to also cover winter maintenance costs and FHWA damages. All the money for the regular Municipal Town Highway and Bridge grant program has already been allocated for this fiscal year. Every available dollar is already spoken for, and it is not clear how we are going to be able to assist the June 9 impacted communities.

Furthermore, the storms which have been federally declared as disasters have not been the only ones which have hit Vermont. For example, repeated thunderstorms during the period July 3-10, 2014 caused damages in excess of \$100,000 in the towns of Poultney, Woodstock, Stockbridge, and Randolph. Hail storms in May and July 2014 damaged more than one hundred homes and public facilities in Rutland County. Flooding in Windham and Windsor Counties on July 28, 2014 caused more than \$1 million of damage in a handful of communities in southeastern Vermont. And frozen municipal water pipes associated with the coldest February on record in February 2015 caused more than \$2 million in damages to municipalities. Vermont has absorbed these costs without federal assistance. A few communities that were hit by the June 9 also incurred damages from the February 2015 frozen pipe event; for example, Richmond had \$23,000 in frozen pipe damages in February, while Milton had \$83,000 in frozen pipe damages).

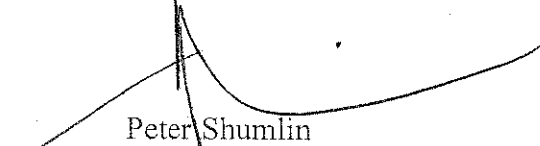
There are still several roads that are "one lane only" and some residents who are not able to access their homes without a hike. But on the surface, after the Richmond water supply was restored and Richmond schools reopened, life quickly returned to normal in the communities flooded on June 9. There were, however, impacts from the event that are not immediately evident. For example, the flooding was a hard blow for local farmers. The USDA Farm Service Agency reports that four producers had crop losses in Richmond, Colchester, Huntington and Burlington totaling over 65 acres. Lost crops included pumpkins, strawberries, squash, green, carrots, scallions and cucumbers. While it is not possible to attribute these losses solely to the June 9 event, the heavy rains that day played a key role in the damage. USDA also received 12 reports of "prevented planting" in Addison County—farm fields too wet or with too much standing water to plant corn crop. Much of the corn that was planted prior to the June 9 event is not very tall and yellow due to the rains and flooded fields.

The Honorable Barack Obama
President of the United States
July 16, 2015
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But by far the greatest remaining unmet recovery need is for financial assistance to the impacted communities to complete road repairs without the shock of severe economic disruption to businesses and families which would result from double digit increases in local property taxes to cover repairs which overwhelm their annual operating budgets. The total sum here, \$1.3 million, may be a relatively small sum by national Public Assistance standards, but for a state of only 625,000 people, and particularly for the communities of Addison and Chittenden Counties, the damages and impacts from June 9 were of a magnitude sufficient to request federal assistance under the Stafford Act.

Thank you for your continuing support of the State of Vermont and our citizens.

Sincerely,



Peter Shumlin
Governor, State of Vermont

Enclosures

- A: N/A (Individual Assistance not requested)
- B: Public Assistance
- C: Requirements for Other Federal Agency Programs
- OMB No. 1660-0009/FEMA Form 010-0-13
- D. "For the Record" Weather Summary Memo regarding June 9, 2015.

ENCLOSURE A TO MAJOR DISASTER REQUEST

Estimated Requirements for Individual Assistance
under the Stafford Act

The State of Vermont is not requesting Individual Assistance for this event.

Estimated Stafford Act Requirements for Public Assistance

VERMONT

State	\$1.41
County	\$3.56

Date: 7/8/2015		PUBLIC DAMAGE							GOAL		
Report #:	A	B	C	D	E	F	G	TOTAL	POP. '10	\$/CAP.	\$3.56/CAP.
Addison Co	\$0	\$0	\$602,299	\$0	\$0	\$0	\$0	\$602,299	36,821	\$16.36	\$131,083
Bennington Co	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	37,125	\$0.00	\$132,165
Caledonia Co	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	31,227	\$0.00	\$111,168
Chittenden Co	\$0	\$4,000	\$640,548	\$0	\$0	\$0	\$62,295	\$706,843	156,545	\$4.52	\$557,300
Essex Co	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	6,306	\$0.00	\$22,449
Franklin Co	\$0	\$4,000	\$22,400	\$0	\$0	\$0	\$9,200	\$35,600	47,746	\$0.75	\$169,976
Grand Isle Co	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	6,970	\$0.00	\$24,813
Lamoille Co	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	24,475	\$0.00	\$87,131
Orange Co	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	28,936	\$0.00	\$103,012
Orleans Co	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	27,231	\$0.00	\$96,942
Rutland Co	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	61,642	\$0.00	\$219,446
Washington Co	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	59,534	\$0.00	\$211,941
Windham Co	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	44,513	\$0.00	\$158,466
Windsor Co	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	56,670	\$0.00	\$201,745
State Agencies	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	State POP	\$/CAP.	\$1.41/CAP
TOTALS	\$0	\$8,000	\$1,265,247	\$0	\$0	\$0	\$71,495	\$1,344,742	625,741	\$2.15	\$1,000,000
NOTES:	DEBRIS CLEARANCE		PROTECTIVE MEASURES	ROAD SYSTEM	WATER CONTROL	BUILDINGS & EQUIPMENT	PUBLIC UTILITY	PARKS & OTHER			
	0.00%	0.59%	94.09%	-0.00%	0.00%	0.00%	5.32%				
Percentages											

ENCLOSURE C TO MAJOR DISASTER REQUEST

Estimated Assistance from Other Federal Agency Programs

County	SBA Home Loans	SBA Business Loans	FSA Loans	NRCS	FHWA	USACE	OTHER
<i>Addison</i>	<i>TBD</i>	<i>TBD</i>	<i>TBD</i>	<i>TBD</i>	<i>TBD</i>		
<i>Chittenden</i>	<i>TBD</i>	<i>TBD</i>	<i>TBD</i>	<i>TBD</i>	<i>TBD</i>		
Totals	<i>TBD</i>	<i>TBD</i>	<i>TBD</i>	<i>TBD</i>	<i>TBD</i>		

Note: Provide numbers and amounts, as appropriate.

|

ENCLOSURE D TO MAJOR DISASTER REQUEST



National Oceanic and Atmospheric Administration
National Weather Service
Weather Forecast Office Burlington, VT
1200 Airport Drive
South Burlington, VT 05403
www.weather.gov/btv

July 13, 2015

MEMORANDUM: FOR THE RECORD

FROM: Scott Whittier, Warning Coordination Meteorologist
 NOAA/National Weather Service Burlington, VT

SUBJECT: Weather Summary for the Flash Flooding of 9 June 2015

On June 9th, a series of showers and thunderstorms with heavy rainfall moved along a quasi-stationary boundary across portions of Addison-Chittenden-Lamoille and Washington counties. This heavy rainfall fell across an area that had already witnessed more than 200 percent of rainfall from late May to early June, thus antecedent conditions were extremely saturated.

This "training effect", where showers and thunderstorms traveled over the same area over and over, during the morning and afternoon/evening hours of June 9th produced a significant band of 3 to 5+ inches of rainfall (Figure 1, Table 1) across portions of Addison and Chittenden counties, that resulted in damaging flash flooding.

Significant, damaging flash flooding to roads, culverts and driveways were reported and observed in several communities. Also, a NWS storm damage survey in Richmond, Huntington and Bolton revealed more than 5 inches of rain fell in portions of the headwaters of the Huntington River in Huntington.

Table 1 – Total Observed Rainfall June 9, 2015

PUBLIC INFORMATION STATEMENT

NATIONAL WEATHER SERVICE BURLINGTON VT

133 PM EDT WED JUN 10 2015

LOCATION	AMOUNT	TIME/DATE	LAT/LON
...ADDISON COUNTY...			
1 NW HANKSVILLE	4.74 IN	0818 AM 06/10	44.26N/72.98W
1 E MONKTON RIDGE	2.30 IN	0831 AM 06/10	44.26N/73.10W
SOUTH LINCOLN	2.25 IN	0700 AM 06/10	44.07N/72.97W
3 N SOUTH LINCOLN	2.16 IN	0815 AM 06/10	44.11N/72.98W
1 SSE VERGENNES	2.16 IN	0828 AM 06/10	44.15N/73.25W
2 E SOUTH LINCOLN	2.15 IN	0815 AM 06/10	44.07N/72.94W
MIDDLEBURY AIRPORT	1.57 IN	0755 AM 06/10	43.98N/73.10W
1 ESE RIPTON	1.41 IN	0815 AM 06/10	43.97N/73.01W
STARKSBORO	1.37 IN	0828 AM 06/10	44.20N/72.99W
1 N SALISBURY	1.33 IN	0821 AM 06/10	43.93N/73.10W
...CHITTENDEN COUNTY...			
3 SSE RICHMOND	4.97 IN	0700 AM 06/10	44.38N/73.00W
JONESVILLE	4.80 IN	0700 AM 06/10	44.38N/72.94W
1 NNE HUNTINGTON	4.11 IN	0800 AM 06/10	44.36N/72.97W
BOLTON VALLEY RESORT	3.94 IN	0800 AM 06/10	44.42N/72.86W
BOLTON	3.81 IN	0700 AM 06/10	44.37N/72.88W
NASHVILLE 1 E	2.89 IN	0823 AM 06/10	44.45N/72.93W
2 SSW RICHMOND	2.78 IN	0830 AM 06/10	44.37N/73.02W
1 ENE UNDERHILL CENTER	2.31 IN	0828 AM 06/10	44.52N/72.87W
ESSEX JUNCTION	2.11 IN	0502 AM 06/10	44.51N/73.12W
2 NE SHELBURNE	2.06 IN	0816 AM 06/10	44.40N/73.20W
BURLINGTON INTL AIRPORT	2.05 IN	0754 AM 06/10	44.47N/73.15W
1 SE SOUTH BURLINGTON	2.03 IN	0830 AM 06/10	44.43N/73.20W
1 ENE MALLETT'S BAY	2.02 IN	0820 AM 06/10	44.55N/73.20W
2 SE SOUTH BURLINGTON	1.70 IN	0820 AM 06/10	44.42N/73.19W

1 NE WILLISTON	1.69 IN	0829 AM 06/10	44.44N/73.06W
WESTFORD	1.63 IN	0804 AM 06/10	44.63N/73.04W
MILTON	1.40 IN	0820 AM 06/10	44.60N/73.15W
1 ESE SAND BAR STATE PARK	0.93 IN	0430 AM 06/10	44.61N/73.21W
...LAMOILLE COUNTY...			
1 W STOWE	3.65 IN	0800 AM 06/10	44.48N/72.71W
3 NE HYDE PARK	3.40 IN	0700 AM 06/10	44.64N/72.55W
LAKE ELMORE RAWS	2.88 IN	0502 AM 06/10	44.54N/72.53W
HYDE PARK	2.67 IN	0828 AM 06/10	44.62N/72.57W
1 N STOWE	2.41 IN	0818 AM 06/10	44.49N/72.68W
MORRISVILLE-STOWE STATE AIRP	2.20 IN	0754 AM 06/10	44.54N/72.62W
2 ESE MOSCOW	2.06 IN	0824 AM 06/10	44.43N/72.67W
...WASHINGTON COUNTY...			
WATERBURY 3.3 NE	2.82 IN	0615 AM 06/10	44.36N/72.70W
WATERBURY CENTER	2.55 IN	0802 AM 06/10	44.37N/72.70W
MORETOWN	2.23 IN	0500 AM 06/10	44.28N/72.74W
NORTHFIELD	1.92 IN	0700 AM 06/10	44.16N/72.66W
CABOT 2.3 E	1.83 IN	0545 AM 06/10	44.40N/72.27W
CABOT 3.9 ENE	1.80 IN	0600 AM 06/10	44.42N/72.23W
WORCESTER 2 W	1.56 IN	0700 AM 06/10	44.37N/72.58W
WAITSFIELD	1.53 IN	0700 AM 06/10	44.18N/72.80W
WAITSFIELD	1.51 IN	0830 AM 06/10	44.16N/72.82W
MONTPELIER AIRPORT	1.41 IN	0751 AM 06/10	44.20N/72.56W
PLAINFIELD	1.31 IN	0700 AM 06/10	44.28N/72.42W
MONTPELIER 2	1.27 IN	0700 AM 06/10	44.26N/72.60W
WORCESTER	1.23 IN	0829 AM 06/10	44.38N/72.58W
1 E EAST WARREN	1.06 IN	0823 AM 06/10	44.11N/72.80W

DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY

OMB No. 1660-0009 Expires March 31, 2015

**REQUEST FOR PRESIDENTIAL DISASTER DECLARATION
MAJOR DISASTER OR EMERGENCY**

1. Request Date Jul 20, 2015

Burden Disclosure Notice

Public reporting burden for this form is estimated to average 9 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and submitting the form. This collection of information is required to obtain a benefit. You are not required to respond to this collection of information unless it displays a valid OMB control number. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing the burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 500 C Street SW, Washington, DC 20472, Paperwork Reduction Project (1660-0009). **NOTE: Do not send your completed form to this address.**

Completion of this form including applicable attachments satisfies legal requirements for emergency and major disaster declaration requests under 42 U.S.C. §§ 5170 and 5191, respectively, as implemented at 44 C.F.R. §§ 206.35 and 206.36. Failure to use this form may result in a failure to meet these requirements and/or a delay in processing the request.

2a. Name of State (as defined in Stafford Act 102, 42 U.S.C. § 5122) or Indian tribal government requesting declaration.

Vermont

2b. Population (as reported by 2010 Census) or estimated population of Indian tribal government's damaged area(s).

625,741

3. Governor's or Tribal Chief Executive's Name

Peter Shumlin

4. Designation of State or Tribal Coordinating Officer upon declaration (if available) and phone number

Robert Schell, 800 347-0488

5. Designation of Governor's Authorized Representative or Tribal Chief Executive Representative upon declaration (if available) and phone number

Justin Johnson, 802 828-3322

6. Declaration Request For: ☒ Major Disaster (Stafford Act Sec. 401) ☐ Emergency (Stafford Act Sec. 501(a))

7. Incident Period: Beginning Date June 9, 2015 End Date June 9, 2015 or ☐ Continuing

If requesting a "continuing" incident period, enclose an official statement from a qualified Federal Government agency acknowledged as a national authority in a specific incident field (e.g., United States Geological Survey for seismic incidents, the National Weather Service for flooding).

7b. Type of Incident (Check all that apply)

- ☐ Drought ☐ Earthquake ☐ Explosion ☐ Fire ☒ Flood ☐ Hurricane ☐ Landslide ☐ Mudslide
☒ Severe Storm (rain, high water, wind-driven rain, hail, lightning) ☐ Snowstorm (Must include Enclosure D: Historic and Current Snowfall Data) ☐ Straight-Line Winds
☐ Tidal Wave ☐ Tornado ☐ Depression ☐ Tropical Storm ☐ Tsunami ☐ Volcanic Eruption ☐ Winter Storm
☐ Other (please specify) _____

8. Description of damages (Short description of impacts of disaster on affected area and population). Include additional details in enclosed Governor's or Tribal Chief Executive's cover letter.

During the late afternoon of June 9, following more than a week of sporadic heavy rains, a series of severe thunderstorms with torrential rainfall caused flooding in northwestern Vermont. Between 2 and 5 inches fell in a few hours in portions of Addison and Chittenden Counties, washing over roads, destroying drainage structures, damaging the town water supply in Richmond, and cutting off access to hundreds of residences. Impact was concentrated in the towns of Starksboro and Weybridge in Addison County, both of which lost major structures, and in Bolton, Huntington, Milton, Richmond, Underhill, and on State Forest trails in Chittenden County. In Weybridge, the impact was \$287 per capita; in Starksboro, \$192/capita; in Bolton, \$297 per capita; and in Huntington \$114 per capita. It should also be noted that the Chittenden County communities and Starksboro are still reeling financially from DR4207, the ice storm which hit most of Vermont in December 2014.

9. Description of the nature and amount of State and local or Indian tribal government resources which have been or will be committed. Include additional details in enclosed Governor's or Tribal Chief Executive's cover letter.

The impacted communities adhered to their Local Emergency Operations Plans and took immediate action to restore emergency access for their residents, with assistance Vermont Agency of Transportation District 5 personnel. Communities reported damages to the Division of Emergency Management and Homeland Security via the Chittenden and Addison County Regional Planning Commissions, respectively, pursuant to the State Emergency Operations Plan (SEOP). Emergency Relief and Assistance Fund (ERAF) is provided from State of Vermont general fund to assist impacted municipalities with a percentage of non-federal cost share (ranging from 30% of nonfederal share to 70% of nonfederal share, depending on impacted communities' status with respect to five criteria articulated in Vermont's ERAF Rule (attached). Communities are responsible for raising their portion of non-federal cost share through local property taxes.

10. Joint Preliminary Damage Assessment*

☐ Individual Assistance Dates Performed _____ Requested _____ Start _____ End _____

Individual Assistance Accessibility Problems (Areas that could not be accessed, and why)

Individual Assistance is not requested at this time.

☒ Public Assistance Dates Performed _____ Requested June 24, 2015 Start June 26, 2015 End July 2, 2015

Public Assistance Accessibility Problems (Areas that could not be accessed, and why)

Despite significant damages to some roadways, Preliminary Damage Assessment teams were able to drive to within viewing distance of all damaged locations.

11. Programs and Areas Requested

Individual Assistance ☒ N/A ☐ Individuals and Households Program ☐ Crisis Counseling Program ☐ Disaster Unemployment Assistance
☐ All ☐ Disaster Case Management ☐ Disaster Legal Services

For the following jurisdictions, specify programs and areas (counties, parishes, independent cities; for Indian tribal government, list tribe(s) and/or tribal area(s)) If additional space is needed, please enclose additional documentation).

For States, identify Federally-recognized Tribes in the requested counties (if applicable).

Please see Enclosure A: Supplemental Information for Individual Assistance for additional information in support of this request*.

*Not Required for Emergency Declaration Request

11. Programs and Areas Requested (Continued)

Public Assistance ☐ N/A ☒ Debris Removal (Category A) ☒ Emergency Protective Measures (Category B) ☒ Permanent Work (Categories C-G)* (not available for Emergency Declaration Requests)

For the following jurisdictions, specify programs and areas (counties, parishes, independent cities; for Indian tribal government, list tribe(s) and/or tribal area(s)). If additional space is needed or your request includes different categories of work for different jurisdictions; please enclose additional documentation.

Public Assistance for Addison and Chittenden Counties.

For Addison County, validated damages from Joint Preliminary Damage Assessment were \$602,299, more than four times the county's indicator threshold of \$131, 083. Damage was Category C (roads and culverts), concentrated in two small communities, Weybridge and Starksboro.

For Chittenden County (Vermont's most populous county), validated damages from Joint Preliminary Damage Assessment were \$706,843, exceeding the county's indicator threshold of \$557,300. Damage was Category C (roads and culverts), concentrated in the communities of Bolton, Huntington, Milton, Richmond, and Underhill.

For States, identify Federally-recognized Tribes included in the requested counties (if applicable).

Please see Enclosure B: Supplemental Information for Public Assistance for additional information in support of this request*.

Indemnification for Debris Removal Activity

☐ I do not anticipate the need for debris removal.

I anticipate the need for debris removal, which poses an immediate threat to lives, public health and safety. Pursuant to Sections 403 and 407 of the Stafford Act, 42 U.S.C. §§ 5170b & 5173, the State or Indian tribal government agrees to indemnify and hold harmless the United States of America for any claims arising from the removal of debris or wreckage for this disaster. The State or Indian tribal government agrees that debris removal from public and private property will not occur until the landowner signs an unconditional authorization for the removal of debris.

Request for Direct Federal Assistance

☒ I do not request direct Federal assistance at this time.

☐ I request direct Federal assistance for work and services to save lives and protect property, and:

a. I request the following type(s) of assistance:

b. List of reasons why State and local or Indian tribal government cannot perform, or contract for, required work and services.

c. In accordance with 44 C.F.R. § 206.208, the State or Indian tribal government agrees that it will, with respect to direct Federal assistance: (1) Provide without cost to the United States all lands, easements, and rights-of-ways necessary to accomplish the approved work; (2) Hold and save the United States free from damages due to the requested work, and shall indemnify the Federal Government against any claims arising from such work; (3) Provide reimbursement to FEMA for the non-Federal share of the cost of such work in accordance with the provisions of the FEMA-State or FEMA-Tribe Agreement; and (4) Assist the performing Federal agency in all support and local jurisdictional matters.

Request for Snow Assistance

☒ N/A ☐ I request snow assistance.

Snow assistance for the following jurisdictions (Specify counties, independent cities or tribes and/or tribal areas).

Please see Enclosure D: Historic and Current Snowfall Data for additional information in support of this request*.

*Not Required for Emergency Declaration Request

11. Programs and Areas Requested (Continued)

Hazard Mitigation*

☒ Statewide

OR

For the following specific counties, parishes, independent cities or tribes and/or tribal areas.

12. Mitigation Plan Information*

a. Mitigation Plan Expiration Date November 18, 2018

b. Type of Plan

☐ Enhanced☒ Standard

13. Other Federal Agency Programs

☐ I do not anticipate requirements from Other Federal Agencies ☒ I do anticipate requirements from Other Federal AgenciesPlease see **Enclosure C**: Requirements for Other Federal Agency Programs for additional information in support of this request*.

14. Findings and Certifications

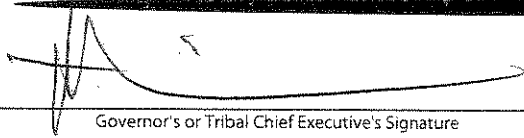
☒ I certify the following:

a. I have determined that this incident is of such severity and magnitude that effective response is beyond the capabilities of the State and the affected local government or Indian tribal government and that supplementary federal assistance is necessary.

b. In response to this incident, I have taken appropriate action under State or tribal law and have directed the execution of the State or Tribal Emergency Plan on June 9, 2015 in accordance with the Stafford Act.

c. The State and local governments, or Indian tribal government will assume all applicable non-Federal share of costs required by the Stafford Act.

15. List of Enclosures and Supporting Documentation

☒ Cover Letter ☐ Enclosure A (Individual Assistance)* ☒ Enclosure B (Public Assistance)*☒ Enclosure C (Requirements for Other Federal Agency Programs) ☐ Enclosure D (Historic and Current Snowfall Data)☒ Additional Supporting Documentation NWS Memo to File (included with cover letter)
Governor's or Tribal Chief Executive's Signature7/16/15
Date

If anyone except the Governor or Tribal Chief Executive signs this document, please provide the documentation that establishes that this individual has the legal authority to act on behalf of the Governor or Tribal Chief Executive.

*Not Required for Emergency Declaration Request

Johnson, Harriet

From: Flynn, Joe
Sent: Thursday, July 16, 2015 8:48 AM
To: Flynn, Keith; Johnson, Justin
Cc: London, Sarah; Springer, Darren; Clasen, Michael; Coriell, Scott; Johnson, Harriet; Schell, Robert; Flynn, Joe
Subject: Disaster Declaration Request - June 9, 2015 Storm
Attachments: Presidential Declaration Request_FORM_VT_June_9_2015_flooding.pdf;
Governor's_disaster_declaration_request_June 9 2015_Final.docx

Commissioner, Secretary –

Consistent with all prior efforts on behalf of Vermont communities, the PDA work resulting from the June 9, 2015 storms fully support a Request for Major Disaster Declaration be made to the President by the Governor. The State of Vermont exceeded the financial threshold as did Addison and Chittenden Counties exceed their independent thresholds.


Attached above are two documents necessary to launch the request. One is the Governor's letter to the President and the second is a FEMA Form that contains the same information in a different format. After your review both documents will require the Governor's signature followed by direct submission to FEMA. Monday July 20, 2015 is the deadline.

If you have any questions please contact myself or Robert Schell.

Respectfully,
Joe

Joe Flynn, Director
Emergency Management
and Homeland Security
State of Vermont
Department of Public Safety
103 South Main Street
Waterbury, Vermont 05671

*Review for
Gov's Signature*

ok to sign -




U.S. Department of Homeland Security
FEMA Region I
99 High Street
Boston, MA 02110

FEMA

April 2, 2015

Justin Johnson
Secretary
Vermont Agency of Administration
Governor's Authorized Representative
Pavilion Office Building
109 State Street
Montpelier, Vermont 05609-0201

Dear Mr. Johnson:

This letter acknowledges receipt of your March 30, 2015 letter requesting a time extension and improved project request for the Sandy Recovery and Improvement Act (SRIA) Alternative Procedures Pilot Program; FEMA-4022-DR-VT-PW-03237.

Also, you have specifically requested an extension to the performance plan from September 1, 2015 to June 30, 2018.

Your request is now in progress and you will be notified once a decision is made.

If you have any questions or require any additional assistance, please contact me at (617) 956-7500.

Sincerely,

A handwritten signature in black ink, appearing to read "Paul F. Ford".

Paul F. Ford
Acting Regional Administrator
FEMA Region I

PFF:dlm

APR - 6 2015



U.S. Department of Homeland Security
FEMA Region I
99 High Street
Boston, MA 02110

FEMA

April 2, 2015

Justin Johnson
Secretary
Vermont Agency of Administration
Governor's Authorized Representative
Pavilion Office Building
109 State Street
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Paul F. Ford
Acting Regional Administrator
FEMA Region I

PFF:dlm

APR - 6 2015



FEMA

AMENDMENT TO THE FOLLOWING FEMA-STATE AGREEMENTS FOR VERMONT

FEMA-1790-DR, FEMA-1951-DR, FEMA-1995-DR, FEMA-4001-DR, FEMA-4022-DR,
FEMA-4043-DR, FEMA-4066-DR, FEMA-4120-DR, FEMA-4140-DR, FEMA-4163-DR, and
FEMA-4178-DR

This is Amendment Number **#2** to the FEMA-State Agreement for major disaster **FEMA-1790-DR**, declared on September 12, 2008.

This is Amendment Number **#2** to the FEMA-State Agreement for major disaster **FEMA-1951-DR**, declared on December 22, 2010.

This is Amendment Number **#1** to the FEMA-State Agreement for major disaster **FEMA-1995-DR**, declared on June 15, 2011.

This is Amendment Number **#2** to the FEMA-State Agreement for major disaster **FEMA-4001-DR**, declared on July 8, 2011.

This is Amendment Number **#10** to the FEMA-State Agreement for major disaster **FEMA-4022-DR**, declared on September 1, 2011.

This is Amendment Number **#1** to the FEMA-State Agreement for major disaster **FEMA-4043-DR**, declared on November 8, 2011.

This is Amendment Number **#1** to the FEMA-State Agreement for major disaster **FEMA-4066-DR**, declared on June 22, 2012.

This is Amendment Number **#1** to the FEMA-State Agreement for major disaster **FEMA-4120-DR**, declared on June 13, 2013.

This is Amendment Number **#1** to the FEMA-State Agreement for major disaster **FEMA-4140-DR**, declared on August 2, 2013.

This is Amendment Number **#1** to the FEMA-State Agreement for major disaster **FEMA-4163-DR**, declared on January 29, 2014.

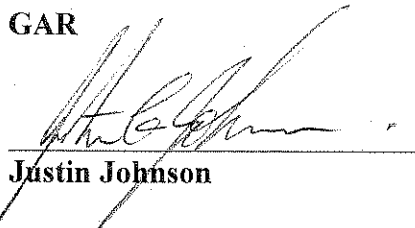
This is Amendment Number **#1** to the FEMA-State Agreement for major disaster **FEMA-4178-DR**, declared on June 11, 2014.

This amendment serves to replace Exhibit A for the eleven FEMA-State Agreements detailed above.

Exhibit A of the FEMA-State Agreements for FEMA-1790-DR, FEMA-1951-DR, FEMA-1995-DR, FEMA-4001-DR, FEMA-4022-DR, FEMA-4043-DR, FEMA-4066-DR, FEMA-4120-DR, FEMA-4140-DR, FEMA-4163-DR, and FEMA-4178-DR is amended as follows:

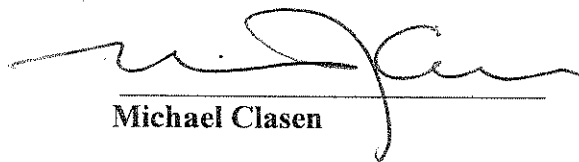
1. The Governor hereby certifies that **Justin Johnson** is the Governor's Authorized Representative (GAR) empowered to execute on behalf of the State of Vermont for all necessary documents for disaster assistance, including approval of subgrants and certification of claims for Public Assistance. **Michael Clasen** is the Alternate Governor's Authorized Representative and is similarly empowered. Their specimen signatures follow:

GAR



Justin Johnson

Alternate GAR



Michael Clasen

2. The Governor's Authorized Representative, named above, is responsible for State performance of hazard mitigation activities under this Agreement and, further, **Ray Doherty** is designated the State Hazard Mitigation Coordinator for the purposes of such hazard mitigation activities.
3. The Governor hereby certifies that **Robert Schell** and **Ben Rose** are the State Coordinating Officer (SCO) and Alternate State Coordinating Officer, respectively, who will act in cooperation with the Federal Coordinating Officer under this declared major disaster.
4. The Governor hereby certifies that **Bill Lafferiere** is the representative of the State authorized to receive donations or loans of surplus property on behalf of the State and to execute certification, agreements, and other necessary documents with regard thereto.
5. The Governor hereby certifies that **Justin Johnson** is the official of the State authorized to execute compliance reports, carry out compliance reviews, and distribute informational material as required by FEMA to ensure that all recipients of Federal disaster assistance are in full compliance with FEMA nondiscrimination regulations (located at 44 C.F.R. Part 7).
6. The Governor hereby certifies that **Ben Rose** is the official of the State who will execute compliance reports, carry out compliance reviews, and distribute informational material as required by FEMA to ensure that all recipients of Federal disaster assistance are in compliance with the General Services Administration List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

All other paragraphs and Exhibits of the FEMA-State Agreements for FEMA-1790-DR, FEMA-1951-DR, FEMA-1995-DR, FEMA-4001-DR, FEMA-4022-DR, FEMA-4043-DR, FEMA-4066-DR, FEMA-4120-DR, FEMA-4140-DR, FEMA-4163-DR, and FEMA-4178-DR remain unchanged, unless previously amended.

AGREED:



Peter Shumlin
Governor

Date: April 3, 2015

Paul F. Ford
Acting Regional Administrator

Date: _____

**Special Note: This amendment requires the Governor's signature.*



FEMA

October 19, 2015

Justin Johnson
Secretary
Governor's Authorized Representative
Vermont Agency of Administration
109 State Street
Montpelier, VT 05609-0201

Re: *FEMA-4022-DR-VT, Vermont Department of Buildings and General Services –Public Assistance (PA) ID 000-US9QN-00 – Project Worksheet (PW)-03237 – WSOC JWE E AG LAB – Improved Project and Time Extension Requests*

Dear Mr. Johnson:

I am responding to the Vermont Agency of Administration's letter of March 30, 2015, which transmitted an update to Project Worksheet ("PW") #3237 under major disaster declaration FEMA-4022-DR-VT. In addition, the Vermont Division of Emergency Management and Homeland Security ("DEMHS" or "Grantee") and the Vermont Department of Buildings and General Services ("Applicant") are requesting: 1) an improved project to relocate the Agricultural and Environmental Laboratory Building ("Ag Lab" or "facility") from the disaster site at the Waterbury State Office Complex ("WSOC") to a new location at the Vermont Technical College ("VTC") campus in Randolph, Vermont ; and 2) an extension of the period of performance for PW #3237. As detailed below, the Applicant's proposed scope of work – a new Agricultural Laboratory Building located on the VTC campus – is eligible. Notwithstanding, in order for FEMA to approve the scope of work, the Applicant must provide FEMA with some additional information as detailed in this letter. In addition, I am approving the time extension of the project completion date also known as the period of performance until June 30, 2018.

I. BACKGROUND

The Agricultural and Environmental Laboratory Building is owned and operated by the Vermont Department of Buildings and General Services and operated by the Agencies of Agriculture and Natural Resources. It is a 33,210 square foot, two-story building constructed in 1990 located at the WSOC in Waterbury, Vermont. From August 27 to September 2, 2011, floodwaters from Tropical Storm Irene inundated the first floor of the building. Specifically, the floors, walls, electrical equipment, Heating Ventilation Air Conditioning (HVAC) components, cabinetry, and elevator were damaged. There was no damage to the second floor.

The Applicant applied for financial assistance under the Public Assistance grant for major disaster declaration FEMA-4022-DR to repair the Ag Lab. Upon receiving the request, the

OCT 22 2015

FEMA-4022-DR-VT

Dept. of Buildings and General Services– PW-03237

Improved Project and Time Extension Requests

Federal Emergency Management Agency (“FEMA”) prepared PW #3237 to identify disaster-related damage, set forth the eligible scope of work to restore the facility, and estimate the eligible cost to perform the work.

In addition to repairing the Ag Lab, FEMA studied three flood proofing options, which could bring the facility into compliance with the Town of Waterbury’s May 2012 Interim Zoning Regulations. Ultimately, FEMA determined that dry proofing the building by using either exterior wall dry flood proofing or constructing a perimeter flood wall up against the exterior wall would be the most effective method to provide the required mitigation.

The Applicant then requested funding for greater hazard mitigation measures than the minimum required by the zoning regulations. The Applicant proposed dry flood proofing the building to an elevation of 431.5 feet or Base Flood Elevation (BFE) plus 4.7 feet.¹ The estimated cost for these hazard mitigation measures was \$1,785,678.00. FEMA found these measures compliant with Policy² and approved the Hazard Mitigation Proposal (HMP). On October 25, 2013, FEMA approved PW #3237 to include the repairs of the Ag Lab plus hazard mitigation and Direct Administrative Costs (DAC). After a reduction for anticipated insurance proceeds, the remainder was a final PW total of \$1,802,288.00.³

Next, in accordance with the Sandy Recovery Improvement Act of 2013 and the Alternative Procedures Pilot Program Guide for Permanent Work, on May 13, 2014, the Applicant, the Grantee, and FEMA entered into a fixed estimate subgrant agreement for the total amount of \$1,802,288.00.⁴ The Applicant notified FEMA that it did not intend to repair the facility at its current location and intended to pursue either an improved or alternate project. FEMA approved the request but notified the Applicant that they were prohibited from using any of the FEMA funding for the restoration of the Ag Lab for any purpose until it had requested, and FEMA had approved, an improved or alternate project for that building. The Ag Lab was razed in the fall of 2013.⁵

The Applicant notified FEMA that the new laboratory would be built at the WSOC but on higher ground. The first occupied floor elevation would be six feet above the 500-year flood level and provide the same flood risk reduction as would have been achieved by the approved hazard mitigation measures described in the original scope of work. In comparison, the two projects’

¹ BFE=426.8 feet.

² Recovery Policy 9526.1 *Hazard Mitigation Funding Under Section 406*, specifically Appendix A, *Buildings – General* (Mar. 30, 2010).

³ Repairs (\$2,507,933.00) + Hazard Mitigation (\$1,785,678.00) + DAC (\$16,610.00) + Anticipated Insurance Proceeds (-\$2,415,545.00) = \$ 1,802,288.00. See also, PW 3237, version (2).

⁴ See letter from Michael Obuchowski, Vermont Department of Buildings and General Services, and Jeb Spaulding, Secretary, Governor’s Authorized Representative, Vermont Agency of Administration to Robert Grimley, FEMA Region I re: *Vermont Agencies of Agriculture and Natural Resources Collaborative Laboratory Project - FIXED SUBGRANT AGREEMENT for PW # 3237* (May 13, 2014).

⁵ Letter from Mark H. Landry, Federal Coordinating Officer, to Ben Rose, Public Assistance Officer, Vermont Emergency Management & Homeland Security re: *Request for Approval to Abate Hazardous Materials and Demolition of Structures – Waterbury State Office Complex – Select Damaged Facilities* (May 24, 2013).

FEMA-4022-DR-VT

Dept. of Buildings and General Services– PW-03237

Improved Project and Time Extension Requests

mitigation measures were of equal benefit.⁶ As such, in accordance with the Sandy Recovery Improvement Act of 2013 and the Alternative Procedures Pilot Program Guide for Permanent Work, FEMA advised the Grantee that the Hazard Mitigation funding could travel (be applied) and be approved for the construction of the improved project – the new laboratory building at the WSOC.⁷

A. Improved Project and Time Extension Requests

On March 30, 2015, the Vermont Agency of Administration sent a letter to FEMA providing an update to the project, as well as attaching requests for an improved project and a time extension.⁸ Most notably, the Applicant no longer intends to rebuild the Ag Lab at the WSOC, but rather at the VTC campus in Randolph, Vermont; the rationale being that the Randolph site is superior to the WSOC. The Applicant notes that Randolph is closer to the center of the state, and the VTC offers shared heat and significant collaboration possibilities with staff and students. The Randolph site offers more space for exterior function and room to expand. It also is well above the flood plain.

The Applicant details in its letter that the new location raises the building far above any flood hazard. The proposed WSOC location was at 429.5 feet of elevation, whereas the proposed Randolph site is approximately 1,320 feet above sea level. The proposed site is currently in a cornfield, so the Applicant asserts that new facility will have negligible historic or environmental impact. Additionally, they assert that the new facility would meet or exceed all the functions, capacity and staffing levels that were housed in the damaged Ag Lab. The Applicant requests that FEMA approve the amended scope of work to locate the project in Randolph, subject to National Environmental Protection Act (“NEPA”) review.⁹

Included in Vermont’s correspondence to FEMA was a request to extend the period of performance of PW #3237, which currently ends on September 1, 2015. In their request, the Grantee asked that the FEMA Regional Administrator (“RA”) extend the period of performance

⁶ The 500-year BFE=531.00 feet. The Improved project is designed to provide protection to the 500 year BFE + 6”. 531.00 feet + 6 inches or 0.5 feet = 531.50 feet. The original HMP was designed to provide protection to 531.50 feet. The improved project would provide the same level protection as the design of the original HMP.

⁷ Letter from Robert Grimley to Ben Rose, State Public Assistance Officer, Vermont Division of Emergency Management and Homeland Security re: *FEMA-4022-DR-VT–Vermont Department of Buildings and General Services Public Assistance (PA) ID-000-US9QN-00 –Project Worksheet(PW)3237–WSOC JWE E AG LAB –Synopsis of the Approved Scope of Work, Hazard Mitigation Measures and the Fixed Cost Agreement* (Oct. 20, 2014).

⁸ Letter from Justin Johnson, Governor’s Authorized Representative, Vermont Agency of Administration to Paul Ford, Acting Regional Administrator, FEMA Region I, and Robert Grimley, Recovery Division Director, FEMA Region I re: *Update, Improved Project Request and Period of Performance Extension Request: for Sandy Recovery and Improvement Act (SRIA) Alternative Procedures Pilot Program; FEMA-4022-DR-VT-PW-03237 Ag Laboratory; Applicant - Vermont Department of Buildings and General Services-BGS*; (Mar. 30, 2015).

⁹ Letter from Michael Obuchowski to Kimberly Canarecci, Public Assistance Officer, Vermont Division of Emergency Management and Homeland Security re: *UPDATE, IMPROVED PROJECT REQUESTS and PERIOD OF PERFORMANCE EXTENSION REQUEST: for PW 3237 Ag Lab SRIA Fixed Cost Estimate: FEMA-4022-DR-VT-Vermont Department of Buildings and General Services (Applicant) Public Assistance (PA) ID-000-US9QN-00-Project Worksheet (PW) 3237: WSOC JWE E AG LAB* (Jan. 30, 2015) [hereinafter letter from Michael Obuchowski (Jan. 30, 2015)].

until June 30, 2018. The Grantee stated that the magnitude of Tropical Storm Irene (48 State buildings damaged in Waterbury) forced the State to phase repairs. The Ag Lab is the last major effort to repair this damage. The Vermont Legislature continues to approve funding and construction as quickly as possible given restrictions to staff and bonding, as well as a seasonal legislative process. If construction of the Ag Lab begins by mid-2016, then the project should be completed by June 2018.¹⁰

Additionally, the Grantee's time extension request included all previous extensions granted by the State, and the extenuating circumstances beyond the control of the Applicant that led to this request as detailed above.¹¹

II. DISCUSSION

A. Sandy Recovery Improvement Act and Environmental Compliance

Section 406 of the Robert T. Stafford Disaster Assistance and Emergency Relief Act authorizes FEMA to provide financial assistance for a local government to repair, restore, reconstruct, or replace a facility damaged by a major disaster.¹² FEMA administratively carries out this authority as "permanent work" under its Public Assistance grant program.

On January 29, 2013, President Obama signed into law the Sandy Recovery Improvement Act of 2013. This law amends Title IV of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5121 et seq.). Specifically, the law adds section 428, which authorizes alternative procedures for the Public Assistance program under sections 403(a)(3)(A), 406, 407 and 502(a)(5) of the Stafford Act. It also authorizes FEMA to implement the alternative procedures through a pilot program.¹³

To participate in the Alternative Procedures for Permanent Work, subgrantees must agree to a subgrant based on a fixed estimate for that subgrant. FEMA will approve funding for large, uncompleted, permanent work subgrants on the basis of a fixed estimate. This procedure varies from that described in 44 CFR §206.203(c), which provides for funding the actual cost of completing the eligible scope of work. FEMA review for compliance with Environmental and Historic Preservation ("EHP") laws, executive orders, and other regulations must be completed before work can take place.¹⁴

FEMA is required to ensure compliance with applicable EHP laws, regulations, and executive orders when implementing alternative procedures. FEMA will conduct additional EHP

¹⁰ Letter from Kim Canarecci to Paul Ford and Robert Grimley, re: *FEMA-4022-DR-VT; Project Worksheet #3237; Ag Laboratory - Period of Performance Time Extension Request* (Mar. 28, 2015) [hereinafter *Letter from Kim Canarecci (Mar. 28, 2015)*].

¹¹ *Id.*

¹² Robert T. Stafford Disaster Relief and Emergency Assistance Act, Pub. L. No. 93-288, § 406 (1974) (codified as amended at 42 U.S.C. § 5172).

¹³ *Public Assistance Alternative Procedures Pilot Program Guide for Permanent Work (Version 2)* (Dec. 19, 2013).

¹⁴ *Id.* at 4.

compliance reviews when fixed subgrant funds (either single or consolidated) are used under these procedures for changes in scope of work that do not substantially conform to the predisaster design, function and location of the damaged facilities. The Grantee will notify FEMA of the proposed work and FEMA will determine whether additional EHP review must be conducted to ensure compliance before construction begins. In some instances, no further EHP review will be required for certain actions.¹⁵

Here, the Applicant opted to take part in the Alternative Procedures and entered into a fixed-estimate subgrant agreement with the Grantee and FEMA for the total amount of \$1,802,288.00.¹⁶ The previous scope of work provided by the Applicant constituted replacing the substantially damaged Ag Lab with a new laboratory at the original disaster site, the WSOC. However, the Applicant has since provided an amended scope of work to instead construct the new facility in Randolph. Since the proposed scope of work does not substantially conform to the predisaster location of the damaged facility, additional EHP review must be conducted to ensure compliance before construction begins.

The first step in applying the NEPA process is to determine whether to prepare an Environmental Assessment (“EA”). Early determination will help ensure that necessary environmental documentation is prepared and integrated into the decision-making process. In some cases, it will be readily apparent that a proposed action will have significant impact on the environment, such as if an action will result in an extensive change in land use or the commitment of a large amount of land.¹⁷ Pursuant to this regulation, the Applicant is responsible for completing an Environmental Assessment. The Applicant can use the fixed estimate subgrant to fund the EA.

Note that the Grantee provided a letter from the State Historic Preservation Officer (“SHPO”) who performed a site visit to the proposed location and determined there would no effect on historic properties.¹⁸

B. Hazard Mitigation

Section 406 hazard mitigation funds are discretionary funds that can be added to project funding for the repair of disaster-damaged facilities and must prevent future damage similar to that caused by the declared event. Under standard PA procedures, 406 mitigation funds cannot be retained on alternate projects or improved projects that involve relocation or facility replacement

¹⁵ Id, at 13.

¹⁶ See letter from Michael Obuchowski, Vermont Department of Buildings and General Services, and Jeb Spaulding, Secretary, Governor’s Authorized Representative, Vermont Agency of Administration to Robert Grimley, FEMA Region I re: *Vermont Agencies of Agriculture and Natural Resources Collaborative Laboratory Project - FIXED SUBGRANT AGREEMENT for PW # 3237* (May 13, 2014).

¹⁷ 44 CFR § 10.8

¹⁸ Letter from Laura Trieschmann, State Historic Preservation Officer, Vermont Division for Historic Preservation to Sandra Vitzthum, Department of Buildings and General Services re: *State of Vermont Agencies of Agriculture and Natural Resources Collaborative Laboratory Construction, Vermont Technical College, Furnace Street, Randolph Center, Vermont. Vermont Historic Preservation Act, Act 250 Land Use Permit # 3R0581 Amendment, and U.S. Department of Homeland Security Federal Emergency Management Agency Section 106 Review* (Jan. 22, 2015).

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at same site. In an effort to promote greater flexibility in the use of funds after accepting a fixed grant and allow more resilient mitigation with the alternative procedures authorized under Section 428, FEMA may allow the retention of 406 mitigation funds in the aforementioned circumstances on a case-by-case basis where prevention of future similar damage is proven to be of greater or equal benefit than that which would have been achieved with the approved mitigation scope of work in the agreed upon fixed subgrant(s).¹⁹

The original scope of work in PW #3237 includes hazard mitigation measures designed to protect the repaired Ag Lab from the 500-year flood event. Therefore, the 406 mitigation funds can only be maintained on the Applicant's proposed project if the flood mitigation is proven to be of greater or equal benefit as the original hazard mitigation measures. The Applicant originally notified FEMA that the new laboratory would be built at the WSOC but on higher ground. Specifically, it would be built six feet above the 500-year flood level and provide the same flood risk reduction as would have been achieved by the approved hazard mitigation measures described in the original scope of work. Consequently, FEMA advised the Grantee that the 406 mitigation funding could travel and be approved for the construction of the improved project.

Presently, the Grantee has informed FEMA that the new laboratory will instead be built at a new location in Randolph. The Applicant asserts that the new site is well above the flood plain, specifically 1,320 feet above sea level (versus 429.5 feet at the WSOC). Notwithstanding, the Applicant must show that the hazard mitigation measures of the proposed project are of at least equal benefit as the hazard mitigation measures in the original PW. Specifically, the original mitigation measures called for dry flood proofing the building to Base Flood Elevation plus 4.7 feet, so the proposed project's flood hazard mitigation must be of least equal benefit.

C. Facility function and capacity

Finally, in order for the Hazard Mitigation funding to travel with the new scope of work, the Applicant must build a facility with the same function as the damaged facility. To illustrate, since the Ag Lab was damaged during the disaster, the Applicant must build an Ag Lab – and not a different type of facility, such as a police station – in order to maintain the Hazard Mitigation funding.

Here, the Applicant asserts that the scope of work as previously agreed upon with FEMA has only been amended to incorporate the change in location. The new laboratory will be built at the VTC campus in part to allow for collaboration between students and lab staff. The new building will improve the functions and testing capacity of the original building while not being much larger. Additionally, all the staff that were employed in the Ag Lab before Irene will be employed in Randolph. Therefore, all functions and staff that were housed in the pre-Irene building will be housed in the new facility, so the function of the Ag Lab will be met.²⁰

¹⁹ Id, at 14.

²⁰ Letter from Michael Obuchowski (Jan. 30, 2015).

D. Time Extension

The project completion deadlines for the PA Program are set from the date that a major disaster is declared and apply to all projects under the PA grant.²¹ For PA Categories C through G (permanent work), the project completion deadline is 18 months from the date of the major disaster declaration.

Based on extenuating circumstances or unusual project requirements beyond the control of an applicant, the grantee may extend the deadlines for an additional 30 months for permanent work.²² The grantee must submit requests for time extensions beyond the grantee's authority to the RA. These requests must include (1) the dates and provisions of all previous time extensions on the project; and (2) a detailed justification for the delay and a projected completion date. If the RA approves the request, the approval letter shall reflect the approved completion date and any other requirements the RA may determine necessary to ensure that the new completion date is met.²³

After reviewing this request, the information submitted by the Grantee meets the requirements for requesting an extension of time for project completion. The Applicant was provided with 18 months from the date of the major disaster declaration to complete permanent work. The major disaster was declared on September 1, 2011, which meant that the period of performance ended on March 1, 2013. On July 22, 2013, the Grantee, within their statutory authority, approved a time extension until September 1, 2015, the maximum allowable under their authority.²⁴ Now, a further extension of the period of performance is needed to allow for FEMA concurrence with the proposed location change of the improved project, the securing of funding from the Vermont legislature, as well as the completion of construction which is set to begin by mid-2016. According to the Applicant's time line, the work will be completed by June 30, 2018.²⁵

III. CONCLUSION

The Vermont Department of Buildings and General Services intends to build the new laboratory at a site in Randolph, Vermont, rather than at the WSOC. In order for the \$1,802,288.00 in 406 mitigation funding to travel with the new project under the Alternative Procedures, the Applicant must 1) complete an Environmental Assessment with FEMA and 2) provide documentation that the proposed scope of work provides at least the same flood protection as the hazard mitigation measures in the original PW. The Applicant has already provided documentation to show that the new laboratory will maintain the same function as the original damaged facility. I encourage you to contact David Robbins, Regional Environmental Officer (david.robbins@fema.dhs.gov) and/or

²¹ 44 C.F.R. § 206.204(c)(1).

²² 44 C.F.R. § 206.204(c)(2).

²³ 44 C.F.R. § 206.204(d).

²⁴ Letter from Ron Pentkowski, Public Assistance Coordinator, Vermont Division of Emergency Management and Homeland Security to Sandra Vitzthum, Project Manager II, Department of Buildings and General Services re: *FEMA-4022-DR-VT; Project Worksheet #3237; Ag Laboratory - Period of Performance Time Extension Request* (July 22, 2013).

²⁵ Letter from Kimberly Canarecci (Mar. 28, 2015).

Justin Johnson
FEMA-4022-DR-VT
Dept. of Buildings and General Services– PW-03237
Improved Project and Time Extension Requests

-8-

October 19, 2015

ph#978-914-0378), at your earliest convenience to initiate an inter-agency scoping meeting for the Environmental Assessment.

Furthermore, I am approving the request to extend the period of performance of PW #3237 until June 30, 2018, to allow the Applicant to complete all requirements of the fixed estimate subgrant and to construct the new laboratory.

This letter constitutes the official notification to the Grantee. Please inform the Applicant of my decision. If you have any questions, please contact Jean McDonough, Public Assistance Coordinator, FEMA Region I, at (617) 832-4757 or Jean.McDonough@fema.dhs.gov.

Sincerely,

**GEORGE F
VANDERSCHMIDT**

Digitally signed by GEORGE F VANDERSCHMIDT
DN: c=US, o=U.S. Government, ou=Department
of Homeland Security, ou=FEMA, ou=People,
cn=GEORGE F VANDERSCHMIDT,
0.9.2342.19200300.100.1.1=0072408727.FEMA
Date: 2015.10.19 12:45:41 -04'00'

G. Fred Vanderschmidt
Disaster Recovery Manager
FEMA-4022-DR-VT

GFV/sp



FEMA

February 4, 2015

Mr. Justin Johnson
Secretary of the Administration
State of Vermont
Pavilion Office Building
109 State Street
Montpelier, VT 05609

Re: Second Appeal—Town of Bennington— FEMA-4022-DR-VT— Project Worksheet
(PW) 3094—Request for Information (RFI)

Dear Mr. Johnson:

FEMA is currently processing the subject named second appeal. After reviewing the information provided, FEMA requires additional information documenting whether there was an immediate threat of significant damage from the 5-year flood event following Tropical Storm Irene that warranted the sediment reworking and bank armoring work. To continue its analysis of this appeal, FEMA requests the following information:

1. *Direct Result of Declared Disaster*

Documentation distinguishing the work performed (bank armoring and sediment reworking) post-Tropical Storm Irene from the work reflected in the 2007 River Corridor Plan.

2. *Emergency Protective Measures*

- a. Detailed description of the 5 year flood, including all relevant dimensions (elevation, discharge, velocity, duration) and the methodologies used to characterize the 5 year flood, such as:
 - i. A detailed description of the 5-year flood parameters used in the Hydraulic Engineering Center River Analysis System (HEC-RAS) model that output the charts and dimensions included in the January 4, 2013 Technical Memorandum from Roy Schiff,
 - ii. A detailed description on how the modeled 5-year flood differs from Tropical Storm Lee;
- b. Characterization of the direct impacts of the 5-year flood on surrounding property;
- c. Description of the process (including methodology and assumptions) used to identify high priority areas post disaster, including (if applicable) assessments of

imminent threats to lives, public health and safety, and surrounding improved property; and

- d. A description of the specific physical damages that would have resulted to infrastructure had bank armoring not occurred; or alternatively

3. *Permanent Work (if applicable)*

The predisaster design and maintenance records for the specific banks that were armored showing that these were eligible facilities that qualified for permanent work funding. The documentation must reveal the banks were improved structures prior to the event and that the work done was to replace pre-existing armoring.

For further clarification, a detailed explanation is attached. Please submit the requested information by e-mail to matipa.mutsemi@fema.dhs.gov within 30 days. FEMA welcomes the opportunity to discuss the appeal once the requested information is received. If the requested information is not received within 30 days, FEMA will proceed based on the information it currently possesses. This request also serves to stop FEMA's 90-day timeframe to respond to this appeal. The time will be re-started upon receipt of the information, or in 30 days, whichever is less

Very Respectfully,



Ronald K. Schuster

Branch Chief, Public Assistance Appeals and Audits

Mr. Daniel Monks
Planning Director
Town of Bennington
205 South Street
P.O. Box 469
Bennington, VT 05201

Attachment: Addendum to the Request for Information

Table 11: Bank Armor Emergency Protective Measures, Threats from a 5-year or Smaller Flood, Value of Threatened Property, and Cost of Armoring

Map ID	Bank	Location and Notes	Threatened Property	Estimated value of Buildings Damaged by Irene or Under Imminent Threat from a 5-Year or Smaller Flood*	Estimated Percent of Bank Armoring to Eliminate Imminent Threats Based on Overall Length of Armoring	Estimated Cost of Bank Armoring to Eliminate Imminent Threats Based on Armoring Length
Upper Section (Route 279 Bridge to Brooklyn Bridge)						
A	L	Repair armor next to houses and upstream end of flood control embankment to avoid outflanking	Five (5) houses immediately threatened by receded bank. Neighborhoods along Cross Street, Frank Street, Knapp Drive, Gage Street, and Branch Street also threatened by avulsion.	\$ 798,500	25%	\$ 271,468.26
B	R	Repair armor next to houses and leading into Brooklyn Bridge to avoid avulsion	Two homes damaged along Sweets Lane. Avulsion took place at Sweets Lane that eroded back of foundations and travelled across North Branch Street.	\$ 211,500	9%	\$ 104,954.27
Middle Section (Brooklyn Bridge to Route 7 Bridge)						
C	R	Install berm armor and keyway to create bank from eroded berm. Moved back to restore floodplain.	Three homes along North Branch Street damaged. Also, mobile home units along Bell Street and Abott Street threatened by avulsion due to eroded berms, as are businesses along Bowen Road, recreation fields, and hazardous waste site at former Jard property.	\$ 218,600	35%	\$ 386,850.68
D	L	Repair eroded levee on local USACE project next to high school (not included in this application)	Levee eroded and homes along Grove Street and Lyons Street in danger of avulsion. Mt Anthony Union High School threatened by levee breach.	n/a	n/a	n/a
E	R	Repair eroded riprap on washed out flood control berm (not included in this application)	Hazardous waste site threatened from berm breach along with ball fields and businesses on Bowen Road.	n/a	n/a	n/a
F	R	Repair eroded riprap immediately downstream of Park Street Bridge	Shore up right bridge abutment and prevent bridge outflanking. Also, concerned for safety of road and commercial area.	n/a	1%	\$ 14,464.85
Is	Mid	Repair armor on old berm remnant to remain that supported utility pole (not included in this application)	Utility pole unprotected in river corridor.	n/a	n/a	n/a
Lower Section (Route 7 Bridge to Harmon Road)						
G	R	Repair bank between Route 7 and Railroad Bridges	Business and road in danger of damage due to avulsion.	n/a	4%	\$ 47,094.87
H	R	Repair eroded riprap between Railroad and Benmont Avenue Bridges	Business and road in danger of damage due to avulsion.	\$ 940,300	2%	\$ 26,911.35
I	L	Install armor adjacent to nursing home off of Hunt Street	Nursing home in danger of damage to parking lot and building.	\$ 507,900	9%	\$ 94,189.73
J	R	Repair eroded armor next to houses at end of Hicks Avenue	Two homes flooded and land around one house eroded and concern about falling in river. Also, other homes along Hicks Avenue threatened by avulsion.	\$ 407,000	4%	\$ 43,730.95
K	R	Repair failed armor at channel avulsion site threatening Northside Drive area	Imminent threat created at common avulsion path where bank eroded and businesses in the Walmart Shopping Center and area flooded.	\$ 11,162,000	11%	\$ 117,737.16

*The estimated costs of damages or imminent threats created during Irene represents the assessed value of the real property that would be threatened during minor floods (5-year flood or smaller) after Irene. This value does not include threatened public infrastructure, personal property, or property threatened by a channel avulsion likely caused by 5-year flood. The Town has previously supplied documentation of the value of property threatened from a 5-year flood when channel avulsion takes place - \$93 Million.

b. Characterization of the direct impacts of the 5-year flood on surrounding property and a description of the specific physical damages that would have resulted to infrastructure had bank armoring not occurred (d)²⁶

The flow velocities for the 5-year flood are high and would mobilize upstream deposits and continue to erode the exposed banks and valley walls (see Tables 7, 9, and 10). The raw eroded banks would be subject to continued erosion, undermining, and collapse. Property and infrastructure where bank erosion took place during Irene would be damaged or destroyed. During Lee, bank retreat initiated during Irene continued. Channel avulsion would have been likely during a 5-year flood following Irene if the strategic bank armoring was not undertaken. The imminent threat of erosion was real, and it called for bank armoring in addition to sediment removal.

The specific imminent threats originating from bank erosion generated during Irene where emergency protective measures were implemented have been documented (Table 11 and Figure 6). The threat description shows that only locations where there was an immediate threat of damage due to erosion of adjacent property or avulsion were armored. Furthermore, the cost of armoring (\$1,107,402.13), which includes applicable mobilization and engineering fees, is much less than the cost of the improved property (excluding personal property) that was damaged or under imminent threat from Irene (\$14,254,800). This is the value of the real property, excluding public infrastructure and most large-scale avulsion risks, that was undermined, exposed, and just avoided complete destruction that needed local emergency work to restore banks and protect the structures. All of these areas were threatened by more frequent floods than the 5-year flood and therefore were especially vulnerable.

In previous submittals to FEMA, the Town has described the value of improved property that was protected from the actions taken following Irene - \$93 million²⁷. The most recent RFI²⁸ seeks clarity regarding this value. A channel in an alluvial fan setting that is so prone to avulsion and that has flowed in each of these areas historically makes damages possible over the entire developed area, and thus imminent threats to a wide array of improved property were abundant following Irene. This value of threatened property and infrastructure realistically underscores the threats that were established during Irene for a future 5-year flood, given the unpredictable nature of the Roaring Branch and its post-flood setting filled with sediment and with miles of eroded banks. The emergency protective measures are reducing imminent threats to a vast amount of property – homes, schools, bridges, water and sewer lines, roads, sidewalks, and an engineered flood control levee that are directly threatened by channel avulsions during a 5-year flood.

²⁶ Letter to Mr. Justin Johnson from Ronald K. Schuster, February 4, 2015. Request for Information, PW3094, Town of Bennington, Second Appeal, FEMA-4022-DR-VT, p. 1.

²⁷ *Ibid.* See memo from Dan Monks to Roy Schiff, December 28, 2012, Value of Property Protected by River Work after Irene, p. 2.

²⁸ Letter to Mr. Justin Johnson from Ronald K. Schuster, February 4, 2015. Request for Information, PW3094, Town of Bennington, Second Appeal, FEMA-4022-DR-VT, Addendum, P. 5.

Table 10: Differences in HEC-RAS modeled flow, peak flood water surface elevation, channel flow velocity, and flood top width (5-year flood – Lee)

River Sta	5-Year Flood				Tropical Storm Lee				(5-Year Flood - Tropical Storm Lee)				
	Q Total (cfs)	W.S. Elev (ft)	Vel Chnl (ft/s)	Top Width (ft)	Q Total (cfs)	W.S. Elev (ft)	Vel Chnl (ft/s)	Top Width (ft)	Q Total (cfs)	W.S. Elev (ft)	Vel Chnl (ft/s)	Top Width (ft)	
34.5 Route 9	39	2190	968.92	9.59	94.34	1892	968.39	9.63	84.32	298	0.53	-0.04	10.02
	38	2190	950.25	11.31	138	1892	950.23	9.89	137.77	298	0.02	1.42	0.23
	37	2190	930.13	8.67	255.12	1892	929.78	9.02	246.75	298	0.35	-0.35	8.37
	36	2190	912.09	10.13	141.48	1892	912.07	8.83	141.38	298	0.02	1.3	0.1
	35	2190	910.64	3.19	177.19	1892	910.37	2.9	175.88	298	0.27	0.29	1.31
	Bridge				Bridge								
	34	2190	909.42	8.51	180.64	1892	909.15	8.3	179.59	298	0.27	0.21	1.05
	33	2190	908.5	8.39	170.46	1892	908.31	7.9	168.35	298	0.19	0.49	2.11
	32	2190	888.38	8.78	90	1892	888.09	8.42	87.89	298	0.29	0.36	2.11
	31	2190	869.17	9.08	156.06	1892	868.95	8.5	145.56	298	0.22	0.58	10.5
	30	2190	843.02	9.7	120.61	1892	842.72	9.36	102.74	298	0.3	0.34	17.87
	29.7	2190	825.38	10.36	82.06	1892	825.03	9.91	76.92	298	0.35	0.45	5.14
	29.6	2190	824.08	8.48	97.21	1892	823.68	8.18	85.59	298	0.4	0.3	11.62
	29.5 Bridge				Bridge								
	29.4	2190	818.36	9.6	100.11	1892	818.02	9.35	95.59	298	0.34	0.25	4.52
	29	2190	813.8	11.5	54.01	1892	813.4	11.18	50.43	298	0.4	0.32	3.58
	28	2190	777.42	9.5	60.66	1892	777.23	8.62	60.36	298	0.19	0.88	0.3
	27	2190	765.28	8.94	167.84	1892	764.89	8.93	142.84	298	0.39	0.01	25
	26.555	2190	749.07	8.69	98.66	1892	748.74	8.42	91.32	298	0.33	0.27	7.34
	26	2190	746.83	8.42	113.12	1892	746.54	7.84	104.07	298	0.29	0.58	9.05
	25	2190	746.36	7.28	123.97	1892	746.05	6.92	122.47	298	0.31	0.36	1.5
24.5 Brooklyn Bridge	Bridge				Bridge								
	24	2190	743.48	10.96	53.33	1892	743.09	10.55	52.12	298	0.39	0.41	1.21
	23	2190	734.9	10.62	90.52	1892	734.7	9.79	86.98	298	0.2	0.83	3.54
	22	2190	727.26	9.37	95.37	1892	726.97	9.04	86.52	298	0.29	0.33	8.85
	21.666	2190	715.97	7.42	99.25	1892	715.54	7.17	88.2	298	0.43	0.25	11.05
	21.599	2190	702.92	9.86	85.84	1892	702.69	9.15	78.48	298	0.23	0.71	7.36
	21	2190	688.63	10.04	141.46	1892	688.26	9.78	124.96	298	0.37	0.26	16.5
	20	2190	677.74	8.18	71.59	1892	677.32	7.92	68.9	298	0.42	0.26	2.69
	19.555	2190	665.94	9.32	67.78	1892	665.65	8.77	65.76	298	0.29	0.55	2.02
	19	2190	661.58	8.99	96.58	1892	661.34	8.59	95.69	298	0.24	0.4	0.89
	18	2190	661.43	2.79	213.05	1892	661.11	2.64	211.87	298	0.32	0.15	1.18
	Bridge				Bridge								
17.5 Park St.	17	2190	659.75	8.93	156.75	1892	659.44	8.72	150.97	298	0.31	0.21	5.78
	16	2190	656.15	7.16	152.35	1892	655.92	6.77	151.32	298	0.23	0.39	1.03
	15	2190	647.5	7.41	222.34	1892	647.25	7.06	169.96	298	0.25	0.35	52.38
	14	2190	637.06	6.76	217.6	1892	636.82	6.42	206.1	298	0.24	0.34	11.5
	13	2190	626.53	9.27	117.98	1892	626.25	8.89	114.21	298	0.28	0.38	3.77
	12	2190	623.97	8.01	116.08	1892	623.68	7.58	111.34	298	0.29	0.43	4.74
	11	2190	622.57	6.81	102.7	1892	622.25	6.49	100.83	298	0.32	0.32	1.87
	Bridge				Bridge								
10.5 Route 7	10	2190	620.46	9.13	117.55	1892	620.12	8.8	108.69	298	0.34	0.33	8.86
	9	2190	620.06	4.85	114.48	1892	619.7	4.61	112.5	298	0.36	0.24	1.98
	8	2190	618.87	7.47	109.93	1892	618.47	7.3	107.25	298	0.4	0.17	2.68
	7	2190	618.87	3.72	97.17	1892	618.47	3.44	97.08	298	0.4	0.28	0.09
6.5 VT Railroad	Bridge				Bridge								
	6	2190	618.39	5.67	111.37	1892	618	5.45	106.04	298	0.39	0.22	5.33
	5	2190	616.89	8.99	105.59	1892	616.64	8.42	97.38	298	0.25	0.57	8.21
	4	2190	615.56	7.98	109.57	1892	615.39	7.41	107.71	298	0.17	0.57	1.86
2.5 Benmont Ave.	3	2190	614.74	5.45	188.93	1892	614.55	5.16	188.17	298	0.19	0.29	0.76
	Bridge				Bridge								
1.0 <Null>	2	2190	614.08	4.43	187.94	1892	613.89	4.13	187.18	298	0.19	0.3	0.76
	2	2190	613.43	4.93	215.52	1892	613.26	4.65	214.78	298	0.17	0.28	0.74

ii. A detailed description on how the modeled 5-year flood differs from Tropical Storm Lee;²²

Lee was not a 5-year flood on the Roaring Branch where most of the emergency work took place. The hydraulic modeling shows that in the clear-flow condition hydraulics differ between these two flood events. The average water surface elevation increases 0.3 feet, the average channel velocity increases 0.4 feet, and the average flood top width increases 6.3 feet (Table 10). The change in hydraulics can lead to increased bank erosion, more sediment transport, and more debris transport. A mass failure with increased potential for erosion of the toe of the valley wall, a sudden blockage, bank erosion and channel avulsion are all possible during the 5-year flood.

Even with this comparison of the 5-year flood versus Lee, the questions in the current RFI illustrate that FEMA continues to erroneously apply a strict hydrologic recurrence interval definition to designating the flood level that would lead to imminent threats on the Roaring Branch. In previous correspondence FEMA reminds us that the 5-year flood is not necessarily the flood that happens within 5 years, but the flood that has a 20% chance of occurring in any given year²³. Sediment and large woody debris accumulation and subsequent bank erosion can take place without the presence of a 5-year flood. Alluvial fan flooding is a stochastic event that is a function of subtle changes in local hydraulics and sediment transport, that of which have been shown to take place here between the predicted 5-year flood and Tropical Storm Lee flood on the Roaring Branch, and thus a broader knowledge of damage history and site conditions are needed to properly identify and protect against imminent threats^{24,25}. In planning the flood recovery, the State, Town, and its agents used this information coupled with field data to identify immediate threats and prescribe appropriate emergency protective measures.

²² Letter to Mr. Justin Johnson from Ronald K. Schuster, February 4, 2015. Request for Information, PW3094, Town of Bennington, Second Appeal, FEMA-4022-DR-VT, p. 1.

²³ Letter to Jeb Spaulding from Mark H. Landry, May 2, 2013. Public Assistance Eligibility Determination, PW3094, Town of Bennington, FEMA-4022-DR-VT, p. 5.

²⁴ Letter to Ben Rose from Mike Kline, January 9, 2013. PA-01-VT-4022 – Post flood debris clearing in Vermont rivers as an emergency protective measure to address imminent threats to public property, p. 2-3.

²⁵ NRC, 1996. Alluvial Fan Flooding, Committee on Alluvial Fan Flooding, National Research Council, Washington, D.C.

The hydraulic modeling and field conditions clearly illustrate that the sediment had to be removed or reworked between Route 279 and Route 9. Flood levels were elevated and homes and infrastructure were threatened due to avulsion risk during the 5-year flood (Table 9 and Figure 5).

Table 9: RAS output data showing elevated flood levels and widened flood flows over deposited sediment that would lead to avulsion during the 5-year flood.

Reach	River Sta	Profile	Plan	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
mainstem	34.5	Route 9		Bridge									
mainstem	34	5-yr_revised	Post Irene	2389	904.78	909.55		910.36	0.018318	8.77	430.39	181.15	0.8
mainstem	34	5-yr_revised	Irene_Sed	2389	911.78	913.82	913.6	914.49	0.040873	8.78	402.8	209.89	1.08
mainstem	33	5-yr_revised	Post Irene	2389	904.27	908.68	908.44	909.52	0.021072	8.51	400.27	174.97	0.83
mainstem	33	5-yr_revised	Irene_Sed	2389	910.27	912.86		913.28	0.016711	6.58	509.14	205.04	0.72
mainstem	32	5-yr_revised	Post Irene	2389	884.49	888.5	888.36	889.81	0.025831	9.2	263.53	90.7	0.92
mainstem	32	5-yr_revised	Irene_Sed	2389	890.49	893.15	893.06	894.28	0.030654	9.09	306.43	127.36	0.98
mainstem	31	5-yr_revised	Post Irene	2389	863.66	869.37	869.37	870.57	0.018879	9.22	334.78	156.88	0.81
mainstem	31	5-yr_revised	Irene_Sed	2389	869.66	872.38	871.68	872.93	0.019203	7.3	446.5	170.89	0.78
mainstem	30	5-yr_revised	Post Irene	2389	838.59	843.15	843.27	844.62	0.029367	10.16	281.59	129.06	0.98
mainstem	30	5-yr_revised	Irene_Sed	2389	846.59	847.95		848.16	0.027562	5.49	698.01	565.83	0.83
mainstem	29.7	5-yr_revised	Post Irene	2389	819.05	825.57	825.61	827.31	0.0255	10.72	243.23	84.38	0.93
mainstem	29.7	5-yr_revised	Irene_Sed	2389	826.05	828.76	828.76	829.57	0.030055	8.9	428.63	255.39	0.97
mainstem	29.6	5-yr_revised	Post Irene	2389	817.97	824.33	823.6	825.42	0.014979	8.63	320.12	125.38	0.72
mainstem	29.6	5-yr_revised	Irene_Sed	2389	820.97	825.66	824.99	826.34	0.01215	7.38	492.61	266.01	0.65
mainstem	29.5			Bridge									

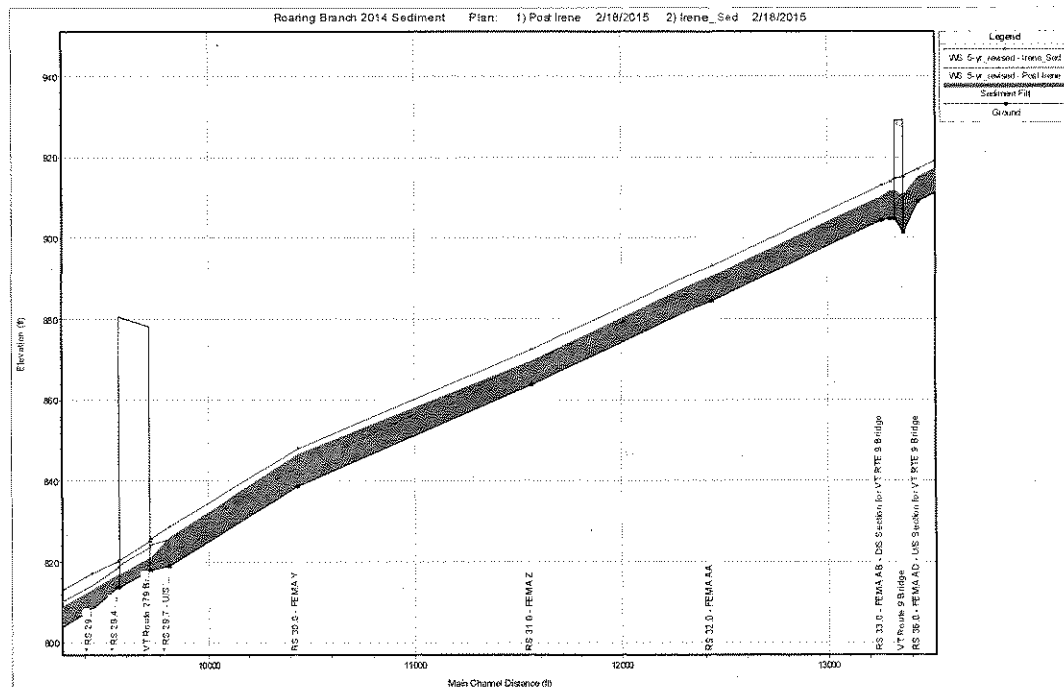


Figure 5: Profile between Route 279 Bridge and Route 9 Bridge showing elevated 5-year flood due to sediment deposited in the channel illustrating the need to either remove or re-work the material to protect houses and infrastructure in the path of avulsion.

Table 8: Flood water elevations with and without deposited sediment in the channel upstream of Park Street Bridge.

Event	E (ft NAVD88)		
	No Sediment	Sediment	Higher Due to Sediment
5-year	661.6	668.9	7.3
Irene	662.4	670.1	7.7

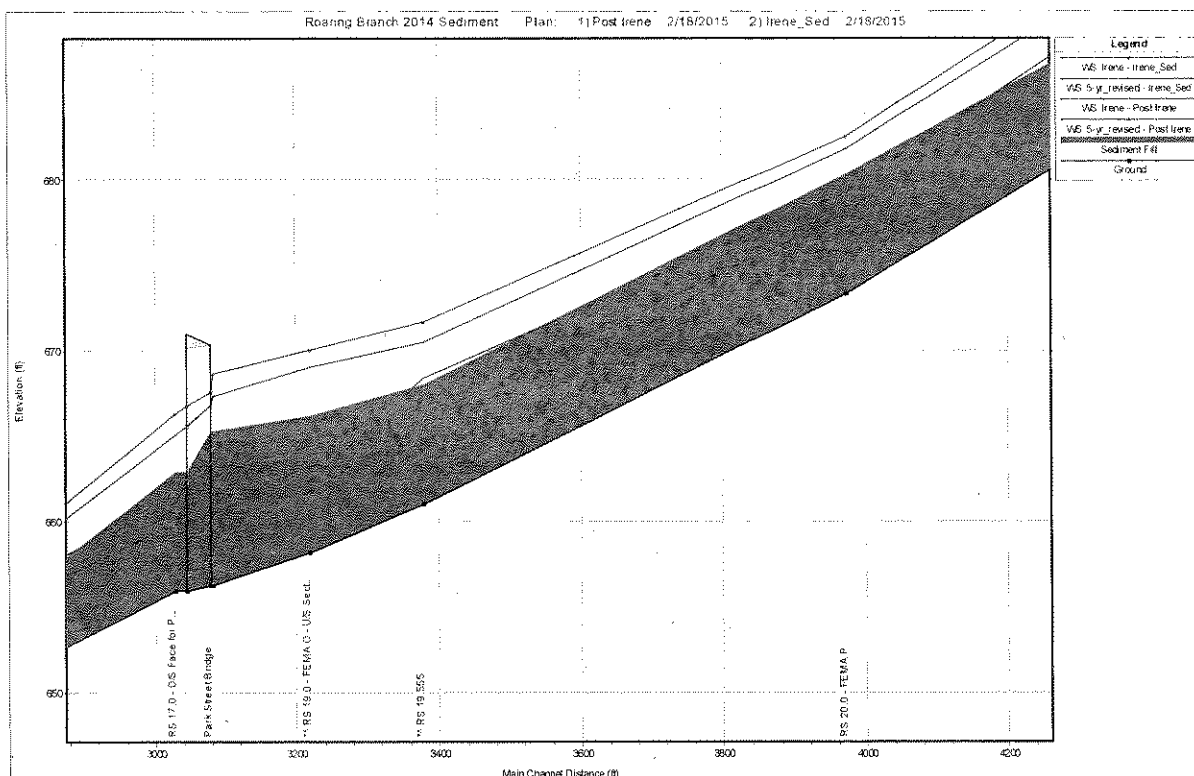


Figure 4: Profile near Park Street Bridge showing that the 5-year flood and Irene flood with and without sediment deposited in the channel illustrating the loss of channel conveyance with sedimentation.

The Town and State remain puzzled by the decision by FEMA to not fund the eligible activity of sediment re-working that was performed as a low-cost, less impactful alternative to sediment removal for the same imminent threat on the Roaring Branch between Routes 279 and 9. Even in the current RFI FEMA refers to the purpose of emergency protective measures to “eliminate or lessen immediate threats of significant additional damage to improved public or private property through measures which are *cost-effective*.”²⁰ FEMA already acknowledges that the sediment in the channel posed an imminent threat²¹ and thus emergency protective measures to eliminate this threat are eligible for funding. It appears that the Town is getting penalized for following FEMA guidance and best engineering practice to control project costs.

²⁰ 44C.F.R §206.225(a)(3)(ii).

²¹ FIRST APPEAL ANALYSIS, FEMA-4022-DR-VT Town of Bennington —PA ID # 003-04825-00— Project Worksheet (PW) # 03094(1) —*RvBEB04 - River Sediment Removal and Bank Amor, p. 4-5.

Table 7: HEC-RAS Output of Average Channel Flow Velocity

Reach	River Sta	Profile	With Deposited Sediment Vel Chnl (ft/s)	After Sediment Removal Vel Chnl (ft/s)
mainstem	39	5-yr_revised	6.57	9.98
mainstem	38	5-yr_revised	9.05	11.48
mainstem	37	5-yr_revised	4.66	8.96
mainstem	36	5-yr_revised	9.45	10.27
mainstem	35	5-yr_revised	3.55	3.37
mainstem	34.5	Route 9		
mainstem	34	5-yr_revised	8.78	8.77
mainstem	33	5-yr_revised	6.58	8.51
mainstem	32	5-yr_revised	9.09	9.2
mainstem	31	5-yr_revised	7.3	9.22
mainstem	30	5-yr_revised	5.49	10.16
mainstem	29.7	5-yr_revised	8.9	10.72
mainstem	29.6	5-yr_revised	7.38	8.63
mainstem	29.5			
mainstem	29.4	5-yr_revised	8.54	9.84
mainstem	29	5-yr_revised	8.64	11.57
mainstem	28	5-yr_revised	7.83	10.02
mainstem	27	5-yr_revised	9	8.99
mainstem	26.555	5-yr_revised	6.03	8.87
mainstem	26	5-yr_revised	7.61	8.75
mainstem	25	5-yr_revised	6.47	7.48
mainstem	24.5	Brooklyn Bridge		
mainstem	24	5-yr_revised	10.33	11.25
mainstem	23	5-yr_revised	7.39	11.01
mainstem	22	5-yr_revised	8.97	9.57
mainstem	21.666	5-yr_revised	6.46	7.64
mainstem	21.599	5-yr_revised	6.84	10.15
mainstem	21	5-yr_revised	6.76	10.33
mainstem	20	5-yr_revised	8.37	8.33
mainstem	19.555	5-yr_revised	4.5	9.66
mainstem	19	5-yr_revised	5.56	9.24
mainstem	18	5-yr_revised	5.02	2.88
mainstem	17.5	Park St.		
mainstem	17	5-yr_revised	7.29	9.17
mainstem	16	5-yr_revised	8.24	7.39
mainstem	15	5-yr_revised	5.38	7.64
mainstem	14	5-yr_revised	6	6.95
mainstem	13	5-yr_revised	6.91	9.52
mainstem	12	5-yr_revised	6.7	8.26
mainstem	11	5-yr_revised	7.05	7.02
mainstem	10.5	Route 7		
mainstem	10	5-yr_revised	8.5	9.29
mainstem	9	5-yr_revised	4.21	4.99
mainstem	8	5-yr_revised	3.46	7.58
mainstem	7	5-yr_revised	5.11	3.9
mainstem	6.5	VT Railroad		
mainstem	6	5-yr_revised	8.35	5.82
mainstem	5	5-yr_revised	6.39	9.33
mainstem	4	5-yr_revised	7.44	8.35
mainstem	3	5-yr_revised	5.32	5.62
mainstem	2.5	Benmont Ave.		
mainstem	2	5-yr_revised	5.32	4.62
mainstem	1.0	<Null>	5.03	5.1
		Minimum	3.5	2.9
		Maximum	10.3	11.6
		Average	6.9	8.4

bridges, erode the flood control levee, and threaten adjacent property¹⁴. The level of damages could have been larger in the event that a 5-year flood occurred, if a debris jam occurred sending flood waters into adjacent property, if the flood was of a longer duration, or if a channel avulsion took place. Lee confirmed the urgent need to undertake emergency protective measures as soon as possible to eliminate imminent threats.

A HEC-RAS model of the Roaring Branch had been created in the past and updated as part of work that took place following the flood and flood recovery. The RAS model was built from post-flood survey and LIDAR data. The model has 46 cross sections and seven bridges. The model covers approximately 3 miles of the Roaring Branch from the Town line to the confluence with the Walloomsac River. Sediment deposition depths were entered into the model based on field estimates made during the post-flood assessment.

Findings from hydraulic modeling have previously been presented to FEMA that show that under the modeled 5-year flood threshold velocities of the majority of the bed particles are exceeded and sediment transport, including bank erosion, takes place over much of the channel¹⁵. The analysis was updated with the revised model and confirmed that the critical threshold velocity for erosion of granular sand and gravel banks (approximately 4 feet per second¹⁶) and cobble bed (approximately 7 feet per second¹⁷) ($D_{50} = 144$ to 191 mm¹⁸) is exceeded at most cross sections indicative of widespread erosion potential (Table 7). The average cross sectional velocity is between 2.9 and 11.6 feet per second, with an average of 8.4 feet per second across all cross sections with the post-Irene sediment removed. The results of the hydraulic modeling indicate that bank erosion would occur during the 5-year flood confirming the need for emergency work to eliminate imminent threats.

Hydraulic modeling and field observations illustrate that the 5-year flood is a sediment transport event where most of the boulders and cobbles will move down the braided channels and where bank erosion will take place. Local instantaneous water velocity will be higher in some locations than predicted by the hydraulic model. Higher velocity and thus more erosion will occur at plunging flow over sediment bars and in confined areas that will create local erosion hazards.

The past modeling shows that the sediment-laden channel leads to elevated flood flows¹⁹. The sediment had to be removed to eliminate the imminent threats or re-shaped where removal was not mandatory. Past modeling has been updated, and the results show that the flood levels with sediment in the channel for the 5-year flood leads to much higher flood levels than large floods without sediment (Table 8 and Figure 4). The modeling shows that the sediment had to be removed to eliminate imminent threats and the Town and State acknowledge FEMA for reaching this same conclusion and funding sediment removal as an emergency protective measure under PW 3094.

¹⁴ Memorandum from Roy Schiff, PhD, PE to Ben Rose and Thad Leugemors, February 15, 2013, p. 2.

¹⁵ Memorandum from Roy Schiff, PhD, PE to Ben Rose, Thad Leugemors, and Michaela Tucker, January 4, 2013, p. 8.

¹⁶ Fischenich, J. C., 2001. Stability Thresholds for Stream Restoration Materials. ERDC TN-EMRRP-SR-29. U.S. Army Engineer Research and Development Center, Vicksburg, MS, p. 5.

¹⁷ *Ibid.*

¹⁸ Roaring Branch River and Floodplain Restoration Project Report, Bennington, Vermont, December 1, 2008, Prepared by Milone & MacBroom, p. 6.

¹⁹ Memorandum from Roy Schiff, PhD, PE to FEMA, January 4, 2013, p. 8.

Irene and Lee instantaneous flows were retrieved from the Walloomsac River stream gauge (USGS 01334000) (Table 6 and Figure 3). The flows were then scaled to the Roaring Branch ($Q_{RB} = Q_{WR} * (DA_{RB}/DA_{WR})^b$)¹³ where b is the exponent taken from the state regression equations. The peak flow during Tropical Storm Lee was measured to be 4,600 cfs on the Walloomsac River and calculated to be 1,892 on the Roaring Branch. Based on the updated analysis, the recurrence interval of Irene is 72.3 years while the recurrence interval of Lee is 4.6 years. Tropical Storm Lee was a flood that had a 22% chance of occurring in a given year.

Table 6: Irene and Lee Peak Flows

River	Flow (cfs)		Notes
	Irene	Lee	
Walloomsac River	9,420	4,600	15-minute instantaneous flow from gauge.
Roaring Branch	4,064	1,892	Scaled to Roaring Branch based on drainage area using Vermont exponents.

River	Recurrence Interval (year)		Notes
	Irene	Lee	
Walloomsac River	72.2	4.9	Determined from 2015 flood frequency curve.
Roaring Branch	72.3	4.6	Determined from 2015 flood frequency curve.

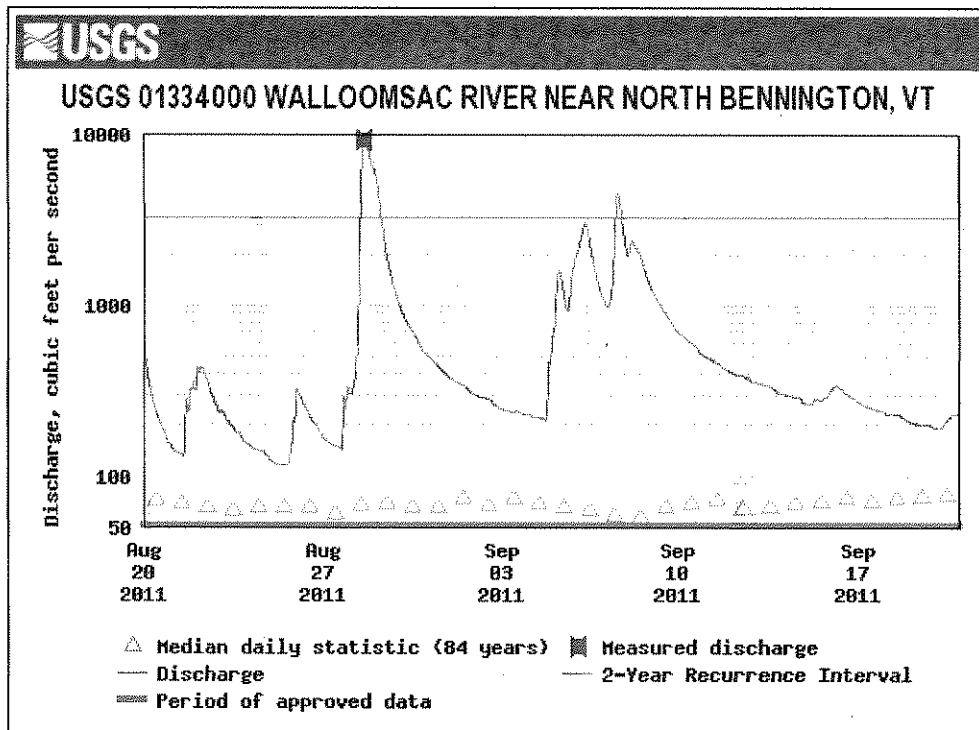


Figure 3: Excerpt from stream gauge showing Irene and Lee flood peaks on the Walloomsac River.

The flood frequency analysis shows that the Tropical Storm Lee was less than the 5-year flood and thus FEMA should not be making decisions about imminent threats on the Roaring Branch and Walloomsac River based on this flood. Nonetheless, during this 4.6-year flood event additional damages did take place in the form of elevated flood levels and widespread bank erosion that continued to undermine

¹³ Ries, K. G. and M. Y. Crouse, 2002. The National Flood Frequency Program, Version 3: A Computer Program for Estimating Magnitude and Frequency of Floods for Ungauged Sites. Water-Resources Investigations Report 02-4168. U.S. Geological Survey Reston, VA.

Table 5: Peak Flood Estimates on the Roaring Branch

Source / Method	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
Effective Flows from 1986 Bennington FIS	n/a	n/a	3,300	n/a	5,750	7,100	11,300
Preliminary Flows from December 16, 2010 Bennington County FIS	n/a	n/a	3,300	n/a	5,750	7,100	11,300
Gage Analysis 2008 (Scaled from USGS 013340, Walloomsac R.)	1,628	2,366	2,885	3,572	4,106	4,657	6,021
Gage Analysis DECEMBER 22, 2011 (Scaled from USGS 013340, Walloomsac R.)	1,628	2,377	2,911	3,630	4,200	4,799	5,432
Gage Analysis JUNE 1, 2011 (Scaled from USGS 013340, Walloomsac R.)	1,624	2,372	2,900	3,602	4,149	4,716	6,127
Gage Analysis FEBRUARY 17, 2015 (Scaled from USGS 013340, Walloomsac R.)	1,630	2,389	2,926	3,626	4,196	4,773	6,210
Olson 2002 (Manual NFF)	1,357	2,103	2,677	3,529	4,289	5,062	7,162
USGS NFF Version 3.2 (Olson 2002)	1,250	1,990	2,570	3,440	4,170	4,980	7,220
USGS VT StreamStats (Olson 2002)	1,420	2,190	2,800	3,710	4,470	5,300	7,550

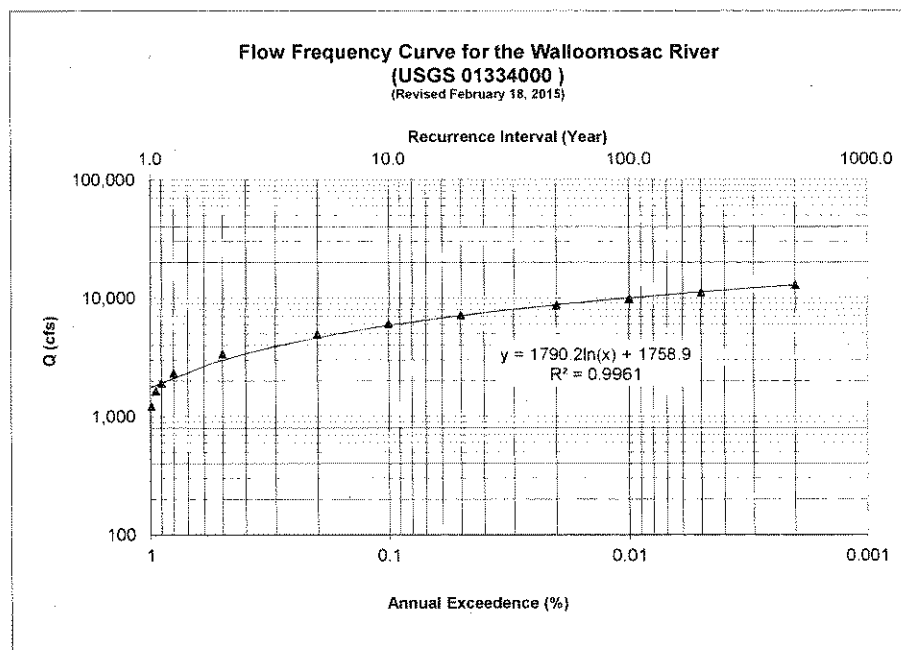
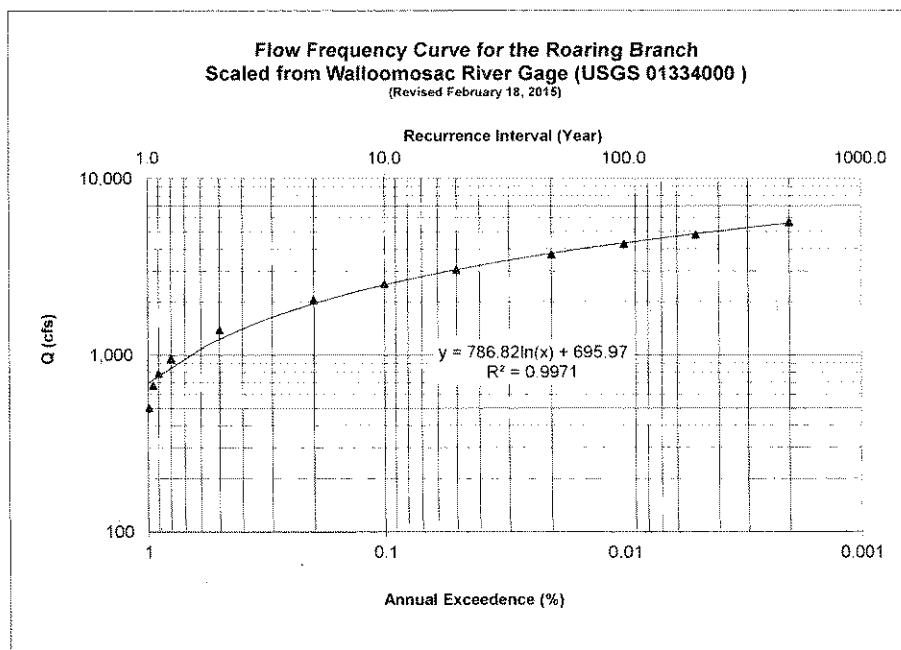


Figure 2: Flow frequency curves for the Roaring Branch and Walloomsac River.

Table 4: Comparison Between 2007 Corridor Plan Recommendations and Irene Emergency Work on the Walloomsac River Reach M06

Walloomsac River - M06

Location	2007 Corridor Plan Recommendations	Pre-Irene Corridor Plan Project Status	Post-Irene Corridor Plan Project Status	Post-Irene Emergency Work in Area
Upstream of Golf Course	Arrest headcuts downstream of Roaring Branch confluence.	Not completed.	Not completed. Headcuts buried and new erosion areas at the edge of the corridor.	Sediment removal and bank armoring to eliminate imminent threats.
	Restore incised river channel.	Not completed.	Not completed.	Sediment removal and bank armoring to eliminate imminent threats.
Brady Property	Protecting river corridors - acquisition of property on both banks.	Not completed.	Not completed.	Sediment removal and bank armoring to eliminate imminent threats.
	Restore incised river channel.	Not completed.	Not completed.	Sediment removal and bank armoring to eliminate imminent threats.

The Roaring Branch has a long history of damages and flood recovery. The area is known to be hazardous from both a flood and erosion standpoint. FEMA has placed a note on the preliminary Flood Insurance Rate Map indicating fluvial erosion hazard threats where channel avulsion has taken place in the past. Although several related project recommendations existed in the 2007 river Corridor Plan, the damages created by Irene changed the existing risks to imminent threats where damages were likely during the 5-year flood. Emergency protective measures were performed by the Town to eliminate the immediate threats for the 5-year flood and more frequent floods such as the annual spring ice-out flood. This analysis confirms that the work performed following Irene was the direct result of the declared disaster associated with Tropical Storm Irene.

2. Emergency Protective Measures

- a. Detailed description of the 5-year flood, including all relevant dimensions (elevation, discharge, velocity, duration) and the methodologies used to characterize the 5-year flood, such as:
 - i. A detailed description of the 5-year flood parameters used in the HEC-RAS model that output the charts and dimensions included in the January 4, 2013 Technical Memorandum from Roy Schiff⁹

Peak flood estimation has been performed on the Walloomsac River and Roaring Branch several times since 2008 and was repeated for this submission (Table 5 and Figure 2). A variety of accepted methods were used including calculating flow frequency statistics at the Walloomsac River gauge¹⁰ and scaling flows to the Roaring Branch based on drainage area¹¹. Calculations were performed in HEC-SSP and spreadsheets. The 5-year peak flood on the Walloomsac River is 4,952 cubic feet per second (cfs) and the scaled peak 5-year flow on the Roaring Branch is 2,389 cfs. This is the flood that has a 20% chance of occurring in a given year and the benchmark that FEMA uses for reducing imminent threats for emergency protective measures¹².

⁹ Letter to Mr. Justin Johnson from Ronald K. Schuster, February 4, 2015. Request for Information, PW3094, Town of Bennington, Second Appeal, FEMA-4022-DR-VT, p. 1.

¹⁰ USGS, 1982. Guidelines for Determining Flood Flow Frequency (Bulletin #17b). Interagency Advisory Committee on Water Data, U.S. Geological Survey, Reston, VA.

¹¹ Ries, K. G. and M. Y. Crouse, 2002. The National Flood Frequency Program, Version 3: A Computer Program for Estimating Magnitude and Frequency of Floods for Ungauged Sites. Water-Resources Investigations Report 02-4168. U.S. Geological Survey Reston, VA.

¹² FEMA, 2007. FEMA Public Assistance Guide. 33009CV002A. Federal Emergency Management Agency, U.S. Department of Homeland Security, Washington, DC, Chapter 2.

The work immediately upstream of Park Street Bridge was completed before the flood and paid for by the State and Town. The flood eroded the right bank downstream of the bridge that threatened the bridge abutment and downstream property. The channel upstream of the Route 7 Bridge was completely buried in sediment and flowing towards the Kmart Plaza and into the Route 7 road embankment. The channel had to be restored to eliminate these imminent threats. No bridges were replaced during this work.

Table 3: Comparison Between 2007 Corridor Plan Recommendations and Irene Emergency Work on the Roaring Branch Reach M06T3.03

Roaring Branch - M06T3.01				
Location	2007 Corridor Plan Recommendations	Pre-Irene Corridor Plan Project Status	Post-Irene Corridor Plan Project Status	Post-Irene Emergency Work in Area
Town Garage Property	Removing berms or levees not needed to protect infrastructure to allow flood and sediment attenuation.	None. Just upstream of phase 2 completed by the Town in 2010.	Completed as part of flood recovery work since berms were partly destroyed during Irene that created imminent threats of avulsion in the corridor.	Removal of sediment and remaining portion of eroded berms.
	May require the additional construction of new berms offset from the channel and along the boundaries of the corridor to protect infrastructure to the north of the corridor.	None. Just upstream of phase 2 completed by the Town in 2010.	Completed as part of flood recovery work since berms were partly destroyed during Irene and the Town needed a nearby location to place sediment just outside of the floodplain.	Berm constructed during flood recovery on the back of the floodplain to allow for a local low-cost alternative to locally store excavated sediment. Berm armored to reduce imminent threat of avulsion.
High School Property	Removing berms or levees not needed to protect infrastructure to allow flood and sediment attenuation - berm along High School should remain to protect infrastructure.	Not completed.	Not completed. Portions of these berms were eroded during the flood.	Sediment removal and repair of the Army Corps levee (not part of this PA) took place in this area and were adequate to reduce imminent threats so eroded berms left in place.
State Property	Removing berms or levees not needed to protect infrastructure to allow flood and sediment attenuation.	Berm removal completed in this area in 2010 by the Town and State.	Already completed.	Sediment removal and repair of the berm breached during Irene (not part of this PA).
	May require additional construction of new berms offset from the channel to protect infrastructure to the south of the corridor.	Berm construction at the back of the floodplain without infrastructure completed in this area in 2010 by the Town and State to reduce future flood and erosion risks to surrounding property.	Already completed.	Sediment removal and repair of the berm breached during Irene (not part of this PA).
NRCS Flood Berm - North Bank	Arrest headcuts - In channel works	Not completed.	Not completed. Headcuts buried and new erosion areas at the edge of the corridor following berm erosion and avulsion.	Sediment removal, removal of remaining portions of berms, and deposit of sediment on back of floodplain.
Brooklyn Bridge	Arrest headcuts through depositional material. Restore aggraded river channel upstream of bridge.	Not completed.	Not completed. Headcut buried in sediment and erosion face transferred to outside of wall at concrete retaining wall.	Sediment removal, bank armor in avulsed areas just upstream of the bridge, and repair of the undermined flood wall (not part of this PA).
Park Street Bridge	Bank Stabilization upstream of bridge. Restore aggraded river channel upstream of bridge.	Berm removal, berm construction on the back edge of the floodplain, and bank armoring completed in this area in 2010 by the Town and State.	Already completed.	Sediment removal to open up flow path through bridge and bank armoring downstream of bridge where flow pushed against the right abutment.
Route 7 Bridge.	Restore aggraded river channel upstream of bridge.	Not completed.	Not completed.	Sediment removal in deposition areas where channel was pushed towards Kmart Plaza.
Full Reach	Remove or replace bridge structures.	Not completed.	Not completed.	Sediment removal to open up flow paths through structures that were clogged during Irene (not part of this PA as funded by FHWA).

None of the four projects on M06 on the Walloomsac River as proposed in the 2007 Corridor Plan were deemed necessary to be performed as emergency work (Table 4). Headcuts were buried and the river rolled off of the sediment and eroded the banks. The emergency protective measures in this location took place to remove the sediment clogging the channel and armoring the banks to eliminate the chances of an avulsion during the 5-year flood or smaller more frequent floods given the widespread sediment deposition and bank erosion. Such a channel erosion event would be very damaging in this location given the abundance of property.

Park Street Bridge in 2010 to reduce future flood and erosion hazards. This project likely reduced damages at the bridge during Irene.

Table 2: Comparison Between 2007 Corridor Plan Recommendations and Irene Emergency Work on the Roaring Branch Reach M06T3.02

Roaring Branch - M06T3.02

Location	2007 Corridor Plan Recommendations	Pre-Irene Corridor Plan Project Status	Post-Irene Corridor Plan Project Status	Post-Irene Emergency Work in Area
Private Property - Mobile Homes off Smith Way	Protecting river corridors -- acquisition of properties on South bank that are currently constructed in active flood chutes.	Not completed.	Not completed.	None
	Removing berms or levees not needed to protect infrastructure to allow flood and sediment attenuation.	Not completed.	Not completed.	Sediment re-working performed to reduce imminent threat of bank erosion and avulsion. Some berms were destroyed during Irene yet remaining berms were left in place as elimination of imminent threat possible with sediment re-working alone.
	Arrest headcuts -- in channel works.	Not completed.	Not completed.	Sediment re-working performed to reduce imminent threat of bank erosion and avulsion. Existing headcuts were buried and new ones formed. Headcut stabilization was not performed with instream structures.
Central Vermont Public Service Corporation (CVPS)	Removing berms or levees not needed to protect infrastructure to allow flood and sediment attenuation.	Not completed.	Not completed.	Sediment removal and armoring of eroded banks took place in this area to eliminate imminent threats to property.
Full Reach	Berm removal	Not completed.	Not completed.	Sediment removal and armoring of eroded banks took place in this area to eliminate imminent threats to property. Some berms were destroyed during Irene yet remaining berms were left in place as elimination of imminent threat possible with sediment removal and bank armoring alone.
Utility Building Area	Arrest headcut on South bank.	Not completed.	Not completed.	Sediment removal and armoring of eroded banks took place in this area to eliminate imminent threats to homes in the Knapp Drive area. The existing headcut was buried and the flow rolled off of the sediment deposit and eroded the banks. Elimination of imminent threat possible with sediment removal and bank armoring.

Two of the projects along the Town Property were implemented during the flood recovery as the post-flood conditions transformed these recommendations into essential emergency work to eliminate imminent threats. The flood destroyed most of the berms in this area leaving downstream roads and neighborhoods exposed to imminent threats under the 5-year or more frequent floods. A berm / banks had to be reconstructed during flood recovery. Excavated sediment was placed on the back of the river corridor to create a wider floodplain and facilitate construction providing a local storage location for the high volume of sediment that had to be cleaned out of the river.

The headcuts at the NRCS berm and the Brooklyn Bridge were buried during the flood. The river rolled off the sediment and eroded the side of the corridor. The imminent threat in this area was no longer an erosion face in the channel, yet the load of sediment pushing water to the edge of the river corridor and eroding the banks. This change took place throughout the corridor during Irene increasing the threat of imminent future damages during the next 5-year flood or smaller floods.

Figure 1: Reach map showing project area along M06 on the Walloomsac River and M06T3.01 and M06T3.02 on the Roaring Branch. Note that label applies to the upstream reach. Map produced from the Vermont ANR Atlas.

A review of the project recommendations in the 2007 Corridor Plan⁸ clearly demonstrates that the recommended projects differed from the emergency work completed following Irene. The 2007 plan recommends five projects along reach M06T3.03 and emergency work was not performed at three of these sites and sediment re-working took place at two locations to eliminate imminent threats (Table 1).

Table 1: Comparison Between 2007 Corridor Plan Recommendations and Irene Emergency Work on the Roaring Branch Reach M06T3.03

Roaring Branch - M06T3.03				
Location	2007 Corridor Plan Recommendations	Pre-Irene Corridor Plan Project Status	Post-Irene Corridor Plan Project Status	Post-Irene Emergency Work in Area
Campbell Property - upstream of Route 9	Protect river corridor - acquisition of property on North bank	Not completed.	Not completed.	None.
	Removing berms or levees not needed to protect infrastructure to allow flood and sediment attenuation.	Not completed.	Not completed.	None.
Campbell Property - downstream of Route 9	Bank Stabilization - Right (North) Bank immediately downstream of Route 9 Bridge (as part of a larger restoration project).	Not completed.	Not completed.	Sediment re-working performed to reduce the imminent threat of bank erosion and channel avulsion. Bank stabilization not completed as elimination of imminent threat possible with sediment re-working alone.
Town Property - upstream of Route 9	Off channel sediment detention area.	Not completed.	Not completed.	None.
Full Reach	Berm removal	Not completed.	Not completed.	Sediment re-working performed to reduce imminent threat of bank erosion and avulsion. Some berms were destroyed during Irene yet remaining berms were left in place as elimination of imminent threat possible with sediment re-working alone.

None of the six projects on reach T3.02 recommended in the 2007 Corridor Plan were implemented during the Irene recovery (Table 2). The three items recommended along Smith Way were not considered during flood recovery. River corridor protection did not take place as part of emergency work. The eroded south bank of the Roaring Branch in this area was deemed a lower priority in terms of creating imminent threats even though it eroded and moved several feet south during the flood. The headcut listed in the table was buried by more than 10 feet of sediment. The channel filled with sediment in this location and the emergency protective measure that was performed in this location was to re-work the sediment rather than remove it as a low-cost solution to the immediate threat.

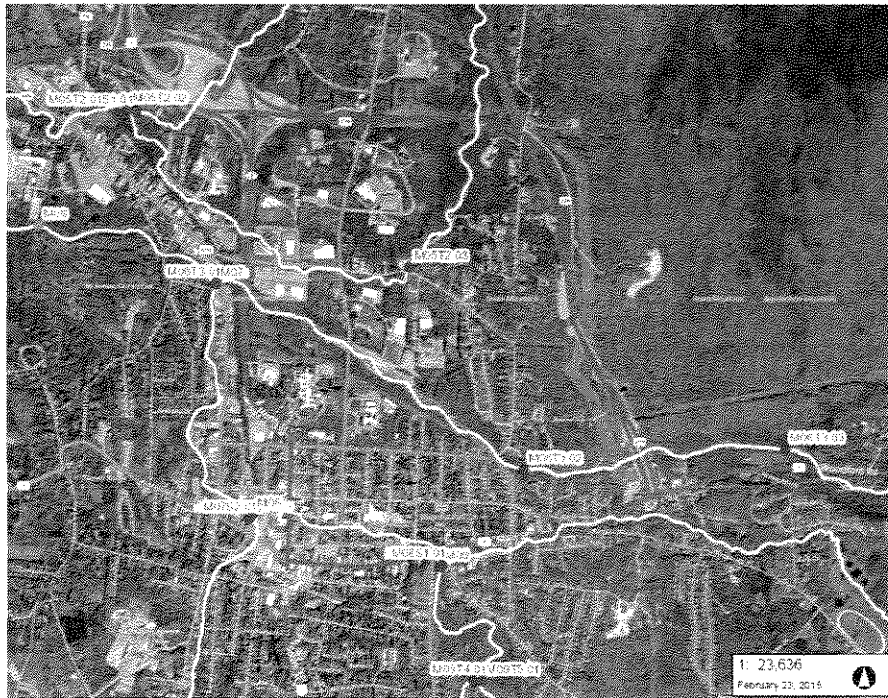
The flood removed the berms referred to along T3.02 leaving infrastructure and private property exposed to risk. The berms consisted of generations of non-engineered filling following historic floods. Although the berms provided some protection, the past berms regularly failed leading to damages. The headcut on the south bank was buried and not addressed. With the convex shape of the valley in an alluvial fan setting, the erosion of the berms left several areas exposed to flood damage. Bank armoring was applied in these locations in order to eliminate imminent threats and prevent channel avulsion during the 5-year flood or smaller floods. The implemented emergency work was not recommended in the 2007 Corridor Plan.

Ten projects were identified on T3.01 in the 2007 River Corridor Plan (Table 3). Two projects were implemented by the Town and State before Irene to restore floodplain and armor banks upstream of the

⁸ *Ibid*, page 32.

balance. This condition reduces risks and is now the backbone of the Vermont Stream Alteration Rules⁵. The project prioritization in the 2007 Corridor Plan for the subject reach is based on reach and watershed scale channel equilibrium, social benefit, cost, and likelihood of success⁶. Note that the prioritization of banks performed during the post-flood assessment to identify banks for emergency protective measures was based on the severity of the erosion and the likelihood that damages would occur to adjacent property during the next 5-year or smaller flood. Although there is overlap that largely arises from the hazardous conditions along the Roaring Branch and the history of damages and flood recovery, these two prioritization methods are different and lead to distinct project lists. The recounting of the projects recommended in the Corridor Plan⁷ illustrates that the specific Irene projects are distinct and were implemented emergency protective measures in response to new imminent threats due to the flood.

In reviewing the Corridor Plan where most damages were sustained during Irene (M06.T301 – Walloomsac River confluence to upstream of Branch Street; M06.T302 – Upstream of Branch Street to near Route 9; M06.T303 – Downstream of Route 9 upstream of the Woodford Town line; and M06 – Walloomsac River from Harmon Road to Roaring Branch confluence) (Figure 1), the sensitivity to geomorphic change is extreme, meaning that the channel is prone to adjustment during flooding.



Floodplain Function. Prepared by Milone & MacBroom and Fitzgerald Environmental Associates for and in collaboration with the Vermont Rivers Program, Montpelier, VT, p. 12.

⁵ Vermont Stream Alteration Rules (10 VSA Sec.27, Effective 12/24/2013.).

⁶ Gomez and Sullivan with Parish Geomorphics, 2007, Channel Management and River Corridor Protection Plan Walloomsac River and Roaring Branch, Bennington County, Vermont, Prepared for the Town of Bennington and Bennington Conservation District, Bennington, VT, p. 23-24.

⁷ *Ibid*, page 32.



Memorandum

TO: Matipa Mutsemi, Attorney Advisor at FEMA
Ronald Schuster, Branch Chief, FEMA Appeals and Audits

FROM: Roy Schiff, Water Resource Engineer, Milone & MacBroom

DATE: February 24, 2015

RE: **Response to Request for Information**
Second Appeal - Town of Bennington – FEMA-4022-DR-VT – PW 3094

The following memorandum responds to the Request for Information for the Town of Bennington's second appeal of project worksheet 3094 for the declared disaster associated with Tropical Storm Irene that took place on August 28, 2011 (FEMA-4022-DR-VT). The Town performed sediment re-working and bank armoring to eliminate imminent threats to lives, public health, and surrounding improved property. Thus, the full amount of PW 3094 should be reimbursed to the Town, the remaining balance of which is \$1,342,972.45. The remaining funds are for re-working sediment, bank armoring, and applicable engineering and mobilization fees. A response to the specific information request follows.

1. Direct Result of Declared Disaster

Documentation distinguishing the work performed (bank armoring and sediment reworking) post-Tropical Storm Irene from the work reflected in the 2007 River Corridor Plan.¹

The work performed under PW 3094 was the direct result of damages sustained during the declared disaster. Although there was necessarily some overlap in the work performed with some of the recommendations in the Walloomsac River and Roaring Branch River Corridor Plan², conditions after Irene were drastically different than the conditions that existed when the geomorphic assessment³ was performed and new imminent threats were created throughout the river corridor requiring emergency protective measures.

River corridor planning in Vermont is performed during non-flood times to develop projects to restore dynamic equilibrium⁴, or a most-stable state of the river where flow and sediment transport are in

¹ Letter to Mr. Justin Johnson from Ronald K. Schuster, February 4, 2015. Request for Information, PW3094, Town of Bennington, Second Appeal, FEMA-4022-DR-VT, p. 1.

² Gomez and Sullivan with Parish Geomorphic, 2007, Channel Management and River Corridor Protection Plan Walloomsac River and Roaring Branch, Bennington County, Vermont, Prepared for the Town of Bennington and Bennington Conservation District, Bennington, VT, p. 32-34.

³ VTANR, 2009. Vermont Stream Geomorphic Assessment Protocol Handbooks: Remote Sensing and Field Surveys Techniques for Conducting Watershed and Reach Level Assessments (http://www.Anr.State.Vt.U.S/Dec/Waterq/Rivers/Htm/Rv_Geoassesspro.Htm). Acquired via the internet May 17, 2007. Vermont Agency of Natural Resources, Department of Environmental Conservation, Division of Water Quality, River Management Program, Waterbury, VT.

⁴ Schiff, R., E. Fitzgerald, J. MacBroom, M. Kline, and S. Jaquith, 2014. The Vermont Standard River Management Principles and Practices (Vermont SRMPP): Guidance for Managing Vermont's Rivers Based on Channel and

Johnson, Harriet

From: Flynn, Joe
Sent: Friday, February 27, 2015 9:41 AM
To: Johnson, Justin; Clasen, Michael
Cc: Johnson, Harriet; Rose, Ben; Flynn, Joe
Subject: FW: Bennington RFI Response for DR4022-PW03094 - for GAR signature and transmission
Attachments: Bennington_RFI_response_transmittal_Monks_to_Johnson_02-25-15.pdf; Roaring Branch RFI 2015.pdf; Bennington_RFI_response_transmittal_Johnson_to_Schuster_DRAFT.docx
Importance: High

Subject: Bennington RFI Response for DR4022-PW03094 - for GAR signature and transmission

Secretary Johnson, Deputy Secretary Clasen -

Attached are three documents pertaining to the Town of Bennington Appeal to FEMA that require AOA review and action.

The Town of Bennington has submitted their response to FEMA's Request for Information related to second appeal of DR4022-PW03094. The two PDF files are the Town's transmittal letter and RFI response, respectively.

The third attachment, a Word document, is a DRAFT submittal letter from the GAR to FEMA. This cover letter from the GAR should be on Agency of Administration letterhead, conveying the RFI response to Ron Schuster, FEMA Appeals Branch Chief (Ronald.schuster@fema.dhs.gov) and FEMA Attorney Advisor Matipa Mutsemi (matipa.mutsemi@fema.dhs.gov).

The three documents are due to FEMA by March 6th. However, in light of the potential FEMA shutdown tonight it would be helpful if they can be sent electronically today.

Please contact myself or Ben Rose if there is anything else we can do to assist or follow up.

Respectfully,
Joe

ADDENDUM TO REQUEST FOR INFORMATION¹
Town of Bennington – FEMA-4022-DR-VT

Introduction

FEMA has reviewed the technical documentation submitted by the Applicant in response to its questions regarding alluvial flooding along Roaring Branch. A FEMA Professional Engineer, who also holds a Certified Floodplain Manager designation, reviewed your submission and does not believe that FEMA has sufficient information upon which to substantiate an affirmative eligibility determination. To address this concern, FEMA requires the Applicant's analysis supporting its assertion that bank armoring and sediment reworking were emergency protective measures performed to reduce an "immediate threat" of significant damage to surrounding improved property as required under Section 403(a)(3) of the Stafford Act and 44 C.F.R. §206.225(a)(3)(ii). Additionally, the Applicant must provide documentation substantiating that: 1) as a result of Tropical Storm Irene, Roaring Branch was under an immediate threat rather than increased risk of flooding; 2) the analysis supporting the Applicant's characterization of Roaring Branch as a 5-year floodplain; and 3) documentation supporting how a 5-year flood event would have caused significant additional damage to surrounding property. This Addendum explains FEMA's findings thus far, examines the information submitted by the Applicant, and outlines the information required to assist FEMA in making its determination.

Detailed Explanation

Sediment reworking and bank armoring may be eligible for Public Assistance (PA) funding, if the work completed is a direct result of the declared disaster. FEMA can fund such work either as emergency or permanent work under the criteria set forth in the PA guidelines and 44 C.F.R. Part 206. As such, the Applicant must first demonstrate the work performed was a direct result of a declared disaster, then establish the work performed was eligible for funding as an emergency protective measure, or alternatively, as permanent work.

1. Direct Result of the Declared Disaster

The Applicant needs to establish a direct link between Tropical Storm Irene and the work performed on Roaring Branch, i.e., bank armoring and sediment reworking. FEMA notes that much of the work claimed to have been completed as a result of Hurricane Irene was also listed in a 2007 Flood Management Plan. The fact that the work is identified prior to the storm indicates that the conditions likely existed prior to Tropical Storm Irene.

Specifically, the 2007 Flood Management Plan identified, among other things, banks and berms in need of repair as well as prioritization of those banks and berms as high, medium, and low according to a number of different criteria. The Applicant armored high priority banks after

¹ For clarity, the numbers in the Detailed Explanation correspond with the numbers in the RFI.

Tropical Storm Irene. It appears the issues identified in the 2007 Flood Management Plan existed before the storm and persisted through the storm, after which, the Applicant corrected them and sought reimbursement for the work as emergency protective measures under 44 C.F.R. 206.225. While FEMA understands the necessity and long-term cost-effectiveness of these measures, for the work to be eligible for PA funding, the Applicant must demonstrate that the work performed was necessary as a *direct* result of the disaster.

2. *Emergency Protective Measures*

The Applicant has tried to categorize sediment reworking and bank armoring as emergency work. To qualify for funding as an emergency protective measure, the work performed must “eliminate or lessen immediate threats of significant additional damage to improved public or private property through measures which are cost effective.”² “Immediate threat means the threat of additional damage or destruction from an event which can reasonably be expected to occur within five years.”³ FEMA interprets an “immediate threat” to be the threat of damage from an event that has a 20% chance of occurring each year, i.e. a 5-year flood event.⁴

After reviewing the information provided by the Applicant, FEMA’s assessment is that the documents submitted do not reveal that there was an “immediate threat of significant damage to improved public or private property” and that the work performed reduced the immediate threat.⁵ The Applicant has described the nature of flooding along Roaring Branch but has not provided FEMA with a detailed description of the 5-year flood event as it pertains to Roaring Branch. FEMA recognizes the need to mitigate long-term risks and understands that alluvial fan flooding presents many risks, most notably in the form of erosion. While such risks may be significant, FEMA can only fund immediate threats under PA—not risks. Though Tropical Storm Irene likely increased the risk of damage to surrounding structures and property, the Applicant has not shown whether, as a direct result of Tropical Storm Irene, the 5-year flood event could have resulted in significant physical damage to nearby property.

Also, given the occurrence of Tropical Storm Lee a few days after Irene, with a discharge that came very close to the 5-year discharge yet caused no significant additional damage to surrounding property, the Applicant has not affirmatively established that the work performed reduced or eliminated immediate threats of damage as a result of Tropical Storm Irene. The Applicant must demonstrate that a 5-year flood event on Roaring Branch differs from Tropical Storm Lee. FEMA’s position is that the work performed did not serve to reduce or eliminate immediate threats because Roaring Branch did not sustain further damage only a few days after Tropical Storm Irene. The Applicant avers that Tropical Storm Lee was “extremely short” in

² 44 C.F.R. §206.225(a)(3)(ii).

³ 44 C.F.R. §206.221(c).

⁴ FEMA Second Appeal Analysis, *City of Wilkes-Barre*, FEMA-1684-DR-PA, at 2 (Jan. 11, 2010).

⁵ 44 C.F.R. §206.225(a)(3).

duration;⁶ therefore, it was not truly representative of the threat presented by the 5-year flood. However, as FEMA Project Specialists have previously noted, the Applicant has not provided sufficient information to differentiate the impact of a 5-year flood on Roaring Branch from the impact of Tropical Storm Lee that would demonstrate how the 5-year flood event would result in direct physical damage to improved public or private property.

Further, to eliminate an immediate threat, the Applicant claims that it identified high priority banks to armor. The Applicant has not provided a basis for this identification except that "High priority armoring sites existed where bank erosion left improved property in immediate danger of damages during the 5-year flood."⁷ Given that the 2007 Flood Management Plan also identified high priority banks—over three years before Tropical Storm Irene—the Applicant has not shown that these were immediate threats stemming from the disaster, rather than long-standing risks. The Applicant must show that a 5-year flood event posed an imminent danger, not just an increased risk of damage, to the surrounding property. Without a detailed explanation of what a 5-year flood event would look like at Roaring Branch, FEMA will have insufficient information upon which to find that an immediate threat existed so as to warrant the sediment reworking and bank armoring.

3. Eligible Facility for Permanent Work

Alternatively, FEMA may fund the bank armoring as permanent work.⁸ To do so, the facility must be eligible. A natural feature, such as a river, only becomes an eligible facility when it has been improved and that improvement is maintained on a regular basis prior to the disaster.⁹ In this case, the Applicant has stated that bank armoring was performed to *replace* over 90% of destroyed armoring, a statement that suggests the river banks were an improved natural feature. However, despite multiple requests from FEMA, the Applicant has not supported this alternate argument through provision of predisaster design documents and maintenance records. FEMA renews its request for the Applicant to provide responsive documentation.

Information Submitted by the Applicant and Required Information

Sediment Reworking

The Applicant has provided detailed descriptions of the nature of alluvial fan flooding, including sediment transport and avulsions, detailed descriptions of the types of hazards associated with an elevated or avulsed channel, for example, velocity surges over sediment bars, and calculations of

⁶ Memorandum from Roy Schiff, PhD, P.E., to FEMA (Feb. 15, 2013).

⁷ Memorandum from Roy Schiff, Ph.D., P.E. to FEMA (Jan. 4, 2013). To illustrate the significance of the damage from a potential 5-year flood event, the Applicant has stated that \$93 million worth of property is located in the floodplain. This fact alone is insufficient to demonstrate that that improved property was under any immediate threat.

⁸ Sediment reworking will not be considered under permanent work because the Applicant gave no indication that the river bed was an improved natural feature.

⁹ FEMA 322, *Public Assistance Guide* (June 2007), p. 22.

the value of all of the property that could potentially be impacted by the 5-year flood event. This information serves to show the general nature of an alluvial floodplain, the risks associated with such a floodplain, and the value of the property surrounding it.

For the Applicant to substantiate its assertions associated with this appeal, FEMA needs a description of the 5-year flood and how it would differ from Tropical Storm Lee. Potential sources of documentation include the following:

- Historical records of 5-year floods at Roaring Branch; and/or
- A detailed description of the 5-year flood parameters used in the HEC-RAS model that output the charts and dimensions included in the January 4, 2013 Technical Memorandum submitted on behalf of the Applicant by Roy Schiff, PhD, P.E.

Bank Armoring

The Applicant has provided the following:

- Detailed discussions of the nature of sediment transport, avulsion, and erosion and how that could impact structures;
- Several statements that high priority banks were selected because they protected improved property, as well as maps of high priority banks;
- A statement that 90% of the bank armoring was done to replace pre-existing armoring as well as calculations of all of the property in the potentially affected area; and
- A statement that, although discharges associated Tropical Storm Lee were very close to discharges associated with the 5-year flood, the duration of Tropical Storm Lee did not approximate the 5-year flood.

FEMA must have information explaining the potential direct and immediate impacts to the nearby improved property. Statements describing increased risk or the total property value do not, in and of themselves, substantiate a direct and immediate impact to improved property. The Applicant also must provide sufficient documentation showing the methodology by which high priority banks were identified after the disaster occurred. The applicant has made many references to post-flood assessments, but has provided no documentation of such assessments. Potential sources of documentation could include a narrative description of the process by which high priority banks were identified, field notes, meeting notes, or other documentation.

Alternatively, the Applicant may assert that the banks are facilities. In that case, the Applicant would need to provide records of predisaster design and maintenance to FEMA.

Conclusion

FEMA will reach a determination after the Applicant provides the responsive supporting documentation addressing the specific issues stated in this addendum and RFI.



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Justin Johnson, Secretary

February 27, 2015

Mr. Ronald K. Schuster, Branch Chief
Public Assistance Appeals and Audits
U.S. Department of Homeland Security
500 C Street, SW
Washington, D.C. 20472

Re: Second Appeal – Town of Bennington, FEMA 4022-DR-VT-
Project Worksheet 3094 – Request for Information (RFI) response

Dear Mr. Schuster:

Enclosed is the Town of Bennington's Response to the referenced RFI regarding the Town's Second Appeal from Project Worksheet #03094. The State of Vermont is emphatically supportive of the Town's appeal, believes that the work undertaken by Town of Bennington after Tropical Storm Irene meets the criteria for eligible Category B Emergency Protective Measures, and respectfully requests that an additional \$1,342,972 be deemed eligible for this applicant.

This is a very strong appeal. Although dozens of Vermont communities undertook in-stream activities immediately following Irene, the State of Vermont only pursued further consideration of three selected communities where we were confident that the actions taken not only met FEMA requirements for emergency protective measures, but also were explicitly consistent with guidance from Vermont Agency of Natural Resources river engineering personnel. Woodford's work was partially funded based on their RFI response. Woodford and Rockingham chose not to appeal. Bennington is the one that is most clearly eligible. Roy Schiff, PhD., a consulting engineer with years of experience with Vermont rivers and specifically with the Roaring Branch, is one of Vermont's most qualified and respected river experts. Dr. Schiff was on the scene immediately after Irene to develop a plan for emergency protective measures necessary to protect against imminent threats to life and property. He walked the entire reach of the river from Woodford to North Bennington, inspected all of the river banks, and took detailed notes. We cannot imagine how a community in Bennington's geographic location could have possibly taken a more prudent or technically-sound approach to emergency response than Bennington. Region 1 has second-guessed Bennington's actions from Day One, without merit.

Tropical Storm Irene struck on August 28, 2011. At first, FEMA denied all assistance on the basis that other federal agencies, including the Natural Resources Conservation Service (NCRS), had responsibility for the work. Then, after it was established that the debris removal and emergency work was under FEMA authority, on November 16, 2012 FEMA issued a Request for Information. The State



of Vermont responded in January 2013. In response, FEMA acknowledged the eligibility of 268,000 cubic yards of sediment removal, but at an arbitrarily assigned cost of \$5/cubic yard. In December 2013, the State transmitted Bennington's first appeal to Region 1, confident that it would bring resolution more than two years after Irene. In response to Bennington's first appeal, the actual documented cost per cubic was deemed eligible, but the first appeal determination still did not provide funding for more than \$1.3M of eligible work associated with some of the emergency actions taken, which were in fact lower-cost and more technically-sound alternatives to additional sediment removal. On September 29, 2014, the State transmitted Bennington's second appeal to FEMA seeking reimbursement for these additional components of the completed emergency work in the Roaring Branch:

- Re-working sediment to re-form the channel between Route 279 and Route 9 to eliminate the threat of channel avulsion (\$198,000.00); and
- Bank armoring at the high risk eroded banks where imminent threats existed to adjacent improved property (\$930,786.28).
- Construction mobilization and engineering fees (\$214,186.17) associated with these efforts.

On February 4, 2015, FEMA issued the most recent Request for Information. The Town's response to the latest RFI is attached.

FEMA has already acknowledged that the sediment in the channel constituted an imminent threat¹ and that its removal was a reimbursable activity. Accordingly, the re-working of sediment to form a channel between Route 279 and Route 9 should be funded as an emergency protective measure. Pushing the sediment to re-form the channel was the selected alternative in this location rather than the more-costly sediment removal since the threat of avulsion of the river flowing down Route 9 could be reduced using this approach. The Town should not be penalized for minimizing the scope of work by implementing a lower cost alternative in this location for the same imminent threat already acknowledged by FEMA.

The information submitted by the Town and the State, including the additional information submitted in response to the most-recent RFI, demonstrates that armoring the banks was an essential element of the most cost-effective emergency response to an immediate threat. The Town of Bennington's work to protect its people and property from further disaster damage was prudent, conservative, and effectively executed. The Town, in the midst of managing catastrophic loss and facing additional unknown weather threats, sought out expert advice and obtained approval from state authorities. The work was well described in terms of need and cost. The Town has provided documentation of sound professional engineering guidance, and work notes documenting on-site consultation with Vermont river engineers and a fiscally conservative approach to doing only work that was necessary to address immediate threat. FEMA Region 1 had initially ruled that none of Bennington's work was eligible, and despite amending that position three different times has retained a bias against the applicant. Region 1's determination is contrary to established river science and engineering. Region 1 provided no counter evidence of its own to dispute the professional judgment of Bennington's well-qualified and well-respected engineers.

¹ See May 2, 2013 letter from Mark Landry, Federal Coordinating Officer to Messrs, Spaulding, Re: Public Assistance Eligibility Determination..., p. 5 of 8

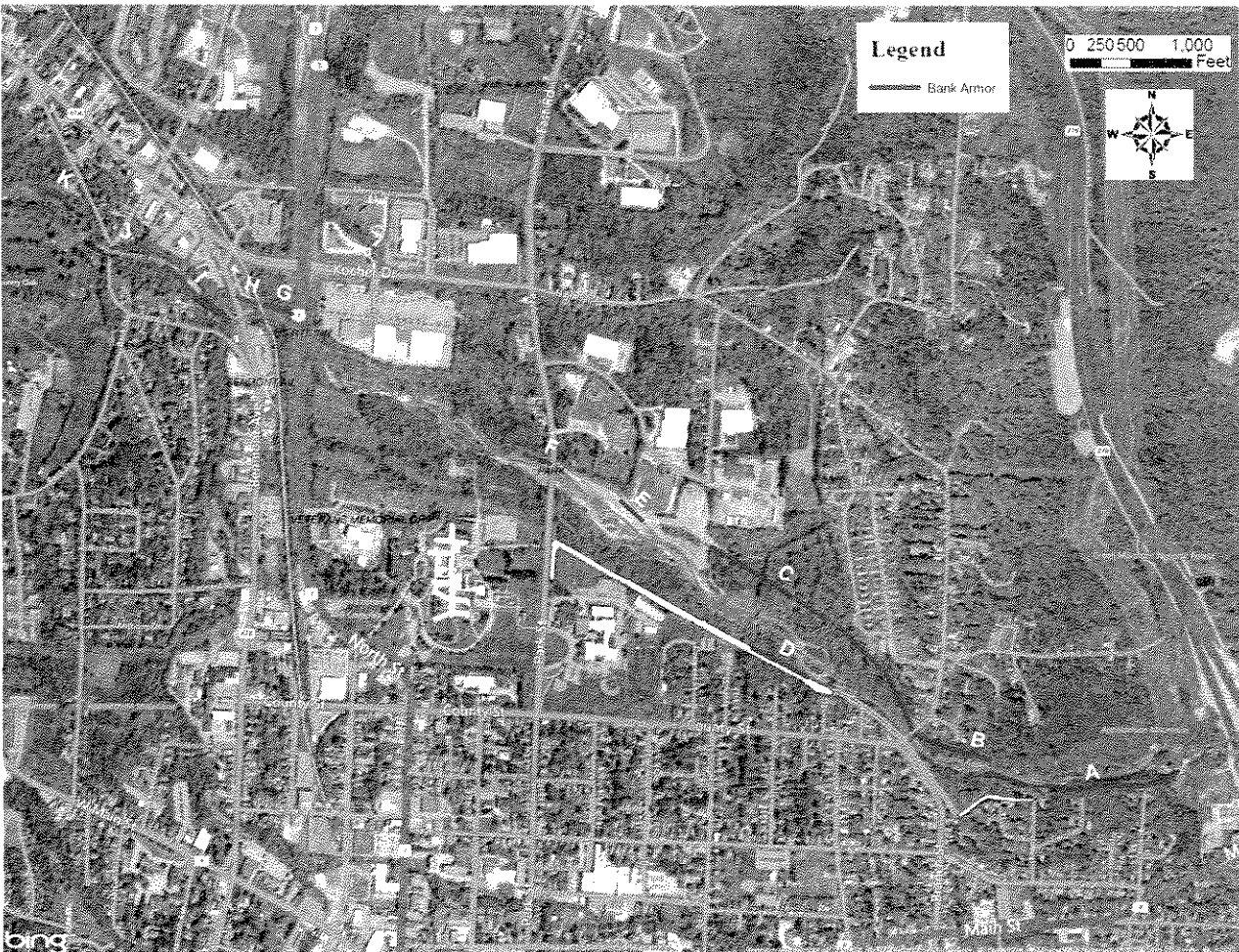


Figure 6: Bank Armor Emergency Protective Measure Locations

It is not clear why FEMA disputes the presence of imminent threats and the large amount of infrastructure and private property that were immediately threatened. Two professional engineers specializing in the water resources engineering and science disciplines who have worked extensively on the Roaring Branch have provided professional affidavits to FEMA that imminent threats existed and that emergency protective measures needed to be implemented^{29,30}. It is undeniable that the river corridor was heavily impacted by the flood and property and lives were in danger. Both engineers working on the project and the Town had an obligation to protect people from harm. We have previously submitted a letter from Mike Kline of the Vermont River Management Program, one of the premier river managers in the United States, indicating the varied nature of risks in sediment rich areas based on experience during Irene, and that the Town of Bennington acted in the best public interest to eliminate imminent threats long the Roaring Branch³¹. Three years, two appeals, and several RFIs later, we respectfully submit that we have made a compelling case for the full eligibility of the emergency work completed to protect Bennington from devastation immediately following Tropical Storm Irene.

²⁹ Affidavit of Barry Cahoon, FIRST APPEAL, FEMA-4022-DR-VT, November 19, 2013.

³⁰ Affidavit of Roy Schiff, FIRST APPEAL, FEMA-4022-DR-VT, April 17, 2014.

³¹ Letter to Ben Rose from Mike Kline, January 9, 2013. PA-01-VT-4022 – Post flood debris clearing in Vermont rivers as an emergency protective measure to address imminent threats to public property, p. 2-3.

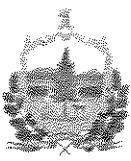
c. Description of the process (including methodology and assumptions) used to identify high priority areas post disaster, including assessments of imminent threats to lives, public health and safety, and surrounding improved property³²

A post-flood assessment was performed during the month of September. Data collection started on September 1, 2011, 4 days after Irene once it was possible to travel to the area. As emergency work progressed, more data collection took place as it became possible to move around the river corridor with all of the damages. On September 22, a site walk was conducted on the Roaring Branch from the Woodford-Bennington Town line downstream to Harmon Road on the Walloomsac River.

The assessment consisted of numerous site walks, photo-documentation, recording field notes, taking GPS points, map review, and approximate survey with a laser range finder with vertical measurement capabilities. GPS data were recorded, a code was applied to the point name (Figure 7), and then notes were taken to describe field conditions about the level of erosion and damaged or threatened improved property. GIS maps were prepared to display the points and threat level, as well as zoom out to get a bird's eye view of the potential avulsion paths. This view was important to exclude eroded banks where immediate threats did not exist, while identifying some banks where the erosion created a direct flow path to a location with homes, businesses, or infrastructure. Finally, the data were synthesized with local knowledge of the river channels and risks and a level of risk was selected based on the severity of erosion and the potential immediate threat to property and infrastructure.

- Low = Minor to moderate erosion and no immediate threats.
- Medium = Moderate to severe erosion, yet no immediate threats.
- High = Moderate to severe erosion and immediate threats either adjacent to the eroding bank or through the opening of a potential avulsion path.

³² Letter to Mr. Justin Johnson from Ronald K. Schuster, February 4, 2015. Request for Information, PW3094, Town of Bennington, Second Appeal, FEMA-4022-DR-VT, p. 1.



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Justin Johnson, Secretary

March 30, 2015

Mr. Paul Ford
Acting Regional Administrator (RA)
FEMA, Region 1
99 High Street, Boston MA

Mr. Robert Grimley
Director, Recovery Division
FEMA, Region 1
99 High Street, Boston MA

Re: *Update, Improved Project Request and Period of Performance Extension Request:* for Sandy Recovery and Improvement Act (SRIA) Alternative Procedures Pilot Program; FEMA-4022-DR-VT-PW-03237 Ag Laboratory; Applicant - Vermont Department of Buildings and General Services-BGS;

Dear Mr. Ford and Mr. Grimley,

The purpose of this letter is three-fold with regard to the referenced project worksheet: 1.) To provide an update to the progress since May 2014; 2.) To request an Improved Project; and 3.) To request an Extension to the Period of Performance from September 1, 2015 to June 30, 2018.

Update:

Since May 2014, the Applicant (Building and General Services-BGS) has acted upon an appropriation by the Vermont Legislature to select a site, select an architect, complete programming, and produce a conceptual design for a new collaborative laboratory for the Agencies of Agriculture and Natural Resources. These aspects are outlined in pages 1-3 of the January 30, 2015 letter: *"Update, Improved Project Requests and Period of Performance Extension Request: for Project Worksheet #3237; Ag Laboratory SRIA Fixed Cost Estimate: FEMA-4022-DR-VT"* (attached).

Request for Improved Project:

The Vermont Department of Public Safety, Division of Emergency Management/Homeland Security (DEMHS), acting through the Grantee, Vermont Agency of Transportation (VTrans), is in receipt of the Applicant's request for an Improved Project for Project Worksheet #3237 - Ag Laboratory. DEMHS, acting on behalf of the Grantee (VTrans) supports this request for Improved Project and requests approval by FEMA Region 1 (attached).

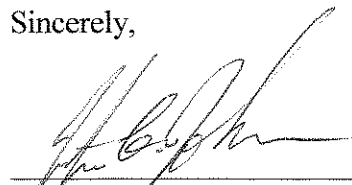
Request for Extension to the Period of Performance

DEMHS is in receipt of the Applicant's request for a Period of Performance Extension Request: for Project Worksheet #3237 - Ag Laboratory. DEMHS, acting on behalf of the Grantee (VTrans) supports this request for Extension to the Period of Performance and requests approval by FEMA Region 1 (attached).



As the Governor's Authorized Representative (GAR), I am requesting on behalf of the Applicant (BGS), and through DEMHS, FEMA's approval for the referenced Improved Project and also the associated extension to the current Period of Performance (both submitted under this cover). This will allow the Applicant to meet their anticipated construction goal of June 30, 2018. It is understood that DEMHS has presented all the necessary supportive documentation in this submittal for FEMA's review and anticipated approval.

Sincerely,



Justin Johnson, Secretary
Vermont Agency of Administration
Governor's Authorized Representative (GAR)

cc via e-mail:

Michael Obuchowski, Commissioner
Vermont Dept. Buildings and General Services (BGS)

Sandra Vitzthum, LEED AP
Project Manager II
Vermont Dept. Buildings and General Services (BGS)