APPENDIX A

TOWN OF WILMINGTON

APPLICATION FOR CONNECTION

TO THE MUNICIPAL SEWER SYSTEM

SCHEDULE C

Town of Wilmington
Application for CONNECTION to the Municipal Sewer System

NOTE: If your property is in the Wilmington Water District, Please check with them to see if a permit is required.

(Boxed areas for office use only)

Date Received: _____ Time: _____ TAX MAP #: _____ PSC #: _____ Initials: _____	Application Fee ($80.00) PAID:$_____ ☐ Check #_____ ☐ Cash Bianchi Fee ($11.00) PAID:$_____ ☐ Check #_____ ☐ Cash Received by (Signature): _____

APPLICATION FOR CONSTRUCTION OF A PUBLIC SEWER CONNECTION

INSTRUCTIONS: (Town Ordinance sections 501, 502) Complete Application and submit the original to the Wilmington Town Manager, PO Box 217, Wilmington, VT 05363, along with a check made payable to Town of Wilmington for the fee.

- Application Fee: $80.00
- Bianchi Fee:$11.00 (Disregard if already paid for allocation permit **being processed at same time.**)

TO: Town of Wilmington – Board of Sewer Commissioners.

The Undersigned, being the owner of the property located at _____
(Locatable address # and street)

does hereby request a permit to install a ☐ public sewer connection and/or a ☐ sanitary sewer system within a development or subdivision to serve _____ of building(s) consisting of ____ Single Family Residence(s), ____ Apartment(s), ____ Commercial Building(s), ____ Industrial Facilities and/or _____at said location.

(503) Will work require excavation in a ☐Town or ☐State highway right of way? ☐Yes ☐No. If work will be done within a State or Town highway right of way, permits must be attached.

(506) Will any portion of any existing outside piping be utilized in making the public sewer connections? ☐Yes ☐No. If yes, has piping been approved for use by the Commissioners? ☐Yes ☐ No.

(507) Building Sewer Size? _____ (4" min.) slope _____ (1/4"/ft.) desired.

(520) Building Sewer Material _____.

(509) Depth of cover over pipe? Varies from _____ to _____ ft. (4' min.)

(511, 511A) Will any connections be made from roof drains, foundation drains or other sources of surface runoff or groundwater to building sewer? ☐Yes ☐No. If yes, explain why.

(516) Building sewer to be connected to public sewer by a ☐ Town provided house connection, ☐ Town provided wye connection, ☐ new tap provided by owner, ☐ other _____.

(518) Length from structure to public sewer, as measured along proposed route of building sewer? ____ft. Is the alignment ☐ straight, or are there ☐ bends? Number of cleanouts to be provided? _____.

(521) Name, address and telephone number of plumber to perform the work:

_____.

(526) Is work to be done on public property or within a highway right-of- way? ☐ Yes ☐ No. If Yes, have the required insurance policies and performance bonds been filed with the Commissioners? ☐ Yes ☐ No.

Those persons applying for a permit relative to sanitary sewers or public sewer connections for developments or subdivisions shall submit herewith, a complete set of design notes, plans, specifications, State approval and all other information required or necessary to completely identify the work proposed.

In consideration of granting a permit, the undersigned certifies that the information provided herein is true and correct and agrees to the following:

1. To accept and abide by all provisions of the "Ordinance Regulating the Use and Allocation of Reserve Capacity of Public and the Use of Private Sanitary Sewerage Systems, Wilmington, Vermont", (ORDINANCE) and of all other pertinent ordinances or regulations that may be adopted in the future.

2. To construct the proposed facilities in accordance with the information provided herein, the ORDINANCE and all other provisions which may be included on the Permit.

3. To install, operate and maintain the proposed facilities in a sanitary manner at all times, at no expense to the Town.

4. To Notify the Commissioners or the WWTP Chief Operator at least 48 hours in advance of any work and before covering any work in order that they may supervise and inspect such work (517).

5. To allow the Commissioners, or their authorized representatives, to enter upon said property to witness tests and construction or for any other purposes required to determine compliance.

6. To pay for all costs and to furnish all necessary tools, labor, materials and assistance for making required tests and for removing, replacing or repairing defective work or materials, at no expense to the Town.

Signed _____ Print Name _____

Mailing Address _____ Tel. No. _____

_____ Tel. No. Local _____

_____ Date _____

* Do not write below this line *

Received on _____, 20____ By _____

Received by John Lazelle, Chief Operator on _____

Est. GPD _____ (SFD 250; public buildings per State Flow Quantities.

User Classification: _____ ECU _____

Application is: ☐ Approved ☐ Approved as Noted ☐ Disapproved

_____

_____

_____

_____

_____
John Lazelle, Chief Operator, WWTP

Zoning, Design Control Permits Required? ☐ YES ☐ NO

If yes, date issued and permit No. _____

Road opening permit required? ☐ Yes ☐ No. If yes, has it been Issued? ☐ Yes ☐ No.

Sewer Permit issued on _____, 20_____ and expires

on_____, 20_____ (6 Months.)

_____
Chairman, Board of Sewer Commissioners
(or authorized representative)

APPENDIX B

TOWN OF WILMINGTON

APPLICATION FOR REPAIR TO AN EXISTING CONNECTION

SCHEDULE C-R (for REPAIR or work in close proximity to the existing sewer connection)

Town of Wilmington

Application for REPAIR TO A CONNECTION to the Municipal Sewer System

NOTE: If your property is in the Wilmington Water District, Please check with them to see if a permit is required.

(Boxed areas for office use only)

Date Received: _____	Application Fee (~~$80.00~~) WAIVED FOR REPAIRS
Time: _____	PAID:_____ ☐ Check #_____ ☐ Cash
TAX MAP #: _____	Bianchi Fee (~~$11.00~~) WAIVED
PSC #: _____	PAID:$_____ ☐ Check #_____ ☐ Cash
Initials: _____	Received by (Signature): _____

APPLICATION FOR REPAIR OF A PUBLIC SEWER CONNECTION

INSTRUCTIONS: (Town Ordinance sections 501, 502) Complete Application and submit the original to the Wilmington Town Manager, PO Box 217, Wilmington, VT 05363. (Permit Required but Application Fee waived for repairs.)

TO: Town of Wilmington – Board of Sewer Commissioners.

The Undersigned, being the owner of the property located at _____
(Locatable address number and street)
does hereby request a permit to make repairs to an existing public sewer connection, described as follows:

_____

_____

_____

(503) Will work require excavation in a ☐Town or ☐State highway right of way? ☐Yes ☐No. If work will be done within a State or Town highway right of way, permits must be attached.

(506) Will any portion of any existing outside piping be utilized in making the public sewer connections? ☐Yes ☐No. If yes, has piping been approved for use by the Commissioners? ☐Yes ☐ No.

(507) Building Sewer Size? _____ (4" min.) slope _____ (1/4"/ft.) desired.

(520) Building Sewer Material _____.

(509) Depth of cover over pipe? Varies from _____ to _____ ft. (4' min.)

(511,511A) Will any connections be made from roof drains, foundation drains or other sources of surface runoff

or groundwater to building sewer? ☐Yes ☐No. If yes, explain why.

(516) Building sewer to be connected to public sewer by a ☐ Town provided house connection, ☐ Town provided wye connection, ☐ new tap provided by owner, ☐ other _____.

(518) Length from structure to public sewer, as measured along proposed route of building sewer? ____ft. Is the alignment ☐ straight, or are there ☐ bends? Number of cleanouts to be provided? _____.

(521) Name, address and telephone number of plumber to perform the work:

_____.

(526) Is work to be done on public property or within a highway right-of- way? ☐ Yes ☐ No. If Yes, have the required insurance policies and performance bonds been filed with the Commissioners? ☐ Yes ☐ No.

Those persons applying for a permit relative to sanitary sewers or public sewer connections for developments or subdivisions shall submit herewith, a complete set of design notes, plans, specifications, State approval and all other information required or necessary to completely identify the work proposed.

In consideration of granting a permit, the undersigned certifies that the information provided herein is true and correct and agrees to the following:

1. To accept and abide by all provisions of the "Ordinance Regulating the Use and Allocation of Reserve Capacity of Public and the Use of Private Sanitary Sewerage Systems, Wilmington, Vermont", (ORDINANCE) and of all other pertinent ordinances or regulations that may be adopted in the future.

2. To construct the proposed facilities in accordance with the information provided herein, the ORDINANCE and all other provisions which may be included on the Permit.

3. To install, operate and maintain the proposed facilities in a sanitary manner at all times, at no expense to the Town.

4. To Notify the Commissioners or the WWTP Chief Operator at least 48 hours in advance of any work and before covering any work in order that they may supervise and inspect such work (517).

5. To allow the Commissioners, or their authorized representatives, to enter upon said property to witness tests and construction or for any other purposes required to determine compliance.

6. To pay for all costs and to furnish all necessary tools, labor, materials and assistance for making required tests and for removing, replacing or repairing defective work or materials, at no expense to the Town.

Signed _____ Print Name _____

Mailing Address _____ Tel. No. _____

_____ Date_____

_

** Do not write below this line – for office use only **

Received on _____, 20____ By _____

Received by John Lazelle, Chief Operator on _____

Est. GPD _____ (SFD 250; public buildings per State Flow Quantities.)

User Classification: _____ ECU _____ ☐ No change to existing allocation.

Application is: ☐ Approved ☐ Approved as Noted ☐ Disapproved

_____

_____

_____

_____

_____
John Lazelle, Chief Operator, WWTP

Zoning, Design Control Permits Required? ☐ YES ☐ NO

If yes, date issued and permit No. _____

Road opening permit required? ☐ Yes ☐ No. If yes, has it been Issued? ☐ Yes ☐ No.

Sewer Permit issued on _____, 20_____ and expires

on_____, 20_____ (6 Months.)

_____
Chairman, Board of Sewer Commissioners
(or authorized representative)

APPENDIX C

TOWN OF WILMINGTON

APPLICATION FOR WASTEWATER TREATMENT ALLOCATION PERMIT

APPLICATION FOR WASTEWATER TREATMENT ALLOCATION PERMIT **Page 1 of 3**

(Do not write in boxed area - for office use only)

Map No. _____	Fee $25.00+$11.00Recording Date Received: _____
PSC No. _____	**$36.00** Fee due at application ☐ paid ☐check ☐cash
SA No. _____	Signature: _____

Applicant: _____ ☐ Owner ☐ Owner's Agent ☐ If Agent, letter of agency attached
(Print Name)

Property Location: _____ Tax Map Number: _____
(911 Locatable address - Street or Road)

☐ Residence ☐ Commercial Building ☐ Other: (describe) _____

I am applying for the following establishments listed to be connected to the building sewer ☐, or added to existing allocation ☐:

Establishment	**Unit**	**Number**	**Gallons/Person/Day/Unit**	**Total Gallons/Day**
Example: Restaurant	*Seat*	*10*	*30*	*300*

I hereby request an allocation permit as described for gallons per person per day TOTAL _____gpd

Do not write in boxed area - For administrative use only

SIGNED: _____
(Applicant)

_____
(Mailing Address of Applicant)

_____
(City, State and Zip Code)

NOTE: Final Approval must be obtained by Preliminary Approval expiration date. To apply for Final Allocation, submit the application on page 2 of this form (on back) once all necessary state and federal permits have been issued and received.

If applicant is unable to obtain permits needed to apply for Final Approval by deadline, he must apply for an extension. **Sewer Commissioners will consider reason for extension (i.e. zoning appeal etc.) and may or may not grant an extension.** If not granted, applicant can reapply for allocation.

Credit existing unused gallonage: _____ gpd

Allocation to be purchased Total _____ gpd

CONDITIONS:

1. Total Allocation Fee (_____gpd x $10/gpd) $_____
2. 25% of the total Allocation fee ($_____) is due within 30 days: On or before _____, 20____.
3. The remaining 75% ($_____) is due before connection or use or within 6 months of Final Allocation, whichever comes first.
4. Other: _____

Preliminary Approval Granted: *date* _____
Preliminary Approval Expires: *date* _____ *(3 months)*

By: _____
Wilmington Board of Sewer Commissioners Agent

Extension of Preliminary Approval granted: *date* _____
Extension Preliminary Approval Expires: *date* _____

By: _____
Wilmington Board of Sewer Commissioners

APPLICATION FOR FINAL APPROVAL (To be completed and returned after you have received necessary state and federal permits.) **DATE DUE:** _____

By signing below, I confirm that I have received the necessary state and federal permits checked and further attest that, excepting local permits, no others are required for the project.

State: Act 250 ☐ Subdivision ☐ Water and Wastewater ☐ Other State ☐ _____

Federal: _____ ☐ Signed: _____
(Applicant)

Do Not Write Below This Line – Administrative Use Only

FEES DUE:

Permit Application Fee: **$25.00** **due at application** Date Paid _____ Initials_____

Bianchi Filing Fee: **$10.00** **due at application** Date Paid _____ Initials_____

Connection Permit Fee: **$80.00** **due at connection application** Date Paid _____ Initials_____

ALLOCATION FEE TOTAL **$**_____

Within 30 days of Preliminary **25% $**_____ Date Due: _____ Date Paid _____ Initials_____

See Timetable Page 3 **75% $**_____ Date Due: _____ Date Paid _____ Initials_____

Conditions of Approval: _____

_____

Final Approval Date_____

Do not write in boxed area - For administrative use only

By: Wilmington Board of Sewer Commissioners

_____

_____

_____

_____

_____

Copy After Final Approval: *Date*_____ *Initial* _____
John Lazelle, Chief Operator, WWTP
Christine Richter, Finance Officer
File
Bianchi filed with Town Clerk: *Date*_____ *Initial* _____

FINAL PERMIT

Property #_____
Location _____
Sewer Allocation Permit # _____
Sewer Connection Permit #_____

NEW TOTAL ALLOCATION:	**Gal per day**
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
TOTAL ALLOCATION	_____

New Building:
Date Initiated Construction (within 1 year): _____

Date Completed Construction (within 3 yrs): _____

Town of Wilmington
Wastewater Allocation Fee Timetable

1. Application Permit Fee $25.00 due at Application (non-refundable).

2. Bianchi Recording fee $11.00 due at Application (non-refundable).

3. * Preliminary Approval granted by Board of Sewer Commissioners

4. Must pay 25% of the allocation fee – within thirty (30) days of Preliminary Approval (The one-time Allocation Fee is $10.00 per gallon per day) The applicant will have a 90 grace period to withdraw the application and recieve a full refund of the allocation fee.

5. Must get Final Approval – within three (3) months of Preliminary Approval (You may apply for Final Approval once you have obtained the necessary state and federal permits and further attest that, excepting local permits, no others are required for the project.)

6. Must pay remaining 75% of the allocation fee – whichever comes first of:
   A. Within six (6) months of Final Approval or,
   B. Prior to:
      a. Use-if adding to an already existing connection or,
      b. Before connection permit is issued for new connections

7. Begin paying sewer rent – whichever comes first of:
   A. Within six (6) months of Final Approval or
   B. Prior to:
      a. Use-if adding to an already existing connection or,
      b. When Connection Permit is issued for new connections

8. Must initiate construction – within one (1) year of Final Approval (or allocation reverts to the Town)

9. Must complete construction – within three (3) years of Final Approval (or allocation reverts to the Town)

10. Must also apply for and receive Connection Permit ($80.00 fee) before connection.

APPENDIX D

TOWN OF WILMINGTON

SEWER USER CHARGE SYSTEM

TOWN OF WILMINGTON
NEW ECU CLASSIFICATION SYSTEM
FY 2014 RATES

	USER CLASSIFICATION	UNIT OF MEASUREMENT	ECU PER UNIT	**RATE FY14 7/1/13 - 6/30/14**
1a	SINGLE FAMILY HOUSE	EACH HOUSE	1.00	**$315.00**
1b	CHURCH PARSONAGE	EACH	1.00	**$315.00**
1c	CHURCH SANCTUARY	SEATS x 25%	0.01	**$3.15**
2	APARTMENT	EACH APT.	0.75	**$236.25**
4a	ROOM RENTAL (NON -APARTMENT)	SLEEPING SPACE	0.20	**$63.00**
5a	SCHOOL (WITHOUT CAFETERIA, GYM OR SHOWERS)	PUPILS & STAFF	0.15	**$47.25**
5b	SCHOOL (WITH CAFETERIA, GYM AND SHOWERS)	PUPILS & STAFF	0.20	**$63.00**
5c	SCHOOL (WITH CAFETERIA, GYM BUT NO SHOWERS)	PUPILS & STAFF	0.175	**$55.13**
6f	OFFICE/BUSINESS (UPTO 6 EMPLOYEES)	EACH OFFICE	1.00	**$315.00**
6g	OFFICE/BUSINESS (EACH ADDITIONAL EMPLOYEE)	EACH EMPLOYEE	0.15	**$47.25**
7	LIBRARY	EACH	1.00	**$315.00**
8a	STORE/RETAIL SPACE (UPTO 2,000 SQUARE FEET)	UPTO 2,000 SQ FT	1.00	**$315.00**
8b	STORE/RETAIL SPACE (IF GREATER THAN 2,000 SQ FT)	TOTAL SQ FT DIVIDED BY 2000 SQ FT	1.00	**$315.00**
8c	STORE/RETAIL SPACE WITH MEAT DEPARTMENT	PER 1000 SQ FT	0.55	**$173.25**
9	BOWLING ALLEY	ALLEY (LANE)	0.40	**$126.00**
10	LAUNDROMAT	WASHER	1.25	**$393.75**
11	BARBER AND/OR BEAUTY SHOPS	CHAIR	0.55	**$173.25**
12	ASSEMBLY HALL	SEAT	0.01	**$3.15**
13e	ANY SEAT SERVING FOOD OR DRINK	SEAT	0.06	**$18.90**
14a	AUTO SERVICE STATION (UPTO 2 FUEL PUMPS WITH 4 NOZZLES)	EACH	1.50	**$472.50**
14b	AUTO SERVICE STATION (EACH ADDITIONAL SET OF PUMPS)	EACH	0.75	**$236.25**
15	BREWERY CLEAN-UP	EACH	0.20	**$63.00**
16	DENTAL/MEDICAL OFFICE	EACH EXAMINING ROOM	0.55	**$173.25**
17	DAYCARE	PER CHILD	0.125	**$39.38**
18	BUS/CAR WASH (DAILY DESIGN DISCHARGE)	PER GALLON	0.01	**$3.15**
19	MINIMUM ADJUSTMENT			**$315.00**

Each parcel to be assessed a minimum of 1.00 ECU or $315. Sewer rents are due and payable in two equal installments; one half on September, 2013 and one half on March, 2014.

APPENDIX E

STATE OF VERMONT

WASTEWATER SYSTEM & POTABLE WATER SUPPLY

PERMIT APPLICATION

Wastewater Management Division - Permit Application

Wastewater System & Potable Water Supply

VERMONT
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

For Office Use Only:

Application#	PIN#	Date Complete Application Received

Authority:
10 V.S.A. Chapter 64, the Environmental Protection Rules, Chapter 1, Wastewater System & Potable Water Supply Rules, and Chapter 21, Water Supply Rules, Appendix A. Part 11 – Small Scale Water Systems.

General Information:
Electronic versions of this application form are available on the Wastewater Management Division website at: http://www.anr.state.vt.us/dec/ww/EngServ.htm.

The organization and/or content of this form may not be altered, however, the form may be expanded to allow additional information to be entered. Changes in the organization and/or content of the form may result in an invalid application or permit.

In most cases a licensed designer will be required for your project and to help complete this application form. There are also line-by-line instructions available to assist with completing this form.

NOTE: We strongly suggest referring to the application instructions while completing this application form.

Part I Applicant (Landowner) Information

Section A – Applicant Details (if Landowner is an Individual or Individuals)

Note: There is space provided in this section for two Landowners. If there are more than two Landowners shown on the property deed, please provide a separate sheet listing each additional Landowner, their mailing address, signature and date.

1 Last Name	**2** First Name		
3 Mailing Address Line 1	**4** Mailing Address Line 2		
5 Town/City	**6** State/Province	**7** Country	**8** Zip/Postal Code
9 Email Address			**10** Telephone

Additional Landowner (if applicable)

☐ Check if address/contact information of second Landowner is the same as above and then enter only Last Name and First Name information below. Otherwise, complete all information for the second Landowner.

11 Last Name	**12** First Name		
13 Mailing Address Line 1	**14** Mailing Address Line 2		
15 Town/City	**16** State/Province	**17** Country	**18** Zip/Postal Code
19 Email Address			**20** Telephone

Section B – Applicant Details (if Landowner is other than an Individual or Individuals)

1 Registered Legal Entity or Organization Name			**2** Telephone
3 Mailing Address Line 1	**4** Mailing Address Line 2		
5 Town/City	**6** State/Province	**7** Country	**8** Zip/Postal Code

Certifying Official

The Certifying Official must be a person who has signatory authority for the legal entity or organization that is the Applicant. A copy of the document authorizing this person to act as a signatory authority must be attached to this application.

9 Certifying Official Last Name	**10** Certifying Official First Name
11 Certifying Official Title	
12 Email Address	**13** Telephone

Section C – Primary Contact Information (if other than Applicant)			
1 Last Name	**2** First Name		
3 Mailing Address Line 1	**4** Mailing Address Line 2		
5 Town/City	**6** State/Province	**7** Country	**8** Zip/Postal Code
9 Email Address			**10** Telephone

Section D – Building/Business Owner Information			
1 Last Name	**2** First Name		
3 Mailing Address Line 1	**4** Mailing Address Line 2		
5 Town/City	**6** State/Province	**7** Country	**8** Zip/Postal Code
9 Email Address			**10** Telephone

Part II Certifying Designer Information

Section A – Certifying Designer 1			
1 Designer Last Name	**2** Designer First Name		
3 Designer License #	**4** Company Name		
5 Mailing Address Line 1	**6** Mailing Address Line 2		
7 Town/City	**8** State/Province	**9** Country	**10** Zip/Postal Code
11 Email Address			**12** Telephone

13 Designer Role(s) (check all that apply)
- ☐ Water Supply Designer
- ☐ Wastewater Disposal System Designer

Section B – Certifying Designer 2 (if applicable)			
1 Designer Last Name	**2** Designer First Name		
3 Designer License #	**4** Company Name		
5 Mailing Address Line 1	**6** Mailing Address Line 2		
7 Town/City	**8** State/Province	**9** Country	**10** Zip/Postal Code
11 Email Address			**12** Telephone

13 Designer Role(s) (check all that apply)
- ☐ Water Supply Designer
- ☐ Wastewater Disposal System Designer

Part III Property Location Information

Section A – Property Parcel ID# and Location

1 Please provide the property location information including Town or City Parcel ID#, Town or City, and Street or Road.

(a) Town or City Parcel ID#	**(b)** Town or City	**(c)** Street or Road Location

Section B – Center of Property GPS Coordinates

1 Enter the approximate center of property coordinates using GPS set for NAD83 or as derived from map (map must be based on NAD83).

(a) Latitude
(in decimal degrees to five decimal places, ex. 44.38181°)

N °

(b) Longitude
(in decimal degrees to five decimal places, ex. 72.31392°)

W (-) °

Part IV Project Information

Section A – General Project Information & Questions

1 Project Name (if applicable)

2 Total Acreage of Property

3 Business Name (if applicable)

4 Detailed Project Description

5 Were all buildings or structures, campgrounds, and their associated potable water supplies and wastewater systems substantially completed before January 1, 2007 and all improved and unimproved lots in existence before January 1, 2007? ..... ☐ Yes ☐ No

6 Does this application include subdividing the property? ..... ☐ Yes ☐ No

7 Has anyone from the Wastewater Management Division's Regional Office been to the property? ..... ☐ Yes ☐ No

If the answer to question **7** is Yes, enter the staff person's name and the date of the visit:

(a) Name of Staff Person

(b) Date of Visit (m/d/yyyy)

8 Will any construction occur within 50 feet of a wetland boundary, mapped or designated? ..... ☐ Yes ☐ No

If Yes, contact the Wetlands Program of the Water Quality Division at (802) 241-3770.

9 Will more than one acre be disturbed during the entire course of construction, including all lots and phases?..... ☐ Yes ☐ No

If Yes, contact the Stormwater Program of the Water Quality Division at (802) 241-4320.

10 Will there be any stream crossings by roads, utilities, or other construction? ..... ☐ Yes ☐ No

If Yes, contact the River Corridor Mgmt. Program of the Water Quality Division at:

Central & Northwest Vermont ..... (802) 879-5631
Southern Vermont ..... (802) 786-5906
Northeastern Vermont ..... (802) 751-0129

11 Is the lot or project located in a special flood hazard area as designated on the flood insurance maps prepared for a municipality by the Federal Emergency Management Agency? ☐ Yes ☐ No

If Yes, show the special flood hazard area limits on the site plan.

12 Act 250: Has the applicant/landowner subdivided any other lots of any size within a five mile radius of this subdivision, or within the environmental district within the last five years? ☐ Yes ☐ No

If the answer to question **12** is Yes, enter the town(s) and the associated number of lots in the table below:

(a) Town	**(b)** Number of Lots

13 Is there any prior Act 250 jurisdiction on the tract of land? ☐ Yes ☐ No

If the answer to question **13** is Yes, enter the Act 250 permit number:

(a) Act 250 Permit Number

Section B – Project Deed Reference

1 Please provide the Town, Book and Page reference for the current landowner's deed to this property.

(a) Town	**(b)** Book	**(c)** Page(s)

Section C – Project Plan Reference

1 Please provide the following information for all water supply and wastewater disposal system plans being submitted.

(a) Sheet#	**(b)** Title	**(c)** Plan Date (m/d/yyyy)	**(d)** Plan Revision Date (m/d/yyyy)

Section D - Existing Project Lot/Building Details

Please provide the existing project details. This section is used to describe what is existing for the project. For example, if you are subdividing an undeveloped 21-acre parcel, you would list the existing parcel. If you are revising the boundary lines of two commercial lots in an industrial park, and constructing an addition to an existing building you would list the existing lot numbers, existing acres, existing buildings, existing uses, construction date(s), prior permits, and answer the compliance questions. Repeat this page as many times as necessary to describe all of the existing Lots/Buildings.

1 Lot#	**2** Lot Size (acres)	**3** Existing Use of the Lot

4 Provide the following information for each building on the lot

(a) Building ID	**(b)** Existing Use	**(c)** Date Construction of Building Substantially Complete	**(d)** Prior Permits	**(e)** In compliance with existing permits?
				☐ Yes ☐ No
				☐ Yes ☐ No
				☐ Yes ☐ No
				☐ Yes ☐ No

Additional Lots/Buildings…

1 Lot#	**2** Lot Size (acres)	**3** Existing Use of the Lot

4 Provide the following information for each building on the lot

(a) Building ID	**(b)** Existing Use	**(c)** Date Construction of Building Substantially Complete	**(d)** Prior Permits	**(e)** In compliance with existing permits?
				☐ Yes ☐ No
				☐ Yes ☐ No
				☐ Yes ☐ No
				☐ Yes ☐ No

1 Lot#	**2** Lot Size (acres)	**3** Existing Use of the Lot

4 Provide the following information for each building on the lot

(a) Building ID	**(b)** Existing Use	**(c)** Date Construction of Building Substantially Complete	**(d)** Prior Permits	**(e)** In compliance with existing permits?
				☐ Yes ☐ No
				☐ Yes ☐ No
				☐ Yes ☐ No
				☐ Yes ☐ No

1 Lot#	**2** Lot Size (acres)	**3** Existing Use of the Lot

4 Provide the following information for each building on the lot

(a) Building ID	**(b)** Existing Use	**(c)** Date Construction of Building Substantially Complete	**(d)** Prior Permits	**(e)** In compliance with existing permits?
				☐ Yes ☐ No
				☐ Yes ☐ No
				☐ Yes ☐ No
				☐ Yes ☐ No

Section E - Proposed Project Lot/Building Details

This section is used to describe what you are proposing to do in this project. For example, if you were going to create 4 lots for construction of single family residences, you would list each lot, proposed acreage, proposed buildings, and proposed use. Repeat this page as many times as necessary to describe all of the proposed Lots/Buildings.

1 Lot#	**2** Lot Size (acres)	**3** Proposed Use of the Lot

4 Is the lot being created as part of a subdivision? ☐ Yes ☐ No

5 Are you requesting that the Blood, Marriage, or Civil Union special fee be applied to this lot? ☐ Yes ☐ No

6 If the lot is exempt, please indicate the specific exemption from the Wastewater System and Potable Water Supply Rules: _____

7 Provide the following information for each building on the lot

(a) Building ID	**(b)** If bldg is exempt, indicate exemption	**(c)** Construction or increased flow?	**(d)** Proposed Use
		☐	
		☐	
		☐	
		☐	
		☐	

Additional Lots/Buildings…

1 Lot#	**2** Lot Size (acres)	**3** Proposed Use of the Lot

4 Is the lot being created as part of a subdivision? ☐ Yes ☐ No

5 Are you requesting that the Blood, Marriage, or Civil Union special fee be applied to this lot? ☐ Yes ☐ No

6 If the lot is exempt, please indicate the specific exemption from the Wastewater System and Potable Water Supply Rules: _____

7 Provide the following information for each building on the lot

(a) Building ID	**(b)** If bldg is exempt, indicate exemption	**(c)** Construction or increased flow?	**(d)** Proposed Use
		☐	
		☐	
		☐	
		☐	
		☐	

1 Lot#	**2** Lot Size (acres)	**3** Proposed Use of the Lot

4 Is the lot being created as part of a subdivision? ☐ Yes ☐ No

5 Are you requesting that the Blood, Marriage, or Civil Union special fee be applied to this lot? ☐ Yes ☐ No

6 If the lot is exempt, please indicate the specific exemption from the Wastewater System and Potable Water Supply Rules: _____

7 Provide the following information for each building on the lot

(a) Building ID	**(b)** If bldg is exempt, indicate exemption	**(c)** Construction or increased flow?	**(d)** Proposed Use
		☐	
		☐	
		☐	
		☐	
		☐	

Part V Water Supply Information

Section A – Water Supply Screening Questions

1 Are you proposing a new water supply for this project? ☐ Yes ☐ No

2 Are you proposing changes to an existing water supply for this project? ☐ Yes ☐ No

3 Is there a connection to an existing water supply for the project? ☐ Yes ☐ No

*If you answered **No** to all **three of the above questions**, skip to Part VI. Otherwise, proceed with Part V.*

Section B – General Water Supply Questions

1 Does this project involve a failed water supply? ☐ Yes ☐ No

2 Will any of the proposed water sources serve 25 or more people or have 15 or more service connections? ☐ Yes ☐ No

If Yes, the Applicant must contact Water Supply Division at (802) 241-3400 for source, construction, and an operating permit.

3 Are any of the existing or proposed water sources located within a special flood hazard area? ☐ Yes ☐ No

4 Are any of the existing or proposed water sources located within a floodway? ☐ Yes ☐ No

5 Are any of the proposed water sources located within 1 mile of a hazardous waste site as designated by the Waste Management Division and identified on the Agency mapping website? ☐ Yes ☐ No

If Yes, please submit additional information on the site. The Waste Management Division can be reached at (802) 241-3888.

6 Does your project require an approval letter from the Water Supply Division for the construction of a public water system, municipal water line extension over 500 feet, or hydrants or sprinkler systems? ☐ Yes ☐ No

If Yes, please submit a copy of the approval letter from the Water Supply Division.

7 Does the proposed or existing water supply(ies) use a water treatment device to obtain compliance with the quality requirements in the Water Supply Rule? ☐ Yes ☐ No

If Yes, please submit addition information regarding the constituent(s) that exceeds the standards and plans, details, and specifications of the treatment device.

8 Is any portion of the proposed water supply located in or near a Water Source Protection Area as designated by the Water Supply Division? ☐ Yes ☐ No

If in areas of known interference issues, please contact the Water Supply Division at (802) 241-3400.

Section C – Individual Water Supply Details

Please provide the following information for each of the existing and proposed water supply(ies) serving a building or structure, or campground on the property. Many projects have only one water supply, such as a municipal water service connection or one drilled well. However, if the project in this application has more than one water supply, please repeat this Section for each water supply. For example, if the project has two drilled wells, you would need to complete a separate water supply detail sheet with the appropriate information for each well.

1 Water Supply Name/Identifier	**2** Water Supply Owner (if not Applicant)
3 Water Source Type	**4** Type of Change to Supply

5 Lots/Buildings served by this Water Supply System:

(a) Lot#	**(b)** Building ID	**(c)** Type of Change to the Building's Supply	**Design Flows (Gallons Per Day)**			**(g)** Rule or Meter Based Flows
			(d) Existing	**(e)** Increase	**(f)** Total	
		Water Supply Design Flow Totals (GPD) →	**6**	**7**	**8**	

9 Is the water supply located off-lot? ..... ☐ Yes ☐ No

10 Is the water supply shared? ..... ☐ Yes ☐ No

If the water supply is located off-lot and/or shared, please submit copy of the agreement to provide an easement prior to initiation of construction.

11 Is a variance being requested for this water supply? ..... ☐ Yes ☐ No

If Yes, please submit additional details related to the variance request.

Section D – Water Supply Design Flow Summary Table

1 If the project includes more than one water supply, please total up the systems on this page of the form and provide the grand total water supply design flows for the project. **IMPORTANT:** Please don't include systems that were identified in this Part in Section C, Line 4 as a "Replacement Supply Designation" in the summary table below.

(a) Water Supply Name/Identifier	**Design Flows (Gallons Per Day)**		
	(b) Existing	**(c)** Increase	**(d)** Total
Project Water Supply Design Flow Totals (GPD) →	**2**	**3**	**4**

Part VI Wastewater Disposal System Information

Section A – Wastewater Disposal System Screening Questions

1 Are you proposing a new wastewater disposal system or replacement area for this project? ☐ Yes ☐ No

2 Are you proposing changes to an existing wastewater disposal system for this project? ☐ Yes ☐ No

3 Is there a connection to an existing wastewater disposal system for the project? ☐ Yes ☐ No

*If you answered **No** to all **three of the above questions**, skip to Part VII. Otherwise, proceed with Part VI.*

Section B – General Wastewater Disposal System(s) Questions

1 Does this project involve a failed wastewater disposal system? ☐ Yes ☐ No

2 Do any of the systems require a curtain or dewatering drain as part of the design? ☐ Yes ☐ No

3 Is a hydrogeologic study required for this project? ☐ Yes ☐ No

4 If the project has a soil-based wastewater disposal system with design flows that exceed 1,000 GPD, is this project located in a Class A Watershed? ☐ Yes ☐ No ☐ NA

If the answer to question **4** is Yes, indicate the Class A Watershed in which the system(s) is located:

(a) Class A Watershed Name

5 Are there any floor drains, existing or proposed as part of this project? ☐ Yes ☐ No

If the answer to question **5** is Yes, indicate where the floor drains will discharge:

(a) Floor Drain Discharge Point

6 If the project utilizes an Innovative/Alternative System or Product, has the applicant received a copy of the Wastewater Management Division's approval letter? ☐ Yes ☐ No ☐ NA

7 Is any portion of the proposed wastewater disposal system located in or near a Water Source Protection Area as designated by the Water Supply Division? ☐ Yes ☐ No

If Yes, contact the Water Supply Division at (802) 241-3400.

Section C – Individual Wastewater Disposal System Details

Please provide the following information for each of the existing and proposed wastewater disposal systems serving a building or structure, or campground on the property. Many projects have only one wastewater disposal system, such as a municipal sewer service connection. However, if the project in this application has more than one wastewater disposal system, please repeat this Section for each wastewater disposal system. For example, if the project has a primary and a replacement area, you would need to complete a separate wastewater disposal system detail sheet with the appropriate information for each wastewater disposal system.

1 Wastewater Disposal System Name/Identifier	**2** Wastewater Disposal System Owner (if not Applicant)
3 Please indicate the wastewater disposal system type:	**4** Type of Change to System

5 Lots/Buildings served by this Wastewater Disposal System:

(a) Lot#	**(b)** Building ID	**(c)** Type of Change to the Building's System	Design Flows (Gallons Per Day)				**(h)** Rule or Meter Based Flows
			(d) Existing	**(e)** Increase	**(f)** Infiltration	**(g)** Total	
	Wastewater System Design Flow Totals (GPD) →		**6**	**7**	**8**	**9**	

10 Is system located off-lot? ..... ☐ Yes ☐ No

11 Is the system shared? ..... ☐ Yes ☐ No

If the system is located off-lot and/or shared, please submit copy of the agreement to provide an easement prior to initiation of construction.

12 Is a variance being requested for this wastewater disposal system? ..... ☐ Yes ☐ No

If Yes, please submit additional details related to the variance request.

13 If the wastewater disposal system type is a connection to an Indirect Discharge System, please provide the Indirect Discharge System ID number:

14 If the wastewater disposal system type is a connection to a municipal system, please indicate the town:

15 If this is a soil-based system, please indicate the design approach used:

16 For soil-based systems, please check all that apply: ..... ☐ Storage and Dose ☐ Filtrate

17 For Innovative/Alternative soil-based systems, please indicate the system use type:

18 Please specify the type of Innovative/Alternative system or product.

Section D – Wastewater Disposal Systems Design Flow Summary Table

1 If the project includes more than one wastewater disposal system, please total up the systems on this page of the form and provide the grand total wastewater disposal system design flows for the project. **IMPORTANT:** Please don't include systems that were identified in this Part in Section C, Line 4 as a "Replacement Area Designation" in the summary table below.

(a) Wastewater Disposal System Name/Identifier	**Design Flows (Gallons Per Day)**			
	(b) Existing	**(c)** Increase	**(d)** Infiltration	**(e)** Total
Project Wastewater System Design Flow Totals (GPD) →	**2**	**3**	**4**	**5**

Part VII Application Fees

1 Fee Amount
$

2 Fee Calculation Details

Part VIII Designer Certification & Copyright License

Section A – Certifying Designer 1 Certification & Copyright License

"I hereby certify that in the exercise of my reasonable professional judgment, the design-related information submitted with this application is true and correct, and the design included in this application for a permit complies with the Vermont Wastewater System and Potable Water Supply Rules and the Vermont Water Supply Rules.

As the individual who prepared this application, including all documents that are marked as copyrighted, I hereby grant a non-exclusive, limited license to the State to allow the documents to be available for public review and copying in order to properly implement and operate the permitting programs for Wastewater Systems and Potable Water Supplies, and for no other purposes. As a condition to this license, the State agrees that it will not make any changes to such documents, nor will the State delete any copyright notices on such documents."

1 Check the design(s) you are certifying. This should be the same as the Designer Role(s) you selected in Part II, Section A, Line 13.
- ☐ Water Supply Designer
- ☐ Wastewater Disposal System Designer

2 Print Designer Name	**3** Designer Signature	**4** Signature Date

Section B – Certifying Designer 2 Certification & Copyright License

"I hereby certify that in the exercise of my reasonable professional judgment, the design-related information submitted with this application is true and correct, and the design included in this application for a permit complies with the Vermont Wastewater System and Potable Water Supply Rules and the Vermont Water Supply Rules.

As the individual who prepared this application, including all documents that are marked as copyrighted, I hereby grant a non-exclusive, limited license to the State to allow the documents to be available for public review and copying in order to properly implement and operate the permitting programs for Wastewater Systems and Potable Water Supplies, and for no other purposes. As a condition to this license, the State agrees that it will not make any changes to such documents, nor will the State delete any copyright notices on such documents."

1 Check the design(s) you are certifying. This should be the same as the Designer Role(s) you selected in Part II, Section B, Line 13.
- ☐ Water Supply Designer
- ☐ Wastewater Disposal System Designer

2 Print Designer Name	**3** Designer Signature	**4** Signature Date

Part IX Applicant(s) Signature & Acknowledgements

In order to insure compliance with the requirements of the regulations administered by the Department of Environmental Conservation, Wastewater Management Division, it may be necessary to visit the property. As this would involve a Department employee entering private property, we request your approval to do so.

1 If we do visit your property, do you have any special instructions?

"As landowner of the property for which I am requesting a permit from the Department of Environmental Conservation, I understand that by signing this application I am granting permission for the Department employees to enter the property, during normal working hours, to insure compliance of the property with the applicable rules of the Department.

I also understand that I am not allowed to commence any site work or construction on this project without written approval from the Department of Environmental Conservation.

If my project utilizes an Innovative/Alternative System or Product, I have received a copy of the Wastewater Management Division's approval letter and agree to abide by the conditions of the approval.

I also certify that to the best of my knowledge and belief the information submitted above is true, accurate and complete."

2 Print Applicant Name	**3** Applicant Signature	**4** Signature Date
2 Print Applicant Name	**3** Applicant Signature	**4** Signature Date
2 Print Applicant Name	**3** Applicant Signature	**4** Signature Date
2 Print Applicant Name	**3** Applicant Signature	**4** Signature Date
2 Print Applicant Name	**3** Applicant Signature	**4** Signature Date
2 Print Applicant Name	**3** Applicant Signature	**4** Signature Date
2 Print Applicant Name	**3** Applicant Signature	**4** Signature Date
2 Print Applicant Name	**3** Applicant Signature	**4** Signature Date
2 Print Applicant Name	**3** Applicant Signature	**4** Signature Date
2 Print Applicant Name	**3** Applicant Signature	**4** Signature Date
2 Print Applicant Name	**3** Applicant Signature	**4** Signature Date

APPENDIX F

STATE OF VERMONT

HIGHWAY RIGHT-OF-WAY

PERMIT APPLICATION

PERMIT ID#_____

FOR AGENCY USE ONLY

Town: _____
Route: _____
Mile Marker: _____
Log Station: _____

VERMONT AGENCY OF TRANSPORTATION

19 V.S.A. § 1111 PERMIT APPLICATION

Applicant to Complete

Owner's/Applicant's Name, Address & Phone No._____

_____

Co-Applicant's Name, Address & Phone No. (if different from above) _____

_____

The location of work (town, highway route, distance to nearest mile marker or intersection & which side)

_____

Description of work to be performed in the highway right-of-way (attach sketch) _____

_____

_____

_____

_____

Property Deed Reference Book:_____ Page:_____ (only required for Permit Application for access)

Is a Zoning Permit required? Yes ☐ No ☐ - If Yes, #_____

Is a 30 VSA § 248 permit required? Yes ☐ No ☐ - If Yes, #_____

Is an Act 250 permit required? Yes ☐ No ☐ - If Yes, #_____

Other permit(s) required? Yes ☐ No ☐ - If Yes, name and # of each _____

Date applicant expects work to begin _____ 20 __

Owner/Applicant: _____ Position Title: _____

(Print name above)

Sign in Shaded area:		Date:	

Co-Applicant: _____ Position Title: _____

(Print name above)

Sign in Shaded area:		Date:	

INSTRUCTIONS:

-Contact the Agency of Transportation Utilities and Permits Unit (802.828.2653) or your local area Agency Transportation Maintenance District to determine your issuing authority.

-Contact the issuing authority to determine what plans and other documents are required to be submitted with your 19 VSA § 1111 permit application.

-Complete this TA 210 Form (some information may not apply to you) and attach all necessary documents and submit it to the issuing authority. We require this application to be signed by the property owner or their legally authorized representative. Original signatures are required.

-The Owner/Applicant and Co-Applicant (if applicable) declares under the pains and penalty of perjury that all information provided on this form and submitted attachments are to the best of their knowledge true and complete.

-If you have any questions contact the issuing authority.

PERMIT APPROVAL

The work is subject to the restrictions and conditions on the reverse page, plus the Special Conditions stated on the attached page(s).

Date work is to be completed

Date work accepted: _____

By: _____
DTA or Designee

By _____ Issued Date
Authorized Representative for
Secretary of Transportation

NOTICE: This permit covers only the Vermont Agency of Transportation's jurisdiction over this highway under Title 19 Section 1111 VSA. It does not release the petitioner from the requirements of any other statutes, ordinances, rules or regulations.

No work shall be done under this permit until the owner/applicant has contacted the District Transportation Office at:

RESTRICTIONS AND CONDITIONS

DEFINITIONS:

"Agency" means the Vermont Agency of Transportation.

"Engineer" means the authorized agent of the Secretary of Transportation.

"Owner/Applicant" means the party(s) to whom the permit is to be issued.

"Co-Applicant" means the party who performs the work, if other than Owner/Applicant.

"Permit Holder" means the party who currently owns the lands abutting the highway that are the subject of the permit.

GENERAL:

By accepting this permit, or doing any work hereunder, the Owner/Applicant agrees to comply with all of the conditions and restrictions and any imposed special conditions. If the Owner/Applicant is aggrieved by the restrictions and conditions or special conditions of the permit, they shall submit a written request for consideration to the Engineer prior to starting any work. No work will be authorized by the Agency, or performed under the permit, until the dispute is fully resolved.

Act No. 86 of 1987 (30 VSA Chapter 86) ("Dig Safe") requires that notice be given prior to making an excavation. It is suggested that the Permit Holder or his/her contractor telephone 1-888-344-7233 at least 48 hours before, and not more than 30 days before, beginning any excavation at any location.

The Permit Holder is to have a supervisory representative present any time work is being done in or on the State Highway right-of-way. A copy of this permit and Special Conditions must be in the possession of the individual performing this work for the Permit Holder.

Except with the specific, written permission of the District Transportation Administrator, all work in the State highway right-of-way shall be performed during normal daylight hours and shall cease on Sunday, on all holidays (which shall include the day before and the day following), during or after severe storms, and between December 1 and April 15. These limitations will not apply for the purposes of maintenance, emergency repairs, or proper protections of the work which includes, but not limited to, the curing of concrete and the repairing and servicing of equipment.

The Owner/Applicant shall be responsible for all damages to persons or property resulting from any work done under this permit, even if the Applicant's Contractor performs the work. All references to the Owner/Applicant also pertain to the Co-Applicant.

The Owner/Applicant must comply with all federal and state statutes or regulations and all local ordinances controlling occupancy of public highways. In the event of a conflict, the more restrictive provision shall apply.

The Owner/Applicant must, in every case where there is a possibility of injury to persons or property from blasting, use blasting mats and bags of sand, if necessary, to prevent the stone from scattering. All existing utility facilities shall be protected from damage or injury.

The Owner/Applicant shall erect and maintain barriers needed to protect the traveling public. The barriers shall be properly lighted at night.

The Owner/Applicant shall not do any work or place any obstacles within the state highway right-of-way, except as authorized by this permit.

The Owner/Applicant may pay the entire cost of the salary, subsistence and traveling expenses of any inspector appointed by the Engineer to supervise such work.

The Engineer may modify or revoke the permit at any time for safety-related reasons, without rendering the Agency or the State of Vermont liable in any way.

In addition to any other enforcement powers that may be provided for by the law, the Engineer may suspend this permit until compliance is obtained. If there is continued use or activity after suspension, the Engineer may physically close the work area and take corrective action to protect the safety of the highway users.

The Permit Holder shall be responsible to rebuild, repair, restore and make good all injuries or damage to any portion of the highway right-of-way that has been brought about by the execution of the permitted work, for a minimum period of eighteen (18) months after final inspection by the District.

Any variance from approved plans is to be recorded on "as-builts" with copies provided to both the Chief of Utilities and Permits and the District Transportation Administrator.

ACCESS:

This permit (if for access) does not become effective until the owner/applicant records in the office of the appropriate municipal clerk, the attached "Notice of Permit Action"

As development occurs on land abutting the highways, the Agency may revoke a permit for access and require the construction of other access improvements such as the combination of access points by adjoining owners.

Under Title 19, Section 1111, Vermont Statutes Annotated, no deed purporting to subdivide land abutting a state highway can be recorded unless all the abutting lots so created are in accordance with the standards of Section 1111.

The Permit Holder acknowledges and agrees that neither this permit nor any prior pattern of use creates an ownership interest or other form of right in a particular configuration or number of accesses to or through the highway right-of-way, and that the right of access consists merely of a right to reasonable access the general system of streets, and is not a right to the most convenient access or any specific configuration of access.

DRAINAGE:

The Owner/Applicant shall install catch basins and outlets as may be necessary, in the opinion of the Engineer, to preclude interference with the drainage of the state highway.

UTILITY WORK; CUTTING AND TRIMMING TREES:

The Owner/Applicant shall obtain the written consent of the adjoining owners or occupants or, in the alternative, an order from the State Transportation Board in accordance with Title 30, Section 2506, Vermont Statutes Annotated, regarding cutting of or injury to trees.

In general, all utilities shall be located adjacent to the highway right-of-way boundary line and shall be installed without damaging the highway or the highway right-of-way. No pole, push-brace, guy wire or other aboveground facilities shall be placed closer than 10 feet to the edge of traveled-way. If the proposed utility facilities are in conflict with the above, each location is subject to the approval of the Engineer.

Poles and appurtenances shall be located out of conflict with ditches and culverts.

Where the cutting or trimming of trees is authorized by permit, all debris resulting from such cutting and trimming shall be removed from the highway right-of-way.

Open cut excavation for highway crossings is NOT the option of the Applicant, and may be utilized only where attempted jacking, drilling, or tunneling methods fail or are impractical. The Owner/Applicant shall obtain an appropriate modification of the highway permit from the Engineer before making an open cut.

JOINT PERMITS:

A joint permit application is required when more than one party will be involved with the construction, maintenance, and/or operation of the facility being constructed under this permit. Examples include, but are not limited to, joint ownership or occupancy of a utility pole line and construction of a municipal utility line by a contractor. Both utility companies, and in the second case, the municipality and the contractor, must be joint applicants.

APPENDIX G

TOWN OF WILMINGTON

HIGHWAY RIGHT-OF-WAY

PERMIT APPLICATION

Fee: $ 40.00	Date Received _____	Date Paid: _____
	Property Tax Map # _____	Amount & Initials: _____
ROW Permit # _____	**Recorded Date _____**	**Book & Page: _____**

(Do not write in the above box.)

PERMIT FOR WORK IN TOWN RIGHT OF WAY

Town of Wilmington, Vermont

A permit is necessary for any work done within right of way limits of town roads, not including cutting brush or weeds.

Permission is hereby requested to perform work within a town road right of way. **(please attach drawing)**

Requested by:_____ Phone: _____
Name Address

Property Owner:_____ Property Tax Map # _____

Contractor:_____ Town Road:_____

Description of work:_____
(☐ Check here and use back of this page if additional room is needed.)

(Do not write below this line)

APPROVAL

This permit is issued subject to the following restrictions, conditions and directions and covers only the work described above and on the attached drawing, and then only when the work described is performed as directed:

CONDITIONS:

1. Excavation to be filled with gravel and compacted in one foot lifts to 18 inches from top of road surface.
2. Filter fabric is to be laid 18 inches from road surface and covered with 12 inches of bank run and dressed with 6 inches of crushed gravel.
3. The Road Supervisor must be notified before work is done in order to coordinate inspection.
4. One lane of the road must be kept open to allow for passage of traffic.
5. Appropriate warning signs must be posted and flag persons must be on duty to direct traffic.
6. Contractor shall provide the town with certificate of liability insurance before work begins.
7. Pavement restoration on paved roads must be overseen by road supervisor. A minimum of 3 inches of base hot mix and a 1" overlay is required.
8. All disturbed areas must be immediately seeded and mulched.
9. OTHER CONDITIONS:_____

Date Approved:_____ Expiration Date:_____

_____ _____
Town Manager Road Supervisor

Amended 05/30/05 (revised #7 and added #8), 04/20/99 (revised form & increased fee by $5.00), 5/29/03(added Road Supervisor phone #), 06/11/03(added inspection approval box on back of form), 07/17/03 (increased fee permit $30.00 + $10.00 Bianchi filings), 06/29/04 (revised wording)

Inspection of construction: Approved_____ Not Approved date:_____ because _____

_____ _____

_____ _____

Approved after corrections made _____ _____ _____

Date William Hunt, Road Supervisor Date

APPENDIX H

TOWN OF WILMINGTON

PLUMBER SIGN-OFF FORM

Town of Wilmington
Connection to Municipal Sewer Plumber's Sign-Off Form

I certify that the sewer connection at _____to the Town of
Property Location
Wilmington's sewer collection system was completed on_____. I further certify that the
Date
workmanship and the material used, meet the requirements of the Town of Wilmington and the Vermont Plumbing Code.

_____

Plumber's name and Vermont Plumbing License Number (please print) **Plumber's Signature** **Company name, phone number and address**

In the box below, please sketch the connection and be sure to include measurements to cleanouts.

Form received by:_____Date:_____

APPENDIX I

STATE OF VERMONT

WASTEWATER SYSTEM & POTABLE WATER SUPPLY

DESIGN FLOW DOCUMENTATION AND TABLE

§1-808 Design Flow

(a) Wastewater design flows shall be determined based on Tables 1-3 (pages 66-72). Directions for calculating reductions in design flow based on plumbing fixture type and connection to large wastewater disposal systems are included in the Table. Potable water supply design flows are determined per Subsection 1-808(g) below. Based on the design changes listed in Tables 1 and 2, that are reduced from those in the 1996 version of these Rules, it may be possible to add more residential or camping units to an existing potable water supply and/or wastewater system when the supply and/or system conform to design requirements of these Rules and/or the applicable Vermont Water Supply Rules.

(b) When determining the flows for a particular project, the Secretary may determine that there is sufficient justification for requiring higher or lower flow values. When making this determination, the Secretary shall consider: the nature and design of the project; whether multiple units will be interconnected; past experience on existing projects; metered flows; the design safety factor allowances in Table 1 figures; and potential for fluctuations in flows.

(c) Flow metering used to support a request for an increase in the amount or type of uses for an existing project, or to support new projects, will require at least six months of daily meter readings. The metering period shall include the peak use periods if there is a seasonal variation, such as for a campground or ski area. The strength of the wastewater must also be determined when needed to size the leachfield or any treatment devices, or to determine any adjustments in leachfield loading rates that may be required. Any decision to adjust design flows based on flow metering must consider data concerning peak flow and long term effects on the wastewater system. Any increase in the number of units, such as bedrooms, people, or restaurant seats for an existing project that is based on metered flows, shall only be allowed when the connection is to an existing supply or system that complies with the design requirements of these Rules and the applicable Vermont Water Supply Rules.

(d) For projects without a specific design flow in Tables 1-3, such as food processing plants, the Secretary will determine a design flow for the specific project. The Secretary's determination will be based on available information related to the equipment and from metering information from similar projects that is submitted by a designer or that is available from other sources. The strength of the wastewater must also be determined when needed to size the leachfield or any treatment devices, or to determine any adjustments in leachfield loading rates that may be required.

(e) When collection and building sewers exceed 500 feet in total length, the design flow shall include an allowance for infiltration. New collection systems shall be estimated at 300 gallons/inch of diameter/mile of pipe/day, except when a designer provides project specific information that supports a reduction to not less than 200 gallons/inch of diameter/mile of pipe per day. When a reduction is granted, the acceptable level of leakage for the post construction leakage testing must also be proportionately reduced.

§1-808(f) Design Flow

(f) A soil-based disposal system constructed to serve a new project, or a project with an increase in design flow may be reduced in size when composting or incinerating toilets are used. Systems for residential units will be granted a 25% reduction. The reduction in size for other systems will be determined on a case by case basis.

(g) For potable water supplies that are not public water supplies, design flows shall be determined using this section of the Rules. For water supplies that are public water supplies, design flow shall be determined in accord with Section 2.2 and Table A2-1 of the Vermont Water Supply Rules. The design flow for a water supply may be different than wastewater design flows if the water supply is a public water supply. The design flow for the potable water supply may also differ from the wastewater design flow when the design basis of the two systems is different. Examples include:

(1) The wastewater flow is based on a connection to a wastewater system with a design capacity of 50,000 gallons per day or more and the water supply is an individual supply.

(2) The wastewater flow is based on connection of 5 or more units into a single wastewater system and the water supply is an individual supply for each unit.

Note: In the event of a conflict between these Rules and the Water Supply Rules, these Rules shall govern if the potable water supply is not a public water supply.

Table 1

Design Flow for Residential Units

(a) The design flow for single family residential units shall be calculated on the following requirements:

(1) The design flow for each person shall be 70 gallons per person per day;

(2) the first three bedrooms shall be assumed to have two persons per bedroom;

(3) each additional bedroom may be assumed to have one person per bedroom. When a building will be subject to rental use or when it is likely there will be extended or frequent high occupancy use, the system should be sized for at least 2 persons per bedroom; and

(4) the design flow for a single-family residence on its own individual lot shall be based on a minimum of two bedroom.

(b) When five or more single family residential units are connected to a single soil-based disposal system, a designer may choose to use the following design flows that are based only on the number of residential units without regard for the number of bedrooms:

§1-808 Design Flow Table 1 – Continued

Number of Single Family Units	Project Design Flow
5 units	1575 gallons per day
6 units	1830 gallons per day
7 units	2065 gallons per day
8 units	2280 gallons per day
9 units	2565 gallons per day
10 units	2800 gallons per day
11 units	3036 gallons per day
12 units	3264 gallons per day
13 units	3484 gallons per day
14 units	3696 gallons per day
15 units	3900 gallons per day
16 units	4112 gallons per day
17 units	4369 gallons per day
18 units	4518 gallons per day
19 units	4712 gallons per day
20 units	4900 gallons per day
20+ units	# of units X 245 gallons per day

Note: Single family residential units with only one bedroom, such as condominiums and apartment buildings will not benefit from the use of the design flows listed above. Single family residential units, with two bedrooms each, will benefit from use of the table when 11 or more units are connected to a single soil-based disposal system.

Note: Wastewater disposal systems with a design capacity of 6500 GPD or more may also require an Indirect Discharge Permit.

(c) Single family residential units connected to a wastewater disposal system with a design capacity of at least 50,000 gallons per day may use a design flow of 210 gallons per unit per day, regardless of the number of bedrooms.

(d) There is no reduction allowed in Table 1 design flows based on the use of low flow plumbing fixtures as the design flow assumes their use.

(e) Multi-unit elderly housing projects may be calculated on 1.5 person per unit

§1-808 Design Flow **Table 2**

Campgrounds (also see camps)	Open 7 mo/yr Or Less	Open more than 7 mo/yr
Campgrounds that allow only tents and camping units with no interior plumbing		
Central toilets and showers 4 people per site	75 gpd/site	100 gpd/site
Campgrounds that allow only tents and camping units with no interior plumbing		
Central toilets without showers 4 people per site	60 gpd/site	75 gpd/site
Campground sites that allow camping units with interior plumbing		
Served by central toilet facilities and dumping stations	50 gpd/site for central facilities plus 25 gpd/site for the dumping station	90 gpd/site for central facilities plus 35 gpd/site for the dumping station
Served by an individual sewer hook-up	75 gpd/site	125 gpd/site
Seasonal RV site with individual sewer hook-up		
RV owned by the occupant	75 gpd/site	125 gpd/site
RV not owned by the occupant	125 gpd/site	175 gpd/site
Cabins with RV type plumbing		
4 people per site	125 gpd/site	175 gpd/site
Cabins with conventional plumbing Minimum of 4 people per site		
With or without kitchen	50 gpd/person	50 gpd/person
With or without kitchen but with laundry facilities	70 gpd/person	70 gpd/person

§1-808 Design Flow **Table 2 – Continued**

Campgrounds	Open 7 mo/yr Or Less	Open more than 7 mo/yr
Park Model RV		
For first bedroom	140 gpd/site	140 gpd/site
For additional bedroom	100 gpd/site	140 gpd/site
Mobile home used as vacation facilities		
For first bedroom	140 gpd/site	140 gpd/site
For additional bedrooms	100 gpd/site	140 gpd/site

Note: There is no reduction allowed in Table 2 design flows based on the use of low flow plumbing fixtures as the design flow assumes their use.

§1-808 Design Flow **Table 3**

OTHER ESTABLISHMENTS		GALLONS/PERSON/DAY[a,b] (unless otherwise noted)
Assembly Areas, Conference Room		5
Airports (per passenger)		5
Bathhouses and Swimming Pools		5
Bowling Alley (no food service)(per lane)		75
Cafeterias (per seat)		50
Camps:	Construction camps (semi permanent)	50
	Day camps (no meals served)	15
	Resort Camps (Night & Day) with limited plumbing	50
Churches:	Sanctuary seating x 25%	5
	Church suppers	8
Country Clubs (per resident member)		100
Country Clubs (per non resident member present)		25
Day Care Centers:		
Without meals:		15
With one meal:		20
With two meals:		25
Dentists:		
Staff Member		35
Per Chair		200
Doctor's Office:		
Staff Member		35
Patient		10
Room Rentals:		
	Boarding Houses	50
	Addition for non resident boarders	10

§1-808 Design Flow **Table 3- Continued**

		GALLONS/PERSON/DAY a, b (unless otherwise noted)
	Rooming Houses (per occupant bed space) ……	40
Factories (gallons per person, per shift, exclusive of industrial waste)……		15
Gyms:	Per Participant……	10
	Spectator ……..	3
Hairdressers:	Operator …….	10
	Per Chair …… ……..	150
Hospitals (per bed space) ……..		250
Hotels with Private Baths(per person sleeping space) [c] ……. ……		50
Institutions other than hospitals (per bed)……		125
Laundries, self service (gallons per machine) ……		500
Mobile Home Parks:		
For wastewater systems serving 4 or fewer trailers (per space) …….		450
For wastewater systems serving 5 or more trailers (per space) ……..		250
Motels with bath, toilet (per person sleeping space)[c]……		50
Picnic Parks (toilet wastes only/picnicker) ……		5
Restaurants (toilet and kitchen wastes/seat, including restaurant and bar seats) …….		30
Additional per seat for restaurant serving 3 meals per day …… ……...		15
Restaurants (fast food - see cafeterias)…….		50
Schools:		
Boarding …….		100
Day, without gyms, cafeterias, or showers ……		15
Day, with gyms, cafeterias, and showers ……..		25
Day, with cafeteria, but without gyms or showers … .		20

§1-808 Design Flow **Table 3-Continued**

	GALLONS/PERSON/DAY [a,b] (unless otherwise noted)
Service Stations (first set of gas pumps) ……..	500
(each set thereafter) ……	300
Sewer Line Infiltrationd (where applicable)	300 gal/in pipe/dia/mile/day
Shopping Centers/Stores:[c]	
Large Dry Goods ……...	5 GPD/100 ft²
Large Supermarkets with meat department without garbage grinder …….	7.5 GPD/100 ft²
Large Supermarkets with meat department with garbage grinder ……..	11 GPD/100 ft²
Small Dry Good Stores (in shopping centers) …..	100 GPD/store
Theaters:	
Movie (per auditorium seat)…….	5
Drive in (per car space) ……	5
Veterinary Clinic (3 or less doctors):	
without animal boarding ……..	750/clinic
with animal boarding ……	1,500/clinic
Workers:	
Construction (at semi permanent camps) ……	50
Day at schools and offices (per shift) …….	15

Note: These Rules change design flows for certain categories. It may be possible to add more residential or camping units to an existing potable water supply and/or wastewater system when the supply and/or system conform to current design requirements.

[a] Use eighty (80) percent of design flows for projects to be connected to a wastewater system with a design capacity of 50,000 gallons per day or greater. Note that this design flow reduction applies only to the wastewater flow and DOES NOT apply to a project's associated potable water supply design flows if the water supply is regulated as a public transient, non-transient, or community water supply.

[b] A 10% reduction in the design flow may be used when the plumbing includes standard water saving designs. Toilets must be 3.5 gallons per flush or less and showers and faucets must be 2 gallons per minute or less

[c] Does not include laundry or restaurant waste.

[d] The infiltration design flow is not reduced when water saving plumbing fixtures are used or when a connection is made to a wastewater system with a design flow of 50,000 gallons per day or greater. Any reduction shall be based the requirements of subsection 1-808(e) of this section.

Note: Elderly housing may be calculated at 1.5 people per bedroom

APPENDIX J

STATE OF VERMONT

WASTEWATER SYSTEM & POTABLE WATER SUPPLY

DESIGN GUIDELINES FOR BUILDING SEWERS, SEWER COLLECTION SYSTEMS, SEWAGE LIFT STATIONS AND FORCE MAINS.

APPENDIX 1-A
DESIGN GUIDELINES

1-A-01 Introduction

Following are guidelines for use in the design of systems subject to the Environmental Protection Rules, Chapter 1. Designers are encouraged to use equally or more effective technologies or practices in the design of systems under these guidelines. The Agency may approve different designs that are based on current technology and that have been demonstrated as effective. The Agency may approve a demonstration project designed to test a different design. The designer must support any request for a different approach. Depending on the degree of difference from the guidelines, approval may be conditioned upon periodic inspections to determine that the project is functioning as designed. Any design for a project where a municipality will ultimately be responsible for the operation and maintenance of the project shall include municipal acceptance of the system. While there are no specific technical requirements for any particular design detail, the Secretary will not approve any design that is not based on accepted scientific and engineering principles, except for a demonstration project.

> **Note: Although these guidelines have been subject to review and comment in a rulemaking process, they remain merely guidelines, not binding rules, in order to allow for flexibility in the design of those aspects of sewers, sewage collection systems and lift stations that are addressed in this appendix.**

1-A-02 Building Sewers

The building sewer is that part of the drainage system extending from a building drain to a public sewer, private sewer, septic tank system, or other treatment system. A sewer serving one building will be considered a building sewer. All other sewers will be considered a collection sewer.

(a) Materials: The building sewer shall be constructed in a manner that will prevent leaking, breaking or clogging. Acceptable materials for the sewer are rubber ring jointed, PVC, or cast iron (CI) sewer service pipe. Other materials may be proposed for acceptance by the Secretary.

(b) Sizing & Slope: Building sewers shall be sized based on procedures outlined under 1-A-02. Minimum building sewer size is 4 inches and minimum slope is 1/4 inch per foot.

(c) Connection to a collection sewer: Building sewers discharging to a collection sewer shall be connected through a manhole constructed in accordance with 1-A-03(l) or with a wye fitting so as to direct flow and minimize in line turbulence.

(d) Cleanouts: Cleanouts shall be provided at each horizontal change in direction of the building sewer greater than 45 degrees and at intervals of not more than 100 feet. Building sewer changes in direction that exceed 45 degrees should be made with two 45 degree ells or long sweep fittings. Manholes are acceptable in lieu of cleanouts. Where building sewers to be installed at a depth of less than 3 feet under driveways are anticipated, extra heavy cast iron or other high strength pipe acceptable to the Secretary shall be required.

1-A-02(e) Building Sewers

(e) Leakage: Building sewers shall meet the leakage standards prescribed in Section 1-A-03(k).

1-A-03 Sewer Collection Systems

(a) A sewer collection system is that system of sewers that transport wastewater from building sewers to the wastewater treatment/disposal system.

(b) No connections of roof drains, area drains, foundation drains, cellar drains or other clean water sources or any storm drains will be allowed to building or collection sewers.

(c) Building and collection sewers carrying raw or untreated wastewater shall be sized as follows:

(1) Collection sewers shall be a minimum of 6" diameter.

(2) The flow rate to be used in sizing the sewer shall be based on the full occupancy design flows for the facilities connected as derived from §1-808

(3) times the following factors.

(A) For design flows less than l0,000 gpd, a factor of 5.

(B) For design flows over l0,000 gpd, a factor derived from Table 1-A-1

TABLE 1-A-1
Peaking Factors

Design Flow	Peaking Factor
10,000 gpd	4.2
100,000 gpd	3.8
500,000 gpd	3.2
l, 000, 000 gpd	3.0

(4) Sewers shall be sized for the above derived flow rate to provide a minimum velocity of 2 feet per second when flowing full using the Kutter formula or other acceptable formulae and friction coefficients appropriate for the pipe materials proposed, considering surface deterioration over the expected useful life of the pipe.

(d) Depth: In general, sewers should be sufficiently deep to receive sewage from basements and to prevent freezing. A bury depth of at least four feet should be maintained. This depth should be increased to at least five feet in areas to be plowed during winter months. When these depths cannot be maintained without significant expense, the designer may propose less depths with mitigating measures to protect the sewer.

1-A-03(e) Sewer Collection Systems

(e) Slope, Velocity: All sewers shall be designed and constructed to provide mean velocities, when flowing full, of not less than 2.0 feet per second. Regardless of the formula used or friction factors used in the design of the sewers, all sewers shall be installed with at least the slopes shown in Table 1-A-2

TABLE 1-A-2
Minimum Slopes

Pipe Size (inches)	Slope (feet/l00 feet)
6”	0.60
8"	0.40
10"	0.28
12"	0.22
15"	0.15

Sewers shall be laid with uniform slope and straight alignment between manholes. Where velocities greater than 15 feet per second are attained, special provisions shall be made to protect against displacement by erosion and shock.

Sewers on 20 percent slopes or greater shall be anchored securely with concrete anchors or equal, spaced as follows:

(1) not over 36 feet center to center on grades 20 percent and up to 35 percent;

(2) not over 24 feet center to center on grades 35 percent and up to 50 percent; and

(3) not over 16 feet center to center on grades 50 percent and over.

(f) When a smaller sewer joins a larger one, the invert of the larger sewer should be lowered sufficiently to maintain the same energy gradient. An approximate method for securing these results is to place the 0.8 depth point of both sewers at the same elevation.

(g) Sewer extensions should be designed for projected design flows even when the diameter of the receiving sewer is less than the diameter of the proposed extension. The Agency may require a schedule for future downstream sewer relief.

(h) Materials: Generally, rubber ring jointed PVC, AC or ductile iron (DI) gravity sewer pipe of the proper class is acceptable. Other materials may be approved by the Secretary .

(1) Sewer joints shall be designed to minimize infiltration and to prevent the entrance of roots throughout the life of the system.

(2) All sewers shall be designed to prevent damage from superimposed loads. Proper allowance loads on the sewer shall be made because of the width and depth of trench. Where necessary to withstand extraordinary superimposed loading, special bedding, concrete cradle or special construction may be used.

1-A-03(i) Sewer Collection Systems

(i) Trenching: Ledge, rock, boulders, and large stones shall be removed to provide a minimum clearance of four inches below and on each side of all pipe(s).

(j) Bedding:

(1) Bedding classes A, B, or C, as described in American Society for Testing and Materials (ASTM) C12 77 or Water Pollution Control Federation Manual of Practice (WPCF MOP) No. 9* shall be used for all rigid pipe provided the proper strength pipe is used with the specified bedding to support the anticipated load.

*Note: WPCF MOP No. 9 is a joint publication with the American Society of Civil Engineers (ASCE) which lists it as "Manuals and Reports on ENGINEERING PRACTICE No. 39. " See Appendix 5-A for the address of the ASCE.

(2) Bedding classes I, II, or III, as described in ASTM 0232174(80) shall be used for all flexible pipe provided the proper strength is used with the specified bedding to support the anticipated load.

(3) Backfill shall be of a suitable material removed from excavation except where other material is specified. Debris, frozen material, large clods or stones, organic matter, or other unstable materials shall not be used for backfill within two feet of the top of the pipe.

(k) Leakage Tests: When tested, the leakage inward and outward of a gravity sewer including manholes shall not exceed 200 gallons per inch of pipe diameter per mile per day. Upon completion of construction, a sewer line shall be tested in accordance with one of the following procedures:

(1) Water testing

(A) Plug or cap all service laterals, stubs, and fittings. Place adequate bracing to withstand thrust forces.

(B) A tapped plumber's plug should be inserted in the downstream manhole inlet sewer. The water supply connection is made at this point, but never directly from a public water supply system or hydrant unless a backflow preventer is used.

(C) A stand pipe is tightly connected at the upstream end of the sewer. The height of the stand pipe shall be at least two feet higher than any point in the sewer or two feet higher than the highest known ground water table, whichever is higher. A manhole may be used as a stand pipe .

(D) Water is added at the downstream connection in order to avoid trapping air bubbles or pockets. The line shall be filled to the elevation designated in the stand pipe.

(E) Allow the line to stand with water for at least a two hour stabilization period or such shorter period as may be required to achieve stabilized readings of water loss over three consecutive 15 minute periods. This allows air to escape and absorption to take place.

(F) Fill the sewer line to the reference mark and continue the test for at least one hour. Maintain the minimum head throughout the test, adding any volume of water required and including that volume in the leakage.

(G) Convert the leakage to the units specified.

(2) Air testing

(A) Procedures

(i) Determine the test time for the section of line to be tested using Table 1-A-3 or 1-A-4 or the formulas in Chart 1-A-1.

(ii) Plug all openings in the test section.

(iii) Add air until the internal pressure of the line is raised to approximately 4.0 pounds/square inch (psi) greater than the average pressure of any ground water. After this pressure is reached, allow the pressure to stabilize. The pressure will normally drop as the air temperature stabilizes. This usually takes 2 to 5 minutes depending on the pipe size. The pressure may be reduced to 3.5 psi before starting the test.

(iv) When the pressure has stabilized and is at or above the starting test pressure of 3.5 psi above the pipe, start the test. If the pressure drops more than 1.0 psi during the test time, the line is presumed to have failed the test. If a 1.0 psi drop does not occur within the test time, the line has passed the test.

(B) Test time

(i) Table 1-A-3 shows the required test time, T, in minutes/100 feet of pipe for each nominal pipe size. Test times are for a 1.0 psi pressure drop from 3.5 to 2.5 psi. Table 1-A-3 has been established using the formulas contained in Chart 1-A-1.

(ii) If the section of line to be tested includes more than one pipe size, calculate the test time for each size and add the test times to arrive at the total test time for the section.

(iii) It is not necessary to hold the test for the whole period when it is clearly evident that the rate of air loss is less than the allowable.

TABLE 1-A-3 MINIMUM TEST TIME FOR VARIOUS PIPE SIZES

Nominal Pipe Size in inches	T (time) min/100 ft.	Nominal Pipe Size in inches	T (time) min/100 ft.
3	0.2	21	3.0
4	0.3	24	3.6
6	0.7	27	4.2
8	1.2	30	4.8
10	1.5	33	5.4
12	1.8	36	6.0
15	2.1	39	6.6
18	2.4	42	7.3

CHART 1-A-1

FORMULAS AND ALLOWABLE AIR LOSS STANDARDS

Calculate the required test time at a given allowable air loss as follows:

$$T = (K) \times \frac{(D)^2(L)}{(Q)}$$

Calculate air loss with a timed pressure drop as follows:

$$Q = (K) \times \frac{(D)^2(L)}{(T)}$$

Symbols:

D = nominal size, in.
K = 0.534 x 10-6 for S.I. units
K = 0.371 x 10-3 for inch pound units
L = length of line of one pipe size, ft.
Q = air loss, ft 3/min.
T = time for pressure to drop 1.0 psi, min

.

(C) An appropriate allowable air loss, Q, in cubic feet per minute, has been established for each nominal pipe size. Based on field experience, the Q value that has been selected will enable detection of any significant leak Table 1-A-4 lists the Q established for each pipe size.

TABLE 1-A-4 ALLOWABLE AIR LOSS FOR VARIOUS PIPE SIZES

Nominal Pipe Size in Inches	Q, ft^3/min	Nominal Pipe Size in Inches	Q, ft^3/min
3	2	21	5.5
4	2	24	6
6	2	27	6.5
8	2	30	7
10	2.5	33	7.5
12	3	36	8
15	4	39	8.5
18	5	42	9

For further information regarding the Air Testing procedures, refer to ASTM F1417-92 (2005) “Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air”, ASTM International. For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For Annual Book of ASTM Standards volume information, refer to the standard’s Document Summary Page on the ASTM website.

1-A-03(l) Sewer Collection Systems

(l) Manholes

(1) Location: Manholes shall be installed at the end of each line, at all changes in grade, size or alignment, at all intersections, and at distances not greater than 300 feet unless the designer justifies a greater spacing.

(2) Drop Type: A drop pipe should be provided for a sewer entering a manhole at an elevation of 24 inches or more above the manhole invert. Where the difference in elevation between the incoming sewer and the manhole invert is less than 24 inches, the invert should be filleted to prevent deposition of solids.

Drop manholes should be constructed with an outside drop connection. Inside drop connections (when necessary) shall be secured to the interior wall of the manhole and provide access for cleaning. Where inside drops are used, the manhole diameter shall be increased to allow adequate access.

Due to the unequal earth pressures that would result from the backfilling operation in the vicinity of the manhole, the entire outside drop connection shall be encased in concrete and supported by the manhole base.

(3) Diameter: The minimum diameter of manholes shall be 48 inches; large diameters are preferred for connection to large diameter sewers. A minimum access diameter of 22 inches shall be provided.

(4) Flow Channel: Flow channels shall be provided in the base of all manholes and the flow channel through manholes should be made to conform in shape and slope to that of the sewers.

(5) Manholes shall be of the precast concrete or poured in place concrete type. Manholes shall be waterproofed on the exterior.

(6) Inlet and outlet pipes shall be joined to the manhole with a rubber gasketed flexible watertight connection that allows differential settlement of the pipe and manhole wall to take place.

Grouting is not an acceptable connection. All manhole connections, including building sewers, shall be constructed to this standard.

(7) Watertight manhole covers are to be used wherever the manhole tops may be flooded by street runoff or high water. Locked manhole covers may be desirable in isolated easement locations where vandalism may be a problem.

1-A-03(l)(8) Sewer Collection Systems

(8) All manholes shall be tested for leakage. Leakage testing of gravity sewers utilizing the water testing procedures takes into account the leakage from one manhole in the test section. Otherwise, manholes shall be tested for leakage in accordance with the following procedure:

After the manhole has been assembled in place, all lifting holes and exterior joints shall be filled and pointed with non shrinking mortar. All pipes and other openings into the manhole shall be suitably plugged and the plugs placed to prevent blowout.

Each manhole shall be checked for exfiltration by filling with water to the top of the cone section. A stabilization period of one hour shall be provided to allow for absorption. At the end of this period, the manhole shall be refilled to the top of the cone, if necessary, and the measuring time of at least six hours begun. At the end of the test period, the manhole shall be refilled to the top of the cone measuring the volume of water added.

This amount shall be converted to a 24-hour rate and the leakage determined on the basis of depth. The leakage for each manhole shall not exceed one gallon per vertical foot for a 24 hour period for exfiltration and there shall be no visible infiltration.

Alternatively, the manhole may be tested for leakage using the following procedure:

All lifting hole and exterior joints shall be filled and pointed with an approved non-shrinking mortar. The completed manhole shall not be backfilled prior to testing. Manholes that have been backfilled shall be excavated to expose the entire exterior prior to vacuum testing or the manhole shall be tested for leakage by means of a hydrostatic test.

All pipes and other openings in the manhole shall be suitably plugged in a manner to prevent displacement.

A plate with an inflatable rubber ring the size of the top of the manhole shall be installed by inflating the ring with air to a pressure adequate to prevent leakage of air between the rubber ring and the manhole wall.

Air shall then be pumped out of the manhole through an opening in the plate until a vacuum is created inside of the manhole equal to 10 inches of mercury on an approved vacuum gauge. The removal of the air shall then be stopped and the test time begun.

The vacuum must not drop below 9 inches of mercury within a 2 minute test period. If more than 1 inch of drop in vacuum occurs within the 2 minute test period the manhole has failed the test and shall be repaired or reconstructed and retested.

Following satisfactory test results, the manhole may be backfilled.

1-A-03(l)(9) Sewer Collection Systems

(9) Location of Sewers on Streams

(A) Cover Depth: The top of all sewers entering or crossing streams shall be at a sufficient depth below the natural bottom of the stream bed to protect the sewer line. In general, the following cover requirements must be met:

(i) One foot of cover is required where the sewer is located in rock;

(ii) Three feet of cover is required in other material. In major streams, more than three feet of cover may be required; and

(iii) In paved stream channels, the top of the sewer line should be placed below the bottom of the channel pavement.

(B) Horizontal Location: Sewers located along streams shall be located outside of the stream bed and sufficiently removed therefrom to provide for future possible stream widening, minimize pollution by siltation during construction, and allow future access for repair and maintenance of sewers.

(C) Structures: The sewer, manholes, gate boxes, or other structures shall be located so they do not interfere with the free discharge of flood flows of the stream. No manholes or other access structures shall be located within the normal flow channel of the stream.

(D) Alignment: Sewer crossing streams should be designed to cross the stream as nearly perpendicular to the stream flow as possible and shall be free from change in grade. Sewer systems shall be designed to minimize the number of stream crossings.

(E) Construction Materials: Sewers entering or crossing streams shall be constructed of cast or ductile iron pipe with mechanical joints and they shall be constructed so they will remain watertight and free from changes in alignment or grade. Material used to backfill the trench shall be stone, coarse aggregate, washed gravel, or other materials that will not cause situation.

(10) Aerial Crossings: Support shall be provided for all joints in pipes utilized for aerial crossings. The supports shall be designed to prevent frost heave, overturning and settlement.

Precautions against freezing, such as insulation and increased slope, shall be provided. Expansion jointing shall be provided between above ground and below ground sewers.

For aerial stream crossings, the impact of flood waters and debris shall be considered. The bottom of pipe should be placed no lower than the elevation of the fifty (50) year flood.

(11) Water Line Separation

(A) Horizontal Separation: Sewers shall be laid at least ten feet horizontally from any existing or proposed water main. The distance shall be measured edge to edge.

Where impossible or impracticable, due to ledge, boulders or other unusual conditions, to maintain the ten foot sewer--water pipe horizontal separation between sewer and water lines, the water line may be in a separate trench or on an undisturbed earth shelf in the sewer trench provided that the bottom of the water line is at least 18 inches above the top of the sewer. Wherever impossible or impractical to maintain the 18 inch vertical separation, the sewer line shall be constructed to normal water line standards and pressure tested to 50 psi for 15 minutes prior to backfilling. No leakage shall be allowed for this test.

(B) Crossings: Sewers crossing water mains shall be laid beneath the water main with at least 18 inches vertical clearance between the outside of the sewer and the outside of the water main. When it is impossible to maintain the 18" vertical separation; 1) the crossing shall be arranged so that one full length of sewer is centered above or below the water line with sewer joints as far as possible from water joints; 2) the sewer pipe must be constructed to water main standards for a minimum distance of 20 feet either side of the crossing or a total of three pipe lengths, whichever is greater; 3) the section constructed to water main standards must be pressure tested to maintain 50 psi for 15 minutes without leakage prior to backfilling beyond one foot above the pipe to assure water tightness; 4) where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to prevent damage to the water main.

1-A-04 Sewage Lift Stations

(a) Flooding: Sewage pumping station structures and electrical and mechanical equipment shall be protected from physical damage from the one hundred (100) year flood. Sewage pumping stations should remain fully operational and accessible during the twenty five (25) year flood.

(b) Equipment Removal: Provision shall be made to facilitate removal of pumps, motors, and other mechanical and electrical equipment.

(c) Pump Removal: Submersible pumps shall be readily removable and replaceable without dewatering the wet well or disconnecting any piping in the wet well.

(d) Construction: Submersible pumps and motors shall be designed specifically for raw sewage use, including totally submerged operation during a portion of each pumping cycle.

(e) Pumping Units: Lift stations receiving an average daily flow of less than 2,000 gal/day may be equipped with a single pumping unit, provided that replacement pumps are readily available, and one day's emergency storage is provided above the alarm level in the wet well. All other lift stations shall contain alternating duplex pumping units with each unit capable of pumping the maximum flow the station is expected to receive.

(f) Pump Openings: For pumps handling raw sewage, except where grinder pumps are used, pumps shall be capable of passing spheres of at least three inches in diameter, and pump suction and discharge piping should normally be at least four inches in diameter. Pumps handling only settled wastewater shall be capable of passing 1½" spheres. However, the Agency will entertain proposals for smaller pumps where the engineer can demonstrate that such pumps are satisfactory for the particular wastewater to be pumped, based on actual operating experience.

(g) Priming: Generally, the pump shall be so placed that, under normal operating conditions, it will operate under a positive suction head.

(h) Electrical Equipment: Electrical systems and components (e.g., motors, lights, cables, conduits, switchboxes, control circuits; etc.) in raw sewage wet wells, or in enclosed or partially enclosed spaces where hazardous concentrations of flammable gases or vapors may be present shall comply with the National Electrical Code®, 2005 Edition, requirements for Class I, Group D, Division 1 locations. In addition, equipment located in the wet well shall be suitable for use under corrosive conditions. Each flexible cable shall be provided with watertight seal and separate strain relief. A fused disconnect switch located above ground shall be provided for all pumping stations. When such equipment is exposed to weather, it shall meet or exceed the requirements of weatherproof equipment as specified by the National Electrical Manufacturers Association (NEMA). Standard 3R shall be used as a minimum and is specified in Publication #250-1997, "Enclosures for Electrical Equipment (1,000 Volt Maximum.)" See Appendix 5-A for the address.

1-A-04(i) Sewage Lift Stations

(i) Intake: Each pump should have an individual intake. Wet well design should be such as to avoid turbulence near the intake. Intake piping should be as straight and short as possible. Where turned down bellmouth inlets or submersible pumps are used the bottom of the inlets should be placed a sufficient distance above the wet well floor to minimize inlet head losses, but close enough to the wet well floor to assure inlet velocities sufficient to prevent solids deposition.

(j) Pumping Rates: The pumps selected shall be capable of providing the following pumping rates:

(1) The minimum pumping rate shall not be less than 5 gallons per minute

(2) For average daily flows less than 10,000 gallons per day, the maximum rate shall be 5 times the average design flow.

(3) For average design flows greater than 10,000 gallons per day, the maximum flow rate shall be determined by multiplying the average design flow by the appropriate peaking factor from Table 1-A-1 Peaking Factors (page 133) .

(k) Pump controls

(1) Location: The pump control system shall be located away from the turbulence of incoming flow and pump suction.

(2) Setting: The '2nd pump on' level and 'alarm on' level shall be at the same elevation.

(l) Valves

(1) Suction Line: Suitable shutoff valves shall be placed on the suction line of each pump except on submersible pumps.

(2) Discharge Line: Suitable shutoff and check valves shall be placed on the discharge line of each pump. The check valve shall be located between the shutoff valve and the pump. Check valves shall be suitable for the material being handled. Valves shall be capable of withstanding normal pressure and water hammer.

(3) Location: Valves may be located in wet wells only where single pump units are allowed. On all duplex unit pumping stations, the valves shall be in a separate valve pit adjacent to the wet well. This valve pit shall also contain a valved connection to allow the use of a portable pump for lift station bypassing during emergency conditions. The valve pit shall be provided with a drain to the wet well. An effective method of preventing sewage from entering the pit during surcharged wet well conditions shall be provided.

1-A-04(m) Sewage Lift Stations

(m) Wet Wells

(1) Size: For lift stations handling raw sewage and receiving more than 20,000 gallons per day average design flow, the size of the wet well shall be such that with any combination of inflow and pumping the cycle of operation of each pump will not be less than 5 minutes and the retention time in the wet well should not be more than 30 minutes at average design flow. For raw sewage lift stations receiving less than 20,000 gallons per day, the retention time in the wet well will not be more than 30 minutes at average design flow. These requirements do not apply for lift stations handling only settled wastewater.

Emergency storage or emergency power must be provided at all lift stations for power outage. Storage should be provided above the high water alarm level of the wet well, in the wet well or in an adjacent tank. The volume of storage should equal the design wastewater flow for a period in excess of the longest power outage in the last five years that would have affected the proposed site, or four hours, based on a 16 hour delivery rate, whichever is greater.

The emergency storage volume may overflow into the connecting sewer lines providing that the sewage does not back up into building basements or fixtures, back up into septic tanks or over top manholes or the wet well.

Emergency storage will be a minimum of one day of wastewater design flow for all lift stations with a single pump.

(2) Floor slope: For all raw wastewater pump stations except submersible pump types, the wet well floor shall have a minimum slope of one to one to the hopper bottom. The horizontal area of the hopper bottom shall be not greater than necessary for proper installation and function of the inlet.

(3) Ventilation

(A) Dry Wells: Ventilation may be either continuous or intermittent. Ventilation, if continuous, shall provide at least six complete air changes per hour, if intermittent, at least 30 complete air changes per hour.

(B) Wet Wells: For lift stations receiving less than 20,000 gallons per day design flow gravity ventilation is acceptable. For flows greater than 20,000 gallons per day design flow, forced ventilation shall be used. Forced ventilation may be either intermittent or continuous. Ventilation, if continuous, shall be capable of providing at least 12 complete air changes per hour, if intermittent, at least 30 complete air changes per hour. Air changes shall be forced into the wet well rather than exhausted from the wet well. Portable ventilation equipment may be approved when pumps, controls, screens, and other mechanical equipment can be serviced or replaced without entering the wetwell provided that the designer submits information demonstrating that the

proposed portable equipment will be suitable for the purpose, and operation and maintenance plan for the equipment, and a statement that the portable equipment will be equally or more effective than permanently installed equipment.

(n) Alarm Systems: Alarm systems shall be provided for pumping stations. The alarm shall be activated in cases of pump failure, use of the lag pump, high water in wet well, or other evidence of pump station malfunction. Audio and visual alarms shall be provided. Alarms shall be located in a normally frequented area.

1-A-05 Force Mains

(a) Velocity: The force main shall be sized to maintain a minimum hydraulic velocity of 2 feet per second with one pump on. The minimum force main size shall be 1 ½ inch diameter.

(b) Air Relief Valve: An automatic air relief valve shall be placed at high points in the force main to prevent air locking.

(c) Termination: Force mains should enter the gravity sewer system at a point not more than 2 feet above the flow line of the receiving manhole

(d) Design Pressure: Force mains and fittings, including reaction blocking, shall be designed to withstand normal pressure and pressure surges (water hammer).

(e) Design Friction Losses: Friction losses in force mains shall be based on the Hazen Williams formula or other acceptable method. Selected friction factors shall be representative of pipe materials selected, considering surface deterioration over the expected useful life of the pipe.

Hazen Williams Formula

$V = 1.32\ C\ R^{0.63}\ S^{0.54}$
R is the hydraulic radius
S is the slope of the energy grade line
C is the coefficient of roughness

(f) Separation from Water Mains: There shall be a minimum 10-foot horizontal separation between water mains and force mains. A minimum 18 inch vertical separation between the outside pipe surfaces shall be maintained where force mains cross water mains. Force mains shall cross water mains at or near right angles with one full length of water pipe centered on the force main so both end joints are at maximum separation from the force main. Special structural support for the water main and the force main may be required.

1-A-05 (g) Force Mains

(g) Pressure Test: Upon completion of construction of a force main the line shall be pressure and leakage tested. All newly laid pipe or any valved section thereof shall be subjected to a hydrostatic pressure of at least 1.5 x the highest working pressure in the section in accordance with the following procedure:

(1) Test pressures shall:

(A) not be less than 50 psi at the highest point along the test section.

(B) not exceed pipe or thrust restraint design pressures.

(C) be of at least 2 hour duration.

(D) not vary by more than 5 psi.

(E) not exceed twice the rated pressure of the valves when the pressure boundary of the test section includes closed gate valves.

(2) Pressurization. Each valved section of pipe shall be filled with water slowly and the specified test pressure, based on the elevation of the lowest point of the line or section under test and corrected to test gauge, shall be applied by means of a pump connected to the pipe.

(3) Air Removal. Before applying the specified test pressure, air shall be expelled completely from the pipe and valves.

(4) Examination. All exposed pipe, fittings, valves, and joints shall be examined carefully during the test. Any damaged or defective pipe, fittings, or valves, that are discovered following the pressure test shall be repaired or replaced with sound material and the test shall be repeated.

(h) Leakage Test

(1) A leakage test shall be conducted concurrently with the pressure test.

(2) Leakage Defined. Leakage shall be defined as the quantity of water that must be supplied into the newly laid pipe, or any valved section thereof, to maintain pressure within 5 psi of the specified test pressure after the air in the pipeline has been expelled and the pipe has been filled.

1-A-05(h)(3) Force Mains

(3) Allowable Leakage. No pipe installation will be accepted if the leakage is greater than that determined by the following formula:

$$L = \frac{(N)(D) \times \sqrt{P}}{7400}$$

L is the allowable leakage, in gallons per hour
N is the number of joints in the length of pipeline tested
D is the nominal diameter of the pipe, in inches
P is the average test pressure during the leakage test, in pounds per square inch gage.