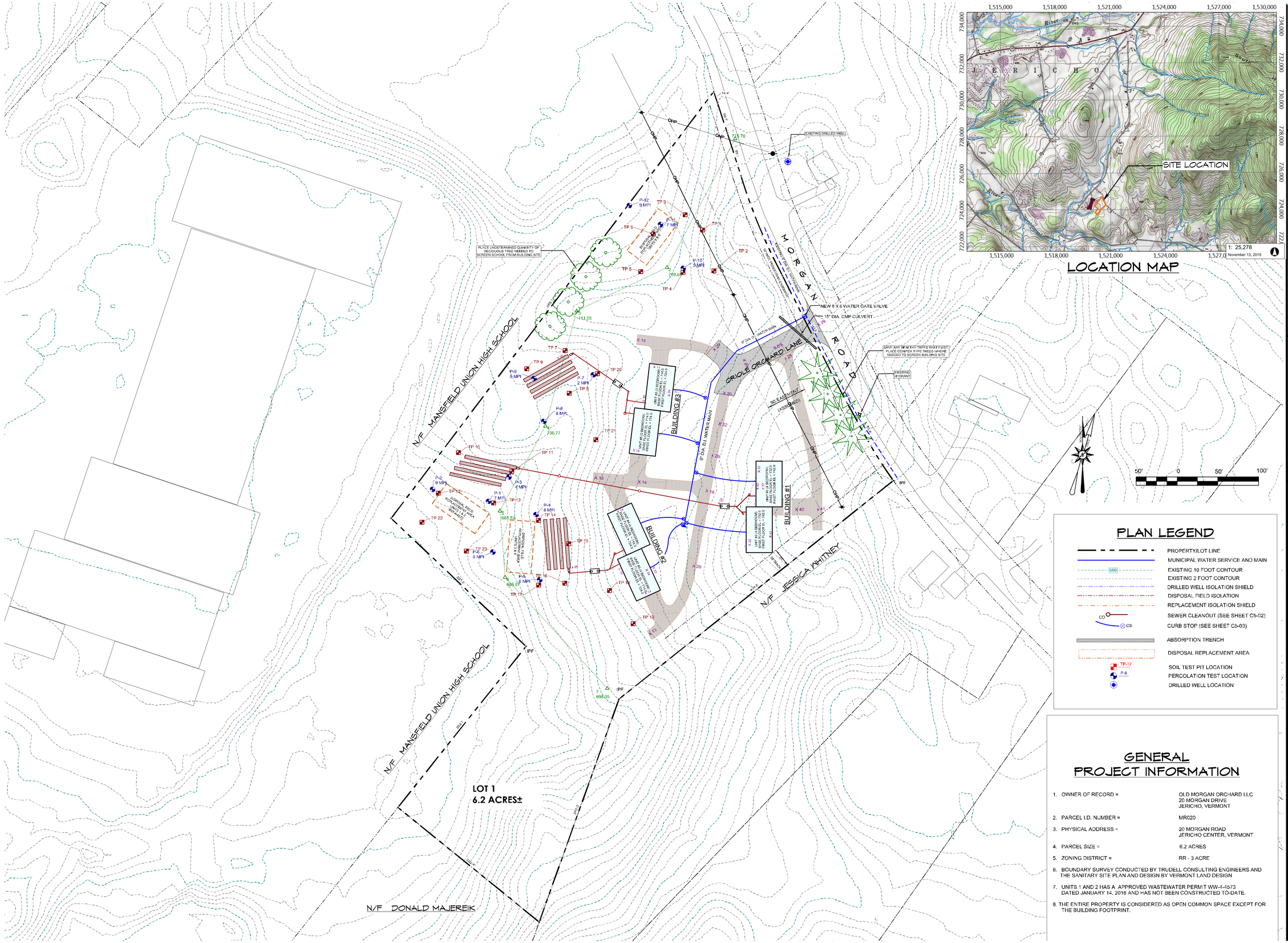

LOCATION MAP

PLAN LEGEND

- PROPERTY/LOT LINE
- MUNICIPAL WATER SERVICE AND MAIN
- EXISTING 10 FOOT CONTOUR
- EXISTING 2 FOOT CONTOUR
- DRILLED WELL ISOLATION SHIELD
- DISPOSAL FIELD ISOLATION
- REPLACEMENT ISOLATION SHIELD
- SEWER CLEANOUT (SEE SHEET C5-02)
- CURB STOP (SEE SHEET C5-03)
- ABSORPTION TRENCH
- DISPOSAL REPLACEMENT AREA
- SOIL TEST PIT LOCATION
- PERCOLATION TEST LOCATION
- DRILLED WELL LOCATION

GENERAL PROJECT INFORMATION

1. OWNER OF RECORD = OLD MORGAN ORCHARD LLC, 20 MORGAN DRIVE, JERICHO, VERMONT
2. PARCEL I.D. NUMBER = MR020
3. PHYSICAL ADDRESS = 20 MORGAN ROAD, JERICHO CENTER, VERMONT
4. PARCEL SIZE = 6.2 ACRES
5. ZONING DISTRICT = RR - 3 ACRE
6. BOUNDARY SURVEY CONDUCTED BY TRUDELL CONSULTING ENGINEERS AND THE SANITARY SITE PLAN AND DESIGN BY VERMONT LAND DESIGN
7. UNITS 1 AND 2 HAS A APPROVED WASTEWATER PERMIT WW-4-4573 DATED JANUARY 14, 2016 AND HAS NOT BEEN CONSTRUCTED TO-DATE.
8. THE ENTIRE PROPERTY IS CONSIDERED AS OPEN COMMON SPACE EXCEPT FOR THE BUILDING FOOTPRINT.

VERMONT LAND DESIGN
SITE CIVIL ENGINEERING
1229 CENTER ROAD
HYDE PARK, VERMONT 05655
802-730-3443 - www.vermontlanddesign.com

Use of These Drawings

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5. It is the User's responsibility to ensure this copy contains the most current revisions.

Revisions:

STATE OF VERMONT
JOHN P. PITKOWISH
NO. 8104
CIVIL
LICENSED
PROFESSIONAL ENGINEER

STATE OF VERMONT
THOMAS J. WAWRZENIAK
NO. 166
LICENSED DESIGNER

Project Title

OLD MORGAN ORCHARD L.L.C.

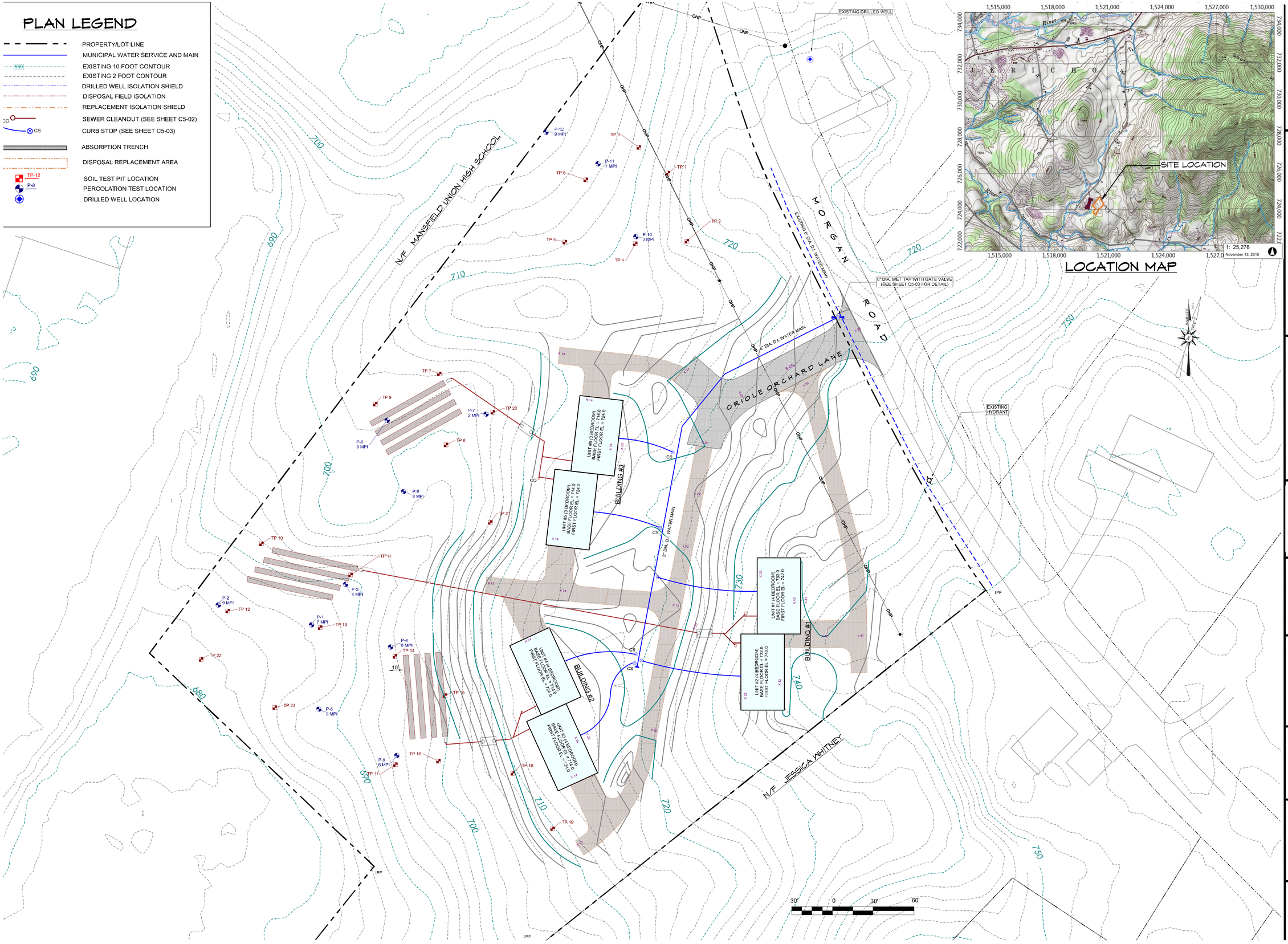
20 MORGAN ROAD
JERICHO CENTER, VERMONT

Sheet Title

FINAL OVERALL SITE PLAN

Date:	06-10-2016
Scale:	AS SHOWN
Project Number:	16-397
Drawn By:	TJW
Project Engineer:	
Approved By:	

C1-06



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HYDE PARK, VERMONT 05655
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JOHN P. PITKOWSKI
NO. 8104
CIVIL
LICENSED PROFESSIONAL ENGINEER

STATE OF VERMONT
THOMAS J. WAWRZENIAK
NO. 166
LICENSED DESIGNER

Project Title

OLD MORGAN ORCHARD L.L.C.

20 MORGAN ROAD
JERICHO CENTER, VERMONT

Sheet Title

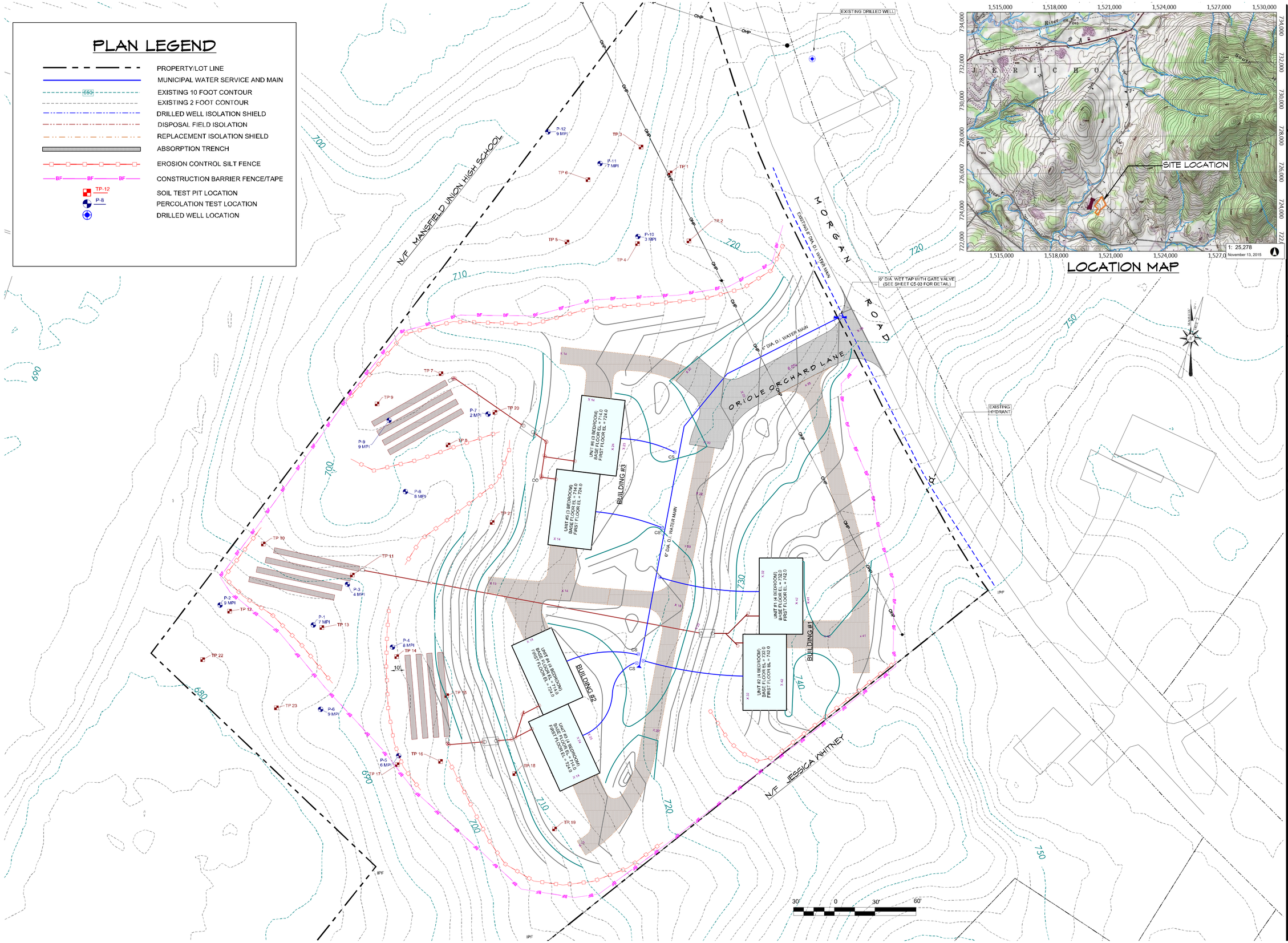
GRADING PLAN FOR STORMWATER ANALYSIS

Date:	06-13-2016
Scale:	AS SHOWN
Project Number:	16-397
Drawn By:	TJW
Project Engineer:	
Approved By:	

C6-01

PLAN LEGEND

- PROPERTY/LOT LINE
- MUNICIPAL WATER SERVICE AND MAIN
- 650 — EXISTING 10 FOOT CONTOUR
- EXISTING 2 FOOT CONTOUR
- DRILLED WELL ISOLATION SHIELD
- DISPOSAL FIELD ISOLATION
- REPLACEMENT ISOLATION SHIELD
- ABSORPTION TRENCH
- BF — BF — BF — EROSION CONTROL SILT FENCE
- BF — BF — BF — CONSTRUCTION BARRIER FENCE/TAPE
- TP-12 — SOIL TEST PIT LOCATION
- P-8 — PERCOLATION TEST LOCATION
- DRILLED WELL LOCATION



LOCATION MAP

VERMONT LAND DESIGN
SITE CIVIL ENGINEERING
1229 CENTER ROAD
HYDE PARK, VERMONT 05655
802-730-3448 - www.vermontlanddesign.com

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Revisions:

THIS PLAN IS FOR PERMITTING PURPOSES ONLY

STATE OF VERMONT
THOMAS J WAWRZENIAK
NO. 166
REGISTERED PROFESSIONAL ENGINEER

Project Title

OLD MORGAN ORCHARD L.L.C.

20 MORGAN ROAD
JERICHO CENTER, VERMONT

Sheet Title

EROSION CONTROL SITE PLAN

Date:	06-13-2016
Scale:	AS SHOWN
Project Number:	16-397
Drawn By:	TJW
Project Engineer:	
Approved By:	

C8-01

Hay bales must not be used as check dams due to their high failure rates.

7. Construct Permanent Controls

Purpose:

Permanent stormwater treatment practices are constructed to maintain water quality, ensure groundwater flows, and prevent downstream flooding. Practices include detention ponds and wetlands, infiltration basins, and stormwater filters.

Requirements:

If the total impervious* area on your site, or within the common plan of development, will be 1 or more acres, you must apply for a State Stormwater Discharge Permit and construct permanent stormwater treatment practices on your site. These practices must be installed before the construction of any impervious surfaces.

How to comply:

Contact the Vermont Stormwater Program and follow the requirements in the Vermont Stormwater Management Manual.

The Stormwater Management Manual is available at: www.vtwaterquality.org/stormwater.htm

*An impervious surface is a manmade surface, including, but not limited to, paved and unpaved roads, parking areas, roofs, driveways, and walkways, from which precipitation runs off rather than infiltrates.

This wet pond is designed to treat stormwater runoff, recharge groundwater, regulate the flow of water into nearby streams, and prevent downstream flooding.

Install all permanent stormwater treatment practices before constructing any impervious surfaces on site. This stormwater wetland treats stormwater runoff from the adjacent parking lot.

8. Stabilize Exposed Soil

Purpose:

Seeding and mulching, applying erosion control matting, and hydroseeding are all methods to stabilize exposed soil. Mulches and matting protect the soil surface while grass is establishing.

Requirements:

All areas of disturbance must have temporary or permanent stabilization within 7, 14, or 21 days of initial disturbance, as stated in the project authorization. After this time, any disturbance in the area must be stabilized at the end of each work day.

The following exceptions apply:

- Stabilization is not required if earthwork is to continue in the area within the next 24 hours and there is no precipitation forecast for the next 24 hours.
- Stabilization is not required if the work is occurring in a self-contained excavation (i.e. no outlet) with a depth of 2 feet or greater (e.g. house foundation excavation, utility trenches).

All areas of disturbance must have permanent stabilization within 48 hours of reaching final grade (See page 33).

How to comply:

Prepare bare soil for seeding by grading the top 3 to 6 inches of soil and removing any large rocks or debris.

Seeding Rates for Temporary Stabilization
April 15 - Sept. 15 – Ryegrass (annual or perennial): 20 lbs/acre)
Sept. 15 - April 15 – Winter rye: 120 lbs/acre

Seeding Rates for Final Stabilization:

Choose from:	Variety	lbs./acre	lbs./1000 sq.ft.
Birdsfoot trefoil	Empire/Pardee	5[1]	0.10
or			
Common white clover	Common	8	0.20
plus			
Tall Fescue	KY-31/Rebel	10	0.25
plus			
Redtop	Common	2	0.05
or			
Ryegrass (perennial)	Pennfine/Linn	5	0.10

[1] Mix 2.5 each of Empire and Pardee OR 2.5 lbs. of Birdsfoot and 2.5 lbs. white clover per acre.

Mulching Rates
April 15 - Sept.15 – Hay or Straw: 1 inch deep (1-2 bales/1000 s.f.)
Sept.15 - April 15 – Hay or Straw: 2 in. deep (2-4 bales/1000 s.f.)

Erosion Control Matting
As per manufacturer's instructions

Hydroseed
As per manufacturer's instructions

Excellent stabilization of large slopes to limit the area of disturbance. Make sure to install erosion control matting within 48 hours of grading to ensure good contact between soil and mat.

Good tracking up and down slope. Tracking slows down runoff and promotes infiltration. More mulch is needed.

Hydroseeding exposed soil is a good option for stabilizing large areas. Hydroseed is a mixture of seed, fertilizer, water and a tackifier to hold the seed in place before it germinates.

Excellent application of hay mulch. Good mulch cover and sediment barrier around soil stockpile.

9. Winter Stabilization

Purpose:

Managing construction sites to minimize erosion and prevent sediment loading of waters is a year-round challenge. In Vermont, this challenge becomes even greater during the late fall, winter, and early spring months.

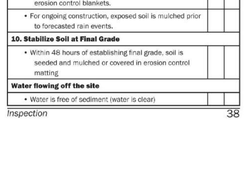
'Winter construction' as discussed here, describes the period between October 15 and April 15, when erosion prevention and sediment control is significantly more difficult.

Rains in late fall, thaws throughout the winter, and spring melt and rains can produce significant flows over frozen and saturated ground, greatly increasing the potential for erosion.

Requirements for Winter Shutdown:

For those projects that will complete earth disturbance activities prior to the winter period (October 15), the following requirements must be adhered to:

1. For areas to be stabilized by vegetation, seeding shall be completed no later than September 15 to ensure adequate growth and cover.
2. If seeding is not completed by September 15, additional non-vegetative protection must be used to



Stabilization and seeding of slopes before winter will reduce or eliminate erosion in the spring. The grass on this slope is holding the soil in place and promoting infiltration of the melting snow.

Requirements for Winter Construction

If construction activities involving earth disturbance continue past October 15 or begin before April 15, the following requirements must be adhered to:

1. Enlarged access points, stabilized to provide for snow stockpiling.
2. Limits of disturbance moved or replaced to reflect boundary of winter work.
3. A snow management plan prepared with adequate storage and control of meltwater, requiring cleared snow to be stored down slope of all areas of disturbance and out of stormwater treatment structures.
4. A minimum 25 foot buffer shall be maintained from perimeter controls such as silt fence.
5. In areas of disturbance that drain to a water body within 100 feet, two rows of silt fence must be installed along the contour.
6. Drainage structures must be kept open and free of snow and ice dams.

stabilize the site for the winter period. This includes use of Erosion Control Matting or netting of a heavy mulch layer. Seeding with winter rye is recommended to allow for early germination during wet spring conditions.

3. Where mulch is specified, apply roughly 2 inches with an 80-90% cover. Mulch should be tracked in or stabilized with netting in open areas vulnerable to wind.

7. Silt fence and other practices requiring earth disturbance must be installed ahead of frozen ground.
8. Mulch used for temporary stabilization must be applied at double the standard rate, or a minimum of 3 inches with an 80-90% cover.
9. To ensure cover of disturbed soil in advance of a melt event, areas of disturbed soil must be stabilized at the end of each work day, with the following exceptions:
   - If no precipitation within 24 hours is forecast and work will resume in the same disturbed area within 24 hours, daily stabilization is not necessary.
   - Disturbed areas that collect and retain runoff, such as house foundations or open utility trenches.
10. Prior to stabilization, snow or ice must be removed to less than 1 inch thickness.
11. Use stone to stabilize areas such as the perimeter of buildings under construction or where construction vehicle traffic is anticipated. Stone paths should be 10--20 feet wide to accommodate vehicular traffic.

10. Stabilize Soil at Final Grade

Purpose:

Stabilizing the site with seed and mulch or erosion control matting when it reaches final grade is the best way to prevent erosion while construction continues.

Requirements:

Within 48 hours of final grading, the exposed soil must be seeded and mulched or covered with erosion control matting.

Lawn is fully established before construction is completed at this home site.

How to comply:

Bring the site or sections of the site to final grade as soon as possible after construction is completed. This will reduce the need for additional sediment and erosion control measures and will reduce the total disturbed area.

For seeding and mulching rates, follow the specifications under Rule 8, "Stabilizing Exposed Soil".

Within 48 hours of final grading, erosion control matting and mulch have been applied.

12. Dewatering Activities

Purpose:

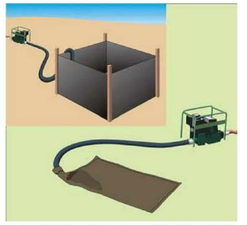
Treat water pumped from dewatering activities so that it is clear when leaving the construction site.

Requirements:

Water from dewatering activities that flows off of the construction site must be clear. Water must not be pumped into storm sewers, lakes, or wetlands unless the water is clear.

How to comply:

Using sock filters or sediment filter bags on dewatering discharge hoses or pipes, discharge water into silt fence enclosures installed in vegetated areas away from waterways. Remove accumulated sediment after the water has dispersed and stabilize the area with seed and mulch.



Water is pumped from the construction site into a silt fence enclosure on a vegetated area or into a sock filter away from waterways.

12. Inspect Your Site

Purpose:

Perform site inspections to ensure that all sediment and erosion control practices are functioning properly. Regular inspections and maintenance of practices will help to reduce costs and protect water quality.

Requirements:

Inspect the site at least once every 7 days and after every rainfall or snowmelt that results in a discharge from the site. Perform maintenance to ensure that practices are functioning according to the specifications outlined in this handbook.

In the event of a noticeable sediment discharge from the construction site, you must take immediate action to inspect and maintain existing erosion prevention and sediment control practices. Any visibly discolored stormwater runoff to waters of the State must be reported.

Forms for reporting discharges are available at: www.vtwaterquality.org/stormwater.htm

Example Site Inspection Form	Y	N
1. Boundary Limits		
• Site boundary markers are up and visible		
• Disturbance is only occurring within marked boundaries		
2. Limit Disturbance Area		
• Only the acreage listed on the Authorization to Discharge is disturbed at one time		
3. Construction Entrance		
• Off-site tracking of mud prevented		

Example Site Inspection Form	Y	N
4. Sediment Barriers		
• Silt fence is trenched into ground with no gaps		
• Accumulated sediment is less than ½ way up the fence		
5. Diversion Berms		
• All upland stormwater is diverted around the site		
6. Check Dams		
• Check dams are in place and stretch the width of the channel		
• Channels are stable with no erosion		
8. Stabilize Exposed Soil		
• Seed and mulch, and/or erosion control blankets are being used in accordance with the permit requirements		
9. Winter Stabilization		
• After September 15, all disturbed areas have been seeded and mulched to 3 inches deep, or covered in erosion control blankets.		
• For ongoing construction, exposed soil is mulched prior to forecasted rain events.		
10. Stabilize Soil at Final Grade		
• Within 48 hours of establishing final grade, soil is seeded and mulched or covered in erosion control matting.		
Water flowing off the site		
• Water is free of sediment (water is clear)		

Section 3
Additional Resources

How to calculate slope:

Approximate Slope Conversions			
Steepness	**Percent**	**Slope ratio (ft/ft)**	**Degrees**
Very steep	100%	1:1	45°
	50%	2:1	27°
Moderate	33%	3:1	18°
	25%	4:1	14°
Slight	10%	10:1	6°
	5%	20:1	3°

How to estimate disturbance area:

1 acre = 43,560 square feet = 4,840 square yards

Area in acres (width in feet x length in feet)							
(w) x (l)	100	150	200	300	400	500
100	0.2	0.3	0.5	0.7	0.9	1.1
150	0.3	0.5	0.7	1.0	1.4	1.7
200	0.5	0.7	0.9	1.4	1.8	2.3
300	0.7	1.0	1.4	2.1	2.8	3.4
400	0.9	1.4	1.8	2.8	3.7	4.6
500	1.1	1.7	2.3	3.4	4.6	5.7

Acknowledgements
Design details and standards for sediment and erosion control practices have been adapted from the New York State Standards and Specifications for Erosion and Sediment Control. August 2005.

Photographs and illustrations provided by Tetra Tech, Kim Greenwood, Don Lake, Jim Pease, and Hydrograss Technologies.

This document has been adapted from the *Kentucky Erosion Prevention and Sediment Control Field Guide* produced by the Tetra Tech Water Resources Division in Fairfax VA for the Kentucky Division of Conservation and Division of Water. Inquiries regarding this publication should be directed to Barry Tonning, Tetra Tech, 1060 Eaton Place, Suite 340, Fairfax VA 22030 (703.385.6000).

Printing of this manual is sponsored by the Winooski Natural Resources Conservation District through a grant by the U.S. Environmental Protection Agency.

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This document is available upon request in large print, Braille or audio cassette.

VT Relay Service for the Hearing Impaired
1-800-253-0191 TDD>Voice · 1-800-253-0195 Voice>TDD

Vermont Department of Environmental Conservation
Water Quality Division - Stormwater Section
103 South Main Street, Building 10 North
Waterbury, VT 05671-0408
Tel: 802-241-3770 or 3777
Fax: 802-241-3287

www.vtwaterquality.org/stormwater.htm

Notice of Addition
Of Owners or Operators To Coverage
Under Vermont Construction General Permit 3-9020

VERMONT ENVIRONMENTAL CONSERVATION

Submission of this completed form constitutes notice that the entity in Section C seeks to be added as a co-permittee to an existing authorization to discharge under Vermont's Stormwater Construction General Permit (CGP) from the project identified in Section A. All landowners and persons who meet the definition of Principal Operator (Subparts 2.1B, 3.1B of the CGP) and who were not included on the original NOI must submit a Notice of Addition form.

A. Project Information
1. Project Name: _____ 2. Notice of Intent Number: _____

B. Original Permittee Information
1.Name: _____
2. Mailing Address:
a. Street/PO Box: _____
b. City/Town: _____ c. State: _____ d. Zip: _____
3. Contact Information
a. Phone: _____ b. Fax: _____ c. Email: _____

C. New Co-Permittee Information
Check one or both: ☐ New Landowner ☐ New Principal Operator
1.Name: _____
2. Business Name: _____
3. Mailing Address:
a. Street/PO Box: _____
b. City/Town: _____ c. State: _____ d. Zip: _____
4. Contact Information
a. Phone: _____ b. Fax: _____ c. Email: _____

D. Request for Addition as Co-Permittee
I hereby request that the entity in Section C be added as co-permittee to the existing authorization to discharge stormwater from construction activities stated in Section A. In requesting co-permittee status, I hereby certify under the penalty of law that I have read, understand, and meet the eligibility conditions of the CGP; that I agree to comply with all applicable terms and conditions of the CGP; that I understand that continued authorization under the CGP is contingent on maintaining eligibility for coverage, and that the applicable practices in the authorized Erosion Prevention and Sediment Control Plan must be implemented and maintained for the duration of the construction activities. I agree to comply with all applicable terms and conditions of the General Permit 3-9020.

Signature: _____ Date: _____

VERMONT LAND DESIGN
SITE CIVIL ENGINEERING
1229 CENTER ROAD
HYDE PARK, VERMONT 05655
802-730-3443 - www.vermontlanddesign.com

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5. It is the User's responsibility to ensure this copy contains the most current revisions.

Revisions:

STATE OF VERMONT
THOMAS J. WAWRZENIAK
NO. 196
REGISTERED ENGINEER

Project Title

OLD MORGAN ORCHARD L.L.C.

20 MORGAN ROAD
JERICHO CENTER, VERMONT

Sheet Title

EROSION CONTROL DETAIL SHEET

Date:	06-09-2016
Scale:	NONE
Project Number:	15-385
Drawn By:	TJW
Project Engineer:	
Approved By:	

EPSC-2

Traverse PC

The Low Risk Site Handbook
for
Erosion Prevention and Sediment Control

VERMONT
ENVIRONMENTAL CONSERVATION
August 2006

The Low Risk Site Handbook for Erosion Prevention and Sediment Control

Any construction activity that disturbs 1 or more acres of land, or is part of a larger development plan that will disturb 1 or more acres, requires a Vermont state permit for stormwater discharges from construction sites.

Construction General Permit 3-9020 guides an applicant in the determination of the potential risk to water quality from the construction activity and categorizes the applicant's activity as Low Risk, Moderate Risk, or that which requires an Individual Permit.

The standards in this handbook serve as the required Erosion Prevention and Sediment Control Plan for construction sites determined to be "Low Risk" under GP-3-9020.

Contact Information

VT DEC - Water Quality Division
Stormwater Section
103 South Main Street, Building 10 North
Waterbury, VT 05671-0408
Tel: 802-241-3770 or 4320
www.vtwaterquality.org/stormwater.htm

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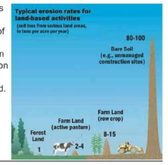
Section 1
Introduction

What is erosion prevention and sediment control?

Sediment washing into streams is one of the largest water quality problems in Vermont. Sediment can kill or weaken fish and other organisms and adversely impact aquatic habitat.

On most construction sites, vegetation that holds the soil in place and protects it from erosive forces of rain and runoff is removed, leaving large areas of soil exposed to the elements. During rainfall or snowmelt, the exposed soil may be easily eroded and transported to nearby streams, lakes, or wetlands.

To prevent this from happening, a small number of simple practices to prevent erosion and contain soil on the construction site must be used.



Do I need a permit?

Any construction activity that disturbs 1 or more acres of land, or is part of a larger development plan that will disturb 1 or more acres, requires a Vermont state permit for stormwater discharges from construction sites.

Application Process

1. Obtain a copy of the permit and determine the Risk Category of the proposed project. The permit is available online at: www.vtwaterquality.org/stormwater.htm.
2. Submit the Notice of Intent (NOI) form, notifying the Department of your intent to begin construction. **Submit the NOI to DEC at least 60 days before you plan to begin construction to allow sufficient time for processing.*
3. Upon receipt of written authorization from DEC, you are covered under the permit and may begin construction.
4. If your project is determined to be "Low Risk", you must follow this handbook for erosion prevention and sediment control on your construction site.
5. If your site is not classified as Low Risk, then you must follow the Department guidance in GP 3-9020 for Moderate Risk activities or those requiring an Individual Permit.

Section 2
The Requirements

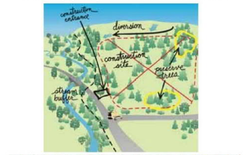
1. Mark Site Boundaries

Purpose:

Mark the site boundaries to identify the limits of construction. Delineating your site will help to limit the area of disturbance, preserve existing vegetation and limit erosion potential on the site.

Requirements:

You must physically mark the limits of construction.



How to comply:

Before beginning construction, walk the site boundaries and flag trees, post signs, or install orange safety fence.

Fence is required on any boundary within 50 feet of a stream, lake, pond or wetland, unless the area is already developed (existing roads, buildings, etc.)

Properly placed barrier tape marks the boundaries and limits of construction on this site.

2. Limit Disturbance Area

Purpose:

Limit the amount of soil exposed at one time to reduce the potential erosion on site.

Requirements:

The permitted disturbance area is specified on the site's written authorization to discharge. Only the acreage listed on the authorization form may be exposed at any given time.

How to comply:

Plan ahead and phase the construction activities to ensure that no more than the permitted acreage is disturbed at one time.

Be sure to properly stabilize exposed soil with seed and mulch or erosion control matting before beginning work in a new section of the site.

This residential subdivision is being constructed in phases. To limit the total disturbance area, only a few home sites are under construction at one time.

3. Stabilize Construction Entrance

Purpose:

A stabilized construction entrance helps remove mud from vehicle wheels to prevent tracking onto streets.

Requirements:

If there will be any vehicle traffic off of the construction site, you must install a stabilized construction entrance before construction begins.

Construction entrance detail. Entrance/exit pad must keep mud from tracking onto both paved and dirt roads.

How to install:

Rock Size: Use a mix of 1 to 4 inch stone
Depth: 8 inches minimum
Width: 12 feet minimum
Length: 40 feet minimum (or length of driveway, if shorter)
Geotextile: Place filter cloth under entire gravel bed

Maintenance:

Redress with clean stone as required to keep sediment from tracking onto the street.

Good stabilized construction entrance. Adequate width to accommodate construction traffic and prevent mud tracking onto neighboring streets. Ensure that the pad is 8 inches deep and 40 feet long.

Poor construction exit. Rock pad is poorly constructed; rock is too small. Use filter fabric under 1 - 4 inch rock. No mud should be tracked onto roads.

Rock sizing and placement look OK for residential site, and very little mud appears on the road. The pad should be at least 8 inches thick and 12 feet wide. Ensure that pad is used as the entrance and exit points - note track marks near curb. Entire area needs seed and mulch.

Rock pad was installed properly with right sized rock, but lack of filter fabric underliner is causing rock to spread and sink into the soil. Note tracking of mud onto road. Mud tracked on roadways violates the permit requirements and is a potential legal liability.

4. Install Silt Fence

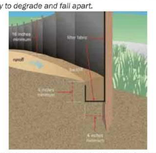
Purpose:

Silt fences intercept runoff and allow suspended sediment to settle out.

Requirements:

Silt fence must be installed:
- on the downhill side of the construction activities
- between any ditch, swale, storm sewer inlet, or waters of the State and the disturbed soil

** Hay bales must not be used as sediment barriers due to their tendency to degrade and fall apart.*



Remember: stakes go on the downhill side. Dig trench first, install fence in downhill side of trench, tuck fabric into trench, then backfill on the uphill side (the side toward the bare soil area).

Where to place:

- Place silt fence on the downhill edge of bare soil. At the bottom of slopes, place fence 10 feet downhill from the end of the slope (if space is available).
- Ensure the silt fence catches all runoff from bare soil.
- Maximum drainage area is ¼ acre for 100 feet of silt fence.
- Install silt fence across the slope (not up and down hills!)
- Install multiple rows of silt fence on long hills to break up flow.
- Do not install silt fence across ditches, channels, or streams or in stream buffers.

How to install silt fence:

- Dig a trench 6 inches deep across the slope
- Unroll silt fence along the trench
- Ensure stakes are on the downhill side of the fence
- Join fencing by rolling the end stakes together
- Drive stakes in against downhill side of trench
- Drive stakes until 16 inches of fabric is in trench
- Push fabric into trench; spread along bottom
- Fill trench with soil and pack down

Maintenance:

- Remove accumulated sediment before it is halfway up the fence.
- Ensure that silt fence is trenched in ground and there are no gaps.

Very good use of continuous "super" (reinforced) silt fence. Note that wire fencing is installed between the filter fabric and the posts.

Good use of J-hook in silt fence to trap sediment in water running along the fence. Sediment must be removed before it reaches halfway to top of fence.

Very good installation of multiple silt fences on long slope. Turn ends of fencing uphill to prevent bypass. Leave silt fences up until grass is well established on all areas of the slope. Re-seed bare areas as soon as possible. Remove or spread accumulated sediment and remove silt fence after all grass is up.

Poor installation of silt fencing. Silt fence must be trenched in along bottom. Hay bales are not approved as sediment barriers.

5. Divert Upland Runoff

Purpose:

Diversion berms intercept runoff from above the construction site and direct it around the disturbed area. This prevents "clean" water from becoming muddied with soil from the construction site.

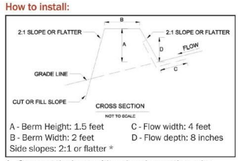
Requirements:

If stormwater runs onto your site from upslope areas and your site meets the following two conditions, you must install a diversion berm before disturbing any soil.

1. You plan to have one or more acres of soil exposed at any one time (excluding roads).
2. Average slope of the disturbed area is 20% or steeper.*

Berms and ditches divert clean upland runoff around construction sites and reduce erosion and sedimentation problems. Stabilize berms and ditches after construction.

How to install:



A - Berm Height: 1.5 feet
B - Berm Width: 2 feet
Side slopes: 2:1 or flatter *
C - Flow width: 4 feet
D - Flow depth: 8 inches

1. Compact the berm with a shovel or earth-moving equipment.
2. Seed and mulch berm or cover with erosion control matting immediately after installation.
3. Stabilize the flow channel with seed and straw mulch or erosion control matting. Line the channel with 4 inch stone if the channel slope is greater than 20%*.
4. Ensure the berm drains to an outlet stabilized with riprap. Ensure that there is no erosion at the outlet.
5. The diversion berm shall remain in place until the disturbed areas are completely stabilized.

* See page 39 for slope calculations.

Good construction, seeding, and stabilization of diversion berm. Note that diversion ditch is lined with grass on flatter part of slope, and with rock on steeper part.

Well built vegetated berm diverting runoff. Diversion berms and ditches should be seeded after construction. Use matting if slopes are steep.

Good installation of rock-lined berm to divert rain runoff around residential construction site on steep slope near a river. Diversion ditches can be lined with grass if channel slopes are 5% or less, and with 4 inch stone if they are steeper.

6. Slow Down Channelized Runoff

Purpose:

Stone check dams reduce erosion in drainage channels by slowing down the stormwater flow.

Requirements:

If there is a concentrated flow (e.g. in a ditch or channel) of stormwater on your site, then you must install stone check dams. Hay bales must not be used as check dams.

How to install:

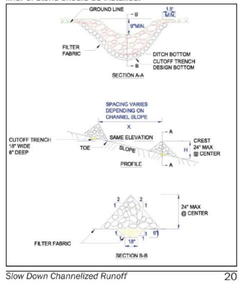
Height: No greater than 2 feet. Center of dam should be 9 inches lower than the side elevation
Side slopes: 2:1 or flatter (see p.39 for slope calculation)
Stone size: Use a mixture of 2 to 9 inch stone
Width: Dams should span the width of the channel and extend up the sides of the banks
Spacing: Space the dams so that the bottom (toe) of the upstream dam is at the elevation of the top (crest) of the downstream dam. This spacing is equal to the height of the check dam divided by the channel slope.

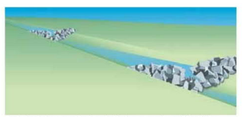
Spacing (in feet) = Height of check dam (in feet) / Slope in channel (ft/ft)

Maintenance:

Remove sediment accumulated behind the dam as needed to allow channel to drain through the stone check dam and prevent large flows from carrying sediment over the dam.

If significant erosion occurs between check dams, a liner of stone should be installed.





Rock check dams must be installed before excavation or fill activities begin. See "How to install" for spacing directions.

Good installation of temporary rock check dams. The check dams should extend up the sides of the banks. Middle section should be lower than the sides. Clean out sediment as it accumulates. Remove check dams after site and channel are stabilized with vegetation.

VERMONT LAND DESIGN

SITE CIVIL ENGINEERING
1229 CENTER ROAD
HYDE PARK, VERMONT 05655
802-730-3443 - www.vermontlanddesign.com

Use of These Drawings

1. Unless otherwise noted, these Drawings are intended for preliminary planning. Coordination with other disciplines or utilities, and/or approval from the regulatory authorities. They are not intended as construction drawings unless noted as such.

2. Only drawings specifically marked "For Construction" are intended to be used in conjunction with contract documents, specifications, owner/contractor agreements and to be fully coordinated with other disciplines, including but not limited to, the Architect, if applicable. These Drawings shall not be used for construction layout. Contact VLD for any construction surveying services or to obtain electronic data suitable for construction layout.

3. These Drawings are specific to the Project and are not transferable. As instruments of service, these drawings, and copies thereof, furnished by VLD are its exclusive property. Changes to the drawings may only be made by VLD. If errors or omissions are discovered, they shall be brought to the attentions VLD immediately.

4. By use of these drawings for construction of the Project, the Owner represents that they have reviewed, approved, and accepted the drawings and have met with all applicable parties/disciplines to insure these plans are properly coordinated with other aspects of the Project. The Owner and Architect, are responsible for any buildings shown, including an area measured a minimum five (5) feet around any building.

5. It is the User's responsibility to ensure this copy contains the most current revisions.

Revisions:

STATE OF VERMONT
THOMAS J WAWRZENIAK NO. 116
REGISTERED PROFESSIONAL ENGINEER

Project Title

OLD MORGAN ORCHARD L.L.C.

20 MORGAN ROAD
JERICHO CENTER, VERMONT

Sheet Title

EROSION CONTROL DETAIL SHEET

Date:	06-09-2016
Scale:	NONE
Project Number:	15-385
Drawn By:	TJW
Project Engineer:	
Approved By:	

EPSC-1

Traverse PC