casella CONSTRUCTION INC.
SITE DEVELOPMENT, EXCAVATION, DEMOLITION
WATER AND SEWER SYSTEMS
AGGREGATE OPERATIONS

Solid Waste Management
Landfill Sitework and Closures
8 U.S. ROUTE 4 EAST, MENDON, VERMONT 05701 802/773-0052
FAX 802/747-7992

Submittal

To: State of Vermont Agency of Transportation
Southwest Regional Construction Office
61 Valley View
Mendon, VT 05701

Date: April 20, 2015
Project: Shrewsbury STP 1443 (44)

Contract: Shrewsbury STP 1443 (44)

Attention: Tim Pockette (RE), Bill Farley (Asst CEE)

From: Jacob Robinson

Copies	CCI Submittal Number	Specification Section	Description
Electronic	2r1	652.10	Erosion Prevention and Sediment Control Plan

Contractors Review and Comments

Reviewed By: Jacob Robinson/Jeff Chase

Comments:

The attached are modifications to the Contract EPSC Plan. The intention of the modifications is to uphold the criteria of determined risk, while providing further detail to the sequencing and phasing of construction. There is no intent to alter any of the criteria of the determined risk. We have included an updated Risk Evaluation Checklist to confirm this.

The EPSC plan was prepared by Nathan Sicard, PE.

Engineers Review Stamp and Comments

MODIFICATIONS TO

CONTRACT EROSION PREVENTION

AND

SEDIMENT CONTROL (EPSC) PLAN

FOR

SHREWSBURY STP 1443(44)

FOR

Casella Construction, Inc.
25 Industrial Lane
Mendon, VT 05701

APRIL, 2015

RUGGLES ENGINEERING SERVICES INC.

Ruggles Engineering Services, 5480 Memorial Drive, St. Johsnbury, VT 05819
www.rugglesengineeringservices.com

EPSC NARRATIVE AMENDED

Section 1.1 through 1.4 are available as part of the Contract Plans (Sheet 29 of 36, dated 08/19/2014). The following amendments are to be considered with the Project Narrative. The project narrative is in the appendix.

1.1 Project Description

Add. – 1.1.1: The Project will also include a waste and borrow site. Site staging will be within the limits of the work area limits of disturbance. The waste area will be approximately 400 feet south of the project on the old route 103 (now Lynette Ave, T.H. 49). The waste area will be used to dispose of approximately 2000 cubic yards of material.

Borrow for the project will be from an approved pit with an active 3-9003 MSGP for industrial activity.

1.2 Site inventory

1.2.1 Topography:
Add – 1.2.1.1: The proposed waste area currently has slopes between 15% and 30%.

1.2.2 Drainage, waterways.
Add – 1.2.2.1: The waste site is approximately 150' to 200' from the stream with natural vegetation as a buffer.

1.2.3 Vegetation:
Add – 1.2.3.1: The proposed waste area is currently field/brush mix.

1.2.4 Soils:

Add - 1.2.4.1: Waste Area. The USDA NRCS Soil Map indicates that the soils include Paxton Fine Sandy Loam. The land is identified with an Ag Value of 8, which is not Prime or of Statewide Importance. There are no mapped VT Class II wetlands identified in the area. Pushing back the field topsoil, will expose the silt loam and has a moderate potential for erosion (k=0.32), however the soils will be covered with waste soils from the project.

1.5 Sequence and Staging

1.5.1 Construction Sequence and Implementation of EPSC Measures.

The construction sequence will be coordinated with the CPM schedule. A copy of the current CPM schedule is included in the appendix.

1.5.1.1. Initial EPSC Measures

Initial EPSC measures will be installed when the EPSC plan has been approved by the Agency. Project Delineation Fence and Barrier Fence will be installed to identify the limits of disturbance. Trees and brush will be removed from the site. Silt fence and water bars will be installed as grubbing begins. Temporary Stabilized Construction Entrances will be installed at each approach to the project after the road closure when subgrade excavation begins. These entrances will be of minor significance as excavation during the first couple of days will limit the access to the project. The significant stabilized entrances will be on the old Route 103. Silt Fence with wire mesh, temporary culverts, water bars and stone check dams will be installed as shown on the Phase 1 Plan. Excavation slopes in phase 1 will have the longest exposure during the 28 day project and will be protected with temporary erosion control fabric. The highest risk for erosion will be from the conveyance of offsite runoff through the work area.

1.5.1.2. Culvert and Channel Excavation (Phase 2)

The existing culvert is approximately 15 feet below grade. Access to remove the culvert and associated fill will be from the southeast on old route 103 and from a construction road along the northeast side of the project. Excavation will begin at the outlet and channel excavation will be completed in sections as the culvert is removed and new stone fill is installed for the footing base.

Prior to beginning final excavation, temporary measures will be used to control stream flow. A temporary 24” culvert will be installed around the work area. The inlet to the culvert will be upstream of the project and will be controlled by a sandbag and plastic dam. The system will be designed to allow overtopping during higher flow events. This will require the work area to be stabilized in advance of a storm. A two year storm event may produce 80 cfs based on the Hydraulics Report. This will require the bottom foot of the work area to be lined in crushed stone to maintain a velocity at approximately 5 feet per second.

Dewatering.

During active channel excavation and stone fill installation, seepage is anticipated. The seepage will be collected behind a sand bag coffer dam. A dewatering pump will be used to convey seepage water to a filter bag. The filter bag will be located such that

overland flow is possible prior to discharging back into the Mill River Tributary. See EPSC Plan for location.

1.5.1.3. Final Stabilization (Phase 3)

The work area will be restored to final stabilization working away from the culvert work area. The dewatering access and site area will be returned to finish grade and final stabilization measures will be installed, including erosion matting. Silt fence will remain until vegetation has been established on the site. Once the site is stable, all structural measures will be removed and property disposed.

1.5.2 Off-site Activities.

Off-site activities will include expanding beyond the initial construction limits as shown on sheet 36 for the purposes of access, dewatering and construction safety slopes. Offsite activities forms will be acquired from Charles and Kathleen Kelley.

Offsite activities will also occur on the Fillmore property to the south of the project adjacent to old Route 103 (T.H. 49). An offsite activities form will be completed for the site and work will occur as shown on the waste area site plan. Approximately 2000c.y. will be disposed of at the site.

1.5.3 Updates

When updates are necessary Casella Construction will contact Ruggles Engineering Services to submit a revised narrative or plan.

1.6 Contact Information

1.6.1 On-Site Plan Coordinator:

Jacob Robinson
(802) 236-3725
Mr. Robinson has a BS in civil engineering. Mr. Robinson will have the authority to hault the project if needed.

Offsite Project Manager:

Jeff Chase, EI
(802) 282-1607
Jeff.chase@casellainc.com
Mr. Chase will provide support to Mr. Robinson. Mr. Chase has a BS in civil engineering and over 13 years of experience in civil construction and erosion control.

1.6.2 Plan Preparer:

Ruggles Engineering Services, Inc.
Nathan P. Sicard, P.E., VT License # 53831, CPESC # 8020
5480 Memorial Drive
St. Johsnbury, VT 05819
(802) 748-5898
nate.res@myfairpoint.net

Ruggles Engineering is familiar with the VT Standards and Specifications for Erosion Prevention and Sediment Control, relative sections of the VT Agency of Transportation Standard Specifications for Construction and Contract Special Provisions, and project specific permits.

1.7 Schedule

The contractor is attaching their proposed schedule to this plan. See Appendix A - SCHEDULES.

1.8 Inspection Form

See Appendix B - FORMS.

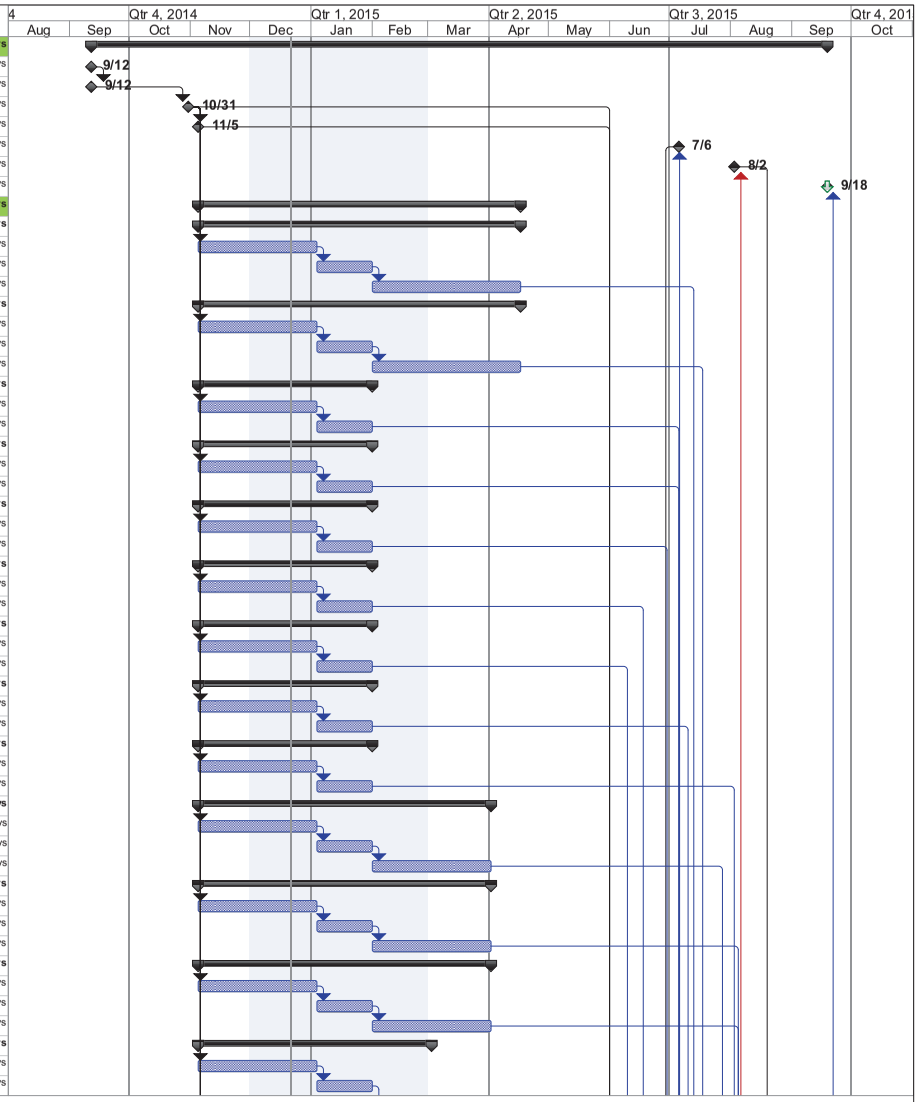
2 Erosion Prevention and Sediment Control Plan

See Appendix C – PLANS.

APPENDIX A – SCHEDULES

1. Contractor CPM Schedule – PREPARED BY CONTRACTOR.

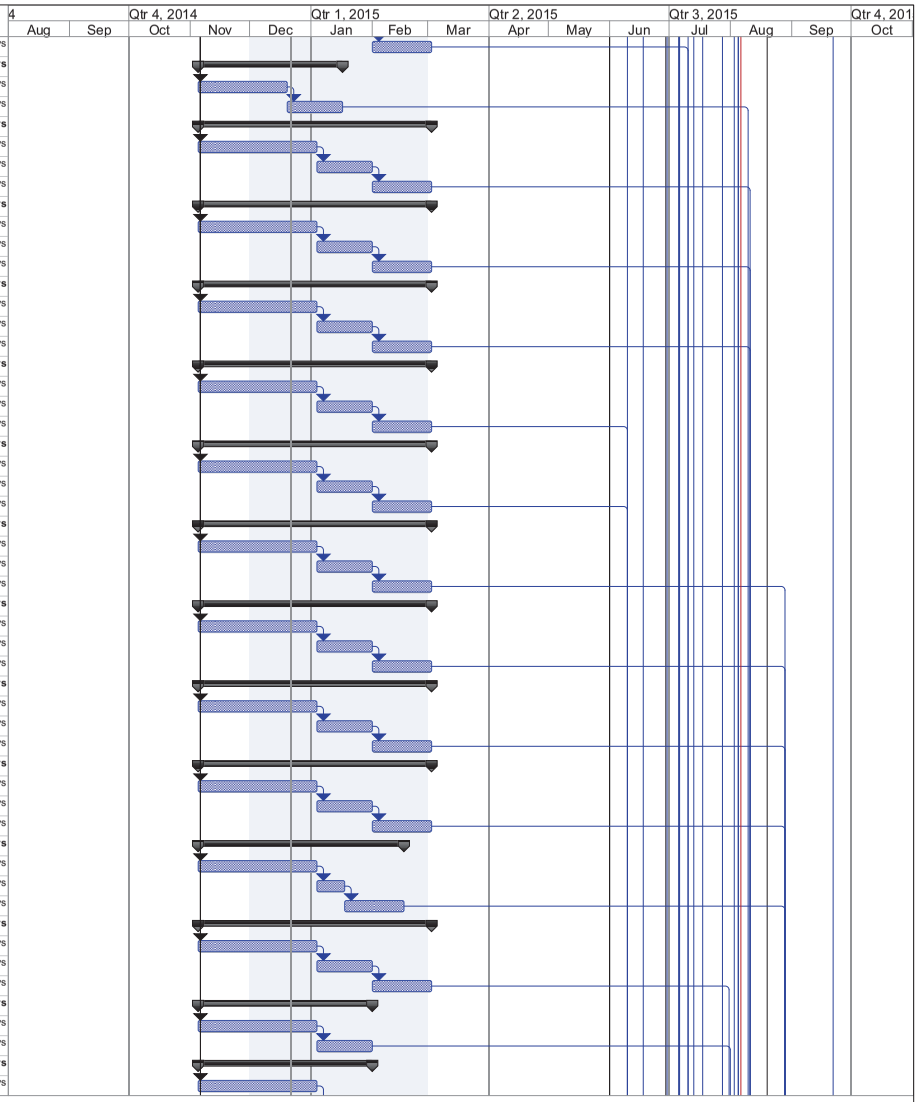
ID	Task Name	Duration	Start	Finish	Predecesso	uccessor	Total Slack
1	**Milestones**	**371.56 days**	**Fri 9/12/14**	**Fri 9/18/15**			**0 days**
2	Project Bid	0 days	Fri 9/12/14	Fri 9/12/14		3	87.25 days
3	Contract Award	49 days	Fri 9/12/14	Fri 10/31/14	2	4	87.25 days
4	Notice to Proceed	5 days	Fri 10/31/14	Wed 11/5/14	3	115,28,22,2	87.25 days
5	Pre-Construction Conference	44 days	Wed 11/5/14	Fri 12/19/14	4	119	165 days
6	Start Bridge Closure Period	0 days	Mon 7/6/15	Mon 7/6/15	127	129SS	0 days
7	End Bridge Closure Period	0 days	Sun 8/2/15	Sun 8/2/15	176	185	0 days
8	Substantial Completion	0 days	Fri 9/18/15	Fri 9/18/15	193		0 days
9	**Procurement**	**163 days**	**Wed 11/5/14**	**Fri 4/17/15**			**87.25 days**
10	**Precast Concrete Arch**	**163 days**	**Wed 11/5/14**	**Fri 4/17/15**			**87.25 days**
11	Prep & Sub Precast Concrete Arch	60 days	Wed 11/5/14	Sun 1/4/15	4	12	87.25 days
12	Rev & App Precast Concrete Arch	28 days	Sun 1/4/15	Sun 2/1/15	11	13	87.25 days
13	Fab & Del Precast Concrete Arch	75 days	Sun 2/1/15	Fri 4/17/15	12	141	87.25 days
14	**Precast Concrete Wingwalls**	**163 days**	**Wed 11/5/14**	**Fri 4/17/15**			**91.75 days**
15	Prep & Sub Precast Concrete Wingwalls	60 days	Wed 11/5/14	Sun 1/4/15	4	16	91.75 days
16	Rev & App Precast Concrete Wingwalls	28 days	Sun 1/4/15	Sun 2/1/15	15	17	91.75 days
17	Fab & Del Precast Concrete Wingwalls	75 days	Sun 2/1/15	Fri 4/17/15	16	147	91.75 days
18	**Traffic Control Plan**	**88 days**	**Wed 11/5/14**	**Sun 2/1/15**			**155 days**
19	Prep & Sub Traffic Control Plan	60 days	Wed 11/5/14	Sun 1/4/15	4	20	155 days
20	Rev & App Traffic Control Plan	28 days	Sun 1/4/15	Sun 2/1/15	19	129	155 days
21	**Lighting Plan**	**88 days**	**Wed 11/5/14**	**Sun 2/1/15**			**155 days**
22	Prep & Sub Lighting Plan	60 days	Wed 11/5/14	Sun 1/4/15	4	23	155 days
23	Rev & App Lighting Plan	28 days	Sun 1/4/15	Sun 2/1/15	22	129	155 days
24	**Waste, Borrow & Staging Area**	**88 days**	**Wed 11/5/14**	**Sun 2/1/15**			**150 days**
25	Prep & Sub Waste, Borrow & Staging Area	60 days	Wed 11/5/14	Sun 1/4/15	4	26	150 days
26	Rev & App Waste, Borrow & Staging Area	28 days	Sun 1/4/15	Sun 2/1/15	25	127	150 days
27	**Maintenance of Existing Water Flow**	**88 days**	**Wed 11/5/14**	**Sun 2/1/15**			**138 days**
28	Prep & Sub Maintenance of Existing Water Flow	60 days	Wed 11/5/14	Sun 1/4/15	4	29	138 days
29	Rev & App Maintenance of Existing Water Flow	28 days	Sun 1/4/15	Sun 2/1/15	28	123	138 days
30	**EPSC Plan**	**88 days**	**Wed 11/5/14**	**Sun 2/1/15**			**130 days**
31	Prep & Sub EPSC Plan	60 days	Wed 11/5/14	Sun 1/4/15	4	32	130 days
32	Rev & App EPSC Plan	28 days	Sun 1/4/15	Sun 2/1/15	31	121	130 days
33	**Temporary Relocation of Stream**	**88 days**	**Wed 11/5/14**	**Sun 2/1/15**			**159.5 days**
34	Prep & Sub Temporary Relocation of Stream	60 days	Wed 11/5/14	Sun 1/4/15	4	35	159.5 days
35	Rev & App Temporary Relocation of Stream	28 days	Sun 1/4/15	Sun 2/1/15	34	137	159.5 days
36	**Emulsified Asphalt**	**88 days**	**Wed 11/5/14**	**Sun 2/1/15**			**183.06 days**
37	Prep & Sub Emulsified Asphalt	60 days	Wed 11/5/14	Sun 1/4/15	4	38	183.06 days
38	Rev & App Emulsified Asphalt	28 days	Sun 1/4/15	Sun 2/1/15	37	178	183.06 days
39	**Precast Reinforced Concrete Drop Inlet With Cast Iron Grate**	**148 days**	**Wed 11/5/14**	**Thu 4/2/15**			**116.75 days**
40	Prep & Sub Precast Reinforced Concrete Drop Inlet With Cast Iron Grate	60 days	Wed 11/5/14	Sun 1/4/15	4	41	116.75 days
41	Rev & App Precast Reinforced Concrete Drop Inlet With Cast Iron Grate	28 days	Sun 1/4/15	Sun 2/1/15	40	42	116.75 days
42	Fab & Del Precast Reinforced Concrete Drop Inlet With Cast Iron Grate	60 days	Sun 2/1/15	Thu 4/2/15	41	164	116.75 days
43	**HD Steel Beam Guardrail, Galvanized**	**148 days**	**Wed 11/5/14**	**Thu 4/2/15**			**125.06 days**
44	Prep & Sub HD Steel Beam Guardrail, Galvanized	60 days	Wed 11/5/14	Sun 1/4/15	4	45	125.06 days
45	Rev & App HD Steel Beam Guardrail, Galvanized	28 days	Sun 1/4/15	Sun 2/1/15	44	46	125.06 days
46	Fab & Del HD Steel Beam Guardrail, Galvanized	60 days	Sun 2/1/15	Thu 4/2/15	45	180	125.06 days
47	**Anchor for Steel Beam Rail**	**148 days**	**Wed 11/5/14**	**Thu 4/2/15**			**125.06 days**
48	Prep & Sub Anchor for Steel Beam Rail	60 days	Wed 11/5/14	Sun 1/4/15	4	49	125.06 days
49	Rev & App Anchor for Steel Beam Rail	28 days	Sun 1/4/15	Sun 2/1/15	48	50	125.06 days
50	Fab & Del Anchor for Steel Beam Rail	60 days	Sun 2/1/15	Thu 4/2/15	49	180	125.06 days
51	**Plastic Water Pipe, Flexible (2")**	**118 days**	**Wed 11/5/14**	**Tue 3/3/15**			**129.5 days**
52	Prep & Sub Plastic Water Pipe, Flexible (2")	60 days	Wed 11/5/14	Sun 1/4/15	4	53	129.5 days
53	Rev & App Plastic Water Pipe, Flexible (2")	28 days	Sun 1/4/15	Sun 2/1/15	52	54	129.5 days



Project: STP 1443 (44) BL05
Date: Mon 12/22/14

Task		Summary		Inactive Task		Manual Task		Start-only	
Project Guide: Critical Task		Project Summary		Inactive Task		Duration-only		Finish-only	
Split		External Tasks		Inactive Milestone		Manual Summary Rollup		Progress	
Milestone		External Milestone		Inactive Summary		Manual Summary		Deadline	

ID	Task Name	Duration	Start	Finish	Predecesso	uccessor	Total Slack
54	Fab & Del Plastic Water Pipe, Flexible (2")	30 days	Sun 2/1/15	Tue 3/3/15	53	137	129.5 days
55	**4 Inch Yellow Line**	**73 days**	**Wed 11/5/14**	**Sat 1/17/15**			**205.06 days**
56	Prep & Sub 4 Inch Yellow Line	45 days	Wed 11/5/14	Sat 12/20/14	4	57	205.06 days
57	Rev & App 4 Inch Yellow Line	28 days	Sat 12/20/14	Sat 1/17/15	56	182	205.06 days
58	**Traffic Signs, Type A**	**118 days**	**Wed 11/5/14**	**Tue 3/3/15**			**161.06 days**
59	Prep & Sub Traffic Signs, Type A	60 days	Wed 11/5/14	Sun 1/4/15	4	60	161.06 days
60	Rev & App Traffic Signs, Type A	28 days	Sun 1/4/15	Sun 2/1/15	59	61	161.06 days
61	Fab & Del Traffic Signs, Type A	30 days	Sun 2/1/15	Tue 3/3/15	60	183	161.06 days
62	**Square Tube Sign Post and Anchor**	**118 days**	**Wed 11/5/14**	**Tue 3/3/15**			**161.06 days**
63	Prep & Sub Square Tube Sign Post and Anchor	60 days	Wed 11/5/14	Sun 1/4/15	4	64	161.06 days
64	Rev & App Square Tube Sign Post and Anchor	28 days	Sun 1/4/15	Sun 2/1/15	63	65	161.06 days
65	Fab & Del Square Tube Sign Post and Anchor	30 days	Sun 2/1/15	Tue 3/3/15	64	183	161.06 days
66	**Delineator with Steel Post**	**118 days**	**Wed 11/5/14**	**Tue 3/3/15**			**161.06 days**
67	Prep & Sub Delineator with Steel Post	60 days	Wed 11/5/14	Sun 1/4/15	4	68	161.06 days
68	Rev & App Delineator with Steel Post	28 days	Sun 1/4/15	Sun 2/1/15	67	69	161.06 days
69	Fab & Del Delineator with Steel Post	30 days	Sun 2/1/15	Tue 3/3/15	68	183	161.06 days
70	**Geotextile for Silt Fence**	**118 days**	**Wed 11/5/14**	**Tue 3/3/15**			**100 days**
71	Prep & Sub Geotextile for Silt Fence	60 days	Wed 11/5/14	Sun 1/4/15	4	72	100 days
72	Rev & App Geotextile for Silt Fence	28 days	Sun 1/4/15	Sun 2/1/15	71	73	100 days
73	Fab & Del Geotextile for Silt Fence	30 days	Sun 2/1/15	Tue 3/3/15	72	121	100 days
74	**Geotextile for Silt Fence, Woven Wire Reinforced**	**118 days**	**Wed 11/5/14**	**Tue 3/3/15**			**100 days**
75	Prep & Sub Geotextile for Silt Fence, Woven Wire Reinforced	60 days	Wed 11/5/14	Sun 1/4/15	4	76	100 days
76	Rev & App Geotextile for Silt Fence, Woven Wire Reinforced	28 days	Sun 1/4/15	Sun 2/1/15	75	77	100 days
77	Fab & Del Geotextile for Silt Fence, Woven Wire Reinforced	30 days	Sun 2/1/15	Tue 3/3/15	76	121	100 days
78	**Seed**	**118 days**	**Wed 11/5/14**	**Tue 3/3/15**			**178.56 days**
79	Prep & Sub Seed	60 days	Wed 11/5/14	Sun 1/4/15	4	80	178.56 days
80	Rev & App Seed	28 days	Sun 1/4/15	Sun 2/1/15	79	81	178.56 days
81	Fab & Del Seed	30 days	Sun 2/1/15	Tue 3/3/15	80	189	178.56 days
82	**Seed, Winter Rye**	**118 days**	**Wed 11/5/14**	**Tue 3/3/15**			**178.56 days**
83	Prep & Sub Winter Rye	60 days	Wed 11/5/14	Sun 1/4/15	4	84	178.56 days
84	Rev & App Winter Rye	28 days	Sun 1/4/15	Sun 2/1/15	83	85	178.56 days
85	Fab & Del Winter Rye	30 days	Sun 2/1/15	Tue 3/3/15	84	189	178.56 days
86	**Fertilizer**	**118 days**	**Wed 11/5/14**	**Tue 3/3/15**			**178.56 days**
87	Prep & Sub Fertilizer	60 days	Wed 11/5/14	Sun 1/4/15	4	88	178.56 days
88	Rev & App Fertilizer	28 days	Sun 1/4/15	Sun 2/1/15	87	89	178.56 days
89	Fab & Del Fertilizer	30 days	Sun 2/1/15	Tue 3/3/15	88	189	178.56 days
90	**Agricultural Limestone**	**118 days**	**Wed 11/5/14**	**Tue 3/3/15**			**178.56 days**
91	Prep & Sub Agricultural Limestone	60 days	Wed 11/5/14	Sun 1/4/15	4	92	178.56 days
92	Rev & App Agricultural Limestone	28 days	Sun 1/4/15	Sun 2/1/15	91	93	178.56 days
93	Fab & Del Agricultural Limestone	30 days	Sun 2/1/15	Tue 3/3/15	92	189	178.56 days
94	**Temporary Erosion Matting**	**104 days**	**Wed 11/5/14**	**Tue 2/17/15**			**192.56 days**
95	Prep & Sub Temporary Erosion Matting	60 days	Wed 11/5/14	Sun 1/4/15	4	96	192.56 days
96	Rev & App Temporary Erosion Matting	14 days	Sun 1/4/15	Sun 1/18/15	95	97	192.56 days
97	Fab & Del Temporary Erosion Matting	30 days	Sun 1/18/15	Tue 2/17/15	96	189	192.56 days
98	**Geotextile Under Stone Fill**	**118 days**	**Wed 11/5/14**	**Tue 3/3/15**			**150.06 days**
99	Prep & Sub Geotextile Under Stone Fill	60 days	Wed 11/5/14	Sun 1/4/15	4	100	150.06 days
100	Rev & App Geotextile Under Stone Fill	28 days	Sun 1/4/15	Sun 2/1/15	99	101	150.06 days
101	Fab & Del Geotextile Under Stone Fill	30 days	Sun 2/1/15	Tue 3/3/15	100	171	150.06 days
102	**Sand Borrow**	**88 days**	**Wed 11/5/14**	**Sun 2/1/15**			**180.94 days**
103	Prep & Sub Sand Borrow	60 days	Wed 11/5/14	Sun 1/4/15	4	104	180.94 days
104	Rev & App Sand Borrow	28 days	Sun 1/4/15	Sun 2/1/15	103	174	180.94 days
105	**Granular Backfill for Structures**	**88 days**	**Wed 11/5/14**	**Sun 2/1/15**			**173.75 days**
106	Prep & Sub Granular Backfill for Structures	60 days	Wed 11/5/14	Sun 1/4/15	4	107	173.75 days



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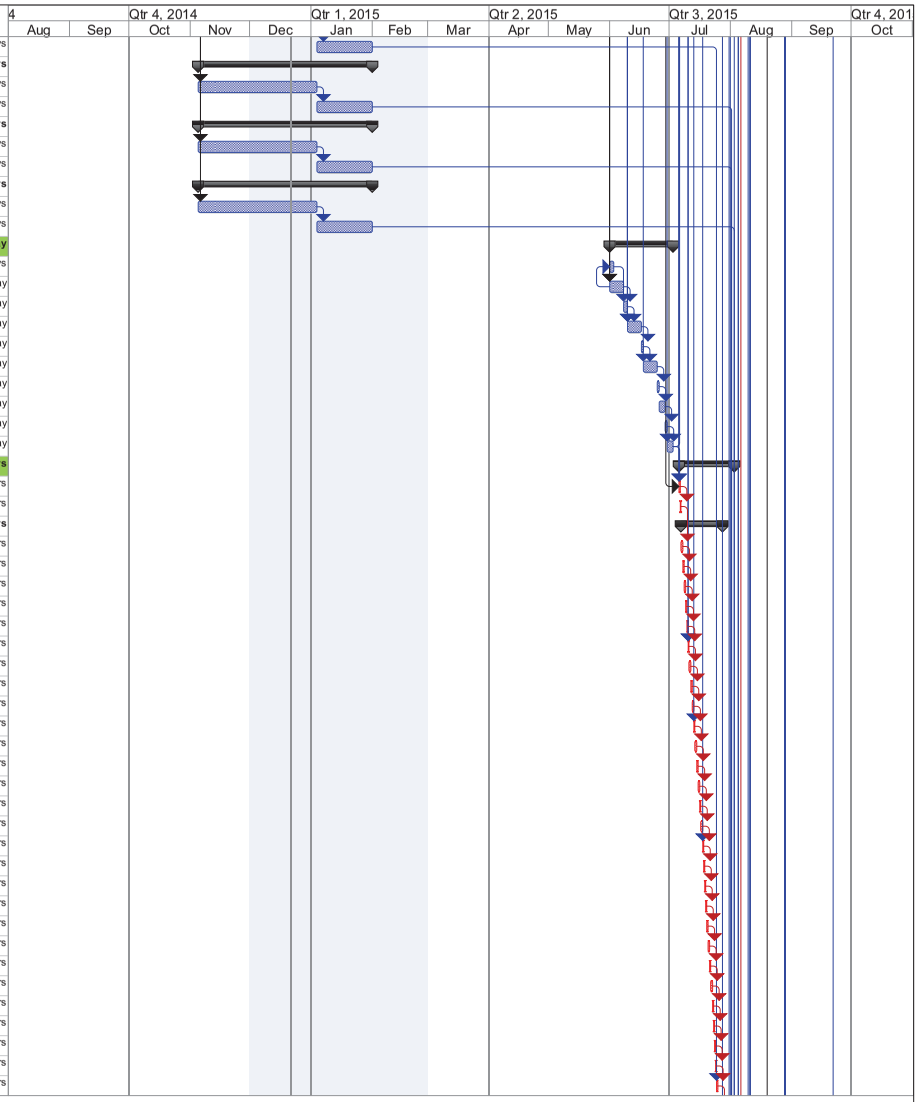
Split		External Tasks		Inactive Milestone		Manual Summary Rollup		Progress	
Milestone		External Milestone		Inactive Summary		Manual Summary		Deadline	

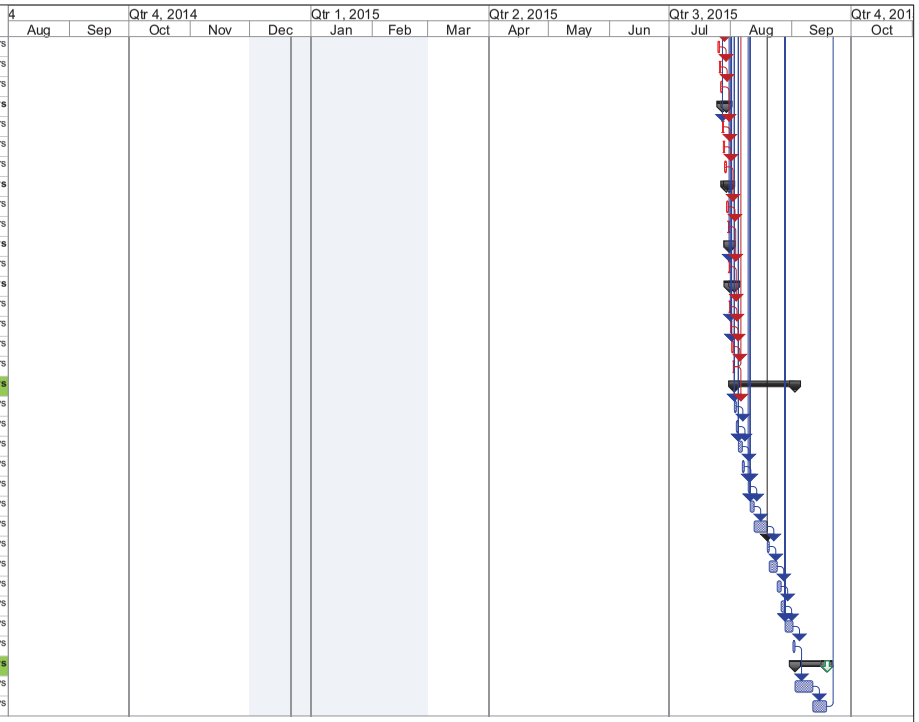
ID	Task Name	Duration	Start	Finish	Predecessors	Successor	Total Slack
107	Rev & App Granular Backfill for Structures	28 days	Sun 1/4/15	Sun 2/1/15	106	159	173.75 days
108	**Gravel for Subbase**	**88 days**	**Wed 11/5/14**	**Sun 2/1/15**			**181.44 days**
109	Prep & Sub Gravel for Subbase	60 days	Wed 11/5/14	Sun 1/4/15	4	110	181.44 days
110	Rev & App Gravel for Subbase	28 days	Sun 1/4/15	Sun 2/1/15	109	175	181.44 days
111	**Subbase of Crushed Gravel, Course Graded**	**88 days**	**Wed 11/5/14**	**Sun 2/1/15**			**181.44 days**
112	Prep & Sub Subbase of Crushed Gravel, Course Graded	60 days	Wed 11/5/14	Sun 1/4/15	4	113	181.44 days
113	Rev & App Subbase of Crushed Gravel, Course Graded	28 days	Sun 1/4/15	Sun 2/1/15	112	175	181.44 days
114	**Bituminous Concrete Pavement**	**88 days**	**Wed 11/5/14**	**Sun 2/1/15**			**183.06 days**
115	Prep & Sub Bituminous Concrete Pavement	60 days	Wed 11/5/14	Sun 1/4/15	4	116	183.06 days
116	Rev & App Bituminous Concrete Pavement	28 days	Sun 1/4/15	Sun 2/1/15	115	178	183.06 days
117	**Construction Start Up**	**24 days**	**Mon 6/1/15**	**Fri 7/3/15**			**1 day**
118	Mobilize and Set Up Field Office	2 days	Mon 6/1/15	Wed 6/3/15	119SS	120	4 days
119	Mobilize Equipment	5 days	Mon 6/1/15	Mon 6/8/15	4,5	120,118SS	1 day
120	Install Temporary Construction Signs	2 days	Mon 6/8/15	Wed 6/10/15	119,118	121	1 day
121	Install Erosion Controls	5 days	Wed 6/10/15	Wed 6/17/15	120,32,73,77	122	1 day
122	Install Demarcation Fence	1 day	Wed 6/17/15	Thu 6/18/15	121	123	1 day
123	Clear and Grub	5 days	Thu 6/18/15	Thu 6/25/15	122,29	124	1 day
124	Install Temporary Water Service	1 day	Thu 6/25/15	Fri 6/26/15	123	125	1 day
125	Cold Plane Roadway	1 day	Fri 6/26/15	Mon 6/29/15	124	126	1 day
126	Remove Pavement Roadway	1 day	Mon 6/29/15	Tue 6/30/15	125	127	1 day
127	Prep Dump Site for Excess Fill	3 days	Tue 6/30/15	Fri 7/3/15	126,26	129,6	1 day
128	**Construction - Bridge Closure Period (16 Hour Days)**	**27.56 days**	**Mon 7/6/15**	**Sun 8/2/15**			**0 days**
129	Close Road and Install Construction Barrier	8 hrs	Mon 7/6/15	Mon 7/6/15	6SS,127,20,23	130	0 hrs
130	Remove Guardrail	8 hrs	Mon 7/6/15	Tue 7/7/15	129	132	0 hrs
131	**Concrete Arch**	**20.75 days**	**Tue 7/7/15**	**Mon 7/27/15**			**0 days**
132	Excavate for Concrete Arch and Channel (0' - 30')	11 hrs	Tue 7/7/15	Tue 7/7/15	130	133	0 hrs
133	Excavate for Concrete Arch and Channel (30' - 60')	11 hrs	Tue 7/7/15	Wed 7/8/15	132	134	0 hrs
134	Excavate for Concrete Arch and Channel (60' - 90')	11 hrs	Wed 7/8/15	Thu 7/9/15	133	135	0 hrs
135	Excavate for Concrete Arch and Channel (90' - 120')	11 hrs	Thu 7/9/15	Thu 7/9/15	134	136	0 hrs
136	Build Diversion Flume	12 hrs	Thu 7/9/15	Fri 7/10/15	135	137	0 hrs
137	Relocate Stream	8 hrs	Fri 7/10/15	Sat 7/11/15	35,54,136	138	0 hrs
138	Remove Existing Culvert and Concrete Arch	12 hrs	Sat 7/11/15	Sat 7/11/15	137	139	0 hrs
139	Prep Subgrade for Arch	12 hrs	Sat 7/11/15	Sun 7/12/15	138	140	0 hrs
140	Prep Subgrade for Walls	12 hrs	Sun 7/12/15	Mon 7/13/15	139	141	0 hrs
141	Install Precast Concrete Arch Footing West Side (0' - 60')	12 hrs	Mon 7/13/15	Tue 7/14/15	140,13	142	0 hrs
142	Install Precast Concrete Arch Footing East Side (0' - 60')	12 hrs	Tue 7/14/15	Tue 7/14/15	141	143	0 hrs
143	Install Stem Walls (0'-60') and Grout	12 hrs	Tue 7/14/15	Wed 7/15/15	142	144	0 hrs
144	Install Precast Concrete Arch Footing West Side (60' - 120')	12 hrs	Wed 7/15/15	Thu 7/16/15	143	145	0 hrs
145	Install Precast Concrete Arch Footing East Side (60' - 120')	12 hrs	Thu 7/16/15	Fri 7/17/15	144	146	0 hrs
146	Install Stem Walls (60'-120') and Grout	12 hrs	Fri 7/17/15	Fri 7/17/15	145	147	0 hrs
147	Install Precast Concrete Wingwall Footing #1	8 hrs	Fri 7/17/15	Sat 7/18/15	146,17	148	0 hrs
148	Install Precast Concrete Wingwall #1	8 hrs	Sat 7/18/15	Sat 7/18/15	147	149	0 hrs
149	Install Precast Concrete Wingwall Footing #3	8 hrs	Sat 7/18/15	Sun 7/19/15	148	150	0 hrs
150	Install Precast Concrete Wingwall #3	8 hrs	Sun 7/19/15	Sun 7/19/15	149	151	0 hrs
151	Remove Diversion, Realign Stream, and Backfill upto top of Stem Wall	12 hrs	Sun 7/19/15	Mon 7/20/15	150	152	0 hrs
152	Install Precast Concrete Arch (0' - 60')	12 hrs	Mon 7/20/15	Tue 7/21/15	151	153	0 hrs
153	Install Precast Concrete Arch (60' - 120')	12 hrs	Tue 7/21/15	Wed 7/22/15	152	154	0 hrs
154	Install Stream Bed (while bypass pumping)	12 hrs	Wed 7/22/15	Wed 7/22/15	153	155	0 hrs
155	Install Precast Concrete Wingwall Footing #2	8 hrs	Wed 7/22/15	Thu 7/23/15	154	156	0 hrs
156	Install Precast Concrete Wingwall #2	8 hrs	Thu 7/23/15	Thu 7/23/15	155	157	0 hrs
157	Install Precast Concrete Wingwall Footing #4	8 hrs	Thu 7/23/15	Fri 7/24/15	156	158	0 hrs
158	Install Precast Concrete Wingwall #4	8 hrs	Fri 7/24/15	Fri 7/24/15	157	159	0 hrs
159	Backfill Precast Concrete Arch, Headwalls, and Wingwalls (0' - 30')	12 hrs	Fri 7/24/15	Sat 7/25/15	158,107	160	0 hrs



Project: STP 1443 (44) BL05
Date: Mon 12/22/14

Task		Summary		Inactive Task		Manual Task		Start-only	
Project Guide: Critical Task		Project Summary		Inactive Task		Duration-only		Finish-only	
Split		External Tasks		Inactive Milestone		Manual Summary Rollup		Progress	
Milestone		External Milestone		Inactive Summary		Manual Summary		Deadline	

ID	Task Name	Duration	Start	Finish	Predecesso	uccessor	Total Slack
160	Backfill Precast Concrete Arch (30' - 60')	12 hrs	Sat 7/25/15	Sun 7/26/15	159	161	0 hrs
161	Backfill Precast Concrete Arch (60' - 90')	12 hrs	Sun 7/26/15	Mon 7/27/15	160	162	0 hrs
162	Backfill Precast Concrete Arch, Headwalls, and Wingwalls (90' - 120')	12 hrs	Mon 7/27/15	Mon 7/27/15	161	164	0 hrs
163	**Culvert and Waterline**	**1.88 days**	**Mon 7/27/15**	**Wed 7/29/15**			**0 days**
164	Install Drop Inlet	6 hrs	Mon 7/27/15	Tue 7/28/15	162,42	165	0 hrs
165	Install 61.5' of 18" CPEP Culvert	8 hrs	Tue 7/28/15	Tue 7/28/15	164	166	0 hrs
166	Install Permanent Waterline	16 hrs	Tue 7/28/15	Wed 7/29/15	165	168	0 hrs
167	**Slopes**	**1.44 days**	**Wed 7/29/15**	**Fri 7/31/15**			**0 days**
168	Cut and Fill for Side Slopes	15 hrs	Wed 7/29/15	Thu 7/30/15	166	169	0 hrs
169	Install Top Soil	8 hrs	Thu 7/30/15	Fri 7/31/15	168	171	0 hrs
170	**Channel**	**0.38 days**	**Fri 7/31/15**	**Fri 7/31/15**			**0 days**
171	Remove BMPS	6 hrs	Fri 7/31/15	Fri 7/31/15	169,101	173	0 hrs
172	**Roadway**	**2.13 days**	**Fri 7/31/15**	**Sun 8/2/15**			**0 days**
173	Excavate for Proposed Roadway	8 hrs	Fri 7/31/15	Fri 7/31/15	171	174	0 hrs
174	Install 6" of Sand Borrow	8 hrs	Sat 8/1/15	Sat 8/1/15	173,104	175	0 hrs
175	Install 18" Subbase of Crushed Gravel	12 hrs	Sat 8/1/15	Sun 8/2/15	174,110,113	176	0 hrs
176	Install Temporary Traffic Barrier	6 hrs	Sun 8/2/15	Sun 8/2/15	175	7,178	0 hrs
177	**Construction - Post Bridge Closure Period**	**23 days**	**Mon 8/3/15**	**Wed 9/2/15**			**0.13 days**
178	Install 2" of Type IIIS Base Course	1 day	Mon 8/3/15	Mon 8/3/15	38,116,176	179	0.13 days
179	Install 1.5" of Type IVS Binder Course	1 day	Tue 8/4/15	Tue 8/4/15	178	180	0.13 days
180	Install Guardrail	2 days	Wed 8/5/15	Thu 8/6/15	46,50,179	181	0.13 days
181	Install 1.5" of Type IVS Wearing Course	1 day	Fri 8/7/15	Fri 8/7/15	180	182	0.13 days
182	Install Line Striping	1 day	Mon 8/10/15	Mon 8/10/15	57,181	183	0.13 days
183	Install Bridge Signs	2 days	Tue 8/11/15	Wed 8/12/15	61,65,69,182	184	0.13 days
184	Restore Dump Site for Excess Fill	5 days	Thu 8/13/15	Wed 8/19/15	183	185	0.13 days
185	Remove Temporary Construction Barrier	1 day	Wed 8/19/15	Thu 8/20/15	184,7	186	0.13 days
186	Remove Temporary Signs	2 days	Thu 8/20/15	Mon 8/24/15	185	187	0.13 days
187	Remove Erosion Controls	2 days	Mon 8/24/15	Wed 8/26/15	186	188	0.13 days
188	Install Permanent Stormwater Treatment Devices	2 days	Wed 8/26/15	Fri 8/28/15	187	189	0.13 days
189	Install Seed	2 days	Fri 8/28/15	Tue 9/1/15	188,81,85,89,9	190	0.13 days
190	Relocate Mailbox	1 day	Tue 9/1/15	Wed 9/2/15	189	192	0.13 days
191	**Close Out**	**12 days**	**Wed 9/2/15**	**Fri 9/18/15**			**0.13 days**
192	Complete Punchlist	7 days	Wed 9/2/15	Fri 9/11/15	190	193	0.13 days
193	Demobilize	5 days	Fri 9/11/15	Fri 9/18/15	192	8	0.13 days



Project: STP 1443 (44) BL05
Date: Mon 12/22/14

Task		Summary		Inactive Task		Manual Task		Start-only	
Project Guide: Critical Task		Project Summary		Inactive Task		Duration-only		Finish-only	
Split		External Tasks		Inactive Milestone		Manual Summary Rollup		Progress	
Milestone		External Milestone		Inactive Summary		Manual Summary		Deadline	

APPENDIX B – FORMS

1. Stormwater Appendix A Risk Evaluation Form (Revised)
2. Off-Site Activities Forms. (to be submitted by Contractor)
3. Inspection Form.

APPENDIX A

Part I – Basic Risk Evaluation

A project may automatically be categorized as Low Risk based on a few basic project characteristics. Answer each question below to determine if a project is automatically categorized as Low Risk. For definitions of terms used in the following questions (e.g. disturbance, vegetated buffer) refer to Appendix C.

Basic Risk Evaluation				
	Criteria	**Answer**	**Score Direction**	**Enter Score**
1.	Will the proposed independent project alone disturb more than 2 acres of land?	YES ☐ NO ☑	If YES, enter 1, if NO enter 0	0
2.	Is the project within a watershed impaired due to stormwater or sediment as specified on Part A of the Vermont 303(d) list?	YES ☐ NO ☑	If YES, enter 1, if NO enter 0	0
3.	Will the project have any stormwater discharges from the construction site to receiving water(s) that **do not** first pass through a 50 ft vegetated buffer area?	YES ☑ NO ☐	If YES, enter 1, if NO enter 0	1
4.	Will the project have disturbed earth in any one location for more than 14 consecutive calendar days without temporary or final stabilization?	YES ☐ NO ☑	If YES, enter 1, if NO enter 0	0
5.	Will the project have more than five acres of disturbed earth at any one time?	YES ☐ NO ☑	If YES, enter 1, if NO enter 0	0
	Total Score for Basic Risk Evaluation (add score from questions 1-5)			1

If the Total Score for Basic Risk Evaluation is 0, the proposed project is eligible for coverage under this permit as a Low Risk project. Proceed to Part IV of Appendix A for a summary of the application requirements for Low Risk Projects. If not, proceed to Part II.

Criterion 1: Only include the disturbance planned for an independent project. For example, if a lot owner is orly building on a single house lot in a residential subdivision, only consider the disturbance associated with that lot, not the entire common plan. Refer to Appendix C for definitions of independent project and disturbance.

Criterion 2: Refer to the following web page for a list of waters in these categories: http://www.vtwaterquality.org/stormwater/htm/sw_cgpeligibility.htm

Criterion 3: Refer to the Appendix C for the definition of vegetated buffer area.

Criterion 4: Refer to Appendix C for definitions of temporary and final stabilization.

Criterion 5: Refer to Appendix C for the definition of disturbed earth.

Part II – Detailed Risk Evaluation

For projects not automatically categorized as Low Risk in Part I, this Detailed Risk Evaluation must be completed to determine if a project is Low Risk, Moderate Risk, or requires an Individual Permit. This evaluation determines the risk category by weighing the balance of factors which contribute to and mitigate against the risk of a discharge of sediment from the construction project. Complete all questions in Part II for the independent project. For definitions of terms used in the evaluation, refer to Appendix C.

Detailed Risk Evaluation – Identify Risk Factors				
	Criteria	**Answer**	**Score Direction**	**Enter Score**
A.	Will the proposed project have earth disturbance within 100 ft (horizontal) upslope of any lake or pond or 50 feet (horizontal) upslope of any rivers or stream (perennial or seasonal)?	YES ☑ NO ☐	If YES, enter 1, if NO enter 0	1
B.	Will the project have stormwater discharges by direct conveyance (tributary, channel, ditch, storm sewer, etc.) to a water of the state listed on the 303 (d) Part A list as being impaired by stormwater or sediment; a Class A Water; or an Outstanding Resource Water?	YES ☐ NO ☑	If YES, enter 1, if NO enter 0	0
C.	Will the project have more than five acres of disturbed earth at any one time?	YES ☐ NO ☑	If YES, enter 1, if NO enter 0	0
D.	Will the project have disturbed earth in any one location for more than 14 consecutive calendar days without temporary or final stabilization?	YES ☐ NO ☑	If YES, enter 1, if NO enter 0	0
E.	Will the project include more than one acre of disturbance on soil that is greater than 15% slope?	YES ☑ NO ☐	If YES, enter 1, if NO enter 0	1
F.	Will the project include more than one acre of disturbance of soils with a high (K>0.36) erodibility rating?	YES ☐ NO ☑	If YES, enter 1, if NO enter 0	0
G.	**Total Score for Risk Factors (add A through F)**			2

Criterion A: Measure lake distance from mean water level, and stream or river distance from top of bank. Do not include disturbance for the installation of stormwater treatment facilities or road stream crossings if there are no reasonable alternative locations.

Criterion B: Refer to http://www.vtwaterquality.org/stormwater/htm/sw_cgpeligibility.htm for the listing.

Criterion C: The maximum allowable for Low Risk Projects is 7 acres. **Moderate risk projects over 5 acres may be required to file an Individual Discharge Permit application if determined necessary by the Secretary.**

Criterion D: The maximum allowable for Low Risk Projects is 21 days. **Moderate risk projects over 21 days may be required to file an Individual Discharge Permit application if determined necessary by the Secretary.**

Criterion E: Include disturbance for the duration of the project, not at any one point in time. Slope determinations should be based on a site survey of the future disturbance area.

Criterion F: Include disturbance for the entire individual project, not at any one point in time. The Erosion Factor K, is a measure of the inherent erodibilty of a soil type. Refer to NRCS soil maps for your county. If soils data is not available (e.g. if the site is built on assorted fill material), contact ANR for directions on evaluating soil erodibility.

Part II Continued – Detailed Risk Mitigation Factor Evaluation

Detailed Risk Evaluation – Identify Risk Mitigation Factors				
	Criteria	**Answer**	**Score Direction**	**Enter Score**
H.	Will stormwater leaving the construction site pass through at least 50 feet of established vegetated buffer before entering a receiving water?	YES ☐ NO ☑	If YES, enter 1, if NO enter 0	0
I.	Will the project be limited to two acres or less of disturbed earth at any one time?	YES ☑ NO ☐	If YES, enter 1, if NO enter 0	1
J.	Will the project have a maximum of 7 consecutive days of disturbed earth exposure in any location before temporary or final stabilization is implemented?	YES ☑ NO ☐	If YES, enter 1, if NO enter 0	1
K.	Will the project disturb less than two acres of soil with an erodibility higher than K=0.17?	YES ☑ NO ☐	If YES, enter 1, if NO enter 0	1
L.	Will the project include less than two acres of disturbance on soil that is greater than 5% slope?	YES ☑ NO ☐	If YES, enter 1, if NO enter 0	1
M.	**Total Score for Risk Mitigation Factors (add H through L.)**			4

Criterion H: Refer to Appendix C for a definition of vegetated buffer.
Criterion I: Refer to Appendix C for a definition of earth disturbance.
Criterion J: Refer to Appendix C for definitions of temporary and final stabilization.
Criterion K: Include disturbance for the duration of the project, not at any one point in time. The Erosion Factor K, is a measure of the inherent erodibilty of a soil type. Refer to NRCS soil maps available at USDA-NRCS District Offices. If soils data are not available (e.g. if the site is built on assorted fill material), contact DEC for directions on evaluating soil erodibility.
Criterion L: Include disturbance for the duration of the project, not at any one point in time. Slope determinations should be based on a site survey of the proposed disturbance area.

Total Risk Score		
N.	**Moderate Risk Base Score**	2
O.	**Enter Score from Line G above (Risk Factor Total)**	2
P.	**Add lines N and O**	4
Q.	**Enter Score from Line M above (Risk Mitigation Factor Total)**	4
R.	**OVERALL RISK SCORE: Subtract line Q from line P**	0

VTrans Vermont Agency of Transportation

2015 EPSC Plan Inspection Report

(Non-Jurisdictional and Low Risk Projects)

Project Name:	**Date:**	**Time Since Last Storm:**
Inspector:	**On-Site Coordinator:** (signature required)	

Measure Inspected	Y	N	STA/Off	Corrective Action (CA) Required	Date CA Occurred
Boundary Limits					
Site boundary markers are up and visible					
Disturbance is only occurring within marked boundaries					
Disturbance Area Limit					
Only acreage listed on *Authorization to Discharge* is disturbed at one time					
Stabilized Construction Entrance/Exit					
Off site tracking of sediment prevented					
Sediment Barriers					
Measure has been installed properly and is functioning as designed					
Accumulated sediment < ½ height of measure					
Diversion					
Upland stormwater is diverted around the work area					
Channelized Runoff					
Check structures are in place, extend the width of the channel, and have capacity to retain sediment in the next storm event					
Channels are stable with no erosion					
Exposed Soils Stabilization					
Seed and mulch, and/or matting placed in accordance w/ permit requirements and/or Specifications					
Soil is seeded and mulched or covered in erosion matting within 48 hours of final grade					
Winter Stabilization					
After Sept. 15, all disturbed areas are seeded & mulched to 3" deep or covered w/ matting					
For ongoing construction, exposed soil is mulched prior to forecasted events					
Dewatering Treatment					
Measure is preventing a discharge of turbid water from leaving the site					
Accumulated sediment is removed to allow sufficient treatment					

* Additional Measures and Discharges shall be reported on the back side of this form.

OFF-SITE ACTIVITY SUBMITTAL

- **This form is to be completed in its entirety by the Contractor/District Tech** when proposing any waste, borrow, or staging area or any work outside the defined Contract construction limits.
- **Submit to Karen Spooner:** karen.spooner@state.vt.us, Phone: (802)828-2169, Fax: (802)828-2334, VTrans Program Development Division, Environmental Section, One National Life Drive, Montpelier, VT 05633-5001
- **Submit a copy to the Resident Engineer**
- **Allow 21 calendar days (see Section 105.25 (c) of the VTrans Standard Specifications For Construction) for review once the application is administratively complete**.

- **SUBMITTAL INFORMATION**

Project Name/District:_____ **Contractor/District Tech:**_____

Contact:_____**Phone:**_____**Fax:**_____**E-mail:**_____

Resident Engineer:_____**Phone:** _____**Fax:**_____

- **PROPOSAL INFORMATION** (Select one type of area being proposed for use per submittal and describe associated characteristics)

□ Waste □ Borrow □ Staging □ Other (ex. dewatering location):_____

Material: Type (asphalt, concrete, earthen, etc.)_____Quantity (yds^3)_____

Total Area of Land Disturbance (sq ft)_____

Additional Info:_____

- **LANDOWNER/PROPERTY INFO** (Fill all applicable boxes; **attach a Location Map and Sketch of Area**)

Name:_____**Address:**_____**Phone:**_____
Print Name

□ Private Residential/Commercial □ Town/State Owned Facility □ Other

Additional Info:_____

Are there other users of this site? □ Yes □ No

Known past uses:_____

□ Location Map (must be USGS Geological Survey Map (7.5'))

□ Sketch of Area: □ North arrow □ Approx scale □ Recognizable features

Permit Info:

Act 250 Permit Exists? □ Yes □ No If Yes, #_____Copy Enclosed? □ Yes □ No

List of Other Existing Permits:_____ _____

Landowner Agreement (Signature is required for all private-, town-, and state-owned properties)

I, _____, warrant that the information in the above permit application is accurate and agree
Landowner/Facility Manager Signature

to the use of the proposed area by _____ as shown on the attached sketch. If acting as the agent of
Name of Contractor

the Landowner, I warrant (1) that the Landowner has the full right, power, and authority to authorize the proposed use, (2) that I am authorized to act as the Landowner's agent, and (3) that my authority to act as the Landowner's agent has not been revoked.

Date: _____

This clearance is for the Natural and Cultural Resources Only.

Vermont Agency of Transportation

EPSC Plan Inspection Report (Non-Jurisdictional and Low Risk Projects)

Measure Inspected	Y	N	STA/Off	Corrective Action	Date Taken
Additional Measures					
Discharges Noted					

* If there is a discharge of visibly discolored stormwater from the construction site to waters of the state, the On-Site Plan Coordinator shall inform the Resident Engineer and take corrective action and report the discharge in accordance with Section 6.1 of Permit 3-9020.

APPENDIX C – PLANS

1. EPSC Narrative Section 1-4 (Contract Plans).
2. EPSC Plan and Detail Sheets.

EPSC PLAN NARRATIVE

1.1 PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REMOVAL OF CULVERT AND CONCRETE ARCH BR37 AND ITS HEADWALLS. THE CULVERT AND CONCRETE ARCH WILL BE REPLACED WITH A PRECAST ARCH WITH A 6 FOOT RISE, SPANNING 12 FEET OVER A BRANCH OF THE MILL RIVER, ON NEW FOOTINGS ALONG THE SAME ALIGNMENT. BR37 IS LOCATED IN THE TOWN OF SHREWSBURY, ON TH 4, APPROXIMATELY 0.25 MILES EASTERLY OF THE INTERSECTION OF TH 4 AND VT ROUTE 103. THE LENGTH OF THE CULVERT WILL BE INCREASED TO 120 FEET.

NOTE: AREA OF DISTURBANCE INCLUDES LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT LIMITS AS SHOWN ON THE ATTACHED EPSC PLAN, EXCLUDING ANY WASTE, BORROW OR STAGING AREAS.

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 1.328 ACRES.

IT IS ANTICIPATED THAT THIS PROJECT WILL LAST ONE CONSTRUCTION SEASON.

1.2 SITE INVENTORY

1.2.1 TOPOGRAPHY

THE TOPOGRAPHY OF THE AREA CAN BE DESCRIBED AS HILLY TO MOUNTAINOUS, MOSTLY FORESTED WITH SOME OPEN AREAS. LINCOLN HILL RD (TH 4), THE OLD VT ROUTE 103, AND A GRAVEL DRIVEWAY ARE WITHIN THE PROJECT SITE. THERE IS A RESIDENCE ON THE WEST SIDE OF THE PROJECT WITH A HOUSE ON THE NORTH SIDE OF THE ROAD AND A BARN ON THE SOUTHERN SIDE OF THE ROAD.

1.2.2 DRAINAGE, WATERWAYS, BODIES OF WATER, AND PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES

A BRANCH OF THE MILL RIVER IS THE ONLY WATER SOURCE ON THE PROJECT SITE. THE BROOK IS CLASSIFIED AS PERENNIAL, STEEP, SINUOUS, NARROW, WITH A CONFINED AND ARMORED CHANNEL AT THE SITE. THE STREAM BED CONSISTS OF GRAVEL, COBBLES AND BOULDERS. THE TRIBUTARY AREA AT THE CULVERT CROSSING IS 1.2 SQ. MI. DUE TO THE NATURE OF THE SURROUNDING TERRAIN THE PROJECT SITE COULD RECEIVE RUNOFF WATER FROM A FEW NEARBY SLOPES.

1.2.3 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF HARDWOOD TREES AND UNDERGROWTH. THE IMPACT TO VEGETATION WILL BE LIMITED TO THAT WHICH IS DIRECTLY AFFECTED BY REPLACEMENT OF THE EXISTING CULVERT AND ARCH. UPON PROJECT COMPLETION, THE CHANNEL WILL BE ARMORED WITH STONE FILL TYPE IV AS SPECIFIED ON THE PLANS. DISTURBED VEGETATION WILL BE REESTABLISHED WITH STANDARD SEED AND MULCH PRACTICES.

1.2.4 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF RUTLAND, VERMONT. SOILS ON THE PROJECT SITE ARE BERKSHIRE GRAVELLY FINE SANDY LOAM, 8% TO 15% SLOPES, K-FACTOR = 0.24; PAXTON FINE SANDY LOAM, 15% TO 25% SLOPES, K-FACTOR = 0.24; AND SUNAPEE FINE SANDY LOAM, VERY STONY, 15%-35% SLOPES. K-FACTOR = 0.28.

NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING:
0.0-0.23 = LOW EROSION POTENTIAL
0.24-0.36 = MODERATE EROSION POTENTIAL
0.37 AND HIGHER – HIGH EROSION POTENTIAL

1.2.5 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: NO
HISTORICAL OR ARCHEOLOGICAL AREAS: HISTORICAL HOUSE, BARN AND SHED, ARCHEOLOGICALLY SENSITIVE AREAS ON THE NORTHWEST SECTION ON THE PROJECT.
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES. NO
WATER RESOURCE: BRANCH OF THE MILL RIVER.
WETLANDS: NO

1.3 RISK EVALUATION

THIS PROJECT FALLS UNDER THE JURISDICTION OF GENERAL PERMIT 3-9020 FOR STORMWATER RUNOFF FROM CONSTRUCTION SITES FOR LOW RISK PROJECTS. ANY MODIFICATIONS TO THE PROJECT THAT INCREASE THE RISK TO ENVIRONMENTAL RESOURCES SHALL BE EVALUATED IN ACCORDANCE WITH THE PERMIT REQUIREMENTS. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL PERMITTING.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE PRINCIPLES OUTLINED IN THIS NARRATIVE CONSIST OF APPLYING MEASURES THROUGHOUT CONSTRUCTION OF THE PROJECT IN ORDER TO MINIMIZE SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLUTION PREVENTION PRACTICES. THEY HAVE BEEN PROPOSED BY THE DESIGNER AS A BASIS FOR PROTECTING RESOURCES AND WILL NEED TO BE BUILT UPON BASED ON THE SPECIFIC MEANS AND METHODS OF THE CONTRACTOR. REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR SPECIFIC GUIDANCE AND CONSTRUCTION DETAILING.

ALL MEASURES SHALL BE REGULARLY MAINTAINED AND SHALL BE CHECKED FOR SEDIMENT BUILD-UP. SEDIMENT SHALL BE DISPOSED OF AT AN APPROVED SITE WHERE IT WILL NOT BE SUBJECT TO EROSION.

1.4.1 MARK SITE BOUNDARIES

SITE BOUNDARIES AND AREAS CONSTRUCTION EQUIPMENT CAN ACCESS SHALL BE DELINEATED.

PROJECT DEMARCATION FENCING (PDF) SHALL BE USED TO PHYSICALLY MARK SITE BOUNDARIES. BECAUSE THIS PROJECT FALLS UNDER THE CGP 3-9020, BARRIER FENCE SHALL BE USED INSTEAD OF PROJECT DEMARCATION FENCE WITHIN 100 FEET OF A WATER RESOURCE (STREAM, BROOK, LAKE, POND, WETLAND, ETC).

1.4.2 LIMIT DISTURBANCE AREA

PREVENTING INITIAL SOIL EROSION BY MINIMIZING THE EXPOSED AREA IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. EARTH DISTURBANCE CAN BE MINIMIZED THROUGH CONSTRUCTION PHASING BY ONLY OPENING UP EARTH AS NECESSARY. THIS CAN LIMIT THE AREA THAT WILL BE DISTURBED AND EXPOSED TO EROSION. EMPLOY TEMPORARY CONSTRUCTION STABILIZATION PRACTICES IN INCREMENTAL STAGES AS PHASES CHANGE. FOR PROJECTS WHICH FALL UNDER THE CONSTRUCTION GENERAL PERMIT, ONLY THE ACREAGE LISTED ON THE PERMIT AUTHORIZATION MAY BE EXPOSED AT ANY GIVEN TIME.

MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS OR OTHER SENSITIVE AREAS IS A CRUCIAL EROSION AND SEDIMENT CONTROL MEASURE THAT SHOULD BE ESTABLISHED WHEREVER POSSIBLE.

1.4.3 SITE ENTRANCE/EXIT STABILIZATION

TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS SHALL BE MINIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTOR'S PROGRESS SCHEDULE.

STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AS NEEDED ANYWHERE EQUIPMENT WILL BE GOING FROM AREAS OF EXPOSED SOILS TO PAVED SURFACES.

1.4.4 INSTALL SEDIMENT BARRIERS

SEDIMENT BARRIERS SHALL BE UTILIZED TO INTERCEPT RUNOFF AND ALLOW SUSPENDED SEDIMENT TO SETTLE OUT. THEY SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK.

SILT FENCE WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN. BECAUSE THIS PROJECT FALLS UNDER THE CGP 3-9020, WOVEN WIRE REINFORCED SILT FENCE SHALL BE USED INSTEAD OF SILT FENCE WITHIN 100 FEET UPSLOPE OF RECEIVING WATERS.

1.4.5 DIVERT UPLAND RUNOFF

DIVERSIONARY MEASURES SHALL BE USED TO INTERCEPT RUNOFF FROM ABOVE THE CONSTRUCTION AND DIRECT IT AROUND THE DISTURBED AREA SO THAT CLEAN WATER DOES NOT BECOME MUDDIED WHILE TRAVELING OVER EXPOSED SOLS ON THE CONSTRUCITON SITE.

THE STEEP SLOPES OF THE PROJECT MAY REQUIRE DIVERSIONARY MEASURES TO BE INSTALLED ON THE EASTERN END OF THE PROJECT.

1.4.6 SLOW DOWN CHANNELIZED RUNOFF

CHECK STRUCTURES SHALL BE UTILIZED TO REDUCE THE VELOCITY, AND THUS THE EROSIVE POTENTIAL, OF CONCENTRATED FLOW IN CHANNELS.

STONE CHECK DAMS WILL BE INSTALLED AS PROPOSED ON THE EPSC PLAN, AT A MINIMUM.

1.4.7 CONSTRUCT PERMANENT CONTROLS

PERMANENT STORMWATER TREATMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND IN ACCORDANCE WITH PERMIT CONDITIONS.

1.4.8 STABILIZE EXPOSED SOLS DURING CONSTRUCTION

ALL AREAS OF DISTURBANCE MUST HAVE TEMPORARY STABILIZATION IN PLACE WITHIN 48 HOURS OF DISTURBANCE OR IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT 3-9020 AUTHORIZATION.

SURFACE ROUGHENING OF ALL EXPOSED SLOPES, COMBINED WITH TEMPORARY MULCHING, SHALL BE UTILIZED ON A REGULAR BASIS. BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3.

THE FORECAST OF RAINFALL EVENTS SHALL TRIGGER IMMEDIATE PROTECTION OF EXPOSED SOILS.

1.4.9 WINTER STABILIZATION

VARIOUS MEASURES SPECIFIC TO WINTER MAY BE NECESSARY SHOULD THE PROJECT EXTEND INTO WINTER (OCTOBER 15 THROUGH APRIL 15). REFER TO THE LOW RISK SITE HANDBOOK FOR GUIDANCE.

1.4.10 STABILIZE SOIL AT FINAL GRADE

EXPOSED SOIL MUST BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

SEED, MULCH, FERTILIZER AND LIME SHALL BE USED TO ESTABLISH PERMANENT VEGETATION. FOR SLOPES STEEPER THAN 1:3, BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED INSTEAD OF MULCH.

1.4.11 DE-WATERING ACTIVITIES

DISCHARGE FROM DEWATERING ACTIVITIES THAT FLOWS OFF OF THE CONSTRUCTION SITE MUST NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF THE VERMONT WATER QUALITY STANDARDS.

TREATMENT OF DEWATERING AREA IS ANTICIPATED. A LOCATION FOR TREATMENT HAS BEEN PROPOSED AND IS SHOWN ON THE PLANS. HOWEVER THE SPECIFIC MEANS FOR TREATMENT OF DISCHARGE SHALL BE PROVIDED BY THE CONTRACTOR.

1.4.12 INSPECT YOUR SITE

INSPECT THE PROJECT SITE BASED ON SPECIAL PROVISION REQUIREMENTS OR CONSTRUCTION GENERAL PERMIT AUTHORIZATION STIPULATIONS.

1.5 SEQUENCE AND STAGING

THIS SECTION WILL BE DEVELOPED BY THE CONTRACTOR USING THE GUIDANCE OUTLINED IN THE VTRANS EPSC PLAN CONTRACTOR CHECKLIST.

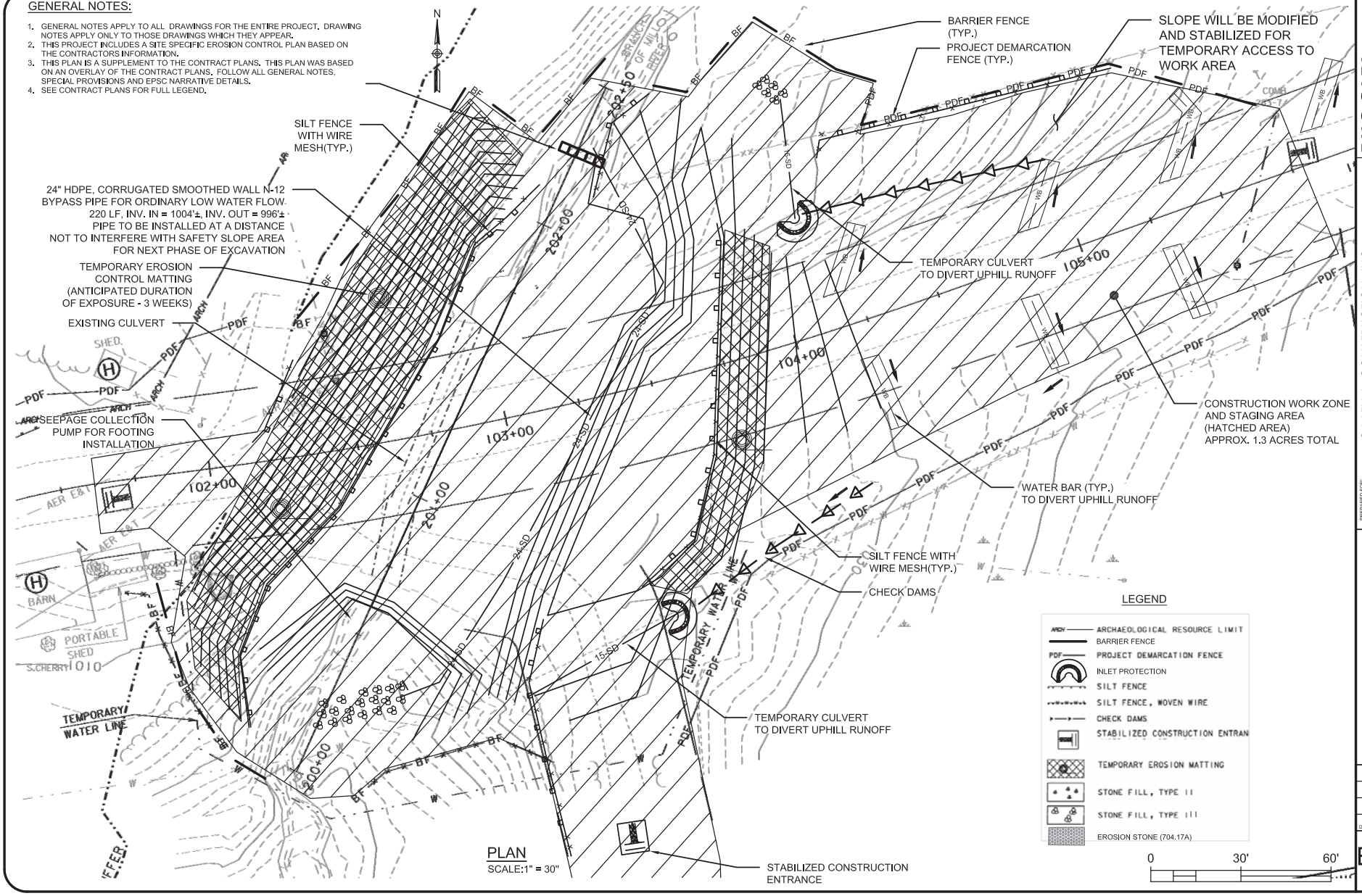
1.5.1 CONSTRUCTION SEQUENCE

1.5.2 OFF-SITE ACTIVITIES

IN ADDITION TO THE CONTRACTOR CHECKLIST ANY ACTIVITIES OUTSIDE THE CONSTRUCTION LIMITS SHALL FOLLOW SUBSECTION 105.25- 105.29 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION.

GENERAL NOTES:

1. GENERAL NOTES APPLY TO ALL DRAWINGS FOR THE ENTIRE PROJECT. DRAWING NOTES APPLY ONLY TO THOSE DRAWINGS WHICH THEY APPEAR.
2. THIS PROJECT INCLUDES A SITE SPECIFIC EROSION CONTROL PLAN BASED ON THE CONTRACTORS INFORMATION.
3. THIS PLAN IS A SUPPLEMENT TO THE CONTRACT PLANS. THIS PLAN WAS BASED ON AN OVERLAY OF THE CONTRACT PLANS. FOLLOW ALL GENERAL NOTES, SPECIAL PROVISIONS AND EPSC NARRATIVE DETAILS.
4. SEE CONTRACT PLANS FOR FULL LEGEND.



PLAN
SCALE:1" = 30"

LEGEND

- ARCH — ARCHAEOLOGICAL RESOURCE LIMIT
- BARRIER FENCE
- PDF — PROJECT DEMARCATION FENCE
- INLET PROTECTION
- SILT FENCE
- SILT FENCE, WOVEN WIRE
- CHECK DAMS
- STABILIZED CONSTRUCTION ENTRAN
- TEMPORARY EROSION MATTING
- STONE FILL, TYPE II
- STONE FILL, TYPE III
- EROSION STONE (704.17A)

0 30' 60'

RUGGLES ENGINEERING SERVICES, INC.
4580 MEMORIAL DRIVE, ST. JOHNSBURY, VT 05819
Civil Engineering-Site Permitting
Water, Sewer and Stormwater System Designs
802-748-5898
JOB No. 15007

PREPARED FOR: CASELLA CONSTRUCTION, INC.
Address: 25 INDUSTRIAL LANE, MENDON, VT 05701

PHASE I SITE SPECIFIC EROSION CONTROL PLAN
SHREWSBURY STP 1443(44)

REVISIONS		
No.	Description	Date
-	-	-
-	-	-
-	-	-
-	-	-

Designed:
Drawn: NPS
Checked: -
DATE: 4/17/2015

EPSC 1

Sheet of -

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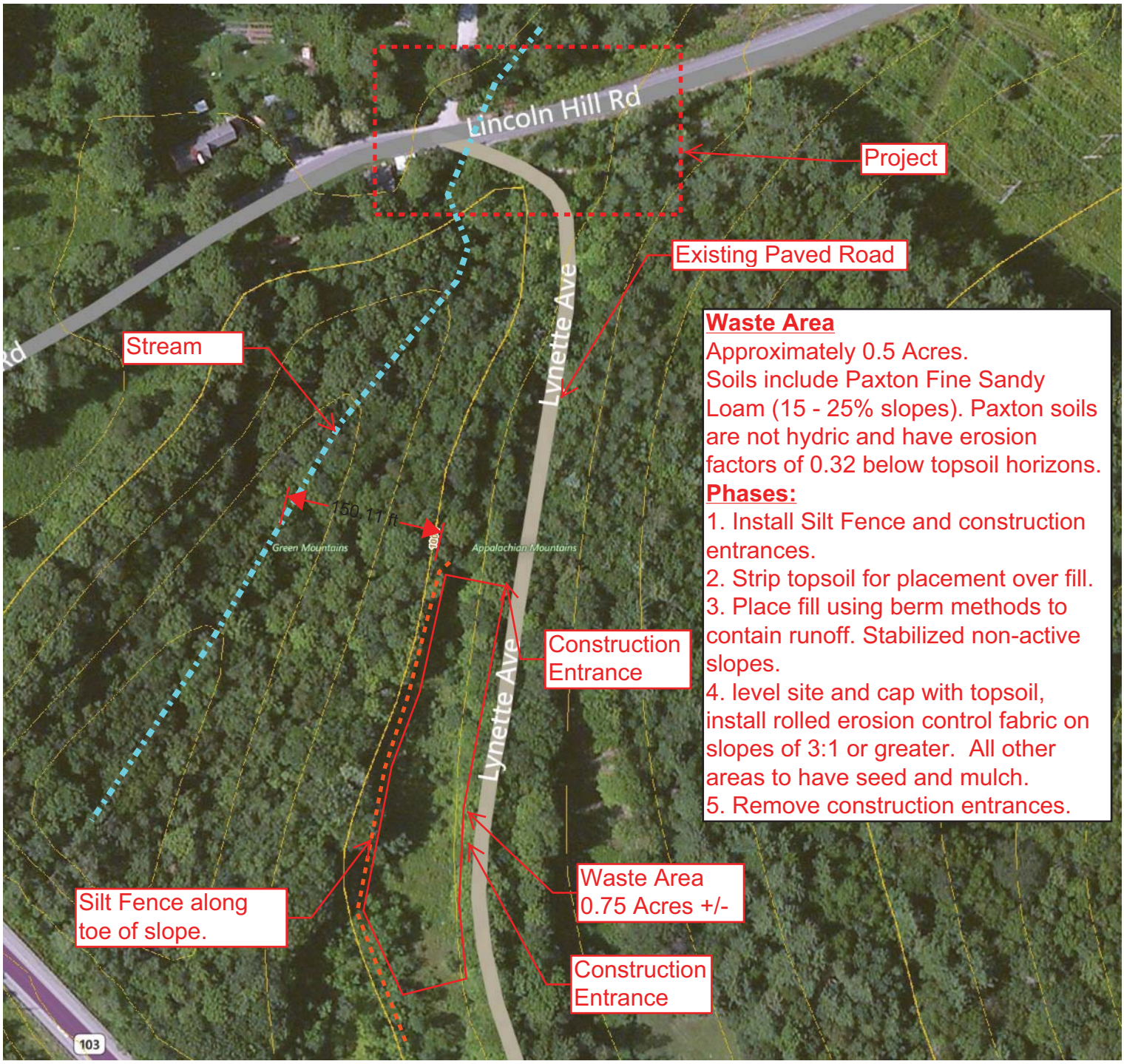
Natural Resources Atlas

Vermont Agency of Natural Resources

vermont.gov



Waste Area

Approximately 0.5 Acres.

Soils include Paxton Fine Sandy Loam (15 - 25% slopes). Paxton soils are not hydric and have erosion factors of 0.32 below topsoil horizons.

Phases:

1. Install Silt Fence and construction entrances.
2. Strip topsoil for placement over fill.
3. Place fill using berm methods to contain runoff. Stabilized non-active slopes.
4. level site and cap with topsoil, install rolled erosion control fabric on slopes of 3:1 or greater. All other areas to have seed and mulch.
5. Remove construction entrances.

LEGEND

Town Boundary

NOTES

Map created using ANR's Natural Resources Atlas

1: 1,605

April 16, 2015

267.0 0 134.00 267.0 Feet

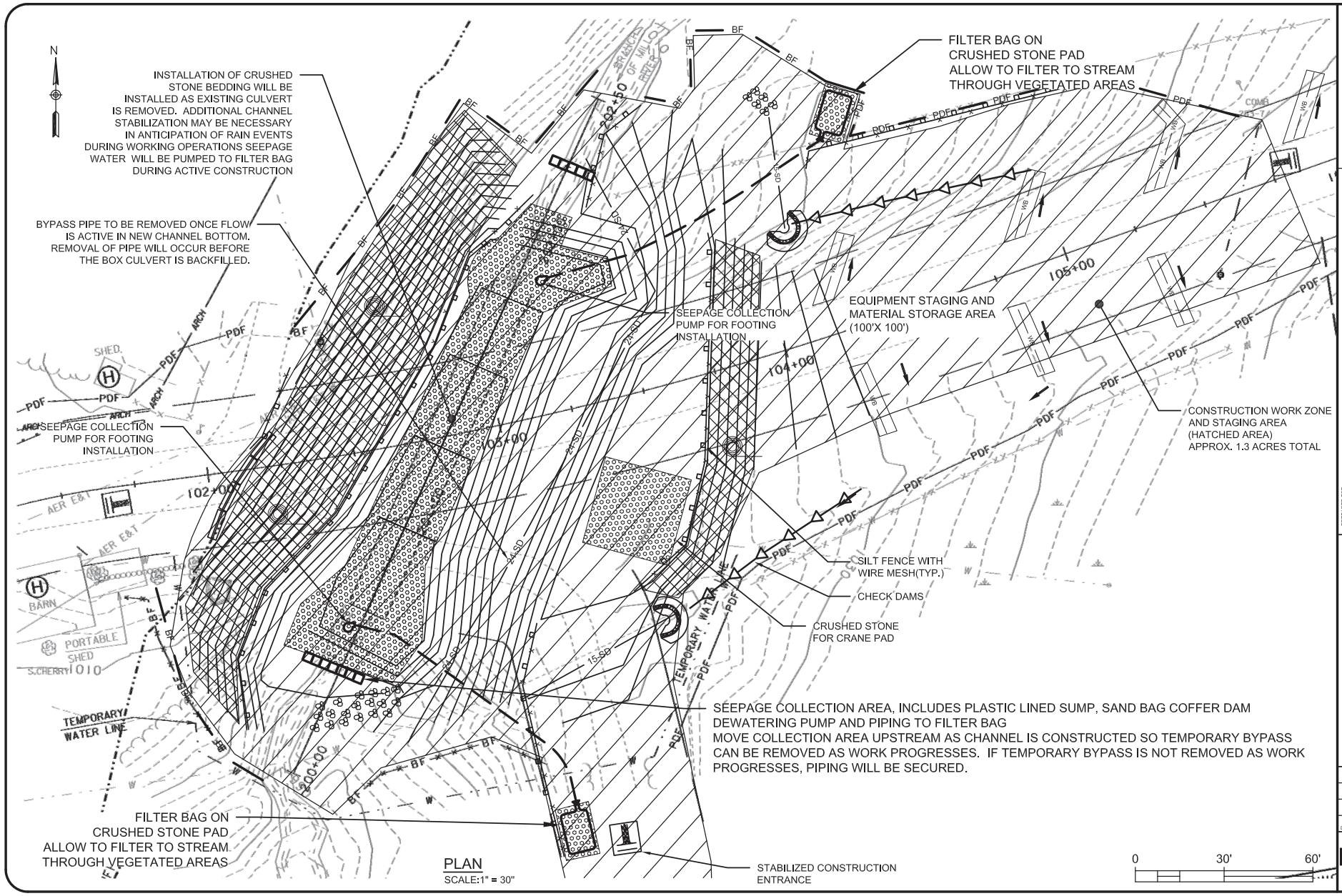
WGS_1984_Web_Mercator_Auxiliary_Sphere

© Vermont Agency of Natural Resources

1" = 134 Ft. 1cm = 16 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

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



PLAN
SCALE:1" = 30"

RUGGLES ENGINEERING SERVICES, INC.
4850 MEMORIAL DRIVE, ST. JOHNSBURY, VT 05819
Civil Engineering-Site Permitting
Water, Sewer and Stormwater system Designs
802-748-5808
JOB No.

CASELLA CONSTRUCTION, INC.
25 INDUSTRIAL LANE, MENDON, VT 05701

PHASE II SITE SPECIFIC EROSION CONTROL PLAN
SHREWSBURY STP 1443(44)

PREPARED FOR:
Address

No.	Description	Date

REVISIONS

Designed:
Drawn: NPS
Checked: -
DATE: 4/17/2015

EPSC 2

Sheet of -

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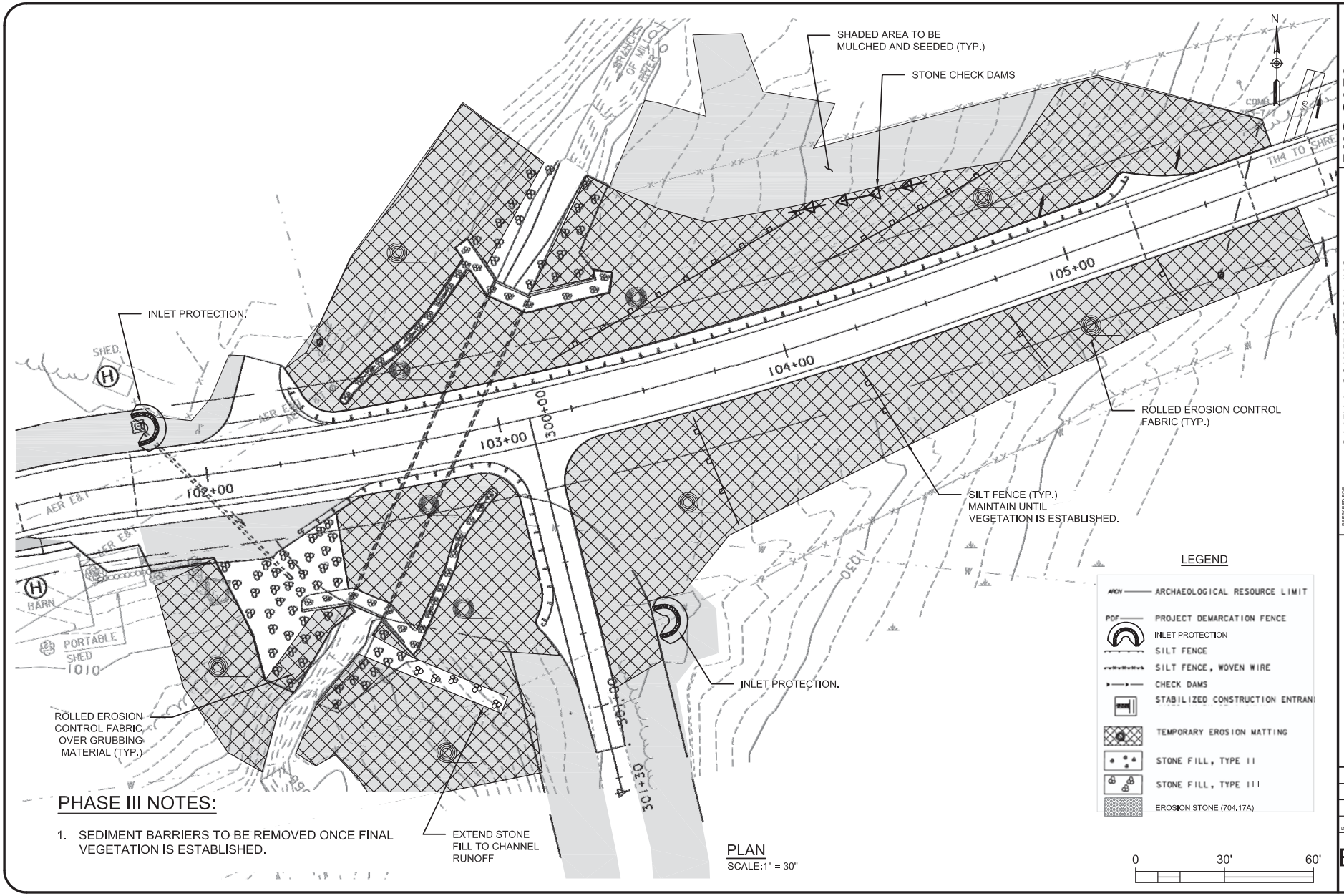

PHASE III NOTES:

1. SEDIMENT BARRIERS TO BE REMOVED ONCE FINAL VEGETATION IS ESTABLISHED.

PLAN
SCALE:1" = 30"

RUGGLES ENGINEERING SERVICES, INC.
4580 MEMORIAL DRIVE, ST. JOHNSBURY, VT 05819
Civil Engineering-Site Permitting
Water, Sewer and Stormwater System Designs
802-748-5898
JOB No. 15007

PREPARED FOR:
CASELLA CONSTRUCTION, INC.
25 INDUSTRIAL LANE, MENDON, VT 05701
Address

PHASE III FINAL EROSION CONTROL PLAN
SHREWSBURY STP 1443(44)

REVISIONS

No.	Description	Date
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-	-	-
-	-	-
-	-	-

Designed:
Drawn: NPS
Checked: -
DATE: 4/16/2015

EPSC 3

Sheet of -

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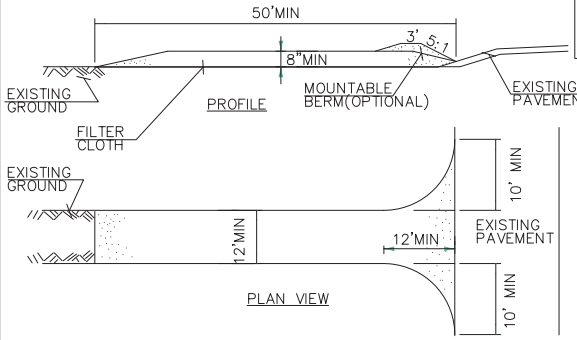
SYMBOL

NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

1. STONE SIZE– USE 1–4" STONE, RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.

2. LENGTH– NOT LESS THAN 50' (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30' MINIMUM LENGTH APPLIES).

3. THICKNESS– NOT LESS THAN 8".

4. WIDTH– 12' MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. 24' IF SINGLE ENTRANCE TO SITE.

5. GEOTEXTILE MUST BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.

6. SURFACE WATER– ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.

7. MAINTENANCE– THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY MUST BE REMOVED IMMEDIATELY.

8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED ACCORDING TO PERMIT REQUIREMENTS.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA–NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

STABILIZED CONSTRUCTION ENTRANCE

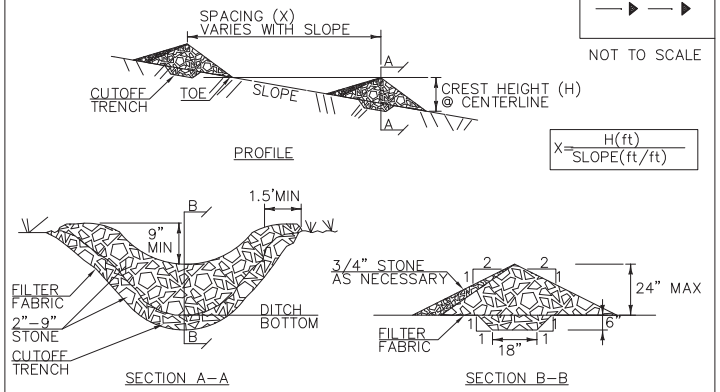
NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL –2006– " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR VEHICLE TRACKING PAD (PAY ITEM 653.35) OR AS SPECIFIED IN THE CONTRACT.

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF

SYMBOL

NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION.

2. CHECK DAMS SHALL BE SPACED SO THAT THE ELEVATION OF THE CREST OFTHE DOWNSTREAM DAM IS AT THE SAME ELEVATION AS THE TOE OF THE UPSTREAM DAM.

3. 3/4" FILTERING STONE MAY BE ADDED TO THE FACE OF THE CHECK DAM AS NECESSARY.

4. EXTEND THE STONE A MINIMUM OF 1.5' BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.

5. PROTECT CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.

1. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.

2. MAXIMUM DRAINAGE AREA 2 ACRES.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC
ORIGINALLY DEVELOPED BY USDA–NRCS
VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

CHECK DAM

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL –2006– " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR TEMPORARY STONE CHECK DAM, TYPE I (PAY ITEM 653.25)

REVISIONS	
MARCH 21, 2008	WHF
JANUARY 8, 2009	WHF

VT Standard Details taken from http://vtranscaddhelp.vermont.gov

CASELLA CONSTRUCTION, INC.

25 INDUSTRIAL LANE
MENDON, VERMONT 05701

PHONE: 802.773.0052
FAX: 802.747.7992

PROJECT: SHREWSBURY STP 1443 (44)
SHREWSBURY, VERMONT

DRAWING: EP-7 Details Sheet 1

VERMONT AGENCY OF TRANSPORTATION

ONE NATIONAL LIFE DRIVE
MONTPELIER, VT 05633

DRAWN BY:	JDR
PREPARED BY:	JC, EIT
DATE:	03/06/15
DRAWING NUMBER:	7 OF 10
DRAWING SCALE:	

VAOT RURAL AREA MIX						
	LBS/AC					
WEIGHT	BROADCAST	HYDROSEED	NAME	LATIN NAME	GERM	PURITY
37.5%	22.5	45	CREEPING RED FESCUE	FESTUCA RUBRA VAR. RUBRA	85%	98%
37.5%	22.5	45	TALL FESCUE	FESTUCA ARUNDINACEA	90%	95%
5.0%	3	6	RED TOP	AGROSTIS GIGANTEA	90%	95%
15.0%	9	18	WHITE FIELD CLOVER	TRIFOLIUM REPENS	85%	98%
5.0%	3	6	ANNUAL RYE GRASS	LOLIUM MULTIFLORUM	85%	95%
100%	60	120				

VAOT URBAN LAWN MIX						
	LBS/AC					
WEIGHT	BROADCAST	HYDROSEED	NAME	LATIN NAME	GERM	PURITY
42.5%	34	68	CREEPING RED FESCUE	FESTUCA RUBRA X RUBRA	85%	98%
20.0%	16	32	PERENNIAL RYE GRASS	LOLIUM PERENNE	90%	95%
32.5%	26	52	KENTUCKY BLUE GRASS	POA PRATENSIS	85%	85%
5.0%	4	8	ANNUAL RYE GRASS	LOLIUM MULTIFLORUM	85%	95%
100%	80	160				

GENERAL AMENDMENT GUIDANCE		
FERTILIZER	LIME	
10/20/10	AG LIME	PELLITIZED
500 LBS/AC	2 TONS/AC	1 TONS/AC

CONSTRUCTION GUIDANCE

1. RURAL SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED UPLAND (NON WETLAND) AREAS DISTURBED BY THE CONTRACTOR.

2. URBAN SEED MIX: USE AS INDICATED IN THE PLANS AND/OR FOR ALL ESTABLISHED LAWN AREAS DISTURBED BY THE CONTRACTOR.

3. ALL SEED MIXTURES: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.

4. FERTILIZER AND LIMESTONE: SHALL FOLLOW RATES SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER.

5. HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, ACHIEVE 90% GROUND COVER OR AS DIRECTED BY THE ENGINEER.

6. TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.

7. HYDROSEEDING: ALTHOUGH GUIDANCE IS GIVEN ABOVE THE SITE CONDITIONS AND THE TYPE OF HYDROSEED PROPOSED FOR USE WILL ULTIMATELY DICTATE THE AMOUNTS AND TYPES OF SOIL AMENDMENTS TO BE APPLIED.

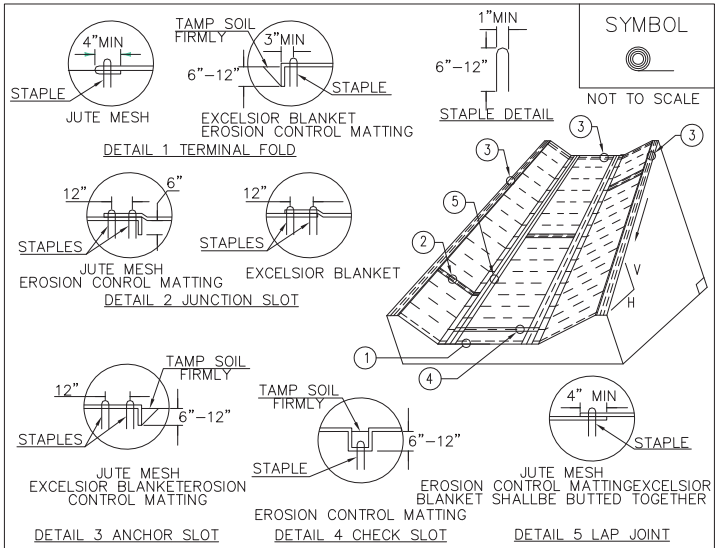
8. TURF ESTABLISHMENT: PLACING SEED, FERTILIZER, LIME AND MULCH PRIOR TO SEPTEMBER 15 AND AFTER APRIL 15 CAN BETTER ENSURE A VIGOROUS GROWTH OF GRASS.

ADAPTED FROM VTRANS TECHNICAL LANDSCAPE MANUAL FOR ROADWAYS AND TRANSPORTATION FACILITIES

TURF ESTABLISHMENT

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 651 FOR SEED (PAY ITEM 651.15)

REVISIONS	
JANUARY 12, 2015	WHF



CONSTRUCTION SPECIFICATIONS

1. EROSION MATTING, CHECK SLOTS, SHALL BE SPACED IN DITCH CHANNEL SO THAT ONE OCCURS WITHIN EACH 50' ON SLOPES OF MORE THAN 4% AND LESS THAN 6%. ON SLOPES OF 6% OR MORE, THEY SHALL BE SPACED SO THAT ONE OCCURS WITHIN EACH 25'.

2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.

3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4'X225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4'X150' ROLL OF MATERIAL.

4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.

5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC ORIGINALLY DEVELOPED BY USDA–NRCS VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

ROLLED EROSION CONTROL PRODUCT(RECP) DITCH

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL –2006– " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM 653.20) OR PERMANENT EROSION MATTING (PAY ITEM 653.21).

REVISIONS	
MARCH 8, 2007	JMF
APRIL 16, 2007	WHF
JANUARY 13, 2009	WHF

VT Standard Details taken from http://vtranscaddhelp.vermont.gov

CASELLA CONSTRUCTION, INC.

25 INDUSTRIAL LANE
MENDON, VERMONT 05701

PHONE: 802.773.0052
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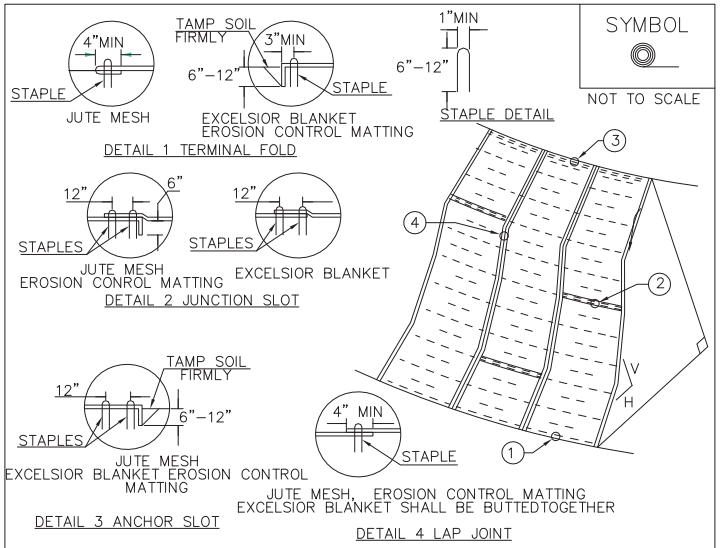
PROJECT: SHREWSBURY STP 1443 (44)
SHREWSBURY, VERMONT

DRAWING: EP-8 Details Sheet 2

VERMONT AGENCY OF TRANSPORTATION

ONE NATIONAL LIFE DRIVE
MONTPELIER, VT 05633

DRAWN BY:	JDR
PREPARED BY:	JC, EIT
DATE:	03/06/15
DRAWING NUMBER:	8 OF 10
DRAWING SCALE:	



CONSTRUCTION SPECIFICATIONS

1. APPLY TO SLOPES GREATER THAN 3H:1V OR WHERE NECESSARY TO AID IN ESTABLISHING VEGETATION.

2. APPLY FERTILIZER, LIME SEED PRIOR TO PLACING MATTING.

3. STAPLES ARE TO BE PLACED ALTERNATELY, IN COLUMNS APPROXIMATELY 2' APART AND IN ROWS APPROXIMATELY 3' APART. APPROXIMATELY 175 STAPLES ARE REQUIRED PER 4'X225' ROLL OF MATERIAL AND 125 STAPLES ARE REQUIRED PER 4'X150' ROLL OF MATERIAL.

4. DISTURBED AREAS SHALL BE SMOOTHLY GRADED. EROSION CONTROL MATERIAL SHALL BE PLACED LOOSELY OVER GROUND SURFACE. DO NOT STRETCH.

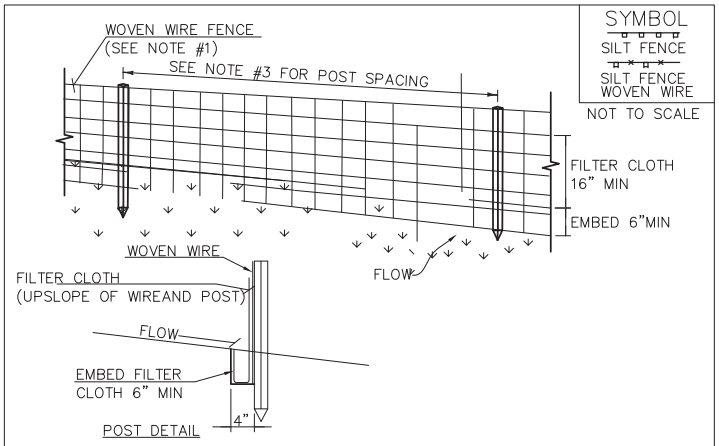
5. ALL TERMINAL ENDS AND TRANSVERSE LAPS SHALL BE STAPLED AT APPROXIMATELY 12" INTERVALS.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC ORIGINALLY DEVELOPED BY USDA–NRCS VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION	ROLLED EROSION CONTROL PRODUCT (RECP) SIDE SLOPE

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL –2006– " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 AND AS SHOWN IN THE PLANS FOR TEMPORARY EROSION MATTING (PAY ITEM 653.20) OR PERMANENT EROSION MATTING (PAY ITEM 653.21).

REVISIONS	
APRIL 16, 2007	JMF
JANUARY 13, 2009	WHF



CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE REINFORCED FENCE IS REQUIRED WITHIN 100' UPSLOPE OF RECEIVING WATERS WHEN THE PROJECT FALLS UNDER A CONSTRUCTION STORMWATER PERMIT. WOVEN WIRE SHALL BE A MIN. 14 GAUGE WITH A 6" MAX. MESH OPENING.

2. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAF1100X, STABILINKA T140N OR APPROVED EQUIVALENT.

3. POST SPACING FOR WIRE–BACKED FENCE SHALL BE 10' MAXIMUM. FOR FILTER–CLOTH FENCE, WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4' AND WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6'.

4. WOVEN WIRE FENCE IS TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES. FILTER CLOTH IS TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.

5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER–LAPPED BY 6" AND FOLDED.

6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.

ADAPTED FROM DETAILS PROVIDED BY: NEW YORK STATE DEC ORIGINALLY DEVELOPED BY USDA–NRCS VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION	SILT FENCE

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL –2006– " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 649 AND AS SHOWN IN THE PLANS FOR GEOTEXTILE FOR SILT FENCE (PAY ITEM 649.51) OR GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED (PAY ITEM 649.515).

REVISIONS	
MARCH 21, 2008	WHF
DECEMBER 11, 2008	WHF
JANUARY 13, 2009	WHF

VT Standard Details taken from http://vtranscaddhelp.vermont.gov

CASELLA CONSTRUCTION, INC.

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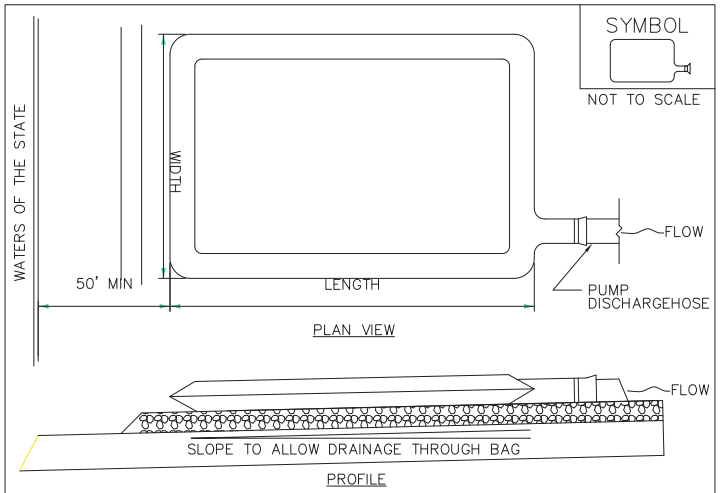
PROJECT: SHREWSBURY STP 1443 (44)
SHREWSBURY, VERMONT

DRAWING: EP-9 Details Sheet 3

VERMONT AGENCY OF TRANSPORTATION

ONE NATIONAL LIFE DRIVE
MONTPELIER, VT 05633

DRAWN BY:	JDR
PREPARED BY:	JC, EIT
DATE:	03/06/15
DRAWING NUMBER:	9 OF 10
DRAWING SCALE:	



CONSTRUCTION SPECIFICATIONS

1. THE PRIMARY PURPOSE OF FILTER BAG IS TO RETAIN SILT, SAND, AND FINES DURING DEWATERING OPERATIONS.

2. FILTER BAGS SHALL BE INSTALLED ON A VEGETATED SLOPE GRADED TO ALLOW INCOMING WATER TO FLOW THROUGH THE BAG.

3. FILTER BAGS MAY ALSO BE PLACED ON COARSE AGGREGATE, STONE, OR HAYBALES TO INCREASE FILTRATION EFFICIENCY.

4. FILTER BAGS SHALL BE LOCATED A MINIMUM OF 50' FROM WATERS OF THE STATE UNLESS OTHERWISE APPROVED BY THE ENGINEER.

5. THE NECK OF THE FILTER BAG SHALL BE STRAPPED TIGHTLY TO THE DISCHARGE HOSE.

6. A FILTER BAG IS FULL WHEN IT NO LONGER CAN EFFICIENTLY FILTER SEDIMENT OR ALLOW WATER TO PASS AT A REASONABLE RATE.

7. FILTER BAG SHALL BE DISPOSED OF AS APPROVED IN THE EPSC PLAN OR AS DIRECTED BY THE ENGINEER.

FILTER BAG

NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL –2006– " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR FILTER BAG (PAY ITEM 653.45) AND AS SPECIFIED IN THE CONTRACT.

REVISIONS	
MARCH 24, 2008	WHF
JANUARY 13, 2009	WHF

VT Standard Details taken from http://vtranscaddhelp.vermont.gov

CASELLA CONSTRUCTION, INC.

25 INDUSTRIAL LANE
MENDON, VERMONT 05701

PHONE: 802.773.0052
FAX: 802.747.7992

PROJECT: SHREWSBURY STP 1443 (44)
SHREWSBURY, VERMONT

DRAWING: EP-10 Details Sheet 4

VERMONT AGENCY OF TRANSPORTATION

ONE NATIONAL LIFE DRIVE
MONTPELIER, VT 05633

DRAWN BY:	JDR
PREPARED BY:	JC, EIT
DATE:	03/06/15
DRAWING NUMBER:	10 OF 10
DRAWING SCALE:	

APPENDIX D – Experience

1. Onsite Coordinator Information.

Jacob D. Robinson
(802) 236-3725
jake.robinson@casellainc.com

Education

Roger Williams University 2012
Bachelor of Science GPA: 3.373
Major – Construction Management
Minor – Business
Core – International Studies

College Experience

ASC Region 1 Student Competition
The competition consists of a team of 6 preparing an estimate, schedule, and presentation of an actual project for a panel of professional judges from the industry.

Heavy Civil Capstone Project
The semester long project consisted of a group of 3 preparing a construction plan, estimate, schedule, and presentation of a $103 million steel bridge in Tiverton, RI.

OSHA 10 Hour
Completed 10 hour OSHA training in Construction Safety and Health

Computer Skills

-Primavera P6
-Microsoft Excel, Project, Word
-AutoCAD Civil 3D
-Experience with Construction Link

Related Experience

Field Engineer:
April 2014 to Present
Casella Construction, Inc.
25 Industrial Lane
Mendon, VT

Construction Scheduler:
June 2012 to January 2014
Cardi Corporation
400 Lincoln Avenue
Warwick, RI

Work Experience:

Casella Construction, Inc.:
Rutland City Sewer and Drain

This project consisted of sidewalk replacement, storm and sanitary sewer installation, water valve installation, and box cut widening on Route 7 in Rutland VT.

As a Field Engineer my primary responsibilities were surveying and layout for the proposed sidewalk, sewer manholes, and catch basins. I was on site every day to set line and grade for the proposed pipe and to assist the superintendent in maintaining a safe, efficient, and environmentally conscious worksite.

Rutland Airport Maintenance Road

Construction of the maintenance road included stripping the site of topsoil, hauling in fill, shaping a side slope, and installing a paved road.

Along with layout my responsibilities on this job also included erosion controls. Prior to any work being performed we installed a silt fence along the toe of the proposed slope. The fence was checked daily and maintained as needed throughout the job. Following completion of the road the area was seeded covered with erosion matting.

Cardi Corporation:

As a scheduler for Cardi Corporation I was responsible for building baseline schedules for multiple drainage, utility, roadway, signal, and sidewalk jobs. Throughout each job I attended biweekly meetings and submitted schedule updates showing the status of the job. Part of the update process included identifying and tracking construction delays and their effects on the schedule. I also assisted the head scheduler by cost and resource loading the schedules for Cardi's larger bridge projects.

Aside from scheduling I handled submittals and RFI's for the jobs that I was assigned. I have experience using online sharefiles to transmit documents and shop drawings to the reviewing engineer. I also assisted Cardi's estimators by performing quantity take offs for site and highway projects.

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EDUCATION

NORTHEASTERN UNIVERSITY, Boston, MA
BACHELOR OF SCIENCE IN CIVIL ENGINEERING,
Cum Laude, G.P.A.3.35, American Society of Civil Engineers Student Chapter Officer, June 2002

CERTIFICATIONS

Engineer in Training – Massachusetts (2001)
Surveyor in Training – Massachusetts (2005)
Massachusetts Construction Supervisor License
OSHA 30 Hours
Vermont Class B Licensed Designer (Septic and Water Systems)
ACI Concrete Field Testing Technician – Grade 1.

PROFESSIONAL EXPERIENCE

CASELLA CONSTRUCTION, Mendon, VT June 2009 -2011, 2013 to Present
Senior Engineer
In charge of construction layout, submittals, pay requisitions, and estimating for heavy civil projects ranging from $1-10 million in New England and New York. Projects include Akey Road Landfill Closure (City of Plattsburgh), Southbridge Cell 7.2b expansion (Casella Waste), Clinton County Landfill Phase V Cell 1a, Worcester Greenwood Landfill Closure, and New England Waste Systems Coventry, VT Cell 2b/3b Construction.

SUFFOLK CONSTRUCTION, Boston, MA July 2005 to June 2009, 2011 to 2012
SUPERINTENDENT
Construction company, rank in top 50 in ENR, providing general contracting, construction management, preconstruction, and design/build services in the public and private sectors to commercial, residential, education, health care, and retail across the US. Project sizes range from $1- 250 million in New England, Mid Atlantic, Florida, and California. Please see attached list of projects. Responsibilities include:

- Assistant Superintendent in charge of site, mason, glazer, landscaper, misc. metal, and waterproofing subcontractors on 3 large building projects (over $75 million, see attached Project List for description).
- Field coordination and scheduling multiple trades on day to day and week to week basis.
- Provide building survey control (horizontal and vertical) and layout with Topcon total station and TDS data collector for high-rise buildings (excavation, pile and pile cap, concrete, anchor bolt, exterior and interior walls, and site layout). Verify subcontractor layout.
- Perform existing condition and as built surveys and drawings.
- Resolve field issues through coordination between architects, engineers, and subcontractors using RFI's and field sketches to document process.
- Review submittals including shop drawings to ensure proper adherence to contract documents and verification of field dimensions.
- Maintain a set of production documents and update daily so an accurate picture of work in place is consistently maintained
- Monitor job progress, checking all work to ensure compliance with contract documents and the Suffolk quality control program.
- Design and drafting of structural members and connection for a large historical building renovation (Charles St Jail / Liberty Hotel).
- Assist in maintaining construction management plans and scheduling material deliveries.
- Maintain and review the safety requirements for the project and resolve deficiencies.

MIDDLESEX CORPORATION, Littleton, MA June 2003 to July 2005
FIELD ENGINEER / SURVEYOR
Heavy civil construction company specializing in public and private roadway, bridge, utility, rail, and site construction projects ranging $1- 40 million in Massachusetts, Connecticut, and Florida. Responsibilities included:

- Field Engineer in charge of construction layout (line and grade) for projects including buildings, bridges, roads, highways, and utilities.

JEFFREY T. CHASE

- Preformed layout (one man crew / Party Chief) using AutoCAD, Nikon Total Station, Topcon Robotic Total Station (Topcon A800 Total Station with Ranger Data Collector (TDS), Nikon Digital Level, and Topcon GPS (Hiper Plus RTK GPS System).
- On a daily basis provided direction to various trades and resolve field issues with owners and owner representatives.
- Conducted existing conditions and as-built surveys and drafted associated drawings using AutoCAD Land Development 2000 and Carlson 2004 Survey Package. Drawings were used by owners, engineers, and architects.
- Calculated material quantities for tracking and payment. Estimated material quantities for ordering (concrete, asphalt, gravel, piping, etc.).
- Prepared submittals and obtained pricing information on materials.
- Prepared detailed AutoCAD sketches and coordination drawings.
- Prepared 3 dimensional computer models that were used in a data collector for layout (DTM files and etc.) and automated GPS machine control. Provided cut-fill calculations for estimating purposes.
- Assisted the Estimating Department with takeoffs for various public and private heavy civil projects.

MCBRIE, LLC, Danvers, MA August 2002 to June 2003
PROJECT ENGINEER
Structural design firm specializing in design of 1 to 3 story communications, commercial, and residential buildings. Responsibilities included:

- Performed structural design of buildings (1-3 stories, steel, masonry, reinforced concrete, and wood design) and building foundations, for communication facilities, commercial buildings, and residential buildings. Designed using computer analyses including Ram Structural Package, hand calculations, and AutoCAD computer drafting.
- Performed structural investigation and evaluation of existing buildings for structural deficiencies in their foundations and framing, and prepare repair procedures and plans.
- Performed site inspections for compliance with structural drawings and local building codes.
- Performed independent structural review of contract documents.

BARLETTA HEAVY DIVISION, East Boston, MA September 2000 to October 2001
ASSISTANT FIELD ENGINEER – CO-OP
Heavy Civil Construction Company specializing in public and private bridge, airport, utility, rail, and site construction projects ranging $1-200 million in Massachusetts. Worked two co-ops as an Assistant Field Engineer on the Central Artery/Tunnel (CA/T) Contract No. C08A1, I-90/Rt. 1A Interchange and MBTA Airport Station (project value $200 million). Responsibilities included:

- Monitored subcontractors and crews that included utilities, plumbing, and other trades.
- Compiled information for Requests For Information and preparing submittals.
- Researched and compiled information for layout using AutoCAD Land Development 2000 and drafting as-built drawings at different stages of the project.
- Assisted surveyor in construction layout of utilities, roadways, and buildings as both rod man and instrument operator.
- Created concrete formwork shop drawings (architectural) for bridge abutments.

COMPUTER SKILLS:

Programs: Microsoft Office (Word, Excel, Powerpoint, Outlook), AutoCAD Land Development 2000, Carlson Survey 2004, Primervia, Expedition, RAM International Structural Package 8.0 (Steel, Foundation, Baseplate, Sbeam, Connection), RISA Structural Design Software (RISA Base & Footing), Tripod Data Systems (TDS) Software (ForeFront), Topcon 3D Office Machine Control Software
Surveying Hardware: Topcon GTS230, Nikon DTM800, Topcon GTS800 (Robotic Total Station), and Topcon Hiper+ GPS, TDS Ranger and Recon Data Collectors with Pocket 3D and TDS.
Other Computer Skills: Setting up Microsoft Windows networks, computer troubleshooting.

REFERENCES:

Available upon request.

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PROJECT LIST

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Dartmouth College Visual Arts Center

Date: 2011-2012

Scope: Area superintendent incharge of interior finishes and exterior site work, punchlist, and closeout on a 40 million dollar 3 story multidispline student teaching building.

Akey Road Landfill Closure

Date: 2010

Scope: Project Engineer in charge of layout, scheduling, submittals, and material buyout for a 26 acre landfill closure in Plattsburgh, New York

Two Financial Center (13 story steel framed high-rise office tower with 3 levels of underground parking in Financial District of Boston - $80 million)

Date: 2008

Scope: Layout building control, concrete edge of slab, and concrete walls and curbs. Managed site, mason, and plumbing subcontractors and prepare RFI's.

45 Province Street (34 story cast in place concrete high-rise high-end residential tower with 4 levels of underground parking in downtown Boston - $150 million)

Date: 2007-2008

Scope: Layout building control, concrete edge of slab, concrete columns and walls, steel embeds, and mechanical openings floor slabs. Managed misc. metals and elevator subcontractors and prepare RFI's.

Charles Street Jail Hotel (17 story steel framed high-rise tower and renovation 150 year old jail into 300 room hotel - $75 million, 2008 Buildings Magazines "2008 Modernization Grand Prize" (http://www.buildings.com/articles/detail.aspx?contentID=6569)

Date: 2005-2007

Scope: Layout building control, foundation (piles and pilecaps), concrete walls and curbs, anchor bolts, and interior walls. Perform existing condition and asbuilt surveys and drawing. Field coordination with architects, engineers, owner, and subcontractors through onsite meetings and RFI's. Managed façade trades, site, landscaper, drywaller, and concrete subcontractors.

JPI Dedham Apartments (300 units - $4 Million) Site Development and Building Foundation

Date: 2004-2005

Scope: Layout all building corners and walls for 3 separate apartment building (300 units total). Provide building slab grades. Layout building corridor lines. Layout site utilities, grading, and paving. Provide building as-builts and utility as-builts(AutoCAD file). Calculate material quantities. Prepare submittals and order materials.

JPI Bellingham Apartments (300 units - $4.5 Million) Site Development

Date: 2004-2005

Scope: Layout building foundation for excavation and footings. Layout out corners of wastewater treatment plant. Layout all site utilities, grading, and paving. Provide utility as-builts (AutoCAD file).

Fore River Bridge – Quincy - Fender System

Date: 2005

Scope: Provide as- built survey of existing piers in river for design of future fender system.

I-95 / RT 128 Bridge over MBTA Tracks - Dedham / Westwood

Date: 2004

Scope: Layout bridge piers, abutments, anchor rods, and blocking points.

Central Connecticut State University Utility Tunnel and Energy Center Project ($35 million)

JEFFREY T. CHASE

Date: 2002-2004
Scope: Project involved installation of 1500 linear feet of precast concrete box culvert thru center of campus and construction of new heating and electricity generation plan. Performed layout of all sidewalks (extensive amount of concrete sidewalks with strict specifications for locations control and construction joints) , grading, retaining walls, and paving. Provide utility and surface as-builts (AutoCAD file).

RT175 Roadway Reconstruction Project ($5 million) in New Britain, CT
Date: 2003/2004
Scope: Layout of concrete box culverts and retaining walls. Layout of roadway baselines, road grading, drainage structures, and granite curbing. Length of job 1500 meters.

I-95 Branford CT Roadway Widening ($35 million),
Date: 2003/2004
Scope: As-built 2 miles of 6 lane highway at every lane break (3.65m) at every station (20m) to meet strict construction specifications and tolerances. Provide cut and fills for milling and paving. Check against contract drawings and reported any differences to owner. Checked grades during milling and paving. Layout of headwalls for 60 inch culverts. Calculated quantities for tracking and for payment requisitions.

Rolling Meadows Subdivision – Westford Ma
Date: 2003/2004
Scope: Perform as-built survey and provided town with street acceptance plan and as-built drawing (paper and AutoCAD file).

Verizon Central Office Building Addition – Plaistow
Date: 2003
Scope: Structural design (steel) of communication building addition (adding second story to one story building) using Ram Steel Software Design Package and hand calculations. Associated drafting of plans and details.

Livingman Church Design – Plaistow, NH
Date: 2003
Scope: Structural design and drafting of foundation and steel frame of 10000 square foot church.

Structural Design of Wood Frame Homes
Date: 2003
Scope: Designed and drafted multiple wood framed homes and additions

Summer Street Bridge over Reserve Channel
Date: 2001/2002
Scope: Layout of caissons, pier caps, bearing pads, edge of deck, and approaches for multi span bridge over Reserve Channel

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