

Pentkowski, Ron

From: karen Clinger <kclinger@lowelltown.org>
Sent: Thursday, April 30, 2015 12:41 PM
To: Pentkowski, Ron
Subject: Change Order PW00027 Mines Road
Attachments: DOC_20140804135013.PDF; _Certification_.htm

Ron,

This is the response I got back from the engineer, regarding the reason for the change order. Please let me know if you need any more information about this.

Karen Clinger

Town Clerk

Town of Lowell

2170 VT RTE 100

Lowell, VT 05847

Phone: 802-744-6559

Fax: 802-744-2357

kclinger@lowelltown.org

Please note that this email message, along with any response or reply, is considered a public record, and thus, subject to disclosure under the Vermont Public Records Law (1 V.S.A. §§ 315-320).

Thank You.

From: Sam Ruggiano [mailto:Sam@shrugg.com]

Sent: Thursday, April 30, 2015 12:08 PM

To: karen Clinger

Subject: FW: Lowell box

REVIEWED

By Bob Melillo, FEMA PS at 4:57 pm, May 27, 2015

Karen:

Here you go.

The change order was for additional crushed stone and excavation. Due to wet spongy soil conditions under the concrete box culvert.

Please review the change order if you have any questions let me know.

Sam Ruggiano, P.E.

5 Lake Street

St. Albans, Vermont, 05478

Tele: (802)524-9300

Fax: (802) 524-9700

Email: Sam@shrugg.com

www.Ruggianoengineering.com

From: Marshall Leonard [mailto:marshall@gwtatro.com]

Sent: Thursday, April 30, 2015 11:55 AM

To: Sam Ruggiano

Cc: Cody Marsh

Subject: Lowell box

Sam.

Please find attached pay application #2. This was the last pay application.

The change order you inquired about was the balancing change order for the project.

See sheet CAP703. For instance item A-2 crushed stone.

Due to the unsuitable material encountered when we reached

plan grade for the cutoff walls and box we had to over excavate and install additional stone to create a stable sub base.

Cody justified all of these over runs with your project manager.

If there is anything else I can do for you let me know

Regards,

Marshall Leonard PE
General Manager
G W Tatro Construction, Inc
802-644-8875

REVIEWED

By Bob Melillo, FEMA PS at 4:58 pm, May 27, 2015

CONTRACTOR'S APPLICATION FOR PAYMENT

CAP702L

PAGE 1 OF 2 PAGES

TO: Town of Lowell
2170 VT-100
Lowell, VT 05847

PROJECT: 3105
BURGESS BRANCH CULVERT REPLACEMENT

Distribution to:
 Owner
 Architect
 Contractor
 Construction Mgr

FROM
CONTRACTOR: G. W. TATRO CONSTRUCTION, INC.
PO BOX 339
5195 VT RTTE 15
JEFFERSONVILLE, VT 05464

VIA ARCHITECT: RUGGIANO ENGINEERING
5 LAKE STREET
ST ALBANS, VT 05478

APPLICATION NO: 2
PERIOD TO: 8/04/2014
CONTRACT DATE: 6/02/2014
PROJECT NOS:

CONTRACT FOR: CULVERT REPLACEMENT

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment as shown below, in connection with the contract. Continuation Sheet, Document CAP703, is attached.

1. ORIGINAL CONTRACT SUM	\$	147,850.50
2. Net Change by Change Orders	\$	15,062.86
3. CONTRACT SUM TO DATE (Line 1+ - 2)	\$	162,913.36
4. TOTAL COMPLETED & STORED TO DATE (Column G on CAP703)	\$	162,913.36
5. RETAINAGE:		
a. 0.00 % of Completed Work (Columns D + E on CAP703)	\$	0.00
b. 0.00 % of Stored Material (Column F on CAP703)	\$	0.00
Total Retainage (Line 5a + 5b or Total in column I of CAP703)	\$	0.00
6. TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)	\$	162,913.36
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)	\$	91,411.50
8. CURRENT PAYMENT DUE	\$	71,501.86
9. BALANCE TO FINISH, INCLUDING RETAINAGE (Line 3 less Line 6)	\$	0.00
10. TOTAL REQUESTED TO DATE	\$	162,913.36
Billing Summary 11. PAYMENTS RECEIVED TO DATE	\$	91,411.50
12. CREDITS APPLIED TO DATE	\$	0.00
13. NET PAYMENT DUE	\$	71,501.86

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	15,062.86	0.00
Total approved this Month	0.00	0.00
TOTALS	15,062.86	0.00
NET CHANGES by Change Order	15,062.86	

The Undersigned Contractor certifies that to the best of the Contractor's knowledge information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR: G. W. TATRO CONSTRUCTION, INC.

By: *[Signature]* Date: 8/04/2014

State of: VT
County of:

Subscribed and sworn to before
me this 4 day of August 2014

Notary Public: *[Signature]*

My Commission expires: 02/2015



ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED \$ 71,501.86

(Attach explanation if amount certified differs from the amount applied for. Initial all figures on this Application and on the Continuation Sheet that are changed to conform to the amount certified.)

ARCHITECT:

By: *[Signature]* Date: 8/4/14

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this contract.

CONTRACTOR'S APPLICATION FOR PAYMENT

CAP702L

PAGE 1 OF 2 PAGES

TO: Town of Lowell
2170 VT-100
Lowell, VT 05847

PROJECT: 3105
BURGESS BRANCH CULVERT REPLACEMENT

Distribution to:
 Owner
 Architect
 Contractor
 Construction Mgr

FROM CONTRACTOR: G. W. TATRO CONSTRUCTION, INC.
PO BOX 339
5195 VT RTTE 15
JEFFERSONVILLE, VT 05464

VIA ARCHITECT: RUGGIANO ENGINEERING
5 LAKE STREET
ST ALBANS, VT 05478

APPLICATION NO: 2
PERIOD TO: 7/11/2014
CONTRACT DATE: 6/02/2014
PROJECT NOS:

CONTRACT FOR: CULVERT REPLACEMENT

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment as shown below, in connection with the contract. Continuation Sheet, Document CAP703, is attached.

1. ORIGINAL CONTRACT SUM	\$	147,850.50
2. Net Change by Change Orders	\$	0.00
3. CONTRACT SUM TO DATE (Line 1+ - 2)	\$	147,850.50
4. TOTAL COMPLETED & STORED TO DATE (Column G on CAP703)	\$	162,913.36
5. RETAINAGE:		
a. 0.00 % of Completed Work (Columns D + E on CAP703)	\$	0.00
b. 0.00 % of Stored Material (Column F on CAP703)	\$	0.00
Total Retainage (Line 5a + 5b or Total in column I of CAP703)	\$	0.00
6. TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)	\$	162,913.36
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)	\$	91,411.50
8. CURRENT PAYMENT DUE	\$	71,501.86
9. BALANCE TO FINISH, INCLUDING RETAINAGE (Line 3 less Line 6)	\$	-15,062.66
10. TOTAL REQUESTED TO DATE	\$	162,913.36
Billing Summary 11. PAYMENTS RECEIVED TO DATE	\$	0.00
12. CREDITS APPLIED TO DATE	\$	0.00
13. NET PAYMENT DUE	\$	162,913.36

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	0.00	0.00
Total approved this Month	0.00	0.00
TOTALS	0.00	0.00
NET CHANGES by Change Order		0.00

The Undersigned Contractor certifies that to the best of the Contractor's knowledge information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR: G. W. TATRO CONSTRUCTION, INC.

By: _____ Date: 7/11/2014

State of: VT

County of:

Subscribed and sworn to before

me this _____ day of _____

Notary Public:

My Commission expires:

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED\$ _____

(Attach explanation if amount certified differs from the amount applied for. Initial all figures on this Application and on the Continuation Sheet that are changed to conform to the amount certified.)

ARCHITECT:

By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this contract.

CAP703 DETAIL PAGE(S)

TO:

Town of Lowell
2170 VT-100
Lowell, VT 05847

FROM:

G. W. TATRO CONSTRUCTION, INC.
PO BOX 339
5195 VT RTTE 15
JEFFERSONVILLE, VT 05464

PROJECT

3105

APPLICATION#: 2

APPLICATION DATE: 7/11/2014

PERIOD TO: 7/11/2014

CONTRACT DATE: 6/02/2014

ARCHITECTS PROJECT#:

A ITEM NO.	B DESCRIPTION OF WORK	C SCHEDULED VALUE	D WORK COMPLETED		F MATERIALS PRESENTLY STORED (NOT IN D OR E)	G TOTAL COMPLETED AND STORED TO DATE (D+E+F)		H BALANCE TO FINISH (C-G)	I RETAINAGE (IF VARIABLE RATE)
			FROM PREVIOUS APPLICATION (D + E)	THIS PERIOD		% (G/C)			
A-1	Site Prep/Demo/Excavation	22,700.00	22,700.00	0.00	0.00	22,700.00	100	0.00	0.00
A-2	Crushed Stone Under Culvert	2,291.25	0.00	3,948.74	0.00	3,948.74	172	1,657.49	0.00
A-3	Install Culvert and Headwalls	15,023.00	7,511.50	7,511.50	0.00	15,023.00	100	0.00	0.00
A-4	Type 2 Rip Rap inside Culvert	3,477.00	0.00	3,477.00	0.00	3,477.00	100	0.00	0.00
A-5	Type 3 Rip Rap	7,904.00	0.00	7,904.00	0.00	7,904.00	100	0.00	0.00
A-6	Backfill (Granular Fill)	12,656.25	0.00	19,912.08	0.00	19,912.08	157	7,255.83	0.00
A-7	Sand Cushion (6")	1,512.00	0.00	1,907.99	0.00	1,907.99	126	395.99	0.00
A-8	Gravel Subbase (18")	4,320.00	0.00	5,088.10	0.00	5,088.10	118	768.10	0.00
A-9	Pavement (3")	6,300.00	0.00	10,487.61	0.00	10,487.61	166	4,187.61	0.00
A-10	Guardrail and Terminal Ends	3,942.00	0.00	3,942.00	0.00	3,942.00	100	0.00	0.00
A-11	Finish Grade (4" Topsoil, S&M)	3,675.00	0.00	4,472.84	0.00	4,472.84	122	797.84	0.00
B-1	Purchase Box Culvert	60,000.00	60,000.00	0.00	0.00	60,000.00	100	0.00	0.00
C-1	Erosion Control	1,350.00	0.00	1,350.00	0.00	1,350.00	100	0.00	0.00
C-2	Traffic Control	1,000.00	0.00	1,000.00	0.00	1,000.00	100	0.00	0.00
C-3	Miscellaneous Materials	500.00	0.00	500.00	0.00	500.00	100	0.00	0.00
C-4	Contractor's Bond	1,200.00	1,200.00	0.00	0.00	1,200.00	100	0.00	0.00
		147,850.50	91,411.50	71,501.86	0.00	162,913.36	110	15,062.86	0.00

REVIEWED
By Bob Meillo, FEMA PS at 4:58 pm, May 27, 2015

CAP703 DETAIL PAGE(S)

TO:

Town of Lowell
2170 VT-100
Lowell, VT 05847

FROM:

G. W. TATRO CONSTRUCTION, INC.
PO BOX 339
5195 VT RTTE 15
JEFFERSONVILLE, VT 05464

PROJECT

3105

APPLICATION#:	2
APPLICATION DATE:	8/04/2014
PERIOD TO:	8/04/2014

CONTRACT DATE: 6/02/2014

ARCHITECTS PROJECT#:

A ITEM NO.	B DESCRIPTION OF WORK	C SCHEDULED VALUE	D WORK COMPLETED		F MATERIALS PRESENTLY STORED (NOT IN D OR E)	G TOTAL COMPLETED AND STORED TO DATE (D+E+F)		H BALANCE TO FINISH (C - G)	I RETAINAGE (IF VARIABLE RATE)
			FROM PREVIOUS APPLICATION (D + E)	THIS PERIOD		% (G / C)			
A-1	Site Prep/Demo/Excavation	22,700.00	22,700.00	0.00	0.00	22,700.00	100	0.00	0.00
A-2	Crushed Stone Under Culvert	2,291.25	0.00	3,948.74	0.00	3,948.74	172	1,657.49-	0.00
A-3	Install Culvert and Headwalls	15,023.00	7,511.50	7,511.50	0.00	15,023.00	100	0.00	0.00
A-4	Type 2 Rip Rap inside Culvert	3,477.00	0.00	3,477.00	0.00	3,477.00	100	0.00	0.00
A-5	Type 3 Rip Rap	7,904.00	0.00	7,904.00	0.00	7,904.00	100	0.00	0.00
A-6	Backfill (Granular Fill)	12,656.25	0.00	19,912.08	0.00	19,912.08	157	7,255.83-	0.00
A-7	Sand Cushion (6")	1,512.00	0.00	1,907.99	0.00	1,907.99	126	395.99-	0.00
A-8	Gravel Subbase (18")	4,320.00	0.00	5,088.10	0.00	5,088.10	118	768.10-	0.00
A-9	Pavement (3")	6,300.00	0.00	10,487.61	0.00	10,487.61	166	4,187.61-	0.00
A-10	Guardrail and Terminal Ends	3,942.00	0.00	3,942.00	0.00	3,942.00	100	0.00	0.00
A-11	Finish Grade (4" Topsoil, S&M)	3,675.00	0.00	4,472.84	0.00	4,472.84	122	797.84-	0.00
B-1	Purchase Box Culvert	60,000.00	60,000.00	0.00	0.00	60,000.00	100	0.00	0.00
C-1	Erosion Control	1,350.00	0.00	1,350.00	0.00	1,350.00	100	0.00	0.00
C-2	Traffic Control	1,000.00	0.00	1,000.00	0.00	1,000.00	100	0.00	0.00
C-3	Miscellaneous Materials	500.00	0.00	500.00	0.00	500.00	100	0.00	0.00
C-4	Contractor's Bond	1,200.00	1,200.00	0.00	0.00	1,200.00	100	0.00	0.00
17	Balancing Change Order	15,062.86	0.00	0.00	0.00	0.00	0	15,062.86	0.00
		162,913.36	91,411.50	71,501.86	0.00	162,913.36	100	0.00	0.00

REVIEWED
By Bob Melillo, FEMA PS at 4:58 pm, May 27, 2015

REVIEWED

By Bob Melillo, FEMA PS at 4:58 pm, May 27, 2015

CHANGE ORDER

Date: 8/4/14

Change Order No: #1

Name of Project: Burgess Branch Culvert Replacement

Municipality: Town of Lowell, VT

Contractor: GW Tatro Construction, Inc

The following changes are hereby made to the Contract:

Justifications: Balancing Change Order

Change to Contract Price: \$ 15,062.86

Original Contract Price: \$ 147,850.50

Current Contract Price adjusted by previous Change Order: \$ 147,850.50

The Contract Price due to this Change Order will be (increased) decreased by: \$ 15,062.86

New Adjusted Contract Price: \$ 162,913.36

Change to Contract Time: 0 days

The Contract Time will be (increased) decreased by 0 Calendar days

The date for completion of all work will be 8/1/14

APPROVALS

Contractor: [Signature] Cody Marsh GW Tatro

Construction Inspector: [Signature] Nathan Lague (Ruggiano Engineering)

Municipality: [Signature]

VTrans Project Manager: N/A

TOWN OF LOWELL

13522

Vendor: GWTAT G.W. TATRO CONSTRUCTION, INC.

Payment Date: 08/21/14
CHECK NO. 13522
AMOUNT PAID
71,501.86

INV DATE 08/21/14
INVOICE/REF. NO. CAP702L2
DESCRIPTION Mines Rd

REVIEWED
By Bob Melillo, FEMA PS at 5:04 pm, May 27, 2015

71,501.86
TOTAL GROSS

71,501.86
CHECK AMOUNT

13522

TOWN OF LOWELL
2170 VT RTE. 100
LOWELL, VERMONT 05847
(802) 744-6559

Community NATIONAL BANK
Troy, Vermont 05868
58-102-116

CHECK NO. 13522

Seventy-one thousand five hundred one & 86/100 ^{DATE}Dollars AMOUNT

08/21/14 *71,501.86

PAY TO THE ORDER OF

G.W. TATRO CONSTRUCTION, INC.
P.O. BOX 339
JEFFERSONVILLE VT 05464

 *Pamela J. Tatro*
AUTHORIZED SIGNATURE

Security features. Details on back.

⑈013522⑈ ⑈01601029⑈ 072697650⑈

REVIEWED

By Bob Melillo, FEMA PS at 5:00 pm, May 27, 2015

CONTRACTOR'S APPLICATION FOR PAYMENT

CAP702L

PAGE 1 OF 2 PAGES

TO: Town of Lowell
2170 VT-100
Lowell, VT 05847

PROJECT: 3105
BURGESS BRANCH CULVERT REPLACEMENT

Distribution to:
 Owner
 Architect
 Contractor
 Construction Mgr

FROM
CONTRACTOR: G. W. TATRO CONSTRUCTION, INC.
PO BOX 339
5195 VT RTTE 15
JEFFERSONVILLE, VT 05464

VIA ARCHITECT: RUGGIANO ENGINEERING
5 LAKE STREET
ST ALBANS, VT 05478

APPLICATION NO: 1
PERIOD TO: 6/27/2014
CONTRACT DATE: 6/02/2014
PROJECT NOS:

CONTRACT FOR: CULVERT REPLACEMENT

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment as shown below, in connection with the contract. Continuation Sheet, Document CAP703, is attached.

1. ORIGINAL CONTRACT SUM	\$	147,850.50
2. Net Change by Change Orders	\$	0.00
3. CONTRACT SUM TO DATE (Line 1 + 2)	\$	147,850.50
4. TOTAL COMPLETED & STORED TO DATE (Column G on CAP703)	\$	91,411.50
5. RETAINAGE:		
a. 0.00 % of Completed Work (Columns D + E on CAP703)	\$	0.00
b. 0.00 % of Stored Material (Column F on CAP703)	\$	0.00
Total Retainage (Line 5a + 5b or Total in column I of CAP703)	\$	0.00
6. TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)	\$	91,411.50
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)	\$	0.00
8. CURRENT PAYMENT DUE	\$	91,411.50
9. BALANCE TO FINISH, INCLUDING RETAINAGE (Line 3 less Line 6)	\$	56,439.00
10. TOTAL REQUESTED TO DATE	\$	91,411.50
11. PAYMENTS RECEIVED TO DATE	\$	0.00
12. CREDITS APPLIED TO DATE	\$	0.00
13. NET PAYMENT DUE	\$	91,411.50

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	0.00	0.00
Total approved this Month	0.00	0.00
TOTALS	0.00	0.00
NET CHANGES by Change Order		0.00

The Undersigned Contractor certifies that to the best of the Contractor's knowledge information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR: G. W. TATRO CONSTRUCTION, INC.

By: *[Signature]* Date: 6/25/2014

State of: VT

County of:

Subscribed and sworn to before

me this 25 day of June 2014

Notary Public: *[Signature]*

My Commission expires: 02/15

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED \$91,411.50

(Attach explanation if amount certified differs from the amount applied for. Initial all figures on this Application and on the Continuation Sheet that are changed to conform to the amount certified.)

ARCHITECT:

By: *[Signature]* Date: 6/25/14

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this contract.

CAP703 DETAIL PAGE(S)

TO:
Town of Lowell
2170 VT-100
Lowell, VT 05847

FROM:
G. W. TATHO CONSTRUCTION, INC.
PO BOX 339
5195 VT RTTE 15
JEFFERSONVILLE, VT 05464

PROJECT
3105

APPLICATION#:	1
APPLICATION DATE:	6/25/2014
PERIOD TO:	6/27/2014

CONTRACT DATE: 6/02/2014

ARCHITECTS PROJECT#:

A ITEM NO.	B DESCRIPTION OF WORK	C SCHEDULED VALUE	D WORK COMPLETED		F MATERIALS PRESENTLY STORED (NOT IN D OR E)	G TOTAL COMPLETED AND STORED TO DATE (D+E+F)		H BALANCE TO FINISH (C - G)	I RETAINAGE (IF VARIABLE RATE)
			FROM PREVIOUS APPLICATION (D + E)	THIS PERIOD		% (G / C)			
A-1	Site Prep/Demo/Excavation	22,700.00	0.00	22,700.00	0.00	22,700.00	100	0.00	0.00
A-2	Crushed Stone Under Culvert	2,291.25	0.00	0.00	0.00	0.00	0	2,291.25	0.00
A-3	Install Culvert and Headwalls	15,023.00	0.00	7,511.50	0.00	7,511.50	50	7,511.50	0.00
A-4	Type 2 Rip Rap inside Culvert	3,477.00	0.00	0.00	0.00	0.00	0	3,477.00	0.00
A-5	Type 3 Rip Rap	7,904.00	0.00	0.00	0.00	0.00	0	7,904.00	0.00
A-6	Bedding (Granular Fill)	12,656.25	0.00	0.00	0.00	0.00	0	12,656.25	0.00
A-7	Sand Cushion (6")	1,512.00	0.00	0.00	0.00	0.00	0	1,512.00	0.00
A-8	Gravel Subbase (18")	4,320.00	0.00	0.00	0.00	0.00	0	4,320.00	0.00
A-9	Pavement (3")	6,300.00	0.00	0.00	0.00	0.00	0	6,300.00	0.00
A-10	Guardrail and Terminal Ends	3,942.00	0.00	0.00	0.00	0.00	0	3,942.00	0.00
A-11	Finish Grade (4" Topsoil, S&M)	3,675.00	0.00	0.00	0.00	0.00	0	3,675.00	0.00
B-1	Purchase Box Culvert	60,000.00	0.00	60,000.00	0.00	60,000.00	100	0.00	0.00
C-1	Erosion Control	1,350.00	0.00	0.00	0.00	0.00	0	1,350.00	0.00
C-2	Traffic Control	1,000.00	0.00	0.00	0.00	0.00	0	1,000.00	0.00
C-3	Miscellaneous Materials	500.00	0.00	0.00	0.00	0.00	0	500.00	0.00
C-4	Contractor's Bond	1,200.00	0.00	1,200.00	0.00	1,200.00	100	0.00	0.00
		147,850.50	0.00	91,411.50	0.00	91,411.50	62	56,439.00	0.00

Vendor: GWTAT G.W. TATRO CONSTRUCTION, INC.

Payment Date: 07/07/14

CHECK NO. 13430

INV DATE
07/07/14

INVOICE/REF. NO.
CAP702L

DESCRIPTION
Mines Culvert #2

AMOUNT PAID
91,411.50

REVIEWED
By Bob Melillo, FEMA PS at 5:00 pm, May 27, 2015

91,411.50
TOTAL GROSS

91,411.50
CHECK AMOUNT

TOWN OF LOWELL
2170 VT RTE. 100
LOWELL, VERMONT 05847
(802) 744-6559


Community
NATIONAL BANK
Troy, Vermont 05868
58-102-116

CHECK NO. 13430

Ninety-one thousand four hundred eleven & 50/100 Dollars

DATE

AMOUNT

PAY
TO THE
ORDER
OF

07/07/14

*91,411.50

G.W. TATRO CONSTRUCTION, INC.
P.O. BOX 339
JEFFERSONVILLE VT 05464



Pamela J. Tatro
AUTHORIZED SIGNATURE

⑈013430⑈ ⑈011601029⑈ 0726976501⑈

Gray's Paving and Sealing, Inc.

426 Strawberry Acres Road
Newport, VT 05855
(802) 334-7260
(802) 334-8117 Fax

Invoice

Date	Invoice #
7/8/2014	P5907

Bill To
Town of Lowell 2170 Route 100 Lowell, VT. 05847

REVIEWED
By Bob Melillo, FEMA PS at 5:02 pm, May 27, 2015

		Project	
Description	Rate	Amount	
JOB: Town of Lowell, VT			
Shimed 652' x 22' at approx. 1" in depth, 95.09 ton 95.09 ton @ \$92.00 per ton	92.00	8,748.28	
This is your statement. Thank you! We appreciate your business.		Total	\$8,748.28

AFTER 30 DAYS, 2.5% INTEREST PER MONTH WILL BE ADDED. PROMPT PAYMENT REQUIRED.

TOWN OF LOWELL

13476

Vendor: GRAY'S GRAY'S PAVING AND SEALING, INC.

Payment Date: 07/28/14

CHECK NO. 13476

INV DATE
07/21/14

INVOICE/REF. NO.
P5907

DESCRIPTION
Paving Mines Rd Culvert

AMOUNT PAID
8,748.28

REVIEWED

By Bob Melillo, FEMA PS at 5:02 pm, May 27, 2015

8,748.28
TOTAL GROSS

8,748.28
CHECK AMOUNT

PRODUCT SSLM102 USE WITH 91500 ENVELOPE

Deluxe For Business 1-800-225-6380 or www.nebs.com

PRINTED IN U.S.A.

A



13217

TOWN OF LOWELL

Vendor: CHRON THE CHRONICLE, INC.

Payment Date: 04/10/14
CHECK NO. 13217

AMOUNT PAID
79.63

INV DATE
03/05/14

INVOICE/REF. NO.
3/5/14

DESCRIPTION
Culvert Bids

79.63
TOTAL GROSS

79.63
CHECK AMOUNT

PRODUCT SSLM102 USE WITH 91500 ENVELOPE

Deluxe For Business 1-800-225-6380 or www.nebs.com

PRINTED IN U.S.A.

DATE	CHARGES AND CREDITS		AMOUNT
03/05/14	6.5"	CULVERT BIDS	79.63
=====SUB TOTAL:			79.63
CURRENT ACTIVITY:			79.63
PRIOR BALANCE:			0.00
>>> TOTAL:			79.63
>>>TAKE \$ 3.98 OFF YOUR TOTAL IF PAID BY 04/11/14.			

THE CHRONICLE, INC

30-60 DAYS: 0.00 | 60-90 DAYS: 0.00 | OVER 90: 0.00

THANK YOU

PAY LAST AMOUNT
IN THIS COLUMN

Summary of Final Project Cost
FEMA

Invoice	Date Paid	Check Number	Amount
G.W. Tatro Construction	July 7, 2014	13430	\$ 91,411.50
G.W. Tatro Construction	August 21, 2014	13522	\$ 71,501.86
Total G.W. Tatro Construction			\$ 162,913.36
Gray's Paving and Sealing, Inc.	July 8, 2014	13476	\$ 8,748.28
Total Gray's Paving and Sealing, Inc.			\$ 8,748.28
The Chronicle		13217	\$ 79.63
Total The Chronicle			\$ 79.63
Ruggiano Engineering, Inc.	October 15, 2013	12769	\$ 3,449.80
Ruggiano Engineering, Inc.	October 15, 2013	12769	\$ 1,443.14
Ruggiano Engineering, Inc.	November 4, 2013	12846 (12843)	\$ 90.00 <i>see email</i>
Ruggiano Engineering, Inc.	February 13, 2014	13094	\$ 969.80
Ruggiano Engineering, Inc.	March 3, 2014	13123	\$ 732.34
Ruggiano Engineering, Inc.	March 17, 2014	13153	\$ 237.50
Ruggiano Engineering, Inc.	April 10, 2014	13213	\$ 1,137.27
Ruggiano Engineering, Inc.	April 24, 2014	13262	\$ 90.00
Ruggiano Engineering, Inc.	May 22, 2014	13313	\$ 288.00
Ruggiano Engineering, Inc.	May 22, 2014	13313	\$ 120.69
Ruggiano Engineering, Inc.	June 9, 2014	13353	\$ 345.00
Ruggiano Engineering, Inc.	June 2, 2014	13339	\$ 150.00
Ruggiano Engineering, Inc.	July 8, 2014	13422	\$ 105.00
Ruggiano Engineering, Inc.	July 28, 2014	13483	\$ 969.00
Ruggiano Engineering, Inc.	August 5, 2014	13497	\$ 57.00
Ruggiano Engineering, Inc.	August 21, 2014	13528	\$ 90.00
Total Ruggiano Engineering, Inc.			\$ 10,274.54
Total Paid			\$ 182,015.81

REVIEWED

By Bob Melillo, FEMA PS at 6:01 pm, May 27, 2015

Pentkowski, Ron

From: karen Clinger <kclinger@lowelltown.org>
Sent: Thursday, April 30, 2015 10:54 AM
To: Pentkowski, Ron
Subject: RE: DR4066 - Town of Lowell; Closeout Review for Project Worksheets- #27 (Mines Road Culvert)

Follow Up Flag: Follow up
Flag Status: Flagged

Ron,

I forgot to tell you that the check to Ruggiano Engineering, Inc. labeled "12846" was supposed to be "12843." *

Karen Clinger

Town Clerk
Town of Lowell
2170 VT RTE 100
Lowell, VT 05847

Phone: 802-744-6559
Fax: 802-744-2357
kclinger@lowelltown.org

Please note that this email message, along with any response or reply, is considered a public record, and thus, subject to disclosure under the Vermont Public Records Law ([1 V.S.A. §§ 315-320](#)).

Thank You.

From: Pentkowski, Ron [<mailto:Ron.Pentkowski@state.vt.us>]
Sent: Wednesday, April 29, 2015 10:30 AM
To: karen Clinger
Subject: RE: DR4066 - Town of Lowell; Closeout Review for Project Worksheets- #27 (Mines Road Culvert)

Karen - Yes, that's what I need. And a way to connect to the invoice.

I'll be in Wardsboro tomorrow for most of the day but I'm in my office all day Friday.

Thanks,
Ron

From: karen Clinger [<mailto:kclinger@lowelltown.org>]
Sent: Wednesday, April 29, 2015 10:27 AM
To: Pentkowski, Ron
Subject: RE: DR4066 - Town of Lowell; Closeout Review for Project Worksheets- #27 (Mines Road Culvert)

Ron,

Are copies of check stubs what you're looking for?

Karen Clinger

Town Clerk

Town of Lowell

2170 VT RTE 100

Lowell, VT 05847

Phone: 802-744-6559

Fax: 802-744-2357

kclinger@lowelltown.org

Please note that this email message, along with any response or reply, is considered a public record, and thus, subject to disclosure under the Vermont Public Records Law (1 V.S.A. §§ 315-320).

Thank You.

From: Pentkowski, Ron [<mailto:Ron.Pentkowski@state.vt.us>]

Sent: Monday, April 27, 2015 3:52 PM

To: karen Clinger

Subject: DR4066 - Town of Lowell; Closeout Review for Project Worksheets- #27 (Mines Road Culvert)

Karen,

I don't mean to add more items, but I was thinking we'd be ok with the attached summary. After a recent discussion with FEMA, I'd rather have copies of all checks - including copies of the checks listed on the table for Ruggiano Engineering totaling \$10,274.54:

Check #s

12769

12846 - should be 12843 *

13094

13123

13153

13262

13313

13353

13339

13422

13483

13497

13528

And the payment to the Chronicle – Check # 13217

Thanks again,



Ron Pentkowski

Public Assistance Coordinator

Vermont Department of Public Safety

Division of Emergency Management and Homeland Security

103 South Main St.

Waterbury, VT 05671-2101

ron.pentkowski@state.vt.us

direct: (802) 241-5366
cell: (802) 585-0142

No virus found in this message.

Checked by AVG - www.avg.com

Version: 2015.0.5863 / Virus Database: 4339/9656 - Release Date: 04/29/15

RUGGIANO Engineering, inc.

5 Lake Street
St. Albans, VT 05478
802-524-9300

Invoice

Date	Invoice #
4/5/2014	9268

Bill To
Town of Lowell Karen Clinger 2170 VT Rte 100 Lowell, VT 05847

Project #	Terms
13062	Due on receipt

Quantity	Description	Rate	Amount
	SERVICES PROVIDED 3/23/14 - 4/5/14		
0.5	Senior Engineer (Sam) - Review Design	112.00	56.00
7	Project Engineer II (Nathan) - Bid Comparison/Correspondence with Contractors re: Bids/Selectboard Meeting	60.00	420.00
1.5	CAD Technician/Field Technician (Dan) - Drafting: Revised Cross Section Detail, Add Wetlands, Impact Under High Water Mark Key Map	60.00	90.00
1.75	Administrative - Typing & Coordination: ACOE Application/Mailings/Reproductions/Scan, File Bids	37.00	64.75
104	Mileage	0.60	62.40
2	Prints Per Square Foot (24x36)	2.40	4.80
	Postage	1.82	1.82
35	Color Copies (8.5 x 11)	0.42	14.70
19	Copies	0.20	3.80
<p>CK # 13213</p>			
Thank you for your business. We appreciate your prompt payment.		Total	\$718.27

PLEASE PAY FROM THIS INVOICE. All unpaid balances over 30 days are subject to a finance charge of 1.5% per month.

RUGGIANO engineering, inc.

5 Lake Street
St. Albans, VT 05478
802-524-9300

Invoice

Date	Invoice #
3/22/2014	9246

Bill To
Town of Lowell Karen Clinger 2170 VT Rte 100 Lowell, VT 05847

Project #	Terms
13062	Due on receipt

Quantity	Description	Rate	Amount
	SERVICES PROVIDED 3/9/14 - 3/22/14 - CULVERT		
4	Project Manager (Tyler) - Coordination for Site Visit/Plan Submittals to Precast Manufacturers/Pre Bid Site Visit, Notice to Bidders	95.00	380.00
40	Mileage	0.60	24.00
0.25	CAD Technician/Field Technician (Dan) - Drafting: Revised Plan Detail, Create PDF	60.00	15.00
<i>CK# 13213</i>			
Thank you for your business. We appreciate your prompt payment.		Total	\$419.00

PLEASE PAY FROM THIS INVOICE. All unpaid balances over 30 days are subject to a finance charge of 1.5% per month.

RUGGIANO Engineering, inc.

5 Lake Street
St. Albans, VT 05478
802-524-9300

Invoice

Date	Invoice #
3/8/2014	9204

Bill To
Town of Lowell Karen Clinger 2170 VT Rte 100 Lowell, VT 05847

CR # 13153

Project #	Terms
13062	Due on receipt

Quantity	Description	Rate	Amount
2.5	SERVICES PROVIDED 2/23/14 - 3/8/14 - CULVERT Project Manager (Tyler) - Advertisement for Bids Announcement/Coordination with Contractors	95.00	237.50
Thank you for your business. We appreciate your prompt payment.		Total	\$237.50

PLEASE PAY FROM THIS INVOICE. All unpaid balances over 30 days are subject to a finance charge of 1.5% per month.

TOWN OF LOWELL

13094

Vendor: RUG RUGGIANO ENGINEERING, INC

Payment Date: 02/13/14
CHECK NO. 13094

INV DATE	INVOICE/REF. NO.	DESCRIPTION
02/13/14	9128	Mines #2

AMOUNT PAID
969.80

969.80
TOTAL GROSS

969.80
CHECK AMOUNT

PRODUCT 6SLM102 USE WITH 91500 ENVELOPE

Deluxe For Business 1-800-225-6380 or www.nebs.com

PRINTED IN U.S.A.

TOWN OF LOWELL

13123

Vendor: RUG RUGGIANO ENGINEERING, INC

Payment Date: 03/03/14
CHECK NO. 13123

INV DATE	INVOICE/REF. NO.	DESCRIPTION
02/22/14	9146	Engineer - Mines #2

AMOUNT PAID
732.34

732.34
TOTAL GROSS

732.34
CHECK AMOUNT

PRODUCT 6SLM102 USE WITH 91500 ENVELOPE

Deluxe For Business 1-800-225-6380 or www.nebs.com

PRINTED IN U.S.A.

RUGGIANO Engineering, inc.

5 Lake Street
St. Albans, VT 05478
802-524-9300

Invoice

Date	Invoice #
2/22/2014	9146

Bill To
Town of Lowell Karen Clinger 2170 VT Rte 100 Lowell, VT 05847

Project #	Terms
13062	Due on receipt

Quantity	Description	Rate	Amount
	SERVICES PROVIDED 2/9/14 - 2/22/14 - CULVERT		
6	Project Manager (Tyler) - Bid Documents, Material Quantities, Plan Revisions/Coordination with Chris Brunelle (State Stream Alterations)/Site Visit, State Army Corps Permit Application Submittal	95.00	570.00
0.75	CAD Technician/Field Technician (Jon) - Drafting: Plan Set Mark-Ups/Plots	60.00	45.00
68	Copies	0.20	13.60
5	Color Copies (8.5 x 11)	0.42	2.10
	Postage	3.64	3.64
40	Mileage	0.60	24.00
2	Administrative - Typing & Coordination: Army Corps Application, Stream Alterations/Reproductions/Mailings	37.00	74.00
<i>CK # 13123</i>			
Thank you for your business. We appreciate your prompt payment.		Total	\$732.34

PLEASE PAY FROM THIS INVOICE. All unpaid balances over 30 days are subject to a finance charge of 1.5% per month.

FUGGLIANO Engineering, inc.

5 Lake Street
St. Albans, VT 05478
802-524-9300

Invoice

Date	Invoice #
2/8/2014	9128

Bill To
Town of Lowell Karen Clinger 2170 VT Rte 100 Lowell, VT 05847

Project #	Terms
13062	Due on receipt

Quantity	Description	Rate	Amount
	SERVICES PROVIDED 1/26/14 - 2/8/14 - CULVERT		
7	Project Manager (Tyler) - Correspondence with VTrans, Site Plan Revisions, State Stream Alterations and ACOE Permit Application Documents	95.00	665.00
5	Project Engineer II (Nathan) - Drafting: Adjust Grading on East Side of Road, Add High Water Line and Revised All Details	60.00	300.00
2	Prints Per Square Foot (24x36)	2.40	4.80
<i>CK # 13094</i>			
The total on this invoice reflects our reduced municipal rate fees. Thank you for your business.		Total	\$969.80

PLEASE PAY FROM THIS INVOICE. All unpaid balances over 30 days are subject to a finance charge of 1.5% per month.

RUGGIANO Engineering, inc.

5 Lake Street
St. Albans, VT 05478
802-524-9300

CK # 12769

Invoice

Date	Invoice #
9/28/2013	8559

Bill To
Town of Lowell Karen Clinger 2170 VT Rte 100 Lowell, VT 05847

Project #	Terms
13062	Due on receipt

Quantity	Description	Rate	Amount
	SERVICES PROVIDED 9/15/13 - 9/28/13 - BURGESS BRANCH CULVERT		
1	Project Manager (Cliff) - Review Plan, Letter and Cost Estimate	90.00	90.00
13.5	Project Manager (Tyler) - Site Plan Revisions/Cost Estimate/Submittal to Town and VTrans	90.00	1,215.00
1.75	CAD Technician (Dan) - Drafting: Revisions/Plots	56.00	98.00
0.5	Administrative - Reproductions, Scans/Mailings to Town and VTrans	35.00	17.50
	Postage	3.44	3.44
8	Prints Per Square Foot (24x36)	2.40	19.20
<i>2nd Culvert FEMA</i>			
Thank you for your business. We appreciate your prompt payment.		Total	\$1,443.14

PLEASE PAY FROM THIS INVOICE. All unpaid balances over 30 days are subject to a finance charge of 1.5% per month.

RUGGIANO Engineering, inc.

5 Lake Street
St. Albans, VT 05478
802-524-9300

CK #13843
CK #12843

Invoice

Date	Invoice #
10/26/2013	8717

Bill To
Town of Lowell Karen Clinger 2170 VT Rte 100 Lowell, VT 05847

Project #	Terms
13062	Due on receipt

Quantity	Description	Rate	Amount
1	SERVICES PROVIDED 10/13/13 - 10/26/13 - BURGESS BRANCH Project Manager (Tyler) - Revised Cost Estimate to VTrans (FEMA)	90.00	90.00
Thank you for your business. We appreciate your prompt payment.		Total	\$90.00

PLEASE PAY FROM THIS INVOICE. All unpaid balances over 30 days are subject to a finance charge of 1.5% per month.

RUGGIANO Engineering, inc.

5 Lake Street
St. Albans, VT 05478
802-524-9300

CK #12769

Invoice

Date	Invoice #
9/14/2013	8462

Bill To
Town of Lowell Karen Clinger 2170 VT Rte 100 Lowell, VT 05847

Project #	Terms
13062	Due on receipt

Quantity	Description	Rate	Amount
	SERVICES PROVIDED THRU 9/14/13 - BURGESS BRANCH CULVERT		
7.5	Project Manager (Tyler) - Coordination with Button Surveyors/VTrans/Correspondence/Site Plan Layout and Design/Construction Cost Estimate	90.00	675.00
	BPLS - Topographic Survey	1,734.00	1,734.00
18.5	CAD Technician (Dan) - Drafting: Site Plan Drawings, Incorporate Survey, Add Culvert, Graded Wingwalls, Add Rip Rap Stone, Labels, Notes, Detail Sheet/Prints and PDFs	56.00	1,036.00
2	Prints Per Square Foot (24x36)	2.40	4.80
Thank you for your business. We appreciate your prompt payment.		Total	\$3,449.80

PLEASE PAY FROM THIS INVOICE. All unpaid balances over 30 days are subject to a finance charge of 1.5% per month.

TOWN OF LOWELL

12769

Vendor: RUG RUGGIANO ENGINEERING, INC

Payment Date: 10/15/13
CHECK NO. 12769

INV DATE	INVOICE/REF. NO.	DESCRIPTION	AMOUNT PAID
09/14/13	8427	Mines Road	351.00
09/14/13	8462	Burgess Branch	3,449.80
09/28/13	8559	Burgess Branch	1,443.14
09/28/13	8574	Mines Rd	249.00

5,492.94

TOTAL GROSS

5,492.94

CHECK AMOUNT

PRODUCT DLM102 USE WITH 91500 ENVELOPE

Deluxe For Business 1-800-225-6380 or www.nebs.com

PRINTED IN U.S.A.

TOWN OF LOWELL

12843

Vendor: RUG RUGGIANO ENGINEERING, INC

Payment Date: 11/04/13
CHECK NO. 12843

INV DATE	INVOICE/REF. NO.	DESCRIPTION	AMOUNT PAID
10/26/13	8703	Mines Culvert	406.50
10/26/13	8717	Burgess Branch	90.00

496.50

TOTAL GROSS

496.50

CHECK AMOUNT

PRODUCT DLM102 USE WITH 91500 ENVELOPE

Deluxe For Business 1-800-225-6380 or www.nebs.com

PRINTED IN U.S.A.

TOWN OF LOWELL

13153

Vendor: RUG RUGGIANO ENGINEERING, INC

Payment Date: 03/17/14
CHECK NO. 13153

INV DATE	INVOICE/REF. NO.	DESCRIPTION	AMOUNT PAID
03/02/14	9204	Mines Culvert	237.50

237.50
TOTAL GROSS

237.50
CHECK AMOUNT

PRODUCT SSLM102 USE WITH 91500 ENVELOPE

Deluxe For Business 1-800-225-6380 or www.nebs.com

PRINTED IN U.S.A.

A

TOWN OF LOWELL

13213

Vendor: RUG RUGGIANO ENGINEERING, INC

Payment Date: 04/10/14
CHECK NO. 13213

INV DATE	INVOICE/REF. NO.	DESCRIPTION	AMOUNT PAID
04/05/14	9246	Mines Culvert	419.00
04/05/14	9268	Mines Culvert	718.27

1,137.27
TOTAL GROSS

1,137.27
CHECK AMOUNT

PRODUCT SSLM102 USE WITH 91500 ENVELOPE

Deluxe For Business 1-800-225-6380 or www.nebs.com

PRINTED IN U.S.A.

A

RUGGIANO Engineering, inc.

5 Lake Street
St. Albans, VT 05478
802-524-9300

CK# 13062

Invoice

Date	Invoice #
4/19/2014	9340

Bill To
Town of Lowell Karen Clinger 2170 VT Rte 100 Lowell, VT 05847

Project #	Terms
13062	Due on receipt

Quantity	Description	Rate	Amount
1.5	SERVICES PROVIDED 4/6/14 - 4/19/14 - Project Engineer II (Nathan) - Correspondence with GW Tatro and Town/Meeting with Tatro to Sign Contract	60.00	90.00
Thank you for your business. We appreciate your prompt payment.		Total	\$90.00

PLEASE PAY FROM THIS INVOICE. All unpaid balances over 30 days are subject to a finance charge of 1.5% per month.

TOWN OF LOWELL

13262

Vendor: RUG RUGGIANO ENGINEERING, INC

Payment Date: 04/24/14
CHECK NO. 13262

INV DATE	INVOICE/REF. NO.	DESCRIPTION	AMOUNT PAID
04/19/14	9340	Engineer - Culvert 2	90.00

90.00

90.00

TOTAL GROSS

CHECK AMOUNT

PRODUCT SSLM102 USE WITH 91500 ENVELOPE

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TOWN OF LOWELL

13313

Vendor: RUG RUGGIANO ENGINEERING, INC

Payment Date: 05/22/14
CHECK NO. 13313

INV DATE	INVOICE/REF. NO.	DESCRIPTION	AMOUNT PAID
05/03/14	9387	Engineer	288.00
05/03/14	9388	Engineering	120.69

408.69

408.69

TOTAL GROSS

CHECK AMOUNT

PRODUCT SSLM102 USE WITH 91500 ENVELOPE

Deluxe For Business 1-800-225-6380 or www.nebs.com

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RUGGIANO Engineering, inc.

5 Lake Street
St. Albans, VT 05478
802-524-9300

Invoice

Date	Invoice #
5/3/2014	9387

Bill To
Town of Lowell Karen Clinger 2170 VT Rte 100 Lowell, VT 05847

CK #13313

Project #	Terms
13042	Due on receipt

Quantity	Description	Rate	Amount
	SERVICES PROVIDED 4/20/14 - 5/3/14 - CULVERT		
3.75	Project Engineer II (Nathan) - Prepare Materials for Site Visit/Meeting in Lowell with Matt Wheeler of SD Ireland re: Topsoil Slope Failure	60.00	225.00
105	Mileage	0.60	63.00

Thank you for your business. We appreciate your prompt payment.	Total	\$288.00
---	--------------	----------

PLEASE PAY FROM THIS INVOICE. All unpaid balances over 30 days are subject to a finance charge of 1.5% per month.

E-mail	Web Site
kim@shrugg.com	www.ruggianoengineering.com

RUGGIANO engineering, inc.

5 Lake Street
St. Albans, VT 05478
802-524-9300

Invoice

Date	Invoice #
5/3/2014	9388

Bill To
Town of Lowell Karen Clinger 2170 VT Rte 100 Lowell, VT 05847

CK # 13313

Project #	Terms
13062	Due on receipt

Quantity	Description	Rate	Amount
	SERVICES PROVIDED 4/20/14 - 5/3/14 - BURGESS BRANCH		
0.25	CAD Technician/Field Technician (Dan) - Drafting: Send PDF Plans to Mike Adams	60.00	15.00
1.75	Project Engineer II (Nathan) - Review Shop Drawings/Correspondence with GW Tatro and Camp Precast Postage	60.00	105.00
		0.69	0.69

Thank you for your business. We appreciate your prompt payment.	Total	\$120.69
---	--------------	----------

PLEASE PAY FROM THIS INVOICE. All unpaid balances over 30 days are subject to a finance charge of 1.5% per month.

E-mail	Web Site
kim@shrugg.com	www.ruggianoengineering.com

TOWN OF LOWELL

Vendor: RUG RUGGIANO ENGINEERING, INC

13339

Payment Date: 06/02/14
CHECK NO. 13339

INV DATE	INVOICE/REF. NO.	DESCRIPTION
05/17/14	9437	Mines Eng 2

AMOUNT PAID
150.00

150.00
TOTAL GROSS

150.00
CHECK AMOUNT

PRODUCT SSSL102 USE WITH 91500 ENVELOPE

Deluxe For Business 1-800-225-6380 or www.nebs.com

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TOWN OF LOWELL

Vendor: RUG RUGGIANO ENGINEERING, INC

13353

Payment Date: 06/09/14
CHECK NO. 13353

INV DATE	INVOICE/REF. NO.	DESCRIPTION
06/09/14	9534	Engineer #2

AMOUNT PAID
345.00

345.00
TOTAL GROSS

345.00
CHECK AMOUNT

PRODUCT SSSL102 USE WITH 91500 ENVELOPE

Deluxe For Business 1-800-225-6380 or www.nebs.com

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RUGGIANO Engineering, inc.

5 Lake Street
St. Albans, VT 05478
802-524-9300

Invoice

Date	Invoice #
5/17/2014	9437

Bill To
Town of Lowell Karen Clinger 2170 VT Rte 100 Lowell, VT 05847

CK # ~~1339~~
13339

Project #	Terms
13042	Due on receipt

Quantity	Description	Rate	Amount
	SERVICES PROVIDED 5/4/14 - 5/17/14 - CULVERT		
2	Project Engineer II (Nathan) - Correspondence with SD Ireland re: Final Requisition/Site Visit	60.00	120.00
50	Mileage	0.60	30.00
Thank you for your business. We appreciate your prompt payment.		Total	\$150.00

PLEASE PAY FROM THIS INVOICE. All unpaid balances over 30 days are subject to a finance charge of 1.5% per month.

E-mail	Web Site
kim@shrugg.com	www.ruggianoengineering.com

RUGGIANO Engineering, inc.

5 Lake Street
St. Albans, VT 05478
802-524-9300

Invoice

Date	Invoice #
6/7/2014	9534

CK# 13353

Bill To
Town of Lowell Karen Clinger 2170 VT Rte 100 Lowell, VT 05847

Project #	Terms
13062	Due on receipt

Quantity	Description	Rate	Amount
5.75	SERVICES PROVIDED 5/18/14 - 6/7/14 - BURGESS BRANCH Project Engineer II (Nathan) - Correspondence with GW Tatro re: Guardrail Over Box Culvert/Correspondence with Client, Town re: ACOE Permit/Correspondence with Button Surveyors	60.00	345.00
Thank you for your business. We appreciate your prompt payment.		Total	\$345.00

PLEASE PAY FROM THIS INVOICE. All unpaid balances over 30 days are subject to a finance charge of 1.5% per month.

E-mail	Web Site
kim@shrugg.com	www.ruggianoengineering.com

TOWN OF LOWELL

13422

Vendor: RUG RUGGIANO ENGINEERING, INC

Payment Date: 07/08/14
CHECK NO. 13422

INV DATE	INVOICE/REF. NO.	DESCRIPTION	AMOUNT PAID
07/07/14	9535	Engineer 1	129.00
07/07/14	9576	Engineer Mines # 2	105.00

234.00
TOTAL GROSS

234.00
CHECK AMOUNT

PRODUCT SSLM102 USE WITH 91500 ENVELOPE

Deluxe For Business 1-800-225-6380 or www.nebs.com

PRINTED IN U.S.A.

TOWN OF LOWELL

13483

Vendor: RUG RUGGIANO ENGINEERING, INC

Payment Date: 07/28/14
CHECK NO. 13483

INV DATE	INVOICE/REF. NO.	DESCRIPTION	AMOUNT PAID
07/21/14	9694	Mines Rd #2	969.00

969.00
TOTAL GROSS

969.00
CHECK AMOUNT

PRODUCT SSLM102 USE WITH 91500 ENVELOPE

Deluxe For Business 1-800-225-6380 or www.nebs.com

PRINTED IN U.S.A.

RUGGIANO Engineering, inc.

5 Lake Street
St. Albans, VT 05478
802-524-9300

Invoice

Date	Invoice #
6/21/2014	9576

Bill To
Town of Lowell Karen Clinger 2170 VT Rte 100 Lowell, VT 05847

CK#-13422

Project #	Terms
13062	Due on receipt

Quantity	Description	Rate	Amount
1.75	SERVICES PROVIDED 6/8/14 - 6/21/14 - BURGESS BRANCH Project Engineer II (Nathan) - Correspondence with Chris Brunelle and GW Tatro re: Construction Start Date	60.00	105.00
Thank you for your business. We appreciate your prompt payment.		Total	\$105.00

PLEASE PAY FROM THIS INVOICE. All unpaid balances over 30 days are subject to a finance charge of 1.5% per month.

E-mail	Web Site
kim@shrugg.com	www.ruggianoengineering.com

RUGGIANO Engineering, inc.

5 Lake Street
St. Albans, VT 05478
802-524-9300

CK # 13483

Invoice

Date	Invoice #
7/12/2014	9694

Bill To
Town of Lowell Karen Clinger 2170 VT Rte 100 Lowell, VT 05847

Project #	Terms
13062	Due on receipt

Quantity	Description	Rate	Amount
	SERVICES PROVIDED 6/22/14 - 7/12/14 - BURGESS BRANCH		
14	Project Engineer II (Nathan) - Review Quantities, Correspondence with Contractor re: Quantities, Site Visit to View New Culvert Being Set In Place, Correspondence with GW Tatro re: Progress, Site Visit to View Backfilling of Culvert, Site Visit with Cody Marsh	60.00	840.00
215	Mileage	0.60	129.00
Thank you for your business. We appreciate your prompt payment.		Total	\$969.00

PLEASE PAY FROM THIS INVOICE. All unpaid balances over 30 days are subject to a finance charge of 1.5% per month.

E-mail	Web Site
kim@shrugg.com	www.ruggianoengineering.com

TOWN OF LOWELL

13497

Vendor: RUG RUGGIANO ENGINEERING, INC

Payment Date: 08/05/14
CHECK NO. 13497

INV DATE	INVOICE/REF. NO.	DESCRIPTION	AMOUNT PAID
08/05/14	9766	Mines Culvert	57.00

57.00
TOTAL GROSS

57.00
CHECK AMOUNT

PRODUCT SSLM102 USE WITH 91500 ENVELOPE

Deluxe For Business 1-800-225-6380 or www.nebs.com

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A

TOWN OF LOWELL

13528

Vendor: RUG RUGGIANO ENGINEERING, INC

Payment Date: 08/21/14
CHECK NO. 13528

INV DATE	INVOICE/REF. NO.	DESCRIPTION	AMOUNT PAID
08/21/14	9843	Mines Rd #2	90.00

90.00
TOTAL GROSS

90.00
CHECK AMOUNT

PRODUCT SSLM102 USE WITH 91500 ENVELOPE

Deluxe For Business 1-800-225-6380 or www.nebs.com

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A

RUGGIANO Engineering, inc.

5 Lake Street
St. Albans, VT 05478
802-524-9300

Invoice

Date	Invoice #
7/26/2014	9766

Bill To
Town of Lowell Karen Clinger 2170 VT Rte 100 Lowell, VT 05847

CK#13497

Project #	Terms
13062	Due on receipt

Quantity	Description	Rate	Amount
	SERVICES PROVIDED 7/13/14 - 7/26/14 - BURGESS BRANCH		
0.75	Project Engineer II (Nathan) - Site Visit to View Erosion Control and Vegetation Establishment of GW Tatro Project/Correspondence with Contractor	60.00	45.00
20	Mileage	0.60	12.00
Thank you for your business. We appreciate your prompt payment.		Total	\$57.00

PLEASE PAY FROM THIS INVOICE. All unpaid balances over 30 days are subject to a finance charge of 1.5% per month.

E-mail	Web Site
kim@shrugg.com	www.ruggianoengineering.com

RUGGIANO Engineering, inc.

5 Lake Street
St. Albans, VT 05478
802-524-9300

Invoice

Date	Invoice #
8/16/2014	9843

Bill To
Town of Lowell Karen Clinger 2170 VT Rte 100 Lowell, VT 05847

CX # 13528

Project #	Terms
13062	Due on receipt

Quantity	Description	Rate	Amount
	SERVICES PROVIDED 7/27/14 - 8/16/14 - BURGESS BRANCH		
1.5	Project Engineer II (Nathan) - Correspondence with Contractor and Town re: Balancing Change Order and Final Payment Request	60.00	90.00

Thank you for your business. We appreciate your prompt payment.

Total

\$90.00

PLEASE PAY FROM THIS INVOICE. All unpaid balances over 30 days are subject to a finance charge of 1.5% per month.

E-mail	Web Site
kim@shrugg.com	www.ruggianoengineering.com

THE CHRONICLE, INC.

P.O. Box 660
BARTON, VT 05822

(802) 525-3531

STATEMENT

DATE
03/28/14

ACCOUNT NUMBER

AMOUNT LAST BILLED: 0.0
PAYMENTS RECEIVED: 0.0

LOWELL, TOWN OF
2170 VT RTE 100
LOWELL, VT 05847-9790

***TOTAL AMOUNT DUE: \$ 79.63

RETURN THIS PORTION WITH PAYMENT

AMOUNT
ENCLOSED \$

DATE	CHARGES AND CREDITS	AMOUNT
03/05/14	6.5" CULVERT BIDS	79.63
=====SUB TOTAL:		79.63
CURRENT ACTIVITY:		79.63
PRIOR BALANCE:		0.00
>>> TOTAL:		79.63
>>>TAKE \$ 3.98 OFF YOUR TOTAL IF PAID BY 04/11/14.		

THE CHRONICLE, INC

30-60 DAYS: 0.00 | 60-90 DAYS: 0.00 | OVER 90: 0.00

PAY LAST AMOUNT
IN THIS COLUMN

THANK YOU

Advertising

*Ret 4/10/14
CK #13217*

REVIEWED
By Bob Melillo, FEMA PS at 5:10 pm, May 27, 2015

REVIEWED

By Bob Melillo, FEMA PS at 6:02 pm, May 27, 2015

Town of Lowell
Burgess Branch Culvert Replacement
Mines Road, Lowell, Vermont

AGREEMENT

THIS AGREEMENT is dated as of the 11th day of April in the year 2014 by and between:

Town of Lowell (hereinafter called OWNER) and G.W. Tatro of Jeffersonville, Vermont, (hereinafter called CONTRACTOR).

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

Article 1. WORK.

CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: Burgess Branch Culvert Replacement project in Lowell, Vermont.

Article 2. ENGINEER.

The Project has been designed by Ruggiano Engineering, Inc., who is hereinafter called ENGINEER and will assume all duties and responsibilities and will have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the Work.

Article 3. CONTRACT TIME.

- 3.1 The Work will be substantially completed within 90 days after Notice to Proceed, and completed and ready for final payment within 120 days. Work schedule is to be agreed upon between the OWNER and CONTRACTOR.
- 3.2 Liquidated Damages. OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not substantially complete within the time specified in paragraph 3.1 above, plus any extensions thereof agreed upon between the OWNER and the CONTRACTOR. They also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by OWNER if the Work is not substantially complete on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as penalty) CONTRACTOR shall pay OWNER three hundred dollars (\$300) for each day that expires after the time specified in paragraph 3.1 for substantial completion until Work is substantially complete.

Article 4. CONTRACT PRICE

Refer to the Bid Form.

Town of Lowell
Burgess Branch Culvert Replacement
Mines Road, Lowell, Vermont

Article 5. MEASUREMENT AND PAYMENT

1. General

- 1.1 The following sections describe the method of MEASURE AND PAYMENT for work to be done under the corresponding items in the BID SCHEDULE.
- 1.2 Each lump sum item, and unit price item, as stated on the BID SCHEDULE, multiplied by the actual quantity, shall constitute full compensation for providing the materials, tools, equipment, labor, calibration and testing for each completed item of work as installed and accepted by the Owner.

2. Work Included in Items

- 2.1 The price for items which involve excavation shall be considered to include full compensation for the following as required:
 - i. Excavation of earth and shale, stripping, grubbing, clearing (unless it's a bid item),
 - ii. Disposal of surplus, demolition, or waste materials,
 - iii. Supply, placement, and compaction of bedding and envelope, select backfill, base, subbase, fill embankment and all other borrow materials, unless specifically described in another item.
 - iv. Handling of water,
 - v. Sheeting, bracing, and trench protection.
- 2.2 The Contractor may encounter surface and groundwater in excavations. Pricing shall include all dewatering operations. Additional compensation for such work, over and above the contract price, shall not be approved.

3. Payment for Testing

- 3.1 All testing and sample analysis required in the Specifications shall be the Contractor's responsibility, and costs shall be carried in the appropriate item.

4. Scope of Payment

- 4.1 Payments to Contractor will be made for the quantities of the contract items performed and accepted, less retained amount, in accordance with the Contract Documents.
- 4.2 Upon completion of construction, if these quantities show either an increase or decrease from the quantities given in the Bid, the contract unit prices will still apply, except as provided in the Contract documents.
- 4.3 Payment of any partial payment estimate or of any retained percentage, except by and under the approved final invoice, in no way shall affect the obligation of

Town of Lowell
Burgess Branch Culvert Replacement
Mines Road, Lowell, Vermont

Contractor to repair or renew any defective parts of the construction or to be responsible for all damage due to such defects.

5. Payment for Increased or Decreased Quantities

5.1 When changes in the quantities of work on unit priced items are ordered and performed, the Contractor shall accept payment in full at the contract unit price for the quantities of work done. No allowances will be made for anticipated profits for decreased quantities.

6. Eliminated Items

6.1 Should any items contained in the Bid Schedule be found unnecessary for the completion of the work contracted, Engineer may eliminate such items from the Contract. Such action shall in no way invalidate the contract, and no payment will be made for items so eliminated in making final payment to Contractor. No allowance will be made for anticipated profits for eliminated items.

7. Procedures

7.1 Unit Price Items:

- i. Contractor shall be paid for actual amount of work accepted, in accordance with this Section, during the period of construction less retained amount. In addition, where work is substantially complete, but lacks testing, disinfection, surface restoration, and/or clean-up, amounts may be retained from payment to amply cover the cost of such testing, disinfection, surface restoration, and/or clean-up. After the work is completed and before final payment is made, Engineer shall make final measurements to determine the quantities of the various items of work accepted as the basis for final payment. Contractor shall provide assistance to Engineer to make final measurements.
- ii. Payment for the work of the Unit Price Items shall be made at the Unit Prices stated in the Bid and appropriate to each Unit Price Item. No payments shall be made under these Unit Price Items for work performed by the Contractor to replace defective work, for work which is not shown or ordered, or for work which is outside the limits shown or ordered.
- iii. Unit Quantities on the BID SCHEDULE are understood to be approximate. Discrepancies in bid quantities between contractors will be considered for comparison of Bids. Actual quantities may vary.

7.2 Lump Sum Items:

- i. Contractor shall be paid in accordance with the accepted Progress Schedule and Schedule of Values on the basis of actual work accepted,

Town of Lowell
Burgess Branch Culvert Replacement
Mines Road, Lowell, Vermont

until the work item is completed. Upon completion of the item, 100% of the lump sum price shall be paid, less retained amount.

- iii. Payment for the work of the Lump Sum Price Items shall be made at the Lump Sum Price stated in the Bid Schedule and appropriate to each Lump Sum Item. Partial payments for each Lump Sum Item shall be based on the percentage of work completed. No payments shall be made under these Lump Sum Price Items for work performed by the Contractor to replace defective work, for work which is not shown or ordered, or for work which is outside the limits shown or ordered.

7.3 Weekly Quantity Review Meetings:

- i. Contractor's Superintendent or other authorized representative of the Contractor shall meet with Engineer's Representative to determine the quantities of unit price and/or lump sum price work accomplished and/or completed during the period.

7.4 The cut off date for inclusion of quantities shall be no less than ten (10) days before the monthly construction meeting. Contractor shall prepare a monthly Partial Payment Request based on the monthly quantities and submit one (1) copy to the Engineer's Representative for review. After the Engineer's Representative's review, the Contractor shall submit five (5) copies of his Partial Payment Request, which will be signed by the Engineer, Contractor, Owner and any applicable funding agencies.

8. **Partial Payments**

8.1 The Contractor's payment requests will be administered in accordance with the requirements of the General Conditions and the Agreement.

8.2 Partial payments shall be made monthly as the work progresses. All partial invoices and payments shall be subject to correction in Contractor's Final Pay Request.

8.3 No monthly payment may be made when, in the judgment of Engineer, work is not in accordance with the Contract Documents, or when in his judgment, the total value of the work performed since the last payment amounts to less than \$1,000.

8.4 Contractor shall submit updated record drawings ("as-builts") with each Partial Payment Request.

8.5 Engineer may refuse to recommend approval of the whole or any part of any payment, if in his opinion, it would be incorrect to make such representations to Owner. The Engineer may also refuse to recommend approval of any such payment, or, because of subsequently discovered evidence or the results of

Town of Lowell
Burgess Branch Culvert Replacement
Mines Road, Lowell, Vermont

subsequent inspections or tests, nullify any such payment previously approved, to such extent as may be necessary in his opinion to protect Owner from loss because:

- i. Of Contractor's failure to provide updated record drawings,
- ii. Work is defective, or completed work has been damaged requiring correction or replacement,
- iii. Claims or liens have been filed or there is reasonable cause to believe such may be filed,
- iv. Contract Price has been reduced because of modifications,
- v. Owner has been required to correct defective work or complete the work,
- vi. Of unsatisfactory execution of the work, including failure to furnish acceptable submittals, clean up, restore surfaces or repair damage, or
- vii. Failure of Contractor to make payments properly to subcontractors or for labor, materials or equipment.

9. Retainage

9.1 Retainage will be withheld from the Contractor's payment requests in accordance with the requirements of the General Conditions and the Agreement.

9.2 Upon Substantial Completion of the work, retainage not previously released may be released to the Contractor, subject to the punch-list requirements below:

- i. Amounts otherwise due to the Contractor upon Substantial Completion of the work shall be reduced by an amount equal to 200% of the cost of completing non-seasonal items and 100% of seasonal items, all as estimated by the Engineer.

10. Payment for Materials Delivered

10.1 When requested by the Contractor and at the discretion of the Owner, payment may be made for all or part of the value of acceptable, non-perishable materials and equipment which are to be incorporated in the work, have not been used and have been delivered to the construction site, or located in storage places acceptable to Owner. Prior to payment being made, Contractor shall submit to Engineer, copies of invoices as proof of the value of the material and/or equipment under consideration. Materials and equipment, when so paid for by Owner, shall become property of Owner, and in the event of default on the part of Contractor, Owner may use, or cause to be used, these materials and equipment in the construction of the work. Contractor shall be responsible for any damage to, or loss of, these materials and equipment.

10.2 Contractor's insurance shall cover stored materials.

Town of Lowell
Burgess Branch Culvert Replacement
Mines Road, Lowell, Vermont

10.3 No partial payment shall be made for fuels, supplies, false work, or other materials, or on temporary structures of any kind which are not a permanent part of the Contract.

11. Final Payment

11.1 After Work is 100% complete, Contractor shall submit a Final Pay Request to the Engineer for review. After review and acceptance by Engineer, the Final Pay Request will be submitted to Owner for payment. Owner will pay the entire amount due within thirty (30) days, after deducting all previous payments and, if applicable, Owner will also deduct the following:

- i. Liquidated damages.
- ii. Charges that are specified in the General Conditions and Special Conditions.

11.2 Contractor's obligation to perform the work and complete the project in accordance with the Contract Documents shall be absolute. Neither approval of any progress nor final payment by Engineer, nor the issuance of a certificate of Substantial Completion, nor any payment by Owner to Contractor under the Contract Documents, nor any use or occupancy of the project by Owner nor any failure to do so, nor any correction of defective work by Owner shall constitute an acceptance of work not in accordance with the Contract Documents.

12. Fixed Maximum Lump Sum Item Descriptions

The Owner does not guarantee that the Fixed Maximum Lump Sum Price reflects the actual value of the work involved. Such prices merely represent maximum fixed amounts which will be paid to the Contractor for the work involved. If, in the opinion of the Contractor, the Fixed Maximum Lump Sum Prices do not reflect the actual value of the work involved, lower prices may be written in the space provided in the Bid Sheets and the given Fixed Maximum Lump Sum Price for that specific item may be voided.

Town of Lowell
Burgess Branch Culvert Replacement
Mines Road, Lowell, Vermont

Article 6.

(Intentionally left blank.)

Article 7. CONTRACTOR'S REPRESENTATIONS

- 7.1 CONTRACTOR has familiarized himself with the nature and extent of the Contract Documents, Work, locality, and with all local conditions and federal, state, and local laws, ordinances, rules and regulations that in any manner may affect cost, progress or performance of the Work.

Article 8. CONTRACT DOCUMENTS.

The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR are attached to this Agreement, made a part hereof and consist of the following:

- 8.1 This Agreement (pages 1 to 9, inclusive).
- 8.2 Specifications bearing the title "Construction Specifications", as listed in Table of Contents thereof.
- 8.3 Drawings, consisting of 2 sheets by Ruggiano Engineering, Inc., as Project Number 13062, dated 09/23/13, latest revision. It shall be the Contractor's responsibility to keep a set of the most current drawings on the project site at all times during construction.
- 8.4 Any Modification, including Change Orders, duly delivered after execution of Agreement.
- 8.5 Addenda numbered and dated as follows:

Town of Lowell
Burgess Branch Culvert Replacement
Mines Road, Lowell, Vermont

8.6 Exhibits to this Agreement as follows:

- a) Notice to Proceed (to be issued after execution of this agreement)
- b) Contractors bid, dated 03/28/2014
- c) Documentation submitted by Contractor prior to Notice of Award
- d) Contractors Performance Bond, dated 4/11/14
- e) Notice of Award, dated 04/02/2012

Article 9. MISCELLANEOUS

9.1 OWNER and CONTRACTOR each binds himself, his partners, successors, assigns and legal representatives in respect to all covenants, agreements and obligations contained in the Contract Documents.

9.2 Arbitration

- 1. All claims, disputes, and other matters in question arising out of, or relating to, the Contract Documents or the breach thereof, except for claims which have been waived by the making and acceptance of final payment, shall be decided by arbitration in accordance with the Construction Industry Arbitration Rules (or other arbitration rules). This agreement to arbitrate shall be specifically enforceable under the prevailing arbitration law. The award rendered by the arbitrators shall be final, and judgment may be entered upon it in any court having jurisdiction thereof. Any award shall provide for payment within 30 days of the date of the award. The selection of the arbitrator shall be agreed upon by both parties.
- 2. Notice of the demand for arbitration shall be filed in writing with the other party to the CONTRACT DOCUMENTS. Demand for arbitration shall in no event be made on any claim, dispute or other matter in question which would be barred by the applicable statute of limitations.
- 3. The Contractor will carry on the work and maintain the progress schedule during any arbitration proceedings, unless otherwise mutually agreed in writing.

9.3 Hold Harmless. The Contractor agrees to defend, indemnify and hold the Owner harmless from any liability or claim for damage because of bodily injury, death, property damage, sickness, disease or loss and expense arising from the Contractor's negligence in the performance of the construction contract. Each Contractor and subcontractor is acting in the capacity of an independent Contractor with respect to the Owner. The Contractor further agrees to protect, defend and indemnify the Owner from any claims by laborers, subcontractors or material men for unpaid work or labor performed or materials supplied in connection with the Construction Contract.

Town of Lowell
Burgess Branch Culvert Replacement
Mines Road, Lowell, Vermont

9.4 Insurance. The Contractor shall carry and maintain, for the duration of the Contract, insurance in the following types and limits:

Comprehensive General Liability	\$1,000,000 each occurrence \$2,000,000 aggregate
Workers Compensation and Employers Liability	\$100,000 each accident \$100,000 disease, each employee \$500,000 disease, policy limit
Automobile Liability	\$1,000,000 each accident \$2,000,000 aggregate

The Town of Lowell shall be named as an additional insured party on the Certificate of Insurance.

Article 10. OTHER PROVISIONS

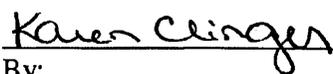
IN WITNESS WHEREOF, the parties hereto have signed this Agreement in triplicate. One counterpart each has been delivered to OWNER, ENGINEER and CONTRACTOR.

This Agreement will be effective on April 11th, 2014.

OWNER:
Town of Lowell

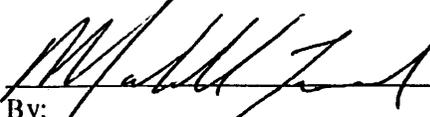

By: _____
(Duly authorized agent)

Attest:

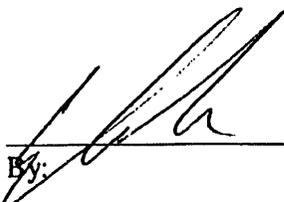

By: _____

Address for giving notices:
2100 VT Route 100
Lowell, VT 05847

CONTRACTOR: G.W. TATRO CONSTRUCTION

MARSHALL LEONARD PE

By: _____
(Duly authorized agent)

Attest:


By: _____ Cody Marsh

Address for giving notices:
PO Box 339
Jeffersonville, VT 05464

Ruggiano Engineering, Inc.
5 Lake Street
St. Albans, VT 05478

Project #:13062
August 2013

AGREEMENT FOR ENGINEERING SERVICES

1. Parties to this Agreement are **Town of Lowell**, hereinafter call the "Client" and having business at 2170 VT Route 100, Lowell, Vermont, and **Ruggiano Engineering, Inc.**, a Vermont corporation with a principal place of business at 5 Lake Street, St. Albans, Vermont, hereinafter called the "Engineer".
2. Client requests the professional services of Engineer to provide engineering services in connection with Client's project titled as: **Mines Road Culvert Replacement, Lowell, Vermont**, and described as follows: **survey, design, permitting, construction cost estimation, and construction bidding oversight of a replacement culvert on Mines Road, located at the Burgess Branch stream crossing approximately 0.42 miles north of Vag Road.**
3. Performance by the Engineer shall be in conformance with the laws of the State of Vermont as they apply to the practice of Professional Engineering, and in any event, consistent with ordinary standards and procedures of engineering prevalent in the State of Vermont.
4. Client agrees to pay the Engineer fees as listed in the Cost Proposal dated August 16, 2013, and attached to this Agreement.
5. Client agrees to the following terms and conditions of payment of the fees and costs:
 - i. Bi-weekly payments based on billings submitted by the Engineer.
 - ii. Payment in full of the balance upon receipt of final billing.
 - iii. Interest charges on the outstanding balance after thirty (30) days of one percent (1%) per month, which is equivalent to an annual interest rate of twelve percent (12%) on the unpaid balance.
 - iv. Client agrees to pay reasonable costs of collection, including attorney's fees, in the event that the Engineer's fees and costs, or outstanding balance thereof become overdue and collection proceedings are required against the Client.
6. Client and Engineer have discussed the risks and benefits of the project and the Engineer's total fees for services. The risks have been allocated such that the client agrees that, to the fullest extent permitted by law, Engineer's total liability to client for any and all injuries, claims, losses, expenses, damages, or expenses arising out of this agreement from any cause or causes shall not exceed the total amount invoiced, including but not limited to Engineer's negligence, errors, omissions, strict liability, breach of contract, and breach of warranty.
7. Unless otherwise stated, the Engineer will have access to the site for activities necessary for the performance of the services. The Engineer will take reasonable precautions to minimize damage due to these activities, but has not included in the fee the cost of restoration of damage to the site.
8. The Engineer and the Client mutually agree, to indemnify and hold each other harmless from any and all damage, liability or cost (including reasonable attorneys' fees and defense costs) to the extent caused by their own negligent acts, errors or omissions and those of anyone for whom they are legally liable, and arising from the project that is the subject of this agreement. Neither party is obligated to indemnify the other in any manner whatsoever for the other's own negligence.
9. If this project involves land use permitting, such as Site Plan Approval, Conditional Use Approval, Variances, Subdivision Approval, Act 250 Approval and other Federal, State and Local Approvals Engineer makes no representations that such approvals will be granted by the permitting authorities, or that such approvals, if granted, will be for any particular number of lots, size of buildings, or size of project, nor that such approvals, if granted, will be free of conditions that materially affect the financial liability of Owner's project. Engineer also makes no representations that all necessary permits and approvals have been identified in and are a part of this agreement.
10. This agreement may be terminated upon 10 days written notice by either party. In the event of termination, the Client shall pay the Engineer for all services rendered to the date of termination, all reimbursable expenses, and reasonable termination expenses.
11. All documents produced by Engineer under this agreement shall remain the property of the Engineer and may not be used by the Client for any other purpose without the Engineer's written consent.
12. Unless otherwise specified, this agreement shall be governed by the laws of the principal place of business of the Engineer.
13. Arbitration. The parties to this agreement shall not litigate conflicts or concerns about it, but shall resolve them first by sitting down and talking about them and, if that fails, by arbitration, according to the Vermont Arbitration Act. Each signatory below understands that this agreement contains an agreement to arbitrate. After signing this document, each party understands that it will not be able to bring a lawsuit concerning any dispute that may arise which is covered by the arbitration agreement, unless it involves a question of constitutional or civil rights. Instead, we agree to submit any such dispute to an impartial arbitrator, to be agreed upon by the parties.

Signed and dated at Town of Lowell, Vermont this 26 day of August, 2013.

In Presence Of:

Marc L'Esperance

RUGGIANO ENGINEERING, INC.:

By: [Signature]
Duly Authorized Agent

Date: 8/26/13

In Presence Of:

Karen Clingen

TOWN OF LOWELL:

By: [Signature]
Duly Authorized Agent

Date: 8/29/13

Ruggiano Engineering, Inc.
5 Lake Street
St. Albans, VT 05478

Project #:13062
August 2013

AGREEMENT FOR ENGINEERING SERVICES

1. Parties to this Agreement are Town of Lowell, hereinafter call the "Client" and having business at 2170 VT Route 100, Lowell, Vermont, and Ruggiano Engineering, Inc., a Vermont corporation with a principal place of business at 5 Lake Street, St. Albans, Vermont, hereinafter called the "Engineer".
2. Client requests the professional services of Engineer to provide engineering services in connection with Client's project titled as: **Mines Road Culvert Replacement, Lowell, Vermont, and described as follows: survey, design, permitting, construction cost estimation, and construction bidding oversight of a replacement culvert on Mines Road, located at the Burgess Branch stream crossing approximately 0.42 miles north of Vag Road.**
3. Performance by the Engineer shall be in conformance with the laws of the State of Vermont as they apply to the practice of Professional Engineering, and in any event, consistent with ordinary standards and procedures of engineering prevalent in the State of Vermont.
4. Client agrees to pay the Engineer fees as listed in the Cost Proposal dated August 16, 2013, and attached to this Agreement.
5. Client agrees to the following terms and conditions of payment of the fees and costs:
 - i. Bi-weekly payments based on billings submitted by the Engineer.
 - ii. Payment in full of the balance upon receipt of final billing.
 - iii. Interest charges on the outstanding balance after thirty (30) days of one percent (1%) per month, which is equivalent to an annual interest rate of twelve percent (12%) on the unpaid balance.
 - iv. Client agrees to pay reasonable costs of collection, including attorney's fees, in the event that the Engineer's fees and costs, or outstanding balance thereof become overdue and collection proceedings are required against the Client.
6. Client and Engineer have discussed the risks and benefits of the project and the Engineer's total fees for services. The risks have been allocated such that the client agrees that, to the fullest extent permitted by law, Engineer's total liability to client for any and all injuries, claims, losses, expenses, damages, or expenses arising out of this agreement from any cause or causes shall not exceed the total amount invoiced, including but not limited to Engineer's negligence, errors, omissions, strict liability, breach of contract, and breach of warranty.
7. Unless otherwise stated, the Engineer will have access to the site for activities necessary for the performance of the services. The Engineer will take reasonable precautions to minimize damage due to these activities, but has not included in the fee the cost of restoration of damage to the site.
8. The Engineer and the Client mutually agree, to indemnify and hold each other harmless from any and all damage, liability or cost (including reasonable attorneys' fees and defense costs) to the extent caused by their own negligent acts, errors or omissions and those of anyone for whom they are legally liable, and arising from the project that is the subject of this agreement. Neither party is obligated to indemnify the other in any manner whatsoever for the other's own negligence.
9. If this project involves land use permitting, such as Site Plan Approval, Conditional Use Approval, Variances, Subdivision Approval, Act 250 Approval and other Federal, State and Local Approvals Engineer makes no representations that such approvals will be granted by the permitting authorities, or that such approvals, if granted, will be for any particular number of lots, size of buildings, or size of project, nor that such approvals, if granted, will be free of conditions that materially affect the financial liability of Owner's project. Engineer also makes no representations that all necessary permits and approvals have been identified in and are a part of this agreement.
10. This agreement may be terminated upon 10 days written notice by either party. In the event of termination, the Client shall pay the Engineer for all services rendered to the date of termination, all reimbursable expenses, and reasonable termination expenses.
11. All documents produced by Engineer under this agreement shall remain the property of the Engineer and may not be used by the Client for any other purpose without the Engineer's written consent.
12. Unless otherwise specified, this agreement shall be governed by the laws of the principal place of business of the Engineer.
13. Arbitration. The parties to this agreement shall not litigate conflicts or concerns about it, but shall resolve them first by sitting down and talking about them and, if that fails, by arbitration, according to the Vermont Arbitration Act. Each signatory below understands that this agreement contains an agreement to arbitrate. After signing this document, each party understands that it will not be able to bring a lawsuit concerning any dispute that may arise which is covered by the arbitration agreement, unless it involves a question of constitutional or civil rights. Instead, we agree to submit any such dispute to an impartial arbitrator, to be agreed upon by the parties.

Signed and dated at Town of Lowell, Vermont this 20 day of August, 2013.

In Presence Of:
Maiz Espinoza

RUGGIANO ENGINEERING, INC.:

By: [Signature]
Duly Authorized Agent

Date: 8/26/13

In Presence Of:
Karen Clinger

TOWN OF LOWELL:

By: [Signature]
Duly Authorized Agent

Date: 8/29/13

REVIEWED

By Bob Melillo, FEMA PS at 6:03 pm, May 27, 2015

**Burgess Branch Culvert Replacement
Mines Road, Lowell, Vermont**

CONSTRUCTION SPECIFICATIONS

Prepared

February 2014

By

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As Project Number 13062

CONSTRUCTION SPECIFICATIONS
Table of Contents

DIVISION 1 – GENERAL REQUIREMENTS

01340	Submittals & Substitutions
01500	Temporary Facilities
01640	Product Handling
01700	Project Closeout
01710	Cleaning

DIVISION 2 – SITE WORK

02100	Excavation and Backfill
02110	Site Clearing
02211	Rough Grading
02220	Site Demolition
02231	Aggregate Base Course
02510	Asphaltic Concrete Paving
02936	Seeding
02990	Erosion Control

SECTION 01340 – SUBMITTALS AND SUBSTITUTIONS

PART 1 – GENERAL

DESCRIPTION

Work included: Make submittals required by the Contract documents and revise and resubmit as necessary to establish compliance with the specified requirements.

Related work:

Documents affecting work of this Section include, but not necessarily limited to, General Conditions and Sections in Division 1 of these Specifications.

Individual requirements for submittals also may be described in pertinent Sections of these Specifications.

Work not included:

Nonrequired submittals will not be reviewed by the Engineer.

The Contractor may require his subcontractors to provide drawings, setting diagrams and similar information to help coordinate the Work, but such data shall remain between the contractor and his subcontractors and will not be reviewed by the Engineer.

QUALITY ASSURANCE

Coordination of submittals:

Prior to each submittal, carefully review and coordinate all aspects of each item being submitted.

Verify that each item and the submittal for it conform in all respects with the specified requirements.

By affixing the Contractor's signature to each submittal, certify that this coordination has been performed.

Substitutions:

The Contract is based on the standards of quality established in the contract documents.

The following products do not require further approval except for interface within the Work.

Products specified by reference to standard specifications such as ASTM and similar standards.

Products specified by manufacturer's name and catalog model number.

Do not substitute materials, equipment or methods unless such substitution has been specifically approved in writing for this Work by the Engineer.

“Or equal”: Where the phrase “or equal”, “or equivalent” or “equal as approved by the Engineer” occurs in the Contract Documents, do not assume that the materials, equipment or methods will be approved as equal unless the item has been specifically so approved for this Work by the Engineer.

The decision of the Engineer shall be final.

SUBMITTALS

Make submittals of Shop Drawings, Samples, substitution requests and other items in accordance with the provisions of this Section.

PART 2 – PRODUCTS

SHOP DRAWINGS

Scale and measurements: Make Shop Drawings accurately to a scale sufficiently large to show all pertinent aspects of the item and its method of connection to the Work.

Numbers of prints required:

Submit 2 copies of Shop Drawings to be retained by the Engineer in addition to the number of copies to be returned to the contractor.

Review comments of the Engineer will be shown on at least one master copy when it is returned to the contractor. The Contractor may make and distribute such copies as are required for his purposes.

MANUFACTURERS’ LITERATURE

Where contents of submitted literature from manufacturers includes data not pertinent to the submittal, clearly show which portions of the contents are being submitted for review.

Submit the number of copies, which are required to be returned, plus two (2) copies which will be retained by the Engineer.

SAMPLES

Provide Sample or Samples identical to the precise article proposed to be provided. Identify as described under “Identification of Submittals” below.

Number of Samples required:

Unless otherwise specified, submit Samples in the quantity which is required to be returned, plus one (1) which will be retained by the Engineer.

By prearrangement in specific cases, a single Sample may be submitted for review and, when approved, be installed in the Work at a location agreed upon by the Engineer.

COLORS AND PATTERNS

Unless the precise color and pattern is specifically called out in the Contract Documents, and whenever a choice of color or pattern is available in the specified products, submit accurate color and pattern charts to the Engineer for selection.

PART 2 – EXECUTION

IDENTIFICATION OF SUBMITTALS

Consecutively number all submittals.

When material is resubmitted for any reason, transmit under a new letter or transmittal and with a new transmittal number.

On resubmittals, cite the original submittal number for reference.

Accompany each submittal with a letter or transmittal showing all information required for identification and checking.

On at least the first page of each submittal, and elsewhere as required for positive identification, show the submittal number in which the item was included.

Maintain an accurate submittal log for the duration of the Work, showing current status of all submittals at all times. Make the submittal log available to the Engineer for his review upon request.

GROUPING OF SUBMITTALS

Unless otherwise specified, make submittals in groups containing all associated items to assure that information is available for checking each item when it is received.

Partial submittals may be rejected as not complying with the provisions of the Contract. The Contractor may be held liable for delays so occasioned.

TIMING OF SUBMITTALS

Make submittals far enough in advance of scheduled dates for installation to provide time required for reviews, for securing necessary approvals, for possible revisions and resubmittals and for placing orders and securing delivery.

In scheduling, allow at least ten (10) working days for review by the engineer following his receipt of the submittal.

Burgess Branch Culvert Replacement
Lowell, Vermont

SUBMITTALS AND SUBSTITUTIONS 01340-4
Project #: 13062
February 2014

ENGINEER'S REVIEW

Review by the engineer does not relieve the contractor from responsibility for errors which may exist in the submitted data.

Revisions:

Make revisions required by the Engineer.

If the Contractor considers any required revision to be a change, he shall so notify the engineer as provided for in the General Conditions.

Make only those revisions directed or approved by the Engineer.

END OF SECTION 01340

SECTION 01500 – TEMPORARY FACILITIES

PART 1 – GENERAL

SECTION INCLUDES

Temporary Utilities: Electricity, telephone, water and sanitary facilities.

Temporary Controls: Barriers, protection of the Work.

Construction Facilities: Progress cleaning.

TEMPORARY SANITARY FACILITIES

Construction Manager shall provide sanitary facilities.

BARRIERS

Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.

Provide barricades required by governing authorities for public rights-of-way and for public access to site and existing residences.

PROTECTION OF INSTALLED WORK

Protect installed Work and provide special protection where specified in individual specification sections.

Provide temporary and removable protection for installed Products. Control activity in immediate work area to prevent damage.

PROGRESS CLEANING AND WASTE REMOVAL

Maintain areas free of waste materials, debris and rubbish. Maintain site in a clean and orderly condition.

Construction Manager shall provide a dumpster onsite and schedule removal as needed.

PART 2 – PRODUCTS

Not used

PART 3 – EXECUTION

Not used

END OF SECTION 01500

SECTION 01640 – PRODUCT HANDLING

PART 1 – GENERAL

DESCRIPTION

Work included: Protect products scheduled for use in the Work by means including, but not necessarily limited to, those described in this Section.

Related work:

Documents affecting work of this Section include, but not necessarily limited to, General Conditions, Supplementary Conditions and Sections in Division 1 of these Specifications.

Additional procedures also may be prescribed in other Sections of these Specifications.

QUALITY ASSURANCE

Include with the Contractor's quality assurance program such procedures as are required to assure full protection of work and material.

MANUFACTURER'S RECOMMENDATIONS

Except as otherwise approved by the Engineer, determine and comply with manufacturers' recommendations on product handling storage and protection.

PACKAGING

Deliver products to the job site in their manufacturer's original container, with labels intact and legible.

Maintain packaged materials with seals unbroken and labels intact until time of use.

Promptly remove damaged material and unsuitable items from the job site and promptly replace with material meeting the specified requirements at no additional cost to the Owner.

The Engineer may reject as non-complying, such material and products that do not bear identification satisfactory with the engineer as to manufacturer grade, quality and other pertinent information.

PROTECTION

Protect finished surfaces, including openings used as passageways, through which equipment and materials are handled.

Provide protection for finished surfaces in traffic areas prior to allowing equipment or materials to be moved over such surfaces.

Burgess Branch Culvert Replacement
Lowell, Vermont

PRODUCT HANDLING 01640-2
Project #: 13062
February 2014

REPAIRS AND REPLACEMENTS

In the event of damage, promptly make replacements and repairs to the approval of the Engineer and at no additional cost to the Owner.

Additional time required to secure replacements and to make repairs will not be considered by the Engineer to justify an extension in the Contract times of Completion.

END OF SECTION 01640

SECTION 01700 – PROJECT CLOSEOUT

PART 1 – GENERAL

RELATED DOCUMENTS

Drawings and General Provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

SUMMARY

This Section specifies administrative and procedural requirements for project closeout, including but not necessarily limited to:

- Substantial completion
- Final completion
- Final payment

Closeout requirements for specific construction activities are included in the appropriate Sections.

SUBSTANTIAL COMPLETION

Preliminary Procedure. Before requesting inspection for certification of Substantial Completion, complete the following:

In the Application for Payment that coincides with, or first follows, the date Substantial Documents Completion is claimed, show 100 percent completion for the portion of the Work claimed as substantially complete. Include supporting documentation for completion as indicated in the Contract and a statement showing an accounting of changes in the Contract Sum.

If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete items, the value of incomplete construction and reasons the Work is not complete.

Advise Owner of pending insurance changeover requirements.

Complete final clean up requirements, including touch-up painting. Touch-up and otherwise repair and restore material exposed finishes.

Inspection Procedure: On receipt of a request for inspection, the engineer will either proceed with inspection or advise the Contractor of unfilled requirements. The Engineer will prepare the Certificate of Substantial Completion following inspection, or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.

The Engineer will repeat inspection when requested and assured that the Work has been substantially completed.

Results of the completed inspection will form the basis of requirements for final acceptance.

FINAL ACCEPTANCE

Final Submittals:

Submit the final payment request in accordance with the procedures and requirements stated in the Contract Form with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.

Submit an updated final statement, accounting for final additional changes to the Contract Sum.

RECORD DOCUMENT SUBMITTALS

General: Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location, provide access to record documents for the Engineer's reference during normal working hours.

Record Drawings: Maintain a clean, undamaged set of blue or black line white prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately; where Shops Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.

Mark record sets with red erasable pencil; use other colors to distinguish between variations in separate categories of the Work.

Mark new information that is important to the Owner, but was not shown on contract Drawings or Shop Drawings.

Note related Change Order numbers where applicable.

Organize record drawing sheets into manageable sets, bind with durable paper cover sheets and print suitable titles, dates and other identification on the cover of each set.

Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record keeping and submittals in connection with actual performance of the Work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Engineer for the Owner's records.

PART 2 – PRODUCTS – Not Applicable

PART 3 – EXECUTION

CLOSEOUT PROCEDURES

Operating and Maintenance Instructions: Arrange for each installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and

maintenance. If installers are not experienced in procedures, provide instruction by manufacturer's representatives. Include a detailed review of the following items:

- Maintenance Manuals
- Record Documents
- Spare Parts and Materials
- Tools
- Lubricants
- Hazards
- Cleaning
- Warranties and Bonds
- Maintenance Agreements and Similar Continuing Commitments

FINAL CLEANING

General: General cleaning during construction is required by the General Conditions and included in Section 01710 – Cleaning.

Removal of Protection: Remove temporary protection and facilities installed for protection of the Work during construction.

Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful or dangerous materials into drainage systems or waterways. Remove waste materials from the site and dispose of in a lawful manner, at the least costly legal disposal site.

Where extra materials of value remaining after completion of associated Work have become the Owner's property, arrange for disposition of these materials as directed.

END OF SECTION 01700

SECTION 01710 – CLEANING

PART 1 – GENERAL

DESCRIPTION

Work included: Throughout the construction period, maintain the construction area in a standard of cleanliness as described in this Section.

Related work:

Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions and Sections in Division 1 of these Specifications.

In addition to standards described in this Section, comply with requirements for cleaning as described in pertinent other Sections of these Specifications.

QUALITY ASSURANCE

Conduct daily inspection, and more often if necessary, to verify that requirements for cleanliness are being met.

In addition to standards described in this Section, comply with pertinent requirements of governmental agencies having jurisdiction.

PART 2 – PRODUCTS

CLEANING MATERIALS AND EQUIPMENT

Provide required personnel, equipment and materials needed to maintain the specified standard of cleanliness.

COMPATIBILITY

Use only the cleaning materials and equipment that are compatible with the surface being cleaned, as recommended by the manufacturer of the material.

PART 3 – EXECUTION

PROGRESS CLEANING

General:

Retain stored items in an orderly arrangement allowing maximum access, not impeding traffic or drainage, and providing required protection of materials.

Do not allow accumulation of scrap, debris, waste material and other items not required for construction of this Work.

At least once per week, and more often if necessary, completely remove all scrap, debris and waste material from the job site.

Provide adequate storage for all items awaiting removal from the job site, observing requirements for fire protection and protection of the ecology.

Site:

Daily, and more often if necessary, inspect the site and pick up all scrap, debris and waste material. Remove such items to the place designated for their storage.

Weekly, and more often if necessary, inspect all arrangements of materials stored on the site. Restack, tidy or otherwise service arrangements to meet the general requirements above.

Maintain the site in a neat and orderly condition at all times.

Structures:

Weekly, and more often if necessary, inspect the structures and pick up all scrap, debris and waste material. Remove such items to the place designated for their storage.

“Clean” for the purpose of this subparagraph, shall be interpreted as meaning free from dust and other material capable of being removed by use of reasonable effort and a hand-held broom.

As required preparatory to installation of succeeding materials, clean the structures or pertinent portions thereof to the degree of cleanliness recommended by the manufacturer of the succeeding material, using equipment and materials required to achieve the necessary cleanliness.

FINAL CLEANING

Prior to completion of the Work, remove from the job site, all tools, surplus materials, equipment, scrap, debris and waste. Conduct final progress cleaning as described above.

Site:

Unless otherwise specifically directed by the Engineer, broom clean paved areas on the site and public paved areas adjacent to the site. Pick up blowing trash around site.

Completely remove resultant debris.

Structures:

Visually inspect exterior surfaces and remove all traces of soil, waste materials, smudges and other foreign matter, caused by this contract.

Remove all traces of splashed materials from adjacent surfaces.

Schedule final cleaning as approved by the Engineer to enable the Owner to accept a completely clean Work.

END OF SECTION 01710

SECTION 02100 - EXCAVATION AND BACKFILL

PART 1 – GENERAL

WORK INCLUDED

This Section shall include Section 02000 General Requirements.

EXTENT OF WORK

Obtain and pay for all required permits that pertain to the work specified, that have not been obtained and paid for by the Owner. Conduct construction operations to comply with all environmental and land use permit conditions applicable to the project.

Perform select demolition and clearing as shown. Remove trees, brush, stumps, debris and organic matter in the area of the site improvements and building construction from the project site. The Contractor assumes all responsibility for off-site disposal in a legal manner.

- i. Stumps may be ground into mulch and surface spread on-site.

Stockpile suitable topsoil where directed by the Owner for later reuse. Protect stockpiled topsoil from erosion.

- i. Remove topsoil, surplus to the landscaping requirement, from the project site. Screening of the topsoil for landscaping purposes is specified further under Division 2.

Perform mass earthwork to excavate and fill for subgrade in the area of the bridge structure, road and other site improvements. On-site cut materials may not be used as fill under structures or road.

Complete all rough grading as shown on the Drawings. Rough grades shall be the finish grades shown less the thickness of finish surface course materials and underlying processed granular base course materials.

Balance out mass excavation cuts and fills with on-site material in non-structural locations only. Coordinate with Owner and Engineer on selection of waste area or additional cut area as required to obtain the plan quantities.

- i. Dispose of surplus cut off site.
- ii. Dispose of unsuitable fill materials off site.

In areas where final site structures will be used to retain grades, such as wing walls, provide temporary 2:1 transition slopes centered on the site structure, unless shown otherwise.

Excavate and backfill for footings, foundations, and miscellaneous structures.
Excavate and backfill trenches for new utilities as required.

Excavate and backfill for miscellaneous site concrete as required.

Furnish and install gravel base and/or process stone base for gravel road.

Provide survey control for earth work and utilities.

Provide drainage and dewatering to keep construction areas and excavations free of water from any source without disturbance to the foundation soil strata.

Furnish and install all sheeting and shoring required for excavations to maintain safe working conditions and to comply with all municipal, state and federal regulations.

Furnish and install reinforcing bar dowels as shown on the drawings.

Coordinate with the Owner and testing laboratory to ensure that the testing, as required in this section, is being performed.

Provide and maintain sedimentation, erosion and dust control measures. Remove upon completion of the project, unless directed by the engineer to remain in place.

Place topsoil, seed and mulch to restore all disturbed areas where not paved or receiving rip-rap. This work is further defined in Division 2 of this Specification.

RELATED WORK IN OTHER SECTIONS

Section 02231 – Aggregate Base Course.

Section 02936 – Seeding.

Section 02990 –Erosion Control.

SHOP DRAWING SUBMITTALS

Furnish shop drawings on the following items:

- i. Modified standard proctor curves and gradation tests for appropriate materials obtained both on-site and off-site.
- ii. Test reports shall show the intended use of the material, i.e. “foundation backfill”, the gradation required in this Specification for that use and the source of the material.
- iii. The Contractor shall submit samples of all materials from all on-site and off-site sources to the testing laboratory at least ten (10) calendar days prior to use in the work. The Contractor shall not deliver or use any materials from off-site sources until written approval is received from the Engineer based upon test results showing compliance with these Specifications.

- iv. Geotextile fabric catalogue data.

EXAMINATION OF SITE

The Contractor must carefully examine the site and determine for himself all conditions affecting the work under this Section. The Contractor shall field survey to verify existing topography prior to start of work and shall notify the Engineering in writing of discrepancies. Failure to notify the Engineer of specific deficiencies prior to start of work shall constitute acceptance of the site.

BENCH MARKS AND MONUMENTS

Carefully maintain all bench marks, monuments and reference points; however, if they are disturbed or destroyed, they shall be replaced by the surveyor at this Contractor's expense.

UNSUITABLE SOIL

In the event that naturally occurring soft or yielding soils are encountered in the structure or pavement areas immediately notify the Owner and Engineer. Payment for unsuitable soil will be included in the unit price bid item for unsuitable soil. Such price shall include full compensation for the furnishing and placing of materials required to complete the replacement of unsuitable soil, including excavation and disposal of soft and yielding material, grading and compaction of the replacement granular or structural fill and for all labor, equipment tools and incidentals needed to complete the work in conformity with the Drawings and Specifications.

No measurement will be made except for unsuitable soil replacement required per Specifications in areas where disturbed natural soils are unstable in natural state. Soils which have been disturbed by the Contractor's construction operations or which have been exposed by excavation and subject to adverse weather conditions (rain, snow, etc.) without protection and are required to be removed and replaced with stabilizing granular or structural fill, shall not be measured nor the fill paid for by the Owner.

Stabilizing granular or structural fill required in areas where undisturbed natural soils are unstable in the natural state will be measured on a cubic yard basis in place after grading and compaction based on the authorized width, length and depth of the excavation at point of placement. The Contractor will keep daily records of use of such material. The Engineer or an authorized representative shall agree to quantities used at the end of each day by signing the Contractor's daily report. Daily records that do not bear the Engineer's or an authorized representative's signature will not be approved for payments, no exceptions.

PART 2 – PRODUCTS

FILL MATERIALS

Ordinary Fill: For general structural fill within the site improvement areas. Satisfactory materials from final native subgrade elevations to a depth of one foot (1') below utility inverts and in the top one (1') foot below final pavement subgrade elevations shall be free of rock or gravel larger than six (6") inches in any dimension. Satisfactory materials placed below these elevations within pavement areas shall have minimum rock or gravel particles in accordance with the Standard Road and Bridge Specifications, unless

placed along new utility routes where no rock or gravel particles should exceed six (6") inches in any dimension. Ordinary fill shall be free of all trash, alkali, salt petroleum products, ice, snow, organic materials, tree stumps and roots.

Granular Fill: For use as structural fill within the bridge footprint and under site structures, foundation backfill, subbase and trench backfill shall consist of hard durable sand and gravel, be free from ice and snow, cinders, alkali, salt, petroleum products, roots, sods, rubbish and other deleterious or organic matter. Excavated material from on-site sources which meets the following gradation may be used.

<u>US SIEVE NO.</u>	<u>PERCENT PASSING BY WEIGHT</u>
3 ½"	100
1 ½"	55-100
¾"	25-60
#10	15-45
#40	5-25
#100	0-10
#200	0-5

Sand: Shall be clean, free of all deleterious or organic matter conforming to ASTM C33 and meet the gradation requirements of the 2011 VTrans Standard Specification Section 703.03A.

Process Gravel/Crushed Aggregate Base Course: See Section 02231 of these Specifications.

Crushed Stone: For pipe and structure bedding where shown or specified, use crushed stone compliant with 2011 VTrans Standard Specification 704.02B.

Crushed Stone: For filter stone to be used under riprap banks stone shall be ASTM C33, Size No. 467.

<u>US SIEVE NO.</u>	<u>PERCENT PASSING BY WEIGHT</u>
2"	100
1 ½"	95-100
¾"	35-70
½"	10-30
#40	0-5

Riprap: Shall be sound, dense, durable and angular field or quarry stone, blast rock or crushed gravel, free of loam, silt, clay, organic materials and defects such as seams or cracks, impairing durability. Broken concrete and rounded stones are not acceptable. Finished slope shall not vary by more than three (3") inches from specified grades and shall present an even, tight surface. Gradations shall conform to Section 706.04 of the 2011 VTrans Standard Specifications, Type II and Type III, as per the plans.

GEOTEXTILE FABRIC

Geotextile fabric for reinforcement and ground stabilization under road subbase shall be Mirafi 500x or approved equivalent woven fabric.

Geotextile fabric for wrapping underdrains, use under riprap or stone blankets or as a separation fabric under crushed or process base courses where shown in the Plan shall be Mirafi 140N or approved equivalent non-woven fabric.

PART 3 – EXECUTION

DISPOSAL OF UNSUITABLE MATERIAL

All trees, brush, fencing, stumps, debris, concrete debris, asphalt pavement and all unsuitable fill excess to the needs of the project shall be removed from the site.

The Contractor assumes all liability for the legal disposal of materials off site.

SITE MASS EXCAVATION

Clearing and Grubbing: The areas within the limits of work shall be cleared of all trees, stumps, roots, brush and other vegetation and debris.

- i. Remove stumps from the project site or grind into mulch and surface spread on site in approved areas only.
- ii. Protect trees to be relocated or to remain.

Stripping: Completely strip all areas to remove topsoil in the area of site improvements including all areas of cut and fill operations.

- i. All superficial materials unsuitable for use as ordinary fill shall be classified as unsuitable and be disposed of off site by the Contractor.
- ii. Topsoil shall be stockpiled at an area designated on the plans or by the Owner.

Excavation:

- i. In all areas to be cut, excavate to the rough grades required. Remove all materials from areas which can be removed by conventional excavation methods.
- ii. All materials encountered during excavation that meet the requirements for ordinary fill may be reused on site as ordinary fill.
- iii. All materials encountered during excavation which do not meet the requirements for ordinary fill shall be classified as unsuitable and be disposed of off site.

Separation of Subgrade: Scarify the exposed surface to a depth of six (6") inches, achieve adequate moisture content and compact to the requirements specified. Remove all soft and yielding material and replace as specified for "PLACING OF FILL AND BACKFILLING". Remove all nuts, hummocks and other uneven surfaces by surface grading prior to placement of fill. Compact existing subgrade with four passes of a large, heavy 10-ton vibrating drum or sheep's foot roller to obtain the same density as required for superimposed layers of fill.

Prior to initiating any work the Contractor shall verify the location of all existing underground utilities. Any existing utilities which are damaged as a result of a contractor's operations shall be repaired at no additional cost to the Owner.

Evacuation of Unsuitable Materials: When excavation has reached required subgrade elevations, notify Engineer who will make an inspection of conditions.

STRUCTURE, TRENCH AND UTILITY EXCAVATION

Excavate footings to the lines and grades shown on the Drawings and as required to accommodate form work. The bottom of all footing excavations shall be graded and compacted/recompacted to at least 95% of the maximum dry density based on the standard Proctor Method. All unsuitable, soft and yielding material shall be removed and placed as specified. The Contractor shall not excavate more trench footings than can be formed and poured the same day, unless otherwise instructed.

Trenches for other work shall be adequate in size to build forms if for concrete work, and adequate for making pipe and conduit joints if for mechanical and electrical work, as determined in conjunction with the contractors for that work. In general, provide 12" clearance around all new utility work.

All excavations shall be made in conformance with all local and federal regulations. Excavation protection measures shall be installed where required in accordance with local regulations and VOSHA standards. The Engineer and Owner assume no responsibility for excavation design or safety.

No excavations shall be made for footings or utilities when freezing temperatures may be expected, unless the area to be excavated can be protected from freezing. Should protection fail, all frozen material at the bottom of said excavation shall be removed and replaced with concrete or compacted granular fill, as directed by the Engineer, at no cost to the Owner.

Prior to initiating any work, the Contractor shall verify the location of all existing underground utilities which may be encountered during excavation for new utilities. Any existing utilities damaged as a result of the Contractor's operations shall be repaired at no cost to the Owner.

Excavation of Unsuitable Materials: When excavation has reached required subgrade elevations, notify Engineer who will make an inspection of conditions. If unsuitable bearing materials are encountered at required subgrade elevations, carry excavation deeper as directed by the Engineer. As unsuitable materials are excavated under foundations, the width of the excavation shall be increased by one foot for each foot of depth. Replace excavated material with granular fill, crushed stone or approved on-site material.

DEWATERING

General: Perform all work in the dry. Prevent surface water and subsurface water from entering excavation, fill operations and trenches.

- i. Do not place, spread or roll fill material during unfavorable weather conditions. Do not resume operations until moisture content and fill density are satisfactory to the Engineer.
- ii. Provide berms or channels to prevent flooding of subgrade. Promptly remove all water collection in depressions. All areas shall be free of surface water during placement of fill.
- iii. Where soils has been softened or eroded remove all damaged areas and recompact as specified for "PLACING OF FILL AND BACKFILLING".
- iv. Provide and maintain at all times during the construction, ample means and devices with which to promptly remove and dispose of all water from every source entering the excavations or other parts of the work. Dewater by means which will ensure dry excavations and the preservation of the final lines and grades at the bottom of excavations. Dewatering discharges shall be discharged in a manner which does not cause downstream erosion or sedimentation.
- v. Use stone check dams, silt fence and other temporary measures as required to prevent erosion. See Section 02990.

LEDGE/BOULDER EXCAVATION

If boulders over 3 cy are encountered during excavation that cannot be removed by conventional excavation methods, then additional compensation shall be allowed. Payment shall be made on a unit price per cubic yard.

- i. Boulders shall be set aside, measured and numbered by the Contractor. The quantity of boulders shall be witnessed and signed for by a site representative authorized by the Owner or Engineer.
- ii. The boulders shall then be removed off site or disposed of at an approved on-site location by the Contractor after verification of size and quantity by the Engineer.

If ledge is encountered in trench excavation or in the open, the Contractor shall expose the ledge and perform topographic survey prior to ripping, drilling, chipping or blasting. Rippable rock shall be ripped by suitable equipment in lieu of drilling and blasting. Payment shall be made on a cubic yard basis.

- i. Payment lines for trenches shall be the width of the pipe diameter plus 2.0 ft and the pipe invert less 0.5 ft.
- ii. Payment lines for utility structures shall be the plan dimension of the structure plus 2.0 ft and the invert elevation less 1.0 ft.

- iii. Payment lines for structure area ledge removal shall be 2.0 ft below the bottom of slabs and 1.0 ft below the bottom of footings by the width of the footing plus 2.0 ft.
- iv. Remove ledge to 6" below bottom of subbase material in lawn areas.
- v. Payment lines at slope cut areas shall start at the bottom of the ditch line and maximum rock side slopes shall be six units vertical to one unit horizontal.

Unit prices shall include replacement of any ledge or boulder with compacted ordinary fill. Additional compensation for over-excavation and replacement of ledge and boulders outside the payment lines will not be allowed.

Prior to blasting, the Contractor shall submit a blasting plan for review. Accordingly, such plan shall explain the proposed sequence of operations in compliance with State and Federal regulations. The blasting plan shall be developed specifically for the project's conditions cited herein and the Blasting Contractor's inspection of the site.

Blasting shall not create vibrations in excess of 2.0 inches per second peak particle velocity at any adjacent structure. If vibrations exceed this limit, all blasting activity should cease until blast design is revised.

All blasts shall be monitored with a three component seismograph. Proper geophone coupling shall be ensured by following the manufacturer's recommendations. A record shall be kept of each blast.

Blasting with the overburden in place may preclude the need for blasting mats. However, it is the responsibility of the Contractor to ensure that no fly rock is generated as a result of blasting operations.

The Contractor shall properly insure the project for any and all claims regarding damage caused by blasting.

If blast rock is to be used as fill under sloped areas or paved areas then the rock augmentation shall be controlled such that 90% of the rock is 9 cubic feet or smaller.

- i. No blast rock at the lower sections of deep fills shall have a face dimension in excess of 30" if used under slope areas.
- ii. Blast rock used within the upper 36" of any subgrade shall not have a face dimension in excess of 12".
- iii. Individual rock fill lifts shall be no deeper than 36". Choke off the top of each rock fill lift with a 12" lift of filter stone compacted with a 10 ton vibratory compactor.
- iv. No additional compensation shall be allowed for rework of excavated blast rock to conform to this requirement for acceptable size of rock fill. The Contractor shall adjust the drill and blast technique to produce the size of rock specified or rework the excavated rock to adjust the size, all at no additional compensation.

Boulders may not be used below road unless reworked to conform to the requirements above.

Boulders and blast rock shall be removed off site or reused on site at an approved location under slope areas. On site burial shall not conflict with utility locations or other sections of this Specification.

PLACING OF FILL AND BACKFILLING

General: Place acceptable soil material in layers to required finish or subgrade elevations. Fill, backfill and compact to produce minimum subsequent settlement of the material and provide adequate support for the surface treatment of structure to be placed on the material. Place material in approximately horizontal layers beginning at lowest area to be filled. Do not impair drainage.

- i. All material to be placed where Drawings or Specifications call for "fill" or "rough-grading" may be ordinary fill. All materials to be placed in controlled compacted fills directly under road and other soil-bearing situations shall be processed gravel or crushed stone base course as specified. On-site fill materials may be used under the road as mass earthworks provided that the material is dried/wetted to obtain optimum moisture and compacted by suitable compaction equipment to obtain the specified compaction.
- ii. Provide and place any additional fill material from off the site as may be necessary to produce the grades required. Fill obtained from off-site shall be of kind and quality as specified for fills herein and the source approved by the Engineer prior to delivery of that material to the site.
- iii. If the subgrade below the bottom of the footings is over-excavated due to soft materials, ledge removal or boulder removal, then crushed stone shall be used to restore the subgrade to proper elevation. The cost of the material shall be included in the unit prices quoted for the removal of the unsuitable material, ledge or boulders, additional compensation will not be allowed for providing and placing this material.

Ground Surface Preparation: Remove vegetation, debris, unsatisfactory soil materials, obstructions and deleterious materials from ground surface prior to placement of fills. Scarify surfaces so that fill material will bond with existing surface.

- i. The surface of the natural soil before fill is placed shall be at no less than the same density required for superimposed layers of fill. Compact the natural soil if necessary to fulfill the requirement.

Placement: Place backfill and fill materials in layers not more than 12" in loose depth for material compacted by heavy compaction equipment and not more than 6" in loose depth for material compacted by hand-operated tampers.

- i. Each fill layer shall be spread evenly at right angles to previous layer and shall be thoroughly blade-mixed during spreading to ensure uniformity of material in each layer. Water or aerate if required to obtain proper optimum moisture content.

- ii. Place backfill materials evenly adjacent to structures to required elevations. Take care to prevent wedging action of backfill against structures by carrying material uniformly around structure to approximately the same elevation in each lift.
- iii. Do not allow heavy machinery within 5 feet of structure during backfilling and compacting.
- iv. Fill shall not be placed over frozen material. Placement of fill shall be suspended during unfavorable weather conditions and not resume until the moisture content of previously placed material is restored to the required specifications.

Backfilling of Foundations: Backfilling of foundations shall not commence for at least 3 days after concrete has been placed, unless otherwise approved by the Engineer.

- i. The Contractor shall ensure that all form materials and trash have been removed from the excavation and that the walls are adequately braced prior to backfilling.
- ii. If fill is required on both sides of the wall it shall be brought up simultaneously and evenly on both sides. Avoid damage to the walls and other work in place.
- iii. Backfill within 18" of the face of abutments and wing walls shall be granular fill.

Backfill of Utility Trenches: Do not commence backfilling operations until all piping, conduit, etc. has been installed, tested and approved and the locations of all pipe and appurtenances have been recorded.

- i. Backfill carefully by hand by compacting/tamping around pipe to 6" above the pipe crown using the specified bedding material.
- ii. Electrical conduit, cast iron soil drain and waste pipe, reinforced concrete and ductile iron pipe shall be bedded in sand.
- iii. Plastic pipe shall be bedded in crushed stone specified for pipe bedding.
- iv. Remaining trench backfill above bedding material shall be sand or ordinary fill in lawn or slope areas and sand or granular fill under road.

SOIL COMPACTION

Compaction shall be accomplished by vibratory steel drum rollers, sheep's foot roller, pneumatic-tired roller or other approved equipment well suited for the soil being compacted. Material shall be moistened or aerated as necessary to provide the optimum moisture content that will readily facilitate obtaining the specified compaction.

Degree of Compaction: Compact to the following minimum densities:

Fill and Backfill Location

Density

Under structures	95% of max.
Top 2 feet under road subgrade, including trenches	95% of max.
Below top 2 feet under road subgrade, including trenches	92% of max.
Trenches through unpaved areas	90% of max.
Embankments and lawn areas	90% of max.
Pipe bedding	92% of max.

Laboratory density shall be determined as follows:

- i. Cohesive materials: Modified Proctor Compaction Test, ASTM D1557, Method C & D.
- ii. Cohesionless material: ASTM D4253 and D4254.

Field density tests: ASTM D1556 (sand cover) or ASTM D2922 (nuclear methods), or ASTM D2167 (rubber balloon).

Hydraulic jetting of fills will not be permitted for densification of cohesionless material.

Where tests indicate that fill does not conform to the compact density specified, the fill and underlying subgrade, if necessary, shall be removed and replaced with conforming materials, at no expense to the Owner.

GRADING

General:

- i. Uniformly grade the areas within the limits of grading under this Section, including adjacent transition areas.
- ii. Smooth the finished surfaces within specified tolerance.
- iii. Compact with uniform levels or slopes between points where elevations are shown on the Drawings, or between such points and existing grades.
- iv. Where a change of slope is indicated on the Drawings, construct a rolled transition section having a minimum radius of approximately 8'-0", unless adjacent construction will not permit such a transition, or if such a transition defeats positive control of drainage.

Grading outside structures:

- i. Grade areas adjacent to structures to achieve drainage away from the structures and to prevent ponding.
- ii. Finish the surfaces to be free from irregular surface changes, and:

1. Shape the surface of areas scheduled to be under seeded areas to line, grade and cross-section with finished surface not more than 0.20 ft above the required subgrade elevation.
2. Shape the surface of areas scheduled to be under pavement to line, grade and cross-section with finished surface not more than 0.05 feet above or below the required subgrade elevation.

If during the progress of rough grading work, any water pipe, sewer, conduit, drain or other construction is damaged as a result of operations under this contract, the Contractor shall repair all such damage and restore work to the original conditions at no cost to the Owner.

Perform other cutting, filling and rough grading to the lines and grades indicated on the Drawings. Grade evenly to the finished grades shown on the Drawings.

Graded areas should be protected from action of elements. Repair any settlement or washing and reestablish grades until the work is accepted. Provide erosion control measures to prevent contamination of surface runoff.

ROAD BASE COURSE

Place base course material on the prepared and accepted subgrade. The material shall be back-dumped and spread in a uniform lift thickness. This Section applies to the layer(s) of processed material(s) directly beneath finish materials.

Protect against "pumping" moisture to surface by limiting travel on exposed subgrade. Where it is determined by the Engineer that construction vehicle traffic (other than proof rolling) has caused subgrade instability, remove disturbed soils and replace with granular fill at no additional cost to the Owner.

Handle and spread materials in a manner that will prevent segregation of sizes. When vibrating or other acceptable types of compaction equipment are used, the entire course may be placed in one lift, provided the ability of the equipment to achieve specified compaction to the full lift depth is demonstrated. In no case shall compacted lift thickness be greater than 8".

When base course is constructed in more than one lift, the previously placed layer shall be clean of loose and foreign matter. Upper lift of base course shall not be less than 1 1/2" deep, nor shall fine materials be added to reach final grade.

Overstressing the surged soil and base course shall be avoided by utilizing equipment in spreading and dumping that exerts only moderate pressures on the soil. Avoid excessive travel on lower base course lifts. Severe rutting, cracking or yielding is an indication of overstressing the soil. Any ruts or cracks which develop in the base course during spreading or compacting shall be repaired as directed at no additional cost to the Owner.

Base course shall be compacted to no less than 95% maximum modified proctor density, as determined by ASTM 1557. Moisture content shall be maintained to within 1.5% of optimum throughout placing and compaction operations.

- i. Compaction shall always be commenced along the edge of the area to be compacted and the roller shall gradually advance toward the center of the area to be compacted.
- ii. Compaction equipment shall be operated along lines parallel or concentric with the centerline of the road being constructed and no material variation therefore will be permitted.

Base course shall be substantially true to line and grade as indicated on the Drawings. Completed thickness of base course shall be within ½" of indicated thickness, with average thickness not less than that indicated.

The top surface of compacted base course shall be finished by blading or rolled with equipment designed for that purpose.

Proofroll completed surface, remove and rework any failing areas at no cost to the Owner.

Temporary Graded Surface:

- i. When allowed by the local jurisdiction having authority, where trenches are excavated in paved traffic lanes, the surface course may be temporarily replaced by a surface consisting of base course material. The base course shall be removed and replaced with pavement as soon as conditions permit, or as required by local jurisdiction having authority.
- ii. The surface shall be maintained to provide for a smooth flow of traffic without holes, bumps, etc. until final acceptance of the work.

PROTECTION

Maintain adequate barricades, guards, warning lights and other protection required at hazards created by this work.

Protect overhead and underground utilities, drains, trees (including roots), shrubs, ground cover, bench marks, monuments, other reference points, adjacent buildings and property that are to remain.

Fence and/or box-in all trees and plant material which are to remain before work is started. Do not permit heavy equipment or stockpiles within branch spread. Remove interfering branches without injury to trunks, cover scars with tree paint.

Use all means necessary to protect all materials in this Section before, during and after installation. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Engineer at no additional cost to the Owner.

Conduct site clearing operations to ensure minimum interference with roads, streets, walks and other adjacent occupied or used facilities. Do not close or obstruct streets, walks or other occupied or used facilities without permission from authorities having jurisdiction.

DUST CONTROL

Use all means necessary to control dust on or near the work, if such dust is caused by the Contractor's operations during performance of the work or if resulting from the condition in which the Contractor leaves the site. Apply Calcium Chloride or water for dust control. Sweep public roads as required.

TESTING LABORATORY

An independent testing laboratory may be retained by the Owner to perform laboratory testing of proposed fill materials. The testing laboratory will provide a qualified representative to perform field density tests during all controlled fill operations.

- i. A minimum of six (6) density tests per day per lift at any lift location shall be performed.
- ii. Test granular base course material at a rate of one (1) test per 1,500 s.f.
- iii. The test lab may vary the frequency of testing with the Engineer's approval if adequate backfill compaction is consistently obtained.

The Contractor shall rework all areas that do not meet the technical or design requirements of the construction documents. The testing laboratory representative will document all failing tests and all tests of reworked areas. No deviations shall be made from the Contract Documents without specific and written approval from the Engineer.

The testing laboratory shall test soil and material samples for maximum laboratory density and gradation. Obtain samples from on-site and off-site sources of material considered for use in areas of controlled fills and backfills. Conduct new gradation tests periodically during the work and when the character of the source appears to change.

Provide copies of all reports directly to the office of the Engineer within one week of the date of the test. Provide daily test results to the Owner's on-site representative.

Test reports shall document horizontal control and elevation of test location with reference to the building's column ties or other recorded survey control. Reports shall document specified soil compaction requirements for the material being tested and the pass/failure condition of each test. All failed areas shall be reworked and retested until the area is brought into compliance.

The testing laboratory shall notify the Contractor immediately of test results on a daily basis. Should the testing laboratory observe the covering of work which failed to meet Specification, the Owner and the Engineer shall be notified immediately so corrective action may be taken.

END OF SECTION 02100.

SECTION 02110 – SITE CLEARING

PART 1 – GENERAL

SECTION INCLUDES

Remove surface debris.

Clear Site of plant life and grass in areas of proposed construction activities.

Remove trees and shrubs except where designated to remain on the plans.

Topsoil excavation.

RELATED SECTIONS

Drawings and general provisions of contract, including General Conditions apply to this section.

Section 02211 – Rough Grading.

PART 2 – EXECUTION

PREPARATION

Verify that existing plant life designated to remain, is tagged or identified.

PROTECTION

Locate, identify, and protect utilities that remain from damage.

Protect trees, plant growth, and features designated to remain as final landscaping.

Protect benchmarks and property corner markers from damage or displacement.

Install erosion control measures such as silt fence, where appropriate, prior to site clearing.

CLEARING

Clear areas required for access to site and execution of Work. See clearing limits on drawing.

Remove abandoned foundations and paving, if any, as indicated on the drawings.

Remove trees and shrubs not indicated to remain. Remove stumps and main root ball.

Clear undergrowth and deadwood, without disturbing subsoil.

REMOVAL

Burgess Branch Culvert Replacement
Lowell, Vermont

SITE CLEARING 02110-2
Project #: 13062
February 2014

Remove debris, rock, and extracted plant life from site. Trees and stumps shall be disposed of in a legal manner. Burning on site is not allowed.

TOPSOIL EXCAVATION

Excavate topsoil from site where construction activities will occur.

Stockpile in area to be designated on site to depth not exceeding 8 feet. Protect from erosion and contamination. Remove excess topsoil not being reused, from site.

END OF SECTION 02110

SECTION 02211 - ROUGH GRADING

PART 1 - GENERAL

SECTION INCLUDES

Removal of subsoil.

Cutting, grading, filling and rough contouring the site for pavement and site structures.

RELATED SECTIONS

Drawings and general provisions of contract, including General Conditions and apply to this section.

REFERENCES

State of Vermont, Agency of Transportation. Standard Specifications, 2011.

PART 2 - PRODUCTS

MATERIALS

Topsoil: Native topsoil, if available. If insufficient native topsoil exists, provide topsoil from off-site sources. Off-site topsoil shall meet 2011 State of Vermont, Agency of Transportation specification 755.02 - Topsoil.

Miscellaneous Fill: for use in non-structural locations, including lawn areas, drainage swales, etc. Do not use misc. fill under areas to receive structural fill. Miscellaneous fill is defined as native silt-loam subsoil materials taken from on-site excavations. If insufficient native miscellaneous fill exists, provide miscellaneous fill of similar quality, approved by the Engineer, from off-site sources.

PART 3- EXECUTION

PREPARATION

Identify required lines, levels, contours, and datum.

Stake and flag locations of known utilities.

Locate, identify, and protect utilities that remain from damage.

Notify utility company to remove utilities, where appropriate.

Protect above and below grade utilities that remain.

Burgess Branch Culvert Replacement
Lowell, Vermont

ROUGH GRADING 02211-2
Project#: 13062
February 2014

Protect plant life and other features remaining as a portion of final landscaping, including all trees and shrubs within municipal rights-of-way or on private property of others, unless specified for removal on the drawings.

Protect benchmarks, property corner markers and paving from excavating equipment and vehicular traffic.

SUBSOIL EXCAVATION

Excavate subsoil from areas to be further excavated, re-landscaped, or re-graded.

Stockpile in an area to be designated on site to a depth not exceeding 8 feet. Protect from erosion.

Remove subsoil not being reused from site.

FILLING

Fill non-structural areas to contours and elevation with unfrozen material.

Slope grade away from structures a minimum 2 inches in 10 ft, unless noted otherwise.

Make grade changes gradual. Blend slope into level areas.

Remove surplus fill materials from site.

TOLERANCES

Top Surface of Subgrade: Plus or minus 1/10 foot.

END OF SECTION 02211

SECTION 02220 – SITE DEMOLITION

PART 1 – GENERAL

SECTION INCLUDES

Demolition of designated site structures, old culvert, headwalls, guard rails and removal of materials from site.

Filling voids in subgrade created as a result of removals or demolition.

Hazardous material compliance.

RELATED SECTIONS

Section 02110 – Site Clearing

Section 02211 – Rough Grading

Section 02990 – Erosion Control

Construction Drawings

REGULATORY REQUIREMENTS

Conform to applicable State and local codes for demolition of structures, safety of adjacent structures, dust control, and runoff control.

Obtain required permits and licenses from appropriate authorities. Pay associated fees including disposal charges.

Notify affected utility companies before starting work and comply with their requirements.

Do not close or obstruct public or private roadways, sidewalks, or fire hydrants without appropriate permits or written authorization.

Conform to applicable regulatory procedures when hazardous or contaminated materials are discovered.

PROJECT RECORD DOCUMENTS

Accurately record actual locations of capped utilities and subsurface obstructions that will remain after demolition.

PROJECT CONDITIONS

Structures to be demolished will be discontinued in use and vacated prior to start of work.

Owner assumes no responsibility for condition of structures to be demolished.

Conditions, existing at time of inspection for bidding purposes will be maintained by Owner as reasonably practical.

Unless otherwise indicated in Contract Documents or specified by the Owner, items of salvageable value to Contractor shall be removed from site and structures. Storage or sale of removed items on site will not be permitted and shall not interfere with other work specified in Contract Documents.

Explosives shall not be brought to site or used without written consent of authorities having jurisdiction. Such written consent will not relieve Contractor of total responsibility for injury to persons or for damage to property due to blasting operations. Performance of required blasting shall comply with governing regulations.

PART 2 - PRODUCTS

FILL MATERIALS

Aggregate materials as specified in Sections 02100 and 02231.

PART 3 - EXECUTION

PREPARATION

Provide, erect, and maintain erosion control devices, temporary barriers, and security devices at locations indicated on Construction Drawings.

Protect existing landscaping materials, appurtenances, and structures, which are not to be demolished. Repair damage caused by demolition operations at no cost to Owner.

Prevent movement or settlement of adjacent structures. Provide bracing and shoring as needed.

Mark location of utilities. Protect and maintain in safe and operable condition utilities that are to remain. Prevent interruption of existing utility service to occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities as acceptable to governing authorities and Owner.

Notify adjacent owners of work that may affect their property, potential noise, utility outages or disruptions. Contractor to coordinate with Owner.

DEMOLITION REQUIREMENTS

Conduct demolition to minimize interference with adjacent structures or pavements.

Cease operations immediately if adjacent structures appear to be in danger. Notify authority-having jurisdiction. Do not resume operations until directed by authority.

Conduct operations with minimum of interference to public or private access. Maintain ingress and egress at all times.

Obtain written permission from adjacent property owners when demolition equipment will traverse, infringe upon, or limit access to their property.

Sprinkle work with water to minimize dust. Provide hoses and water connections for this purpose.

Comply with governing regulations pertaining to environmental protection.

Clean adjacent structures and improvements of dust, dirt, and debris caused by demolition operations.

Return adjacent areas to condition existing prior to start of work.

DEMOLITION

Demolish structures completely and remove from site using methods as required to complete work within limitations of governing regulations. Small structures may be removed intact when acceptable to Owner and authorities having jurisdiction.

Demolish concrete and masonry in small sections. Break up concrete slabs-on-grade that are 2-feet or more below proposed subgrade to permit moisture drainage.

FILLING VOIDS

Completely fill below grade areas and voids resulting from demolition or removal of structures, underground fuel storage tanks, wells, cisterns, etc., using approved select fill materials consisting of stone, gravel, and sand free from debris, trash, frozen materials, roots, and other organic matter. Ensure that areas to be filled are free of standing water, frost, frozen or unsuitable material, trash, and debris prior to fill placement.

Place fill materials in accordance with Section 02231 unless subsequent excavation for new work is required.

Grade surface to match adjacent grades and to provide flow of surface drainage after fill placement and compaction.

Burgess Branch Culvert Replacement
Lowell, Vermont

SITE DEMOLITION 02220-4
Project # 13062
February 2014

DISPOSAL OF DEMOLISHED MATERIALS

Remove from site all debris, rubbish, and other materials resulting from demolition operations. Leave areas of work in clean condition.

No burning of any material, debris, or trash on-site or off-site will be allowed.

Transport materials removed from demolished structures with appropriate vehicles and dispose off-site in areas that are approved for disposal by governing authorities and appropriate property owners.

The contractor is encouraged to salvage as much of the structure as possible, as long as the salvage operations can be performed within the project schedule.

END OF SECTION 02220

SECTION 02231 – AGGREGATE BASE COURSE

PART 1 – GENERAL

SECTION INCLUDES

Aggregate base course for use beneath driveways, roadways and parking areas.

RELATED SECTIONS

Drawings and general provisions of contract, including General Conditions and Supplementary Conditions and other Division I Specification Section apply to this section.

Section 02211 – Rough Grading: Preparation of site for base course.

Section 02225- Trenching: Compacted fill under base course.

REFERENCES

State of Vermont, Agency of Transportation Standard Specifications, 2011.

ASTM D2922 – Test Methods for Density of Soil and Soil-Aggregate in Place by nuclear methods (Shallow Depth).

ASTM D3017 – Test Methods for Moisture Content of Soil and Soil-Aggregate Mixtures.

SUBMITTALS

Submit two (2) sieve analyses of each aggregate to be used, to engineer for approval.

PART 2 – PRODUCTS

FILL MATERIALS

Dense Graded Crushed Stone: Aggregate meeting 2011 State of Vermont, Agency of Transportation Specification 704.06A – Dense Graded Crushed Stone for Subbase.

Subbase of Gravel: Crushed gravel meeting 2011 Agency of Transportation Specification 704.05A – Crushed Gravel for Subbase.

Fine Aggregate (Sand) Fill: Sand meeting 2011 State of Vermont, Agency of Transportation Specification 703.03A – Sand borrow and Cushion.

Aggregate for surface course and shoulders: Crushed stone or crushed gravel meeting 2011 State of Vermont Agency of Transportation Specification 704.12A.

GEOTEXTILE

Mirafi 500X or approved equivalent.

PART 3 – EXECUTION

EXAMINATION

Verify substrate has been inspected, gradients and elevations are correct, and dry.

AGGREGATE PLACEMENT

Spread aggregate over prepared substrate. Subbase materials or thicknesses are identified on the drawings. Contractor may choose dense graded crushed stone or subbase of gravel for coarse aggregate. Where trenching is performed across existing pavement or concrete, replace subbase with equivalent materials and thicknesses unless otherwise specified on the drawings.

Place geotextile over subgrade; lap joints at least 24 inches.

Place aggregate in maximum 6-inch layers and roller compact. Use a vibratory roller.

Level and contour surfaces to elevations and gradients indicated.

Add small quantities of fine aggregate to course aggregate as appropriate to assist compaction.

Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.

Use mechanical tamping equipment in areas inaccessible to compaction equipment.

TOLERANCES

Flatness: Maximum variation of ½ inch measured with a 10-foot (3 m) straight edge.

Scheduled Compacted Thickness: Thicknesses indicated on the Drawings are minimum thickness. Do not exceed minimum thickness by more than 1 inch without approval of the Engineer.

Variation from True Elevation: Within ½ inch.

FIELD QUALITY CONTROL

Compaction testing will be performed at the site contractor's expense in accordance with ASTM D2922.

Burgess Branch Culvert Replacement
Lowell, Vermont

AGGREGATE BASE COURSE 02231-3
Project #13062
February 2014

If tests indicate Work does not meet specified requirements, remove Work, replace and retest.

Frequency of Tests: One per 2500 square feet, per lift. Locations of tests to be selected by the Engineer.

SCHEDULES

Under road, driveway or parking areas: Compact placed aggregate materials to achieve compaction to 95 percent of modified Proctor density.

Under Concrete Pavement: Compact placed aggregate materials to achieve compaction to 95 percent modified Proctor density.

END OF SECTION 02231

SECTION 02510 – ASPHALTIC CONCRETE PAVING

PART 1 – GENERAL

SECTION INCLUDES

Asphalt concrete paving; wearing course and base course.

Pavement markings.

RELATED SECTIONS

Drawings and general provisions of contract, including General and Supplementary Conditions and other Division I Specification Sections, apply to this section.

Section 02211 – Rough Grading: Preparation of site for paving and base.

Section 02231 – Aggregate Base Course.

REFERENCES

State of Vermont, Agency of Transportation, Standard Specifications, 2011.

QUALITY ASSURANCE

Perform Work in accordance with Vermont Agency of Transportation Specifications.

SCHEDULE

Place asphaltic concrete paving only after completion of subbase.
Ensure all utilities are in place.

ENVIRONMENTAL REQUIREMENTS

Do not place asphalt when base surface temperature is less than 40 degrees F, or surface is wet or frozen.

PART 2 – PRODUCTS

MATERIALS

Provide materials complying with Vermont Agency of Transportation Specification 406.02. Base course of pavement shall be Type II and wearing course shall be Type IV, in accordance with Vermont Agency of Transportation Specification 406.03A.

Where trenching and patching through existing paved areas, match existing pavement type.

PART 3 – EXECUTION

EXAMINATION

Verify base conditions.

Verify that compacted granular base is dry and ready to support paving and imposed loads.

Verify gradients and elevations of base are correct.

SUBBASE

Section 02231 – Aggregate Base Course forms the base construction for work of this Section.

PLACING ASPHALT PAVEMENT – DOUBLE COURSE

Place asphalt in accordance with Vermont agency of Transportation specification 406.13.

Place base course to 1 1/2 inches compacted thickness, unless otherwise specified on the drawings.

Place wearing course within two hours of placing and compacting base course.

Place wearing course to 1 1/2 inches compacted thickness, unless otherwise specified on the drawings.

When trenching and patching in existing paved areas, match existing pavement materials and thicknesses.

Compact pavement by rolling. Do not displace or extrude pavement from position. Hand compact in areas inaccessible to rolling equipment.

Develop rolling with consecutive passes to achieve even and smooth finish, without roller marks.

PAVEMENT MARKINGS

Paint: Comply with Vermont Agency of Transportation Specification 708.08.

PAVEMENT TOLERANCES

Flatness: Maximum variation of 1/4 inch measured with a 10 foot (3 m) straight edge.

Scheduled Compacted Thickness: Within 1/4 inch.

Variation from True Elevation: Within 1/2 inch.

PROTECTION

Immediately after placement, protect pavement from mechanical injury for 48 hours.

END OF SECTION 02510

SECTION 02936 – SEEDING

PART 1 – GENERAL

SECTION INCLUDES

Preparation of subsoil.

Placing topsoil.

Seeding, mulching and fertilizing.

REFERENCES

FS O-F-241 – Fertilizers, Mixed Commercial.

DEFINITIONS

Weeds: Include Dandelion, Jimsonweed, Quackgrass, Horsetail, Morning glory, Rush Grass, Mustard, Lambsquarter, Chickweed, Cress, Crabgrass, Canadian Thistle, Nutgrass, Poison Oak, Blackberry, Tansy, Ragwort, Bermuda Grass, Johnson grass, Poison Ivy, Nut Sedge, Nimble Will, Bindweed, Bent Grass, Wild Garlic, Perennial Sorrel and Brome Grass.

QUALITY ASSURANCE

Provide seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging and location of packaging.

REGULATORY REQUIREMENTS

Comply with regulatory agencies for fertilizer and herbicide composition.

DELIVERY, STORAGE AND PROTECTION

Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.

Deliver fertilizer in waterproof bags showing weight, chemical analysis and name of manufacturer.

PART 2 – PRODUCTS

SEED MIXTURE

Seed Mixture:

Mix for sunny to partial shade areas:

	<u>Proportion</u>	<u>Purity</u>	<u>Germination</u>
Creeping Red Fescue	60%	85%	97%
Merion, Ky. Bluegrass	25%	85%	95%
Red Top	15%	85%	90%

SOIL MATERIALS

Topsoil: Excavated from site and free of weeds. Shall meet the 2011 State of Vermont, Agency of Transportation Specification 755.

ACCESSORIES

Mulching Material: Oat or wheat straw, free from weeds, foreign matter detrimental to plant life and dry. Hay or chopped cornstalks are not acceptable.

Fertilizer: FS O-F-241, Type recommended for grass with fifty percent of the elements derived from organic sources; of proportion necessary to eliminate any deficiencies of topsoil.

Water: Clean, fresh and free of substances or matter which could inhibit vigorous growth of grass.

PART 3 – EXECUTION

EXAMINATION

Verify that prepared soil base is ready to receive the work of this section.

PREPARATION OF SUBSOIL

Prepare subsoil to eliminate uneven areas and low spots. Maintain lines, levels, profiles and contours. Make changes in grade gradual. Blend slopes into level areas.

Remove foreign materials, stones greater than ¾ inch in diameter, weeds and undesirable plants and their roots. Remove contaminated subsoil.

Scarify subsoil to a depth of 3 inches where topsoil is to be placed. Repeat cultivation in areas where equipment, used for hauling and spreading topsoil, has compacted subsoil.

PLACING TOPSOIL

Spread topsoil to a minimum depth of four (4) inches over area to be seeded. Hand rake all areas until smooth. Remove all roots, sod and stones greater than ½ inch.

Place topsoil during dry weather and on dry unfrozen subgrade.

Remove vegetable matter and foreign non-organic material from topsoil while spreading.

Grade topsoil to eliminate rough, low or soft areas and to ensure positive drainage.

Roll topsoil with landscape roller to compact.

FERTILIZING

Apply fertilizer in accordance with manufacturer's instructions.

Apply after smooth raking of topsoil.

Do not apply fertilizer at the same time or with the same machine as will be used to apply seed.

Mix thoroughly into upper 2 inches of topsoil.

Lightly water to aid the dissipation of fertilizer.

SEEDING

Hydro-seeding is acceptable in lieu of the following:

Apply seed at a rate of 3 lbs per 1000 sq ft evenly in two intersecting directions. Rake in lightly.

Do not seed areas in excess of that which can be mulched on same day.

Planting Season: Seed Winter Rye after October 1st and before snowfall.

Do not sow immediately following rain, when ground is too dry or during windy periods.

Immediately following seeding, apply mulch to a minimum thickness of ½ inch. Maintain clear of shrubs and trees.

Apply water with a fine spray immediately after each area has been mulched. Saturate to four (4) inches of soil.

SEED PROTECTION

Identify seeded areas with stakes and string around area periphery. Set string height to 36 inches. Space stakes at 10 feet.

SCHEDULE

Seed all disturbed areas not scheduled to receive gravel, pavement, rip-rap or structures.

END OF SECTION 02936

SECTION 02990 – EROSION CONTROL

PART 1 – GENERAL

SECTION INCLUDES:

Temporary and permanent erosion control during construction, including stone check dams, silt fence, riprap and geotextile fabric.

RELATED SECTIONS

Drawings and general provisions of contract, including General and Supplementary Conditions and other Division 1 specification Sections, apply to this section.

Section 02211 – Rough Grading.

Section 02936 - Seeding

REFERENCES

Vermont Agency of Transportation Standard Drawing T-2 "Erosion Control Details".

Vermont Handbook for Soil Erosion and Sediment Control On Construction Sites.

Vermont Agency of Transportation Standard Specifications, 2011.

PART 2 – PRODUCTS

EROSION CONTROL MATERIALS

Mulch: Oat or wheat straw, free from weeds, and foreign matter detrimental to plant life. Dry hay or chopped corn stalks are not acceptable.

Riprap: Vermont Agency of Transportation Specifications 706.04, Stone For Stone Fill Type II, unless otherwise specified on drawings.

Geotextile Fabric: Vermont Agency of Transportation Specification 720.

PART 3 – EXECUTION

SCHEDULE

Install erosion control measures identified on the site plan and elsewhere as needed as soon as topsoil and subsoil stripping operations are complete. Maintain erosion control methods in place until final erosion protection has been established, either through the establishment of turf, placement of rip-rap or the acceptance of aggregate wearing course.

Burgess Branch Culvert Replacement
Lowell, Vermont

EROSION CONTROL 02990-2
Project #: 13062
February 2014

MAINTENANCE

The Contractor shall be responsible for inspecting and maintaining erosion control methods. Perform at least one inspection per week and clean, repair or replace erosion protection as necessary. Refer to the Vermont Handbook for Soil Erosion and Sediment Control On Construction Sites in regard to proper placement, installation and maintenance of erosion control methods.

REMOVAL

Upon completion and acceptance of the project and the establishment of turf in all areas to be grassed, remove stone check dams and silt fence utilized as temporary erosion and sediment control from the site. If instructed by the Engineer, leave erosion protection in place.

END OF SECTION 02990