

**SUPPLEMENTARY REGULATIONS FOR SEWAGE DISPOSAL SYSTEMS  
TOWN OF CARLISLE, MA**



In accordance with its authority under M.G.L. c. 111, Section 31 and M.G.L. c. 21A, section 13 and 310 CMR 15.003(3) the Board of Health of the Town of Carlisle enacts the following supplementary regulations.

**JUSTIFICATIONS**

Title 5 of the State Environmental Code sets minimum requirements for the disposal of sewage in unsewered areas. The following supplementary regulations for the Town of Carlisle are keyed to the 1995 Title 5 requirements (310 CMR 15.00 15.505)

1. The Carlisle Board of Health feels the long-term health interests in our town can only be served by adopting certain regulations which are stricter than Title 5, which was written as a minimum protection standard in 1977, revised in 1995 and in 2006 and designed to cover all towns in Massachusetts utilizing subsurface disposal systems.
2. Carlisle has no town water backup. Unlike a number of Massachusetts towns covered by Title 5, if a residence or a business loses a well to pollution, there is no town water which can be brought in, nor any town wells at all.
3. Carlisle geographically is an area of extensive wetland, high water table, and extensive ledge. Safeguards in the original septic system installations are necessary because alternative repair locations are often unavailable.
4. Carlisle presently has no municipal sewerage to hook up to in cases of septic system failure.
5. Current estimates indicate that the distance viruses and bacteria travel is much greater than previously estimated. In Carlisle, where groundwater travels some distance through bedrock crevices, pollution may not be adequately filtered in gravel or sand with Title 5 percolation rates used for design.

**SUBPART A: GENERAL PROVISIONS**

**15.002 Definitions**

Board means Carlisle Board of Health

Title 5 means Title 5 of the State Environmental Code, 310 CMR 15.00

Soil Absorption System is defined the same as in Title 5 and includes alternative technologies; synonymous with leaching area.

Wetland is defined the same as in Title 5 and in the Carlisle Wetland Bylaw.

#### 15.020 Disposal System Construction Permit

Application: A completed application shall consist of the following:

- DEP Transmittal Form for a Disposal System Construction Permit (DSCP)
- Letter of Explanation prepared by design engineer
- Two paper copies and an electronic copy (.pdf) emailed to the Health Agent
- Five paper copies and a .pdf when the design is at the final approval stage or prior to release of the construction permit if there are pending conditions
- For upgrade of failed septic system, a Title 5 Inspection Report documenting the failure
- Fee
- Floor plans of the house for system upgrades

A Letter of Approval will be issued listing standard and special conditions. Approval of the plan does not constitute a construction permit. A Disposal System Construction Permit (DSCP) will be issued when all conditions have been satisfied.

The redesign of an already approved plan is not considered a new application and the original expiration date applies. A resubmittal of an expired plan is considered a new application.

Fees: The application fee for a disposal works construction permit must be paid at the time the plans are submitted. Revised plans requiring an additional engineering review will be charged a fee. No additional fee is required for revised plans that do not require an engineering review. The amount of the fee will be set from time to time by the Board of Health.

#### 15.220: Preparation of Plans and Specifications

TITLE BLOCK 1) Street Address, 2) Assessor's Map No. And Lot No. for which the design is prepared, 3) Professional seal and signature of designer, 4) If revision plan, revision number, description of revision, and revision date, 5) Address including street number and telephone number of Owner(s) and design engineer.

#### PLAN VIEW

The following additional requirements must be shown on the plan:

1. Every plan for a system shall be at a scale of one inch = 20 feet.
2. Lot Lines and locus map. If a system is close to or within the minimum setback distance from a lot line (10'), the design engineer must verify the accuracy of the lot line. A professional survey or other evidence of lot line verification must be submitted. The

Board will not accept disclaimer notes from engineers preparing plans from other engineering plans regarding lot line.

3. Pertinent topographic features.
4. All ledge outcropping and ledge encountered in exploratory digging.
5. Results, conditions, and locations of all (previous and current) deep hole and percolation tests within 50' of the design areas (passed as well as failed). These shall be used in the design calculations.
6. Wetland zoning district boundaries on the lot(s) or within 100 feet of the proposed leaching facility even if not on the same lot(s).
7. Federal Emergency Management Agency (FEMA) flood plain boundaries on the lot(s) or within 100 feet of the leaching facility even if not on the same lot(s). Design engineer shall verify that the flood plain boundary conforms to the Federal Insurance Rate Map (FIRM), if applicable.
8. Existing or proposed well location, 100 foot well radius and waterline to the building.
9. Location and radii of all wells within 200 feet of the proposed leaching facility even if not on the same lot.
10. Proposed and existing sewage disposal systems and existing systems within one hundred (100) feet of the proposed system on abutting lots.
11. Location and grading for all existing or proposed driveways on the lot(s).
12. Drain lines, culverts, and curtain drains on the lot or within 100 feet of the proposed leaching facility even if not on the same lot(s).
13. Details of septic tank, distribution box, and leaching system including dimensions, materials, inverts, and a scaled profile of the system. For pumped systems, the inside dimensions of the pump chamber shall be shown. The length and slopes of all pipes shall be shown.
14. Invert elevation at both ends of all pipes and at changes in grade.
15. Elevation of foundation, basement, and first floor of proposed or existing buildings.
16. Number of bedrooms for proposed design flow capacity.
17. Zoning District in which the lot(s) is located.
18. Special topographical conditions outside of the property boundaries which may impact the siting of a septic system in compliance with Title 5 and these regulations for 100' beyond the property lines such as flood hazard zone and wetlands to the best of the applicant's ability including the use of available maps and/or field survey with appropriate permission of land Owners.

PLAN NOTES: 1) The first 2' of pipe from the distribution box shall be set level. 2) The system shall be staked in the field, and benchmark set, by the design engineer. 3) All top and subsoil over the leaching area and between trenches and for a distance of 5' extending around the leaching area in all directions shall be removed and stockpiled before the bottom of bed or trench is excavated, and the 5' excavation shall be shown on the plan. 4) Finished grade over the leaching area shall have a minimum slope of 2%. 5) Retaining walls shall not exceed five (5) feet in height (reveal).

All revised plans shall be accompanied by a letter from the designer which details in an itemized form how each of the items in the Board's engineering consultant's review letter were addressed and/or mitigated on the revised plan. Additionally, any issues discussed at a Board meeting and directed by the Board to be incorporated into the revised plan shall be explained in the letter.

For a new lot which is not part of a subdivision, the applicant shall provide recording information to show that the sewage disposal system is on a legally created lot prior to approval of the design. Evidence of the recording of all easements is required before Board approval.

The Board of Health reserves the right to revoke an approval that is found to be based on a material misrepresentation of fact.

#### 15.019 Disposal System Installer's Permit

The Board of Health will administer a written examination. Installers seeking permits are required to take and pass an initial examination. An annual renewal license will be issued as long as the installer has worked in Carlisle during the previous twenty-four months and the work has been satisfactory. An application fee is required for taking the examination and renewing a license. A list of licensed installers will be maintained at the Board of Health office. The Board reserves the right to require new or additional examinations to be administered to any installer at any time.

#### 15.021 Certificate of Compliance

Only DEP approved forms shall be used. The Certificate of Compliance will not be released without the signature of the design engineer and installer on the DEP approved form.

**Inspections and Engineered As Builts:** An agent designated by the Board of Health will inspect the sewage disposal system at three phases of its construction: 1) After excavation is complete including a sample of the fill to be used and sieve analysis<sup>1</sup>; If both Title 5 sand and ASTM C-33 sand are required for the design, then both sieve analyses shall be provided with samples of each fill at the time of the first inspection; 2) After all components are installed but before any component is covered, at which time two (2) copies of an installation as built survey performed by the design engineer shall be submitted and the system shall not be backfilled until the designer has submitted at least the following: plan of the as built showing the horizontal location of all the system components in relation to the intended design, a table of elevations comparing the installed elevations to the design elevations and a written, signed and stamped certification by the designer that the system has been installed as per his/her design and within standard and customary engineering tolerances. 3). After the system has been covered and

---

<sup>1</sup> For a system in fill installer may request an additional inspection of the fill material prior to placement and following placement of sand (if deemed necessary by the inspector at the time of the excavation inspection).

final grading completed, the Engineer shall determine final grades and verify on the as-built plan, the depth of cover over the system components (see Attachment A for As-Built requirements). Final grades (spot grade and/or contour lines) shall be superimposed over the proposed design grading for comparison.

Inspections are to be scheduled (usually for Wednesdays) by contacting the Board of Health Office.

The Board of Health will not waive any required inspections. In the event that severe weather is imminent, such as freezing temperatures, snow or rain, the installer shall contact the Board to arrange a non-scheduled inspection so that the system can be backfilled before being negatively impacted by weather conditions.

#### 15.024: Violations of 310 CMR 15.000 and Carlisle Supplementary Sewage Disposal Regulations

Any person who violates any provision of this Regulation may be punished by a fine of not more than Three Hundred Dollars (\$300.00) per offense. Each day or portion thereof during which a violation continues shall constitute a separate offense, and each provision of the Regulation violated shall constitute a separate offense.

Any licensed installer found to be in violation of either 310 CMR 15.00 or the Town of Carlisle Supplementary Sewage Disposal Regulations shall be subject to the following and shall have the right to a hearing before the Board:

- a) First violation - a written warning.
- b) Second violation within a twelve month period - for the following calendar year, and upon successful completion of the installer's examination, the Board will issue a license limited to the six month period from July 1 through December 31 prior to which no installation work or Board of Health related activities can be conducted.
- c) Subsequent violations - within the same twelve-month period the penalty will incur a fee of up to \$100 per day for each violation and each day shall be considered a separate violation.

#### 15.027 Septic System Additives

Only approved Title 5 additives may be used and only with prior approval from the Board of Health.

#### 15.030 Records

All percolation and deep observation hole test results (presented on DEP approved forms) and a test location plan (TLP) shall be prepared and submitted to the Board of Health within 60 days of the test date.

The TLP shall include the following criteria:

1. Title block including Owner's name, address and phone, date, engineering consultant, name of soil evaluator, lot number(s) and book and page.
2. Lot lines, pertinent or outstanding site features (ledge outcrop, stone walls existing buildings etc.), north arrow, adjacent street names. Test locations shall be shown with taped distances from such features.
3. Scale drawings are not necessary, however sufficient information and dimensioning shall be shown so that tests can, if necessary, be located in the field. Two copies are required.

A TLP is not required if a septic plan, showing all testing, is submitted to the Board for approval within 60 days.

#### SUBPART B: SITING OF SYSTEMS

##### 15.100 General Provisions

An agent of the Board of Health will witness all deep observation holes and percolation tests. Witnessing of tests will be scheduled (usually on Wednesdays) upon advance application and payment of the required fee to the Board. The Owner(s) of the lot, or Owner's agent, is responsible for the payment of the fee. Fees for soil testing will be established from time to time by the Board of Health. Testing which is canceled after 3:00 pm the day before shall incur an additional fee unless waived by the Health Department.

It shall be the responsibility of the design engineer to notify and receive approval from the Conservation Commission prior to gaining access to sites through environmentally sensitive areas. If it is found that access has been gained and testing performed without this approval, this testing shall become void.

A Pre-existing Non-Conforming System shall not be used to support the construction of a new dwelling or the rebuilding of a demolished dwelling in a new or the same location until the system is brought into full compliance with Title 5 and local regulations.

For Systems having a cumulative project flow of 2000 gallons per day or greater, a hydrogeological evaluation utilizing a three dimensional model such as ModFlow shall be performed by a qualified engineer or geologist, at the expense of the applicant, to be reviewed and approved by the Board of Health prior to the issuance of a DSCP. Models shall predict no rise in groundwater elevation and no greater than 5 mg/L of total nitrogen at the perimeter boundary. Monitoring wells used for the hydrogeological study shall remain in place, unless their removal or capping is authorized by the Board of Health. The Board of Health reserves the right to maintain the wells and continue monitoring as it deems appropriate. System Owners are required to test available monitoring wells for fecal coliform, TSS, BOD and Total Nitrogen

and submit the results to the Board of Health at least once every three years and in conjunction with the required Title 5 inspections.

#### 15.103 High Groundwater Elevations

New construction includes but is not limited to voluntary upgrades and repairs of failed systems with an increase in flow. High groundwater elevation shall be determined in accordance with the methods described in 15.103(3).

#### 15.104 Percolation Tests

No test shall be discontinued if it is within thirty (30) feet of the field area. The slowest rate obtained within 30 feet of a leaching facility design location shall be utilized as the design application rate.

Acceptance of percolation tests done in a different area is not automatic. When percolation tests are done at a time other than the high water tests, an additional deep hole test may be required at the discretion of the approving authority and shall be dug to a depth of four (4) feet below the elevation of the proposed percolation test to verify the soil consistency. Percolation tests shall be conducted no more than twenty (20) feet or less than ten (10) feet from its accompanying deep observation hole.

### SUBPART C: DESIGN, CONSTRUCTION, REPAIR AND REPLACEMENT OF ON SITE SEWAGE DISPOSAL SYSTEMS

For new construction, a minimum of two (2) deep observation holes and two (2) percolation tests are required in the primary and reserve leaching areas.

#### 15.211 Distances

The minimum setback distance between a leaching area and wetlands is one hundred (100) feet. Depending on specific site conditions, it is possible that some designs which fail to meet the 100' set back may be allowed if the Board finds that the waiver will provide an environmental benefit. The burden of proof is on the applicant with documented testimony. Such approvals are dependent on the Board's review of soil conditions, topography, site development impacts, mitigation of environmental impacts and whether an alternative technology approved for nitrogen reduction is proposed [See "Policy" in Attachment B]. All other setbacks must comply with Title 5 Minimum Setback Distances. The Board may table action on a waiver if it decides to seek input from other town boards or departments. For any variance to this setback, the applicant must show that a primary system inclusive of required soil testing can be installed on the lot without the granting of a waiver. This waiver request requires a public hearing and may also require permits from other town boards, commissions, or department for soil testing and/or design approval.

The minimum setback distance between a system 2000 GPD or larger to a well is 150'.

#### 15.221 General Construction Requirements for All System Components

Garbage grinders are not allowed in any soil absorption system constructed in Carlisle. This is based on the fact that use of a garbage grinder adds considerable solids and may shorten the life of a system. As a result, systems with garbage grinders require additional land area and more frequent pumping. Alternative locations for siting compliant systems are often unavailable on properties and the use of garbage grinders compromises the availability of already limited area for repairs or upgrade.]

Every new soil absorption system constructed in Carlisle shall meet the following design flow requirements:

No. of Bedrooms per Bedroom	Total GPD* Required	Total GPD* Required
Three	165	495
Four	150	600
Five	125	625
Six	110	660
>Six***	110	110 per bedroom

The minimum design flow requirement is 495 GPD.

\*GPD is Gallons per day

\*\*\*To a maximum of 2000 GPD.

#### 15.223: Septic Tanks and Pump Chambers

New soil absorption systems and upgrades constructed in Carlisle shall require a dual compartment septic tank or two tanks in series.

Where the septic tank and/or pump chamber location has no room for error (example: setback distance from well or wetland) the location shall be staked in the field by the design engineer with construction verified by the installer during construction with ties, coordinates, or some other acceptable method.

Plastic risers and plastic manhole covers are prohibited.

An Electrical Permit from the Town is required for wiring the pump chamber. A licensed electrician must verify that the alarm is on a separate circuit from the pump prior to issuance of a Certificate of Compliance.

### 15.251 Leaching Trenches

Specifications There shall be at least three (3) trenches.

Stone - The stone shall extend not less than twelve (12) inches deep beneath the bottom of the distribution pipe. All stone shall be double-washed.

Cover - Planting of any vegetation other than grass or Board approved vegetation is prohibited. Soil placed as backfill over the soil absorption system shall be a minimum of twelve inches, including topsoil, in areas intended for the grazing of livestock.

### 15.252 Beds or Fields

Specifications - The minimum number of lines per field shall be three (3).

Stone - The stone shall extend not less than twelve (12) inches deep beneath the bottom of the distribution pipes.

Cover - Planting of any vegetation other than grass or Board approved vegetation is prohibited. Soil placed as backfill over the soil absorption system shall be a minimum of twelve inches, including topsoil, in areas intended for the grazing of livestock.

### 15.280-288 Alternative Systems

The Carlisle Board of Health supports and encourages the use of alternative technology for required or voluntary upgrades and new construction.

### 15.290 15.293 Shared Systems, Condominiums and Systems over 2000 GPD

#### Definitions:

- a. Shared Systems as defined in accordance with 310 CMR 15.290
  - b. Condominium as defined in MGL Chapter 183A, Section 1.
1. The Board of Health will set the amount of the application fee for such systems from time to time.
  2. A Septic System Escrow Agreement must be executed in order to guarantee the long term operation, maintenance and eventual replacement of the system. Funding of the Septic System Escrow Agreement shall be in accordance with the Town of Carlisle Septic System Escrow Agreement policy (Attachment C) attached or as determined by the Board of Health.
  3. The land in which the system is located shall be permanently set aside by deed as commonly owned land. The deed shall accurately locate the boundaries of the septic

system, including the septic tank(s), distribution box(s), and leaching field(s). The deed shall permanently prohibit construction of any building or structure above or below ground, grazing of any livestock above the field or tank, planting of any vegetation above the system other than grass or Board approved vegetation, use of the site for disposal of rubbish or other debris, and shall in general prohibit any use above or below the system not specifically approved by the Board of Health.

4. These same prohibitions shall apply to the designated reserve area.
5. Systems defined "a" and "b" above and systems with cumulative project design flows of 2000 gpd or greater shall meet a minimum design flow requirement of 165gpd per bedroom and meet the Title 5 requirements under Title 5 for groundwater mounding analysis and pressure distribution (15.254(1)(a) and (2)(a) and 15.212(2) respectively). Monitoring wells used for the hydrogeological study shall remain in place, unless their removal or capping is authorized by the Board of Health. The Board of Health reserves the right to maintain the wells and continue monitoring as it deems appropriate. System Owners are required to test available monitoring wells for fecal coliform, TSS, BOD and Total Nitrogen and submit the results to the Board of Health at least once every three years and in conjunction with the required Title 5 inspections.
6. The Board of Health will require a peer review of the hydrogeological study. The peer reviewer will be mutually agreed upon by the Board of Health and applicant. The applicant is responsible for paying for the peer review study.
7. Garbage grinders are prohibited in all housing units sharing any septic system components and a deed restriction shall be recorded on the master deed.
8. Septic systems shall be pumped annually.
9. A cumulative water meter shall be installed to determine the flows to each system by a common meter or a meter in each dwelling unit and read once a year, tabulated per system and a report filed with the Board of Health.
10. An authorized representative shall be appointed by the HomeOwner(s)'s Association to be the liaison with the Board of Health and in the event of an identified septic system failure shall be authorized to proceed with the necessary repairs.
11. The Association representative shall submit an annual SDSR to the Board of Health which report shall include:
  - a. report of annual pumping
  - b. certified inspection report (extent of inspection to be determined by the Board)
  - c. updated replacement cost of the system
  - d. copy of current replacement provision policy, bond or other financial instrument

- e. annual water usage per dwelling unit.

#### 15.401 Waivers and Variances

Any request for a waiver from these Supplementary Regulations, a Title 5 variance, or a waiver under the Local Upgrade Approval requires a public hearing before the Board of Health. Requests shall be submitted to the Board of Health in a separate cover letter which shall accompany the plans for the proposed system. In addition all variances and waivers must be listed on the plan. The request shall clearly state the variances or waivers sought and the reasons. Past practices are not necessarily adequate reasons for granting variances or waivers.

No waiver or variance shall be granted except after the applicant has notified all required abutters by certified mail<sup>2</sup> at the applicant's own expense or by hand with proof of receipt at least ten (10) days before the Board of Health meeting at which the waiver request will be on the agenda. The notification shall state the specific waiver sought and the reasons therefore.

**SEVERABILITY:** So far as the Board of Health may provide, each section of these supplemental regulations shall be construed as separate to the end that if any section, item, sentence, clause or phrase shall be held invalid for any reason, the remainder of these rules and regulations shall continue in full force and effect.

Adopted December 1, 1983

Amended October 20, 1987 (Additional design requirements)

Effective December 1, 1987

Amended December 13, 1989 (Accessory apartment)

Effective January 15, 1990

Amended November 30, 1993 (Engineered As Builts, Installations)

Effective January 1, 1994

Amended February 28, 1995 (1995 Title 5)

Effective March 31, 1995

Amended March 14, 1995 (Plan note 3)

Effective April 8, 1995

Amended July 23, 1996 (As-Built, Testing, Reserve Areas, Shared Systems)

Effective September 15, 1996

Amended May 26, 1998 (Barriers, Anticipating Failures, Violations, Testing for Repairs)

Effective July 1, 1998

Amended March 25, 2008 (Design flows, Large Systems, Minimum Setback Distances, Title 5 Rev 4/21/06) [correction 9/15/09]

Effective April 4, 2008

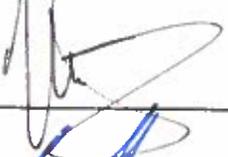
Amended January 15, 2019

Effective: January 15, 2019

---

<sup>2</sup> A Certificate of Mailing may be substituted.

BOARD OF HEALTH

  
\_\_\_\_\_  
  
\_\_\_\_\_  
  
\_\_\_\_\_  
  
\_\_\_\_\_  
\_\_\_\_\_

Date: January 15, 2019

### ADDITIONAL TOWN POLICIES

1. Board of Health requires full compliance for new construction and maximum feasible compliance for voluntary upgrades and repairs (310 CMR 15.404-405).

#### 2. Interceptor Drains

Interceptor drains (curtain drains) may be employed to route the flow of groundwater away from a proposed septic system. Such interceptor systems shall be gravity flow only. No pumped interceptor system may be relied upon to protect a sewage disposal system. Interceptor outfalls shall be confined to the particular lot and shall not affect adjoining lots. In a case where the percolation rate is slower than twenty (20) minutes per inch the design engineer shall provide calculations demonstrating the adequacy of the interceptor drain. In Class I soils (sands), such calculations are not required.

Connection of interceptor drains into town catch basins or manholes will be permitted subject to the approval of the Board of Selectmen in each case. The Selectmen will require, as a minimum, a notarized statement from the Owner(s) to be recorded with the deed stating that the Town will be held harmless in the event of system failure.

#### 2. Accessory Apartments:

In order to determine whether adequate disposal of sewage, waste and drainage has been provided, the Board of Health requires the following:

1. Planning Board Application Form
2. Fee as determined by the Board of Health.
3. A Title 5 Inspection Report within six (6) months of the date of application.
4. Documentation that the existing septic system has sufficient capacity for the additional design flows. The Board will accept a valid Sewage Disposal System Plan showing the recalculations for the increase or decrease in the system, which is certified for its adequacy by a registered professional engineer or other authorized person.
5. If there is no Plan of Record for the Sewage Disposal System an engineered conceptual plan demonstrating that the system can be upgraded to accommodate the additional capacity is required.

If all of the above requirements have been met, the Board will issue a letter of approval for the accessory apartment to the Planning Board.

#### 3. Deed Restrictions

Under its authority as established in 310 CMR 15.00 (Title 5) and the Town of Carlisle General Bylaws, section 3.24.3, the Board of Health is authorized to accept from a property Owner(s) a deed restriction in place of upgrading a septic system for a proposed addition.

The Board will consider the size of the addition, usage, age and functioning of the system and whether the system could be upgraded to include the design flow requirement for the new addition in full compliance with Title 5 and the Carlisle Supplementary Sewage Disposal Regulations. The definition of a bedroom and a determination of room count can be found in Title 5 (Definition - 15.002).

Information Required:

1. An 8 ½" x 11" (11" x 17" maximum) floor plan of the existing dwelling noting the total square footage of the dwelling, room dimensions and labels. The Owner can prepare this if building plans are unavailable but they need to be clear, legible and include room size dimensions.
2. An 8 ½" x 11" (11" x 17" maximum) floor plan of the proposed addition noting the total square footage being added, room dimensions and labels. It is not necessary for the Board to keep a full set of building plans on file, but it is helpful to have the plans for reference. Building construction plans can be returned to the Owner(s).
3. A current Title 5 Inspection within two years (three years if the septic tank was pumped annually) or a current Certificate of Compliance for a new installation within two years.
4. Septic Plan listing the existing capacity and installation date. If there is no septic plan on file, an engineered As-Built of the system must be provided showing the location of the system, estimating system capacity and ability to upgrade in full compliance with state and local regulations.
5. Engineered Survey Plan showing the location of the new foundation and the setbacks to the septic system, well, reserve area and any wetlands. The survey plan must verify that the new foundation does not infringe on the setbacks to the existing system or the ability to upgrade the system in full compliance with Title 5 and the Carlisle Supplementary Sewage Disposal Regulations when the system is replaced.
6. If there are no changes to the foundation, an approved septic plan, which includes a reserve area, will be sufficient.
7. If there is a question that the property may not be able to upgrade in full compliance, an engineered "conceptual" sewage disposal plan for a replacement system may be required.

If there is no septic plan available and it is not possible to estimate system capacity, location, or ability to upgrade, the system does not qualify for a deed restriction and must be upgraded for the purposes of the addition.

8. A pdf of all plans submitted is required.

Conditions of Approval:

1. Recording of the deed restriction at the Northern Middlesex Registry of Deeds and proof of recording submitted to the Board.

2. Garbage grinders will not be permitted. A Garbage Grinder Restriction must be recorded at the Northern Middlesex Registry of Deeds and proof of recording submitted to the Board. The Board requires verification that the disposal has been removed from the property.

3. The Board of Health may require regular Title 5 Inspections of the System and/or annual pumping of the Septic Tank.

4. If the system fails the Title 5 Inspection, the system must be upgraded to reflect the actual room count and design flow criteria in accordance with 310 CMR 15.00, as it may be amended.

Applicants are advised that the above criteria are minimum requirements to be used as a guideline for the Board in making its decisions. Granting of a deed restriction in lieu of upgrading the septic system is a discretionary approval from the Board of Health. The Board has the right to request additional information and impose additional conditions necessary to protect the public health. Any application that the Board deems inappropriate for a deed restriction will be denied.

4. Failure of a Septic System

System Failure: If the Board of Health is advised of a failure, the Board may require its consultant to visit the site at the Owners expense. Repairs shall be carried out in the same manner as new construction. All other design plan preparation requirements apply.

Procedures for Repairs:

Distribution Box Replacement - Replacement of a distribution box requires a permit from the Board and an inspection by the Board's agent prior to covering. Inspection will include observed location and water test to determine equal flow distribution to the lines. Work must be done by a Licensed Installer.

Septic Tank Replacement - Submittal of three copies of a septic tank replacement plan and an electronic copy along with a letter of explanation; construction permit from the Board of

Health; engineered as-built showing tank location and invert elevations; approval of as-built and inspection by the Board's agent prior to backfilling and final grading.

Fees for the above will be set from time to time by the Board.

The Board allows minor adjustments to a system following a Title 5 Inspection such as replacing covers, bringing manhole covers to within 6" of grade, non-chemical cleaning of lines, replacing broken straight line pipes less than 20' in length either from the house to the septic tank or tank to the distribution box. If the installer is uncertain he must check with the Board.

#### 5. Voluntary Upgrade

Owners who are concerned about a potential failure may install a new system with the same daily flow rate of the existing system before it fails. All other procedures for the design and installation of the system can be in accordance with the regulations for the repair of a septic system.

#### 6. Timetable for Installing Septic Systems

Installations must be completed within ninety (90) days from excavation to final grading and final inspection. Extensions may be granted at the discretion of the Board of Health or its agent. The Certificate of Compliance must be signed by the installer and design engineer within 30 days of completion of the work.

Installation of septic systems is prohibited during the months of December, January and February. Any system already in progress prior to December 1 shall have all work including all inspections, final grading, loaming and seeding completed prior to the winter cutoff date of November 30. No system installation can begin after November 1 unless approved by the Board's agent as authorized by the Board of Health. If circumstances such as freezing temperatures do not permit the application of loam and seed, the installer shall stabilize all sloped areas susceptible to soil erosion using either hay, anchored filter fabric or jute mesh.

If final grading over the leaching area and system components is in place prior to the winter cut-off date, submittal and approval of the final grade as-built can occur after November 30th and a Certificate of Compliance issued if appropriate.

#### 7. Construction Site Toilet Facilities

Construction sites shall provide toilet facilities for workers either in the existing residence or by use of commercially available portable chemical toilets.

## 8. Building Permit Applications

Building Permit applications involving the construction of additional living space or construction of a structure having a permanent foundation, or other semi-permanent facility such as tennis court or swimming pool must be approved by the Board of Health or its Agent prior to issuance of a Building Permit. Existing and proposed floor plans must be submitted along with a site plan showing the location of all septic system components (septic tank(s), leaching area and well). The Owner can prepare the floor plans if building plans are unavailable but they need to be clear, legible and include room size dimensions. Septic System plans on file with the Board of Health may be used for the site plan.

No building permit shall be issued for an accessory building, until the applicant presents a plan showing a reserve area with adequate testing.

### ATTACHMENT A

#### SURVEY AS-BUILT REQUIREMENTS FOR SEWAGE DISPOSAL SYSTEMS

##### ELEVATIONS AND STASOIDIA LOCATION

- a) Invert out of foundation
- b) Invert in septic tank
- c) Invert out of septic tank
- d) Invert in D-box
- e) Invert out of D-Box. All pipes must be level for 2 feet minimum.
- f) Invert in pit or
- g) Invert high end of all leaching lines
- h) Invert of bends and changes in direction
- i) Invert in and out of pump chamber, grease trap
- j) Measure spacing between float switches
- k) Bottom of leaching area (s)
- l) A minimum of five (5) spot grades shall be taken over the leaching area; one (1) in each corner and one (1) in the middle. Two (2) spot grades each (at either end) shall be taken over the septic tank and pump chamber, and one (1) over the d-box to determine the depth of final grades. Final grades (spot and/or contour lines) shall be superimposed over the proposed design grading for comparison. The engineer shall state on the as-built whether or not topsoil has been added to the rough final grade and whether excessive or insufficient amounts of cover have been placed, in conformance with 310 CMR 15.221(7).

##### STADIA LOCATION

- a) Corners of foundation nearest to system
- b) TBM's

- c) Well
- d) Leaching area inspection ports

#### TAPING

- a) Tank manhole to foundation corners
- b) Outside dimensions of leaching area
- c) Pipe lengths
- d) Foundation to septic tank and pump chamber (if approaching minimum offset).
- e) System to well if close to minimum.
- f) Edge of leaching area to nearest property line (if approaching minimum offset).

#### MISCELLANEOUS

- a) Verify depth of stone under leaching lines
- b) Repairs: If a driveway has been rerouted over any system component, or if the proposed repair called for any system component to be located under the existing driveway, the new driveway, or existing driveway location shall be located during the final grade as-built and shown on the as-built plan. New Construction: If the new driveway is not constructed in the proposed location and is constructed over any system component, or if the proposed plan called for any system component to be located under the proposed driveway, the driveway location shall be located during the final grade as-built and shown on the as-built plan.

#### PIPE SLOPES

- a) Foundation to tank: 0.02 Minimum
- b) Tank to D-box: 0.01. If greater than 0.08 check for Inlet Tee
- c) Leaching lines: 0.005

#### PLAN PRESENTATION

- a) The as-built layout of the installed system shall be drawn over the design original so that any variation from the original intent is evident.
- b) An "As-Built Table of Elevations" shall be shown on the as-built drawing which compares the design elevations with the as-built elevations, and which shows any difference between the two.
- c) Items 2 and 3 shall be shown in plan while all other items can be included in the as-built table of elevations.
- d) Two paper copies and a pdf of the as-built drawing, stamped, signed and dated by a registered engineer with the engineer's certification (typically a paragraph stating that the

system has been installed in conformance with all state and local codes and within allowable tolerances) shall be submitted to the Board of Health.

## ATTACHMENT B

### ADDITIONAL TECHNICAL INFORMATION IN SUPPORT OF WAIVER REQUEST

1. **SOIL CONDITIONS:** All results of soils tests shall be shown on the plan and located in plan view. All reasonable areas on the site for locating an SAS shall be tested and deemed suitable or eliminated due to, but not limited to, shallow ledge, exceptionally high ground water, etc. The applicant must make a reasonable effort in investigating all alternative locations that could eliminate or minimize the setback reduction requested, before the final location is chosen. Each location shall be explained in detail.
2. **TOPOGRAPHY:** The plan must clearly and completely show the extents of all pertinent grading which may require delineation beyond the property line(s). In conjunction with this, all wetland delineation shall not terminate before there is no question whether extending the wetland line in any direction would or would not impact any proposed setback distances.
3. **SITE DEVELOPMENT IMPACTS:** The applicant shall demonstrate that no site development feature or activity, such as but not limited to moving a property line, reconfiguring site geometry, eliminating an area of the site which may be suitable for an SAS, placing a permanent structure, etc., has created the need for the requested setback reduction variance.
4. **MITIGATION:** The applicant shall demonstrate that the requested setback variance will not result in any adverse environmental impacts. Explain how each relevant design choice is able to accomplish this, such as the technology chosen. If an I/A system is utilized, provide data showing nitrogen reduction (if applicable) or any other relevant constituent reduction. Reasons for elevation and horizontal locations of components, etc., and the preservation of well, wetland, and ground water quality shall be explained in detail.

## ATTACHMENT C

### **Condominium Financial Escrow Agreement Policy**

The Board of Health requires a Financial Assurance for all Shared Systems, Condominiums and Systems over 2000 GPD in order to guarantee the long term operations and maintenance of the system and eventual replacement cost. Updated replacement costs and current balance must be submitted to the Board annually.

Model Agreement<sup>3</sup>

1. Owner(s) shall establish an Operations and Maintenance Fund to be held by the Owner(s) for the normal annual maintenance of the Septic System in an amount that will be established each year as part of the condominium budget, in such an annual amount as the Owner(s) thereof deem appropriate from time to time, which shall be used solely for such maintenance and operations.
2. Owner(s) shall establish Working Capital Fund, to be held by the Owner(s), for the current and future replacement and/or repair expenses of the Septic System representing 25% of the replacement cost of the Septic System. This fund shall be used solely for the immediate replacement and/or repair of any failing component of the Septic System. Owner(s) shall replenish the fund in full within two years after any disbursement, unless otherwise agreed to by the Owner(s) and the Town, and shall, within sixty (60) days after December 31 of each year, provide the Board of Health with a statement or other evidence acceptable to the Board which demonstrates that the required amount of funds are on deposit in the Working Capital Fund. The amount of the Initial Deposit shall be subject to review every five (5) years to ensure that it continues to represent 25% of the replacement cost of the septic system. Owner(s) shall at each five year interval provide supporting documentation to the Board of Health regarding the then-current replacement cost of the system, and the Board may order such adjustment to the funding as may be necessary to provide that the amount on deposit in the Working Capital Fund reflects the requisite 25% funding level.
3. Owner(s) shall also establish and maintain a Reserve Fund, to be held by the Town, in order to accumulate sufficient capital to replace the System and related equipment at the end of the estimated useful life of the System, which is twenty (20) years. The amount of Financial Assurance was projected based upon input from Owner(s)'s engineering consultant, the Board's engineering consultant, as well as input from the Board.
  - a. The Year 1 deposit to the Reserve Fund shall occur one year after the commencement date of System operations. Such reserve, which shall cumulatively be equivalent to a sum equal to 75% of the replacement cost of the Septic System, shall be provided by means of deposits into an interest bearing account no less than one deposit per year, or some other financial security mechanism, and be in a form satisfactory to the Board of Health or its legal counsel. The Owner(s) shall maintain the funding of such account for as long as the Project is served by the Septic System. The principal and interest of said account shall be used exclusively for the replacement of the Septic System, and related infrastructure. This provision is intended to ensure that the development will have available to it sufficient financial resources to replace the Septic System, provided however that the minimum endowment of the fund shall be 75% of the replacement cost of the Septic System, prorated over the 20-year period. Accordingly, within sixty (60) days after December 31 of each year, the Owner(s) shall provide the Board with a statement or other evidence acceptable to the Board which demonstrates that the required amount of funds have been

---

<sup>3</sup> Draft Agreements must be prepared by the developer and approved by the Board of Health and Carlisle Finance Director.

deposited in the Reserve Fund account in accordance with the following payment terms.

- b. Any deviations from this condition will be considered a violation.
  - c. The Reserve Fund is intended to provide that adequate funds will be available to the development to replace the septic system; nothing contained herein shall be construed so as to create any obligation on the part of the Town to perform, or arrange for the performance of, any work relating to said septic system, or otherwise provide any funding for such work.
  - d. The amount of the Reserve Fund shall be subject to review every five (5) years to ensure that it continues to represent 75% of the replacement cost of the septic system. The Owner(s) shall at each five year interval provide supporting documentation to the Board of Health regarding the then-current replacement cost of the system, and the Board may order such adjustment to the funding schedule described above as may be necessary to provide that the amount on deposit in the Reserve Fund will reflect the requisite 75% funding level.
  - e. If at the end of Year 20, the Reserve Fund plus the accumulated funds in the account collectively are in excess of the projected replacement cost of the system as determined by the Owner(s) and agreed by the Board (the "Excess Reserve"), then the Board agrees to release the Excess Reserve to the Owner(s) forthwith. If at the end of Year 20 the Reserve Fund plus accumulated funds in the account collectively do not equal 75% of the projected replacement cost of the system, the Owner(s) shall within sixty days make such additional deposits as needed to raise the total amount to the requisite level.
4. All funds held by the Town under this Agreement shall be held in interest bearing accounts that are fully insured by the FDIC or other government agency, with all interest to accumulate to the respective funds and not to the benefit of the Town.
  5. Upon the use of some or all of the Working Capital Fund and/or the Reserve Fund to provide for a replacement septic system as contemplated herein, the Owner(s) shall replenish the Working Capital Fund up to an amount equal to 25% of the replacement cost of a new system within \_\_\_\_\_ year and replenish the Reserve Fund to an amount equal to 75% of the replacement cost pursuant to a twenty-year funding schedule consistent with that described above.

