



# O'Leary-Burke Civil Associates, PLC

CIVIL ENGINEERING | REGULATORY AND PERMIT PREPARATION | LAND SURVEYING | CONSTRUCTION SERVICES | LAND USE PLANNING

September 9, 2016



Greg Duggan  
Town of Essex  
81 Main Street  
Essex Jct., VT 05452

Re: LeClerc Property  
35 Discovery Road  
Preliminary and Final – Five Lot Subdivision & Master Plan Amendment

Dear Greg:

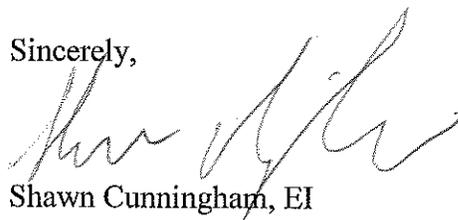
We are writing on behalf of Patrick LeClerc to submit a Final Plan application for a five (5) lot subdivision and Master Plan Amendment on a portion of Linda LeClerc 's property that fronts on Lamore Road and Discovery Road.

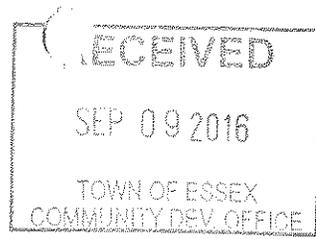
The existing parcel is approximately 176 acres in size (Lot 20) and has frontage on Lamore Road and Discovery Road. The parcel is in the Agricultural-Residential district and has a previously approved Master Plan. Mrs. LeClerc is proposing to subdivide four (4) additional lots.

The following items are enclosed for your review. If you have questions or comments, please call.

- Final Plan application;
- Fee of \$827.49 (\$125.00 Preliminary + \$100/Lot Final + \$6.465 x 29 abutters + \$15 Mylar Fee);
- Four (4) full-size plans;
- Five (5) sets of 11" x 17" plans;
- Three (3) sets of mailing labels;
- Letter written by Patrick Leclerc to Chris Kranz regarding the required boundary line adjustment;
- A blasting plan;

Sincerely,

  
Shawn Cunningham, EI



**From: Patrick Leclerc**

**7 Lamore Rd Essex, Vt 05452**

**(802) 310-1813**

**To: Chris Kranz**

**15 Lamore Rd Essex, Vt 05452**

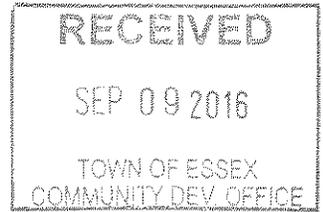
**09/08/2016**

**This letter is our "Good Faith" offer to perform the necessary boundary line adjustment and pay for all fees associated with this proposal (survey plat included, see attached) to bring lot 14 into compliance per Town of Essex Planning Commission requirements.**

**Thank You,**

A handwritten signature in black ink, appearing to read "Patrick Leclerc". The signature is fluid and cursive, with a long horizontal stroke at the end.

**Patrick Leclerc**



---

# **Blasting Plan**

**For**

## **Lands of Leclerc Subdivision**

---

**Discovery Road, Essex, VT**

**Date: September 6, 2016**

## **TABLE OF CONTENTS**

|   |          |
|---|----------|
| <b>GENERAL.....</b>                             | <b>1</b> |
| <b>PRE-BLAST SURVEYS.....</b>                   | <b>1</b> |
| <b>BLAST MONITORING.....</b>                    | <b>1</b> |
| <b>SEQUENCE OF BLASTING.....</b>                | <b>1</b> |
| <b>BLASTING PROCEDURES.....</b>                 | <b>2</b> |
| <b>BLASTING MATS.....</b>                       | <b>3</b> |
| <b>BLAST SECURITY AND WARNING WHISTLES.....</b> | <b>3</b> |
| <b>EXPLOSIVES.....</b>                          | <b>4</b> |
| <b>BLASTER QUALIFICATIONS.....</b>              | <b>4</b> |
| <b>BLASTING PERSONNEL.....</b>                  | <b>4</b> |
| <b>LICENSES AND PERMITS.....</b>                | <b>5</b> |
| <b>BLAST VIBRATION.....</b>                     | <b>5</b> |
| <b>BLAST REPORTS.....</b>                       | <b>5</b> |
| <b>TYPICAL BLAST DESIGN.....</b>                | <b>6</b> |

### **General:**

This Blasting Design & Vibration Control and Monitoring Plan has been prepared for exclusive use by blasting and excavation contractor at the Leclerc Subdivision in Essex, VT. The blasting and vibration control specifications for all blasts on the project appear below. The reasons these specifications will create blasting operations that are safe, undamaging, and least likely to cause nuisance or undue annoyance are described in the text which follows:

### **Pre-Blast Surveys/Notifications:**

Pre-blast surveys will be offered to all property owners within 500 foot radius of the blast site. Appropriate notices will be given and appointments arranged for those owners who desire a survey. Pre-blast surveys will be conducted by a representative of the blasting company. Results of those surveys will be documented through video or still photography and appropriate narration or written reports.

### **Blast Monitoring:**

All blasts will be monitored by a representative of the blasting contractor who has been properly trained in the setup and use of seismic monitoring equipment. At least two seismographs will be used at all times. Placement of monitoring equipment will be at the nearest structure to the blast site. The blasting contractors' monitoring equipment will consist of InstanTel type seismographs. Details are enclosed. Results can be reviewed and modifications can be made to the blast design for the next blast if necessary.

### **Sequence of Blasting:**

All blasting operation will be strictly coordinated by the site contractor and the engineer working for the blaster. Emphasis will be on the safe and efficient removal of the rock existing on this project without impact to surrounding structures. Blast will be developed so as to create adequate relief which will minimize ground vibrations and offer the greatest protection possible to the surrounding structures.

### **Blasting Procedures:**

1. No blast detonated shall contain more than 5,000 lbs. of explosives.
2. No blast detonated shall contain more than 175 lbs. per delay period within a blast.
3. Detonation shall take place only between 8:30 AM and 4:00 PM, Monday through Friday. It is understood that any deviations from these scheduling requirements shall be permitted only in case of inclement weather, electrical storms, or safety required unscheduled detonation.
4. No blast detonated shall create a particle velocity which exceeds the USBM specifications shown in Figure 1 (attached) nor an air concussion which exceeds the USBM Air Concussion specification of 133 dBL as measured at the closest non-project structure to the blast.
5. Prior to any planned blasting, the project engineer shall give the abutters and the Town of Essex notice of the blasting schedule at least 3 days in advance. The project engineer shall maintain a list of all persons requiring such notice.
6. Prior to each and every scheduled blast, a warning whistle or siren that is audible within a range of one-quarter mile from the point of the blast shall be sounded three times: first, 5 minutes before detonation (3 Whistles), second, 1 minute before detonation (2 Whistles) and finally immediately after a blast (1 Whistle - All Clear). All persons within the permit area shall be notified of the meaning of the signals through appropriate instructions and signs posted.
7. As soon as possible after each detonation, a full Blasting & Vibration Report (attached) shall be completed by the blaster, including all loading, detonation, and the field seismographic data from the blast. A copy of this report shall be provided to the Town of Essex.
8. These field reports shall be kept on file at the project's office for review and use in modifying the blasting plan to provide continuous compliance.

9. There shall be no storage of explosives on-site.
10. Access to blasting area shall be regulated to protect the public from the effects of blasting. Access to the blasting area shall be controlled to prevent unauthorized entry before each blast and until the perimeter's authorized representative has determined that no unusual circumstance exist after the blast. Access to and travel in or through the area can then safely resume.
11. Areas in which charged holes are awaiting firing shall be guarded, barricaded and posted, or flagged against unauthorized entry.
12. All blasts shall be made in the direction of the stress relieved face previously marked out or previously blasted.
13. All stemming shall be minimum as specified using clean, dry 3/8" crushed stone.
14. Blasting mats shall be used as necessary to cover blasts.
15. The blasting contractor shall insure that extra safety and judgment is exercised by his blaster to prevent the simultaneous blasting of numerous holes.

**Blasting Mats:**

Blasting mats and backfill will be used to control excessive amounts of rock movement when blasting is in close proximity to structures. Placement and number of mats are typically determined by the blaster. Mats will be placed so as to protect all people and structures on, or surrounding the blast site and property. Rubber tire type blasting mats will be utilized on this project and will be approximately 12'x12' in size; Rubber mat @ 12'x12' 38 lbs./s.f.=5,472 lbs./ea.

**Blast Security and Warning Whistles:**

Each blast will be preceded by a security check of the affected area and then a series of warning whistles. Communications will be made with job site supervisors and local officials as required to ensure the safest possible operation. All personnel in the vicinity closest to the blast area will be warned. The warning whistles will follow the following sequence:

3 Whistles – 5 Minutes to Blast

2 Whistles – 1 Minute to Blast

1 Whistles – All Clear

The blast site will be examined by the blaster prior to the all-clear signal to determine that it is safe to resume work. No blast will be fired until the area has been secured and determined safe.

**Explosives:**

All explosives will be delivered to the job site on a daily basis. There will be no overnight storage. Only the amount of explosives required to perform the day's work will be brought to the site. All explosives will be stored in approved magazines when not in use.

Enclosed are Technical Data and MSDS sheets for the explosive products proposed for use on this project. Any one of, or a combination of these products may be in use at any one time on the site.

**Blaster Qualifications:**

All blasting contractor on this job will be licensed in the State of Vermont and have received various amounts of training in the safe use and handling of explosives. Additionally, the blasting contractor shall comply with all OSHA Regulations, State Regulations, and Federal Regulations regarding construction site safety, including transportation, use and handling of explosive materials. Weekly safety meetings are to be held on site by the blasting contractor, job foreman, with a record of that meeting returned to the Town of Essex.

**Blasting Personnel:**

All blasting operation shall be conducted by experienced, trained, and competent persons who understand the hazards involved. Persons working with explosive materials shall:

1. Have demonstrated a knowledge of, and a willingness to comply with, safety and security requirements.
2. Be capable of using mature judgment in all situations.
3. Be of good physical condition and not addicted to intoxicants, narcotics, or other similar type of drugs.

4. The person(s) responsible for the explosives shall possess current knowledge and comply with the local, State, and Federal laws and regulations applicable to his work.
5. The person(s) responsible for the explosives shall have obtained a Certificate of Competency or a license as required by State law.

### **Licenses and Permits:**

The blasting contractor shall be fully licensed and insured for the transportation, use, and handling of explosives. Evidence of insurance is available. Blasting permits will be applied for as required from the local authorities by the blasting contractor prior to the start of blasting. Insurance coverage policies shall be provided to the Town and kept current throughout the construction.

### **Blast Vibration:**

Blast vibration will be monitored at the blast site, typically at the structure(s) closest to the blast site. Vibration limits will closely follow limits described in the project specifications and State Regulations. Blast designs will be modified as required to stay within the guidelines and meet project schedules as well. Blasting operations will be modified accordingly when approaching buildings and utilities.

Ground vibration peak particle velocity limits shall not exceed:

- \*Up to 30 Hertz: 0.5 inches per second
- \*Thirty-one to 40 hertz 1.0 inches per second
- \*More than 40 Hertz: 2.0 inches per second

Airblast overpressure level not to exceed 133 peak dB (linear) two Hertz high-pass system.

### **Blast Reports:**

Blast Reports will be required by the blasting contractor following each blast. A full Blasting & Vibration Report (attached) shall be completed by the blaster, including all loading, detonation, and the field seismographic data from the blast. A copy of this report shall be provided to the Town of Essex.

### **Typical Blast Designs:**

Enclosed are what would be considered typical blast designs for this project. Hole sizes, depths, spacing and loading information is provided. These designs are to be considered a good starting point. Modifications are usually made, if necessary, following the first blast to meet control and seismic considerations.

# NEW U.S. BUREAU OF MINES CRITERIA FROM REPORT RI-8507 (November, 1980)

Safe blasting criteria, having two frequency ranges ( $< 40$  Hz) and ( $\geq 40$  Hz), were developed for residential structures. However, there are many blasts that represent intermediate frequency cases, being higher than structure-resonances (4 to 12 Hz) and lower than 40 Hz; therefore, a smoother set of criteria was developed. These criteria have more severe measuring requirements, involving both displacement and velocity (fig. B-1) below.

Above 40 Hz, a constant peak particle velocity

of 2.0 in/sec. is the maximum safe value. Below 40 Hz, the maximum velocity decreases at a rate equivalent to a constant peak displacement of 0.008 in. At frequencies corresponding to .75 in/sec. for drywall, and 0.50 in/sec. for plaster, constant particle velocities are again appropriate. An ultimate maximum displacement of 0.030 inches is recommended, which would only be of concern where very low frequencies are encountered ( $< 4$  Hz).

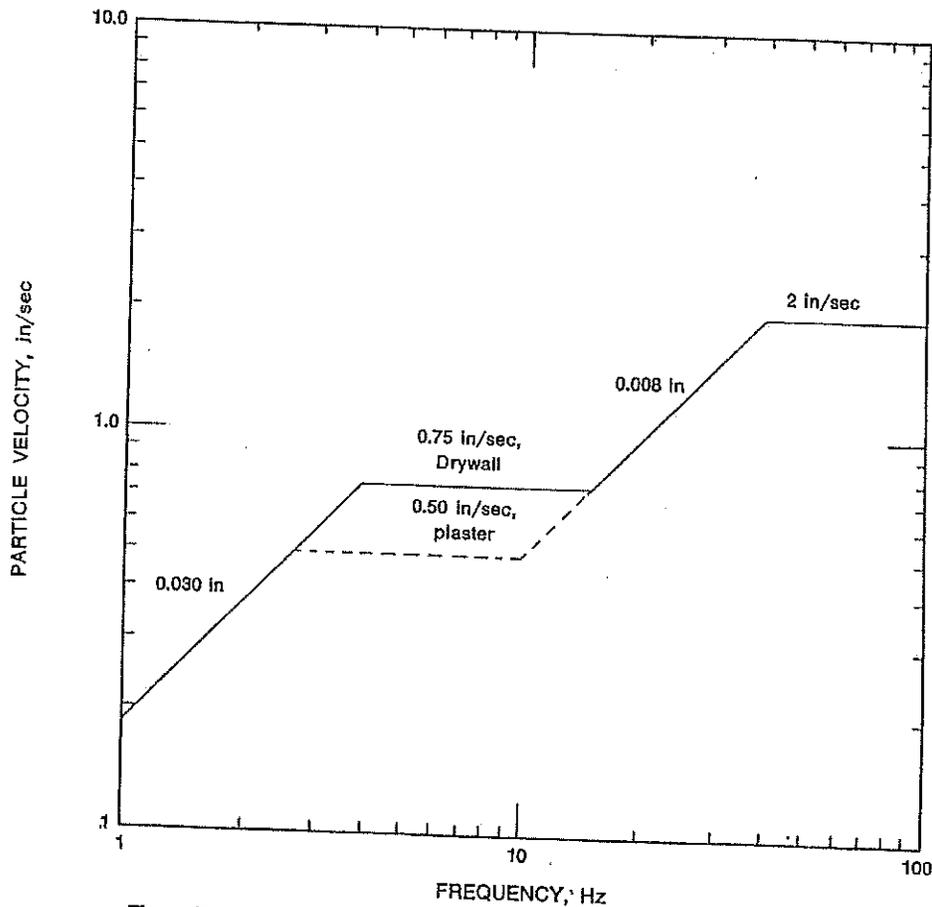
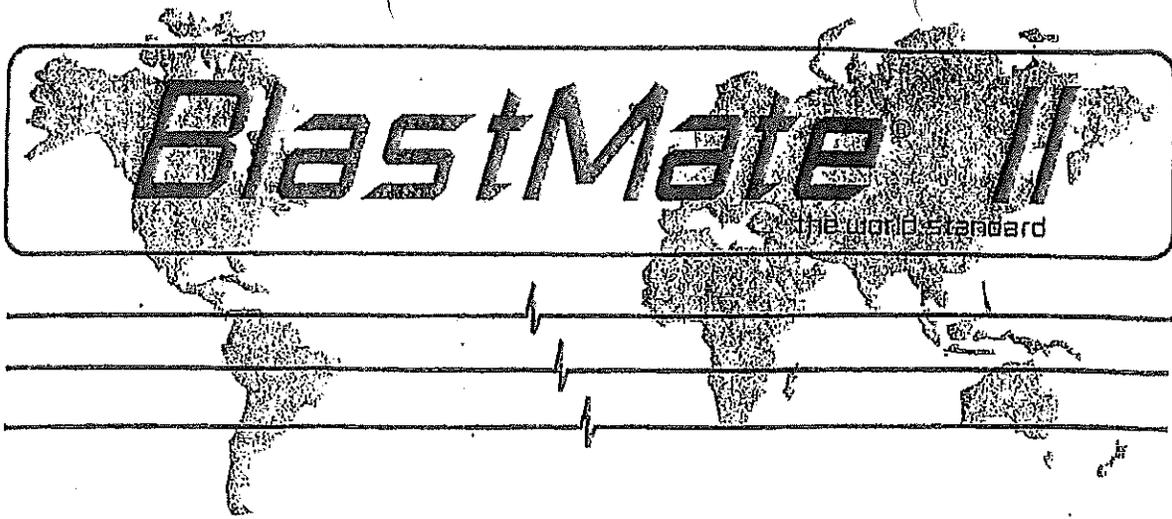


Figure B-1.—Safe levels of blasting vibration for houses using a combination of velocity and displacement.



# BlastMate® II Operator Manual

05-477/677



Certified to the ISO 9001 Quality Standard

Instantel®

---

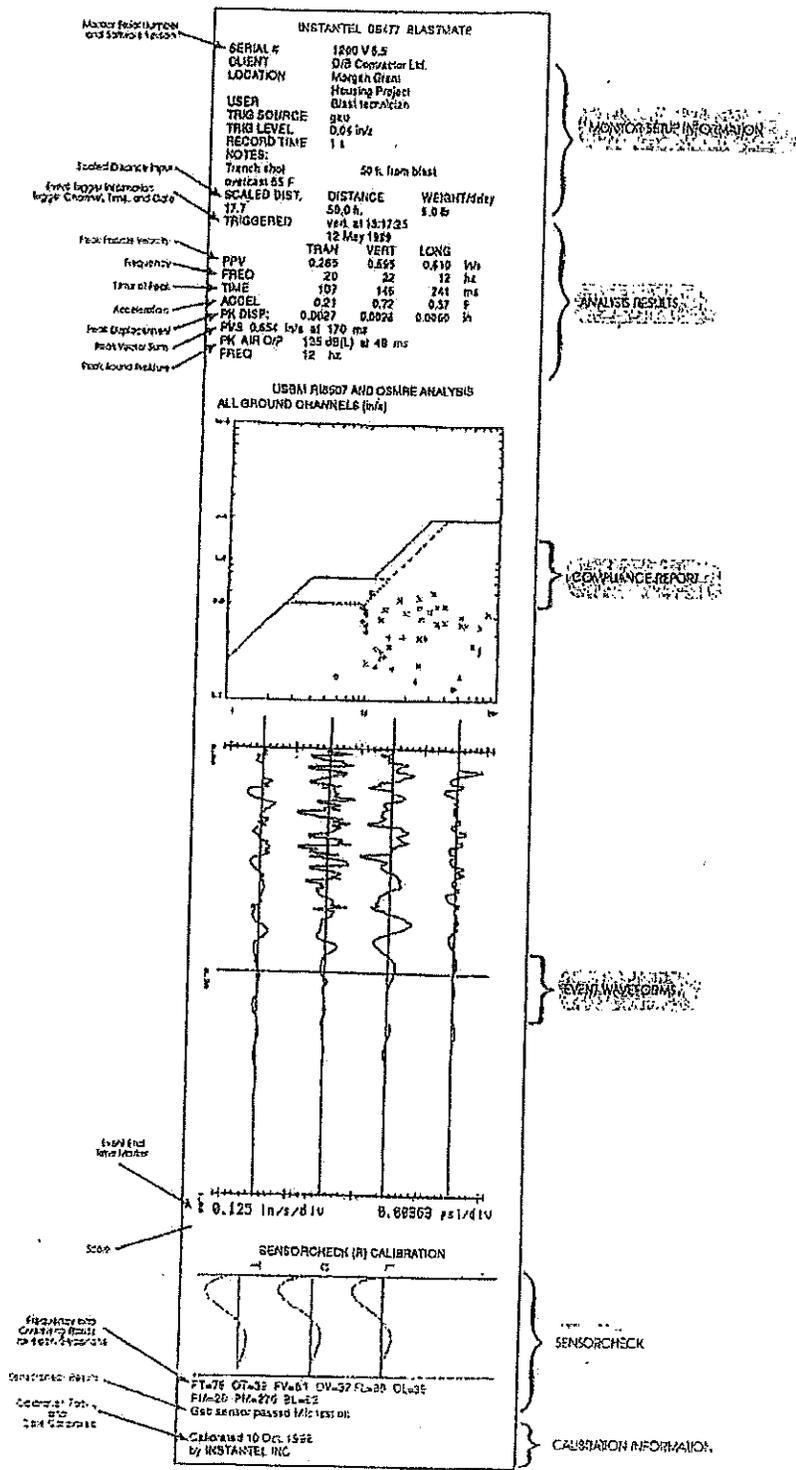


Figure 2-1 BlastMate II Event Summary Report.





# MATERIAL SAFETY DATA SHEET

## HYDROMITE EMULSIONS

DATE JUNE 2004

MSDS NO. E-4

Page 1 of 2

Issued by the Safety and Compliance Dept.

### SECTION I

AUSTIN POWDER COMPANY  
25800 SCIENCE PARK DRIVE  
CLEVELAND, OHIO 44122  
EMERGENCY PHONE  
DAY 216-464-2400  
NIGHT 216-464-2407

TRADE NAME AND SYNONYMS  
Hydromite 600 Series  
Hydromite 800 Series  
Hydromite 1000 Series  
Hydromite 2000 Series  
Hydromite 3000 Series  
Hydromite 4000 Series

### SECTION II HAZARDOUS INGREDIENTS

|                                |                             |            |
|--------------------------------|-----------------------------|------------|
| Ammonium Nitrate; $NH_4NO_3$ , | CAS No. 6484-52-2           | (65 - 90%) |
| Fuel Oil/ Mineral Oil Blend,   | CAS No. 68476-30-2          | (3 - 9%)   |
| Aluminum: Al,                  | CAS No. 7429-90-5,          | (0 - 10%)  |
| Polymeric Surfactant           | Not Applicable for Mixtures | (0.5 - 2%) |

An emulsified mixture of ammonium nitrate solution, fuel oil, mineral oil and polymeric surfactant (emulsifier). May also contain ammonium nitrate prills (granules) and/or aluminum.

### SECTION III PHYSICAL DATA

|                                  |              |                           |     |
|----------------------------------|--------------|---------------------------|-----|
| BOILING POINT:                   | N/A          | VAPOR PRESSURE (mm Hg)    | N/A |
| SPECIFIC GRAVITY ( $H_2O = 1$ ): | 1.20 to 1.30 | VAPOR DENSITY ( $Air=1$ ) | N/A |
| PERCENT VOLATILE BY VOL. (%):    | N/A          | EVAPORATION RATE:         | N/A |

SOLUBILITY IN WATER: Although in excess of 80% of the materials are readily soluble in water, the products have excellent water resistance.

APPEARANCE AND ODOR: White to tan colored thick cream. If aluminum is present, gray metal particles will be visible. If ammonium nitrate prill is present, white to tan colored granules will be visible. Slight odor of fuel oil.

### SECTION IV FIRE AND EXPLOSION DATA

|                                     |  |
|-------------------------------------|--|
| FLASH POINT:                        | 165° F (74° C) (PMCC)  |
| FLAMMABLE LIMITS:                   | Not available  |
| EXTINGUISHING MEDIA:                | See below.   |
| SPECIAL FIRE FIGHTING PROCEDURES:   | Do not fight fires. Withdraw personnel immediately. Allow fire to burn itself out.             |
| UNUSUAL FIRE AND EXPLOSION HAZARDS: | May explode when subjected to fire or shock, especially when confined and in large quantities. |

### SECTION V HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: ACGIH: Oil mist, mineral, 5 MG/M<sup>3</sup>, Aluminum metal dust, 10 MG/M<sup>3</sup>  
OSHA: Oil mist, mineral, 5 MG/M<sup>3</sup>, Aluminum metal dust, 15 MG/M<sup>3</sup>

EFFECTS OF OVEREXPOSURE: Acute: Ingestion of large amounts may cause cyanosis, nausea, collapse, vomiting, abdominal pain, rapid heartbeat and breathing, coma, convulsions, and death may occur.

EMERGENCY AND FIRST AID PROCEDURES:  
Eyes: Slight irritant. Flush with large amounts of water for at least 15 minutes and consult a physician.  
Skin: Slight irritant. Wash with mild soap and water



# MATERIAL SAFETY DATA SHEET

## HYDROMITE EMULSIONS

DATE JUNE 2004

MSDS NO. E-4

Page 2 of 2

Issued by the Safety and Compliance Dept.

### SECTION VI REACTIVITY DATA

**STABILITY:** Stable under normal conditions. May explode when subjected to fire or shock, especially when confined and in large quantities. Avoid temperatures above 212°F, (100°C).

**INCOMPATIBILITY (MATERIALS TO AVOID):** Avoid all contamination, especially peroxides and chlorates. Alkaline contamination may liberate ammonia fumes.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Gaseous nitrogen oxides and carbon oxides: Toxic decomposition products including carbon monoxide (CO) may migrate to off blast-site areas.

**HAZARDOUS POLYMERIZATION WILL NOT OCCUR.**

### SECTION VII SPILL OR LEAK PROCEDURES

**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:** Pick up and dispose of all spilled material immediately. Do not permit smoking or open flames near spill site.

**WASTE DISPOSAL METHOD:** Uncontaminated material may be placed in large diameter boreholes and detonated so that the explosive energy is utilized as originally intended. Dispose of under direct supervision of a qualified person according to local, state and federal regulations. Call Austin Powder for recommendations and assistance.

**TRANSPORTATION EMERGENCIES** involving spills, leaks, fires or exposures in the United States: **CALL CHEMTREC** for emergencies only: 1-800-424-9300. For calls originating outside the U. S. dial the U. S. access number followed by: 1-703-527-3887. All calls are recorded.

### SECTION VIII SPECIAL PROTECTION INFORMATION:

|                                |                                       |
|--------------------------------|---------------------------------------|
| <b>RESPIRATORY PROTECTION:</b> | Not required under normal conditions. |
| <b>VENTILATION:</b>            | Not required under normal conditions. |
| <b>PROTECTIVE GLOVES:</b>      | Slight skin irritant.                 |
| <b>EYE PROTECTION:</b>         | Slight eye irritant.                  |

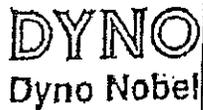
### SECTION IX SPECIAL PRECAUTIONS

COMPLY WITH THE SAFETY LIBRARY PUBLICATION NO. 4 "WARNINGS AND INSTRUCTIONS" AS ADOPTED BY THE INSTITUTE OF MAKERS OF EXPLOSIVES.  
TRANSPORTATION, STORAGE AND USE MUST COMPLY WITH OSHA SAFETY AND HEALTH STANDARDS 29CFR 1910.109, APPLICABLE MSHA REGULATIONS, THE DOT AND HAZARDOUS MATERIALS REGULATIONS, BATF REQUIREMENTS AND STATE AND LOCAL TRANSPORTATION, STORAGE AND USE REGULATIONS AND ORDINANCES.

DOT or IMDG proper shipping description: Explosive, Blasting, Type E, 1.5D, UN0332, PG II

This material may become a hazardous waste under certain conditions and must be collected, labeled and disposed of per state and federal hazardous waste regulations.

None of the components are listed in the 1987 IARC Monographs, Group 1, 2A or 2B as known, probable, or possible carcinogens, nor are they listed in the NTP annual report on carcinogens.



MATERIAL SAFETY DATA SHEET  
 DYNOL NOBEL INC.  
 11<sup>TH</sup> FLOOR CROSSROADS TOWER  
 SALT LAKE CITY, UTAH 84144  
 PHONE: 801-364-4800 FAX: 801-328-6452  
 E-MAIL: DNNA.HSE@AM.DYNOLNOBEL.COM  
 FOR 24 HOUR EMERGENCY CALL 800-424-9300

UNIMAX

01/22/03  
 Page 1 of 3  
 MSDS# 1019  
 DATE: 01/22/03  
 Supersedes MSDS  
 1019 03/01/02

SECTION I - PRODUCT IDENTIFICATION

Trade Name(s): D-GEL™ 1000  
 DYNOSPLIT®: D1, D3/4, D 7/8  
 EXTRA GELATIN: 40%, 75%  
 GELAPRIME® F  
 UNIGEL®  
 UNIMAX®  
 VIBROGEL®: 1,3  
 Z-POWDER™

Oil Well Explosive 80%  
 Oil Well Explosive 100%  
 STONECUTTER™  
 RED H® A  
 IRECOGEL® B  
 IRESPLIT® D  
 IRESPLIT® D-1  
 IP: 724, 738

Product Class: Packaged Dynamites and Blasting Gelatins  
 Product Appearance & Odor: Powdery to gelatinous solid, light tan to dark brown color. Faint, waxy odor.  
 DOT Hazard Shipping Description: Explosive, blasting, type A 1.1D UN0081 II  
 NFPA Hazard Classification: Not Available (See Section IV - Special Fire Fighting Procedures)

SECTION II - HAZARDOUS INGREDIENTS

| Ingredients:                     | CAS#      | % (Range) | TLV-ACGIH            |
|----------------------------------|-----------|-----------|----------------------|
| Nitroglycerin (NG)               | 55-63-0   | 1-20      | 0.05 ppm             |
| Ethylene Glycol Dinitrate (EGDN) | 628-96-6  | 8-76      | 0.05 ppm             |
| Nitrocellulose                   | 9004-70-0 | 0-6       | No Value Established |
| Ammonium Nitrate                 | 6484-52-2 | 0-75      | No Value Established |
| Sodium Nitrate                   | 7631-99-4 | 0-50      | No Value Established |
| Sulfur*                          | 7704-34-9 | 0-4       | No Value Established |

\*This ingredient is not found in most of the products listed above.  
 Ingredients, other than those mentioned above, as used in this product are not hazardous as defined under current Department of Labor regulations.

SECTION III - PHYSICAL DATA

Boiling Point: Not Applicable  
 Vapor Density: Not Applicable  
 Percent Volatile by Volume: Not Applicable  
 Evaporation Rate (Butyl Acetate = 1): Not Applicable

Vapor Pressure: Not Applicable  
 Density: 0.8-1.48 g/cc  
 Solubility in Water: Ammonium and sodium nitrates are completely soluble. NG and EGDN are very slightly soluble.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point: Not Applicable

Flammable Limits: Not Applicable

Extinguishing Media: (See Special Fire Fighting Procedures section.)

Special Fire Fighting Procedures: Do not attempt to fight fires involving explosive materials. Evacuate all personnel to a predetermined safe location, no less than 2,500 feet in all directions.

Unusual Fire and Explosion Hazards: Can explode or detonate under fire conditions. Burning material may produce toxic vapors.

SECTION V - HEALTH HAZARD DATAEffects of Overexposure

Eyes: May cause irritation, redness and tearing.

Skin: Contact may result in headache, nausea and blood vessel dilation.

Ingestion: May result in headache, nausea, intestinal upset and blood vessel dilation.

Inhalation: May result in headache, nausea and blood vessel dilation.

Systemic or Other Effects: None known.

Emergency and First Aid Procedures

Eyes: Irrigate with running water for at least fifteen minutes. If irritation persists, seek medical attention.

Skin: Remove contaminated clothing. Wash with soap and water.

Ingestion: Seek medical attention.

Inhalation: Remove to fresh air. If irritation persists, seek medical attention.

Special Considerations: None.

SECTION VI - REACTIVITY DATA

Stability: Stable under normal conditions. May explode when subjected to fire, supersonic shock, or high-energy projectile impact, especially when confined or in large quantities.

Conditions to Avoid: Keep away from heat, flame, ignition sources and strong shock.

Materials to Avoid (Incompatibility): Corrosives (mineral acids, bases, strong acids).

Hazardous Decomposition Products: Carbon Monoxide (CO), Hydrogen Sulfide (H<sub>2</sub>S), Nitrous Oxides (NO<sub>x</sub>), and Sulfur Oxides (SO<sub>x</sub>).

Hazardous Polymerization: Will not occur.

#### SECTION VII - SPILL OR LEAK PROCEDURES

Steps to be taken in Case Material is Released or Spilled: Protect from all ignition sources. In case of fire evacuate area not less than 2,500 feet in all directions. Notify authorities in accordance with emergency response procedures. Only personnel trained in emergency response should respond. If no fire danger is present, and product is undamaged and/or uncontaminated, repackage product in original packaging or other clean DOT approved container. Ensure that a complete account of product has been made and is verified. Follow applicable Federal, State, and local spill reporting requirements. Contact of this product with water may result in a reportable release.

Waste Disposal Method: Disposal must comply with Federal, State and local regulations. If product becomes a waste, it is potentially regulated as a hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR, part 261. Review disposal requirements with a person knowledgeable with applicable environmental law (RCRA) before disposing of any explosive material.

#### SECTION VIII - SPECIAL PROTECTION INFORMATION

Ventilation: Forced ventilation may be necessary where natural ventilation is limited. Magazines containing NG and/or EGDN based explosives must be ventilated before entry.

Respiratory Protection: None normally required.

Protective Clothing: Chemical resistant (nitrile) gloves are suggested.

Eye Protection: Safety glasses are recommended.

Other Precautions Required: Inhalation and skin contact should be minimized to avoid headaches, nausea, and blood vessel dilation. Protective clothing should be changed daily, more often if contaminated.

#### SECTION IX - SPECIAL PRECAUTIONS

Precautions to be taken in handling and storage: Store in cool, dry, well-ventilated location. Store in compliance with Federal, State, and local regulations. Keep away from heat, flame, ignition sources, and strong shock.

Precautions to be taken during use: Avoid breathing the fumes or gases from detonation of explosives. Use accepted safe industry practices when using explosive materials. Unintended detonation of explosives or explosive devices can cause serious injury or death.

Other Precautions: It is recommended that users of explosive materials be familiar with the Institute of Makers of Explosives Safety Library Publications.

#### SECTION X - SPECIAL INFORMATION

| <u>Chemical Name</u> | <u>CAS Number</u> | <u>% By Weight</u> |
|----------------------|-------------------|--------------------|
| Nitroglycerin        | 55-63-0           | 1-20               |

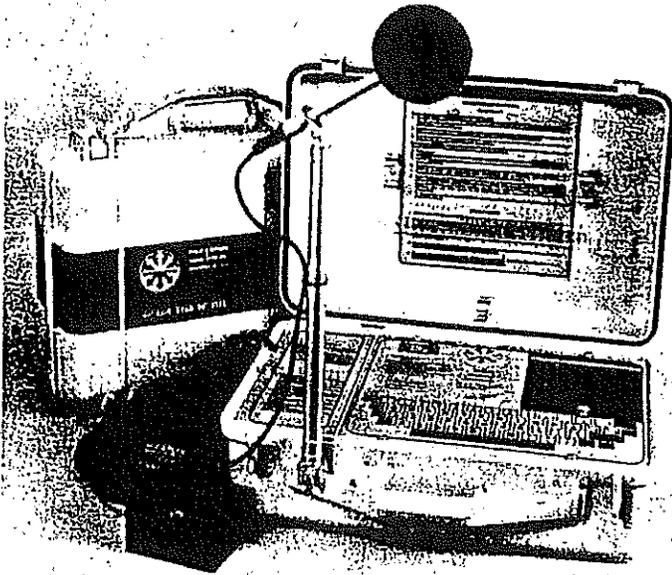
The reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR 372 may become applicable if the physical state of this product is changed to an aqueous solution. If an aqueous solution of this product is manufactured, processed, or otherwise used, the nitrate compounds category and ammonia listing of the previously referenced regulation should be reviewed.

#### DYNO NOBEL INC. Disclaimer

The information contained herein is provided for reference purposes only and is intended only for persons having relevant technical skills. Because conditions and manner of use are outside of our control, the user is responsible for determining the conditions of safe use of the product. While the information is believed to be correct, DYNO NOBEL INC. shall in no event be responsible for any damages whatsoever, directly or indirectly, resulting from the publication or use of or reliance upon the information contained herein. (No warranty, either expressed or implied, of merchantability or fitness for a particular purpose, or of any nature with respect to the product, or to the information, is made herein.)

# SAFEGUARD SEISMIC UNIT 1000D

## DIGITAL SEISMOGRAPH



The microprocessor-controlled SAFEGUARD SEISMIC UNIT 1000D is a portable seismograph which immediately and automatically records, reproduces, and analyzes the ground motion and airblast that exceed trigger levels pre-set by the operator. The battery-operated SSU 1000D may be locked and left unattended to record and analyze up to 40 events over a one-month period without recharging. The operation of the unit only requires that the operator respond to printed questions using the typewriter keyboard. The information is stored by the seismograph and printed out for each later recorded event unless changed or removed by the operator.

Features of the SSU 1000D include:

Complete on-site analysis containing seismic and airblast measurements plus pertinent blast and recording data.

On-site waveform record

Self-triggered by either ground vibration or airblast

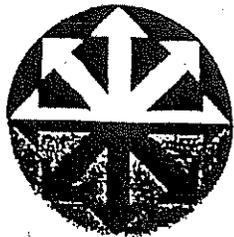
Multiple copies of record and analysis upon demand

3 recording period options of 5, 10, and 15 seconds

Automatic ranging (.25, 0.5, 1.0, 2.0, and 4.0 in/sec scales)

Dynamic and electronic self-calibration after each event.

The Safeguard Seismic Unit 1000D is available for lease or purchase exclusively in the USA through



**PHILIP R. BERGER & ASSOCIATES, INC.**  
Blasting Seismology / Geology / Geophysics

Box 779 / Warrendale, PA 15095 / (412) 776-3600

Massachusetts (617) 371-1606 Connecticut (203) 755-8376 North Carolina (919) 743-3387 Florida (305) 981-1230



# O'Leary-Burke Civil Associates, PLC

CIVIL ENGINEERING | REGULATORY AND PERMIT PREPARATION | LAND SURVEYING | CONSTRUCTION SERVICES | LAND USE PLANNING

September 27, 2016

Greg Duggan  
Town of Essex  
81 Main Street  
Essex Jct., VT 05452

Re: LeClerc Property Subdivision  
35 Discovery Road

Dear Greg:

We are writing on behalf of Patrick LeClerc in response to the Notice of Incomplete Application letter dated September 23, 2016. We have included an updated set of plans. The updated plans show detailed driveway profiles which include grading, approximate house locations and total impervious coverage calculations.

Please see the following responses to the comments you provided:

- The State water and wastewater permit is being provided by another consultant
- Building envelopes are now shown on the plans
- Please see sheet 5, Terrain Map, showing slopes greater than 15%
- The plans now show the full lot 24 driveway as it extends across lot 20
- The driveways on lots 22 and 23 will be 3% grade for the first 50 feet and will not exceed 12%. The applicant met with Public Works before applying for the subdivision and it was confirmed that a separate curb cut for each lot would be ok. The lot 24 driveway will maintain a slope of 12% or less
- The project will produce 0.48 acres of impervious coverage, and will not require a town stormwater permit
- Stormwater and erosion control practices can be seen on the plan and profile sheets (2 & 3) and the details sheet (4).

If you have any other questions please let us know.

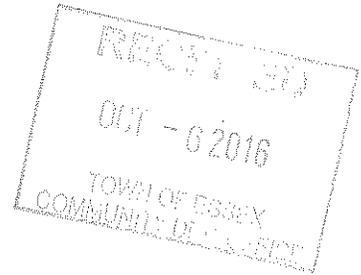
Sincerely,

Shawn Cunningham, EI

## Gregory Duggan

---

**From:** Shawn Cunningham <scunningham@olearyburke.com>  
**Sent:** Thursday, October 06, 2016 5:20 PM  
**To:** Gregory Duggan  
**Cc:** Paul O'Leary  
**Subject:** RE: 35 Discovery Rd



Hi Greg,

I will get you a revised plan tomorrow. There will not be a boundary line adjustment for lot 17. We haven't received any updates on the status of the WW permit.

Thanks,  
Shawn

---

**From:** Gregory Duggan [<mailto:gduggan@ESSEX.ORG>]  
**Sent:** Thursday, October 06, 2016 3:47 PM  
**To:** Paul O'Leary <[poleary@olearyburke.com](mailto:poleary@olearyburke.com)>; Shawn Cunningham <[scunningham@olearyburke.com](mailto:scunningham@olearyburke.com)>  
**Cc:** patrick leclerc ([no.9alaskan@yahoo.com](mailto:no.9alaskan@yahoo.com)) <[no.9alaskan@yahoo.com](mailto:no.9alaskan@yahoo.com)>  
**Subject:** RE: 35 Discovery Rd

Paul and Shawn,

Any response here?

GD

Greg Duggan, Planner  
Town of Essex, 81 Main St.  
Essex Junction, VT 05452  
802-878-1343  
[gduggan@essex.org](mailto:gduggan@essex.org)

---

**From:** Gregory Duggan  
**Sent:** Monday, October 03, 2016 1:14 PM  
**To:** Paul O'Leary ([poleary@olearyburke.com](mailto:poleary@olearyburke.com)); Shawn Cunningham ([scunningham@olearyburke.com](mailto:scunningham@olearyburke.com))  
**Cc:** patrick leclerc ([no.9alaskan@yahoo.com](mailto:no.9alaskan@yahoo.com))  
**Subject:** 35 Discovery Rd

Paul and Shawn,

The revised plans you sent over still don't show the streams on the property. Please also include the existing home on Lot 17, as well as a building envelope. Please also show the limits of the Class II wetland and buffer next to Lot 24, which had been included on the Sketch plan.

Also, can you confirm that there's no proposed boundary adjustment now for Lot 17?

Any word on the water and wastewater permits? Those were supposed to be received before you submitted for Final review, and we can't create a lot without knowing it's developable.

Greg

Greg Duggan, Planner  
Town of Essex, 81 Main St.  
Essex Junction, VT 05452  
802-878-1343  
[gduggan@essex.org](mailto:gduggan@essex.org)

Sent P. O'Leary  
9/22/16

**Jennifer Booker**

---

**From:** Brad Larose  
**Sent:** Thursday, September 22, 2016 1:02 PM  
**To:** Jennifer Booker  
**Subject:** RE: Discovery Road Preliminary/Final

Jenn –

The police department has no comments regarding this project.

Thanks

**Chief Bradley J. LaRose**  
**Essex Police Department**  
**145 Maple Street**  
**Essex Junction, Vermont 05452**  
**blarose@essex.org**  
**(802) 857-0093 direct**

---

**From:** Jennifer Booker  
**Sent:** Tuesday, September 13, 2016 4:09 PM  
**To:** Aaron Martin; Allyson Vile; Brad Larose; Charlie Cole  
**Cc:** Sharon Kelley; Gregory Duggan; Dana Hanley  
**Subject:** Discovery Road Preliminary/Final

Attached is the Preliminary/ Final Subdivision application for 35 Discovery Road a/k/a Leclerc property.  
Please have comments back by September 26, 2016 please!

Thanks,

Jenn Booker  
Community Development Secretary  
81 Main Street. Essex Junction VT 05452  
802-878-1343  
[jbooker@essex.org](mailto:jbooker@essex.org)

**Jennifer Booker**

Sent to Paul 9/23/16

**From:** Essex Fire Chief <ccole183@comcast.net>  
**Sent:** Thursday, September 22, 2016 5:29 PM  
**To:** Allyson Vile; Aaron Martin; Daniel Gregoire; Jennifer Booker  
**Cc:** Sharon Kelley; Gregory Duggan  
**Subject:** Re: Discovery Road Final

I object to this plan as the road grades do not meet NFPA standards and codes.

Charles J. Cole, Chief  
Essex Fire Department  
[www.essexfire.com](http://www.essexfire.com)

----- Original Message -----

**From:** Jennifer Booker  
**To:** Allyson Vile, Aaron Martin, Charlie Cole, Daniel Gregoire  
**Cc:** Sharon Kelley, Gregory Duggan  
**Sent:** September 22, 2016 at 3:14 PM  
**Subject:** FW: Discovery Road Final

FYI this one is due Monday!  
Thanks,

Jenn Booker  
Community Development Secretary  
81 Main Street. Essex Junction VT 05452  
802-878-1343  
[jbooker@essex.org](mailto:jbooker@essex.org)

---

**From:** Jennifer Booker  
**Sent:** Tuesday, September 13, 2016 4:09 PM  
**To:** Aaron Martin; Allyson Vile; Brad Larose; Charlie Cole  
**Cc:** Sharon Kelley; Gregory Duggan; Dana Hanley  
**Subject:** Discovery Road Preliminary/Final

Attached is the Final Subdivision application for 35 Discovery Road a/k/a Leclerc property.  
Please have comments back by September 26, 2016 please!  
Thanks,

Jenn Booker  
Community Development Secretary  
81 Main Street. Essex Junction VT 05452  
802-878-1343  
[jbooker@essex.org](mailto:jbooker@essex.org)

**Jennifer Booker**

Sent Paul, Shawn, Patrick  
9/28/16

**From:** Brad Larose  
**Sent:** Wednesday, September 28, 2016 10:00 AM  
**To:** Jennifer Booker  
**Subject:** RE: 35 Discovery Road

Jenn –

The police department has no additional comments.

Thanks

***Chief Bradley J. LaRose  
Essex Police Department  
145 Maple Street  
Essex Junction, Vermont 05452  
blarose@essex.org  
(802) 857-0093 direct***

---

**From:** Jennifer Booker  
**Sent:** Tuesday, September 27, 2016 3:53 PM  
**To:** Daniel Gregoire; Aaron Martin; Brad Larose; Charlie Cole; Allyson Vile  
**Cc:** Gregory Duggan; Sharon Kelley  
**Subject:** 35 Discovery Road

Please look at the revised plans for 35 Discovery Road/ Leclerc Property and send us your comments by Friday.  
Thanks,

Jenn Booker  
Community Development Secretary  
81 Main Street. Essex Junction VT 05452  
802-878-1343  
[Jbooker@essex.org](mailto:Jbooker@essex.org)

## Jennifer Booker

Sent 9/28/16  
P. Cleary - Shawn  
Patrick

**From:** Essex Fire Chief <ccole183@comcast.net>  
**Sent:** Wednesday, September 28, 2016 11:14 AM  
**To:** Jennifer Booker; Gregory Duggan; Sharon Kelley  
**Subject:** Re: 35 Discovery Road

Jenn,

Can I possibly get a detail showing the layout without all the dark lines in so I can see how long each driveway is? I also need a legend or ask the architect to list on the plan how long each driveway is from the intersection up. I am assuming from the elevation drawings that they plan on blasting enough rock away to make the driveways compliant with the new PC rules about a 12% average although the sheets don't state that.

Based on some of the driveways shown, I will need to work with the architect about creating some landings close to the residences for parking and turning apparatus around. Some of what they have shown is too close to the building and too small for the size trucks we have.

Other than that, I would request that all driveways be clearly marked with address numbers and at any intersection if the drive is shared with another building so that they can be seen easily at night and with an average snow cover in winter.

---

**From:** "Jennifer Booker" <JBooker@ESSEX.ORG>  
**To:** "Daniel Gregoire" <dgregoire@ESSEX.ORG>, "Aaron Martin" <amartin@ESSEX.ORG>, "Brad Larose" <blarose@ESSEX.ORG>, "Charlie Cole" <ccole183@comcast.net>, "Allyson Vile" <avile@ESSEX.ORG>  
**Cc:** "Gregory Duggan" <gduggan@ESSEX.ORG>, "Sharon Kelley" <skelley@ESSEX.ORG>  
**Sent:** Tuesday, September 27, 2016 3:53:16 PM  
**Subject:** 35 Discovery Road

Please look at the revised plans for 35 Discovery Road/ Leclerc Property and send us your comments by Friday.  
Thanks,

Jenn Booker  
Community Development Secretary  
81 Main Street. Essex Junction VT 05452  
802-878-1343  
[Jbooker@essex.org](mailto:Jbooker@essex.org)

Sent 9/29/16  
P. O'Leary, Shawn,  
Patrick

# MEMORANDUM

**TO:** Greg Duggan, Town Planner  
 Sharon Kelley, Zoning Administrator  
 Dana Hanley, Community Development Director

**FROM:** Dennis Lutz, P.E., Public Works Director/Town Engineer  
 Aaron Martin, P.E., Utilities Director / Town Engineer  
 Annie Costandi, E.I., Stormwater Coordinator/Staff Engineer

**DATE:** September 29, 2016

**SUBJECT:** Preliminary / Final Review – LeClerc 5-Lot Subdivision  
 35 Discovery Road

*Handwritten initials/signatures: ALM, AC*

The proposed sketch plan dated received by the Public Works Office dated September 14, 2016 from O’Leary – Burke Civil Associates, PLC has been reviewed, and Public Works Staff offers the following comments.

**Traffic:**

A fee for the additional traffic from the additional lots needs to be assessed. The fee shall be equivalent to installing 3” of crushed gravel along the length of the road frontage multiplied by the width of half the road. The fee is based on the cost of material only. The Town will apply the gravel as determined by the Public Works Department.

Lamore Road

$$469.0 \text{ ft.} \times 0.25 \text{ ft.} \times 12 \text{ ft.} = 1,407 \text{ ft}^3$$

$$1,407 \text{ ft}^3 \times 1 \text{ cy}/27 \text{ ft}^3 = 52.1 \text{ cy}$$

$$52.1 \text{ cy} \times \$35.00/\text{cy} = \$1,823.89$$

Discovery Road

$$641.0 \text{ ft.} \times 0.25 \text{ ft.} \times 12 \text{ ft.} = 1,923 \text{ ft}^3$$

$$1,923 \text{ ft}^3 \times 1 \text{ cy}/27 \text{ ft}^3 = 71.2 \text{ cy}$$

$$71.2 \text{ cy} \times \$35.00/\text{cy} = \$2,492.00$$

Total Impact Fee

**\$4,315.89**

**Curb Cut:**

The proposed curb cut locations for Lot’s 22, 23, and 24 are clearly noted on the plans. Public Works takes no exception to the locations as proposed. The curb cut to Lot #24 will utilize the existing driveway to Lot #19. In order to achieve proper site distance and to ensure proper drainage along the portion of Discovery Road fronting the proposed subdivision, the applicant shall clear all vegetation a minimum of 10-feet off of the edge of road. The applicant shall establish a drainage swale from the curb cut of Lot 22, to the existing drive culvert for Lot 19. The invert of the Lot 19 drainage culvert shall be adjusted as required.

The proposed curb cut for Lot #23 is an existing logging road. The applicant will be required to submit a curb cut application and upgrade the existing logging cut to current Town

standards. The applicant currently has a curb cut application submitted for a new logging road for 35 Discovery Road at the future location of Lot #22. It is the applicant's intent to leave the curb cut in place for the future driveway to Lot #22. Both of these curb cuts will be installed in accordance with Town specifications.

Proposed Lot #17 will gain access via the existing drive and curb cut off of Discovery Road. This existing curb cut and drive currently service Lot's 15 and 16. Existing Lot #14 gains access off of a curb cut and drive off of Lamore Road. The current Land Development Code only allow a total of two lots to be served by a single driveway / curb cut. As proposed, the additional drive to Lot #17 will make the third curb cut of the existing curb cut on Discovery Road. The Planning Commission has provided the applicant a waiver to allow up to three units off of the existing Discovery Road curb cut as part of a previous approval dated September 26, 2013.

It should be noted, all further lots created as part of future applications for the remaining lands will not be able to gain access by the existing drive off of Discovery Road without upgrading this drive to Town road standards.

**Stormwater:**

The final stormwater permit shall be submitted to Public Works for review and comment prior to commencement of construction. Public Works recommends that this be made a condition of approval.

**Jennifer Booker**

Sent 9/30/16  
Paul, Sharon, Patrick 9/30/16

**From:** Allyson Vile  
**Sent:** Friday, September 30, 2016 2:14 PM  
**To:** Jennifer Booker  
**Subject:** 35 Discovery Road

After reviewing the proposed 5-lot sub-division there are no concerns or issues. Each lot will be subject to Recreation Impact Fees when approved for construction.

Ally

Ally Vile, CPRP  
Director, Essex Parks and Recreation  
*Your Connection to a Healthier Community*  
81 Main Street, Essex Junction, VT 05452  
P: 802.878.1342  
[www.essexparksandrec.org](http://www.essexparksandrec.org)  
[www.facebook.com/essexrec](http://www.facebook.com/essexrec)



