

Chapter 417

WATER RESOURCE PROTECTION DISTRICT

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[HISTORY: Adopted by the Planning Board of the Town of Marshfield 12-13-2010. Amendments noted where applicable.]

GENERAL REFERENCES

Water — See Ch. 285.
Zoning — See Ch. 305.

Subdivision of land — See Ch. 405.

§ 417-1. General provisions.

- A. Purpose and authority. The following rules are hereby adopted by the Planning Board as provided in MGL c. 40A for the purpose of establishing uniform procedures for administering permitting requirements within the Water Resource Protection District as established in § 305-13.03 of the Zoning Bylaw.
- B. Adoption and amendment. These rules and regulations may be adopted and from time to time amended by majority vote of the Planning Board members present and voting, provided such adoption or amendment is taken after a public hearing.
- C. Effective date. These rules and regulations are effective when voted. A copy shall be filed with the office of the Town Clerk, with appropriate endorsements, such as date of adoption, date filed with Town Clerk, and amendments.

§ 417-2. Applicant.

An application or petition for a special permit may be brought by a property owner, agent, or prospective purchaser who submits certification (such as an executed purchase and sales agreement) of property interest and authority to file.

§ 417-3. Reoccupation certification.

Pursuant to § 305-13.03E(5) of the Zoning Bylaw, a party seeking to reoccupy an existing structure in the Water Resource Protection District (WRPD) with a use that would ordinarily require a special permit pursuant to § 305-13.03E(4) of the Zoning Bylaw may do so without

filing a special permit application if the party receives a positive determination from the Building Commissioner through a WRPD reoccupation certificate. It is the responsibility of any party requesting such a determination from the Building Commissioner to provide information and plans that verify the information on the associated certificate. Site plans developed for the prior use may be used as part of a submittal to the Building Commissioner as long as they accurately reflect existing conditions. The Building Commissioner may reasonably request additional materials from the submitting party in order to make an accurate determination.

§ 417-4. Application for special permit.

- A. Official application form. Application for special permits shall be made on an official form which shall be furnished by the Planning Department upon request.
- B. Contents of an application. The completed application form, original plan, and 15 copies shall be submitted to the Planning Board with an additional copy filed forthwith with the Town Clerk by the applicant. Survey and engineered site plans shall be drawn at a scale of one inch equals 40 feet, unless another scale is previously requested by the applicant and found suitable by the Board. A professional engineer shall prepare and stamp all plans. The plans shall be stamped by the registered land surveyor who performed the instrument boundary survey and who shall certify the accuracy of the locations of the building, setbacks and all other required dimensions, elevations, and measurements and shall be signed under the penalties of perjury. The Board may engage a Massachusetts professional engineer or hydrogeologist experienced in groundwater evaluation, hydrogeology, or hazardous and toxic materials to review the application for completeness and correctness and shall require the applicant to pay for the cost of the review. The following information shall be furnished by the applicant:
 - (1) A locus plan at a scale of one inch equals 100 feet, 200 feet or 400 feet showing the location, names, and present widths of the streets bounding, approaching or within reasonable proximity of the site, and including the tracts of land, ownership, and topography taken from Assessor's plans or field survey if available.
 - (2) Name and complete contact information of the applicant, property owner and all members of the design and development team.
 - (3) The scale, date and North arrow.
 - (4) Assessor's map and parcel numbers, dimensions of lot in feet, size of lot in square feet, and width of abutting streets and ways.
 - (5) The location of existing wetlands, water bodies, wells, one-hundred-year floodplain elevation, and other natural features including streams, wetlands, vistas, slope areas, geological features, unique vegetation, historic features, and others that may be important to the site.
 - (6) Easements within the lot and for properties abutting thereon.
 - (7) Identification of zoning districts, including any overlay districts.

- (8) The location of existing or proposed building(s) on the lot with the total square footage and dimensions of all buildings.
- (9) Where storage of hazardous materials in excess of household quantities is proposed, building elevations and floor plans shall be provided.
- (10) A landscape plan to include the total square feet of all landscape and recreation areas, and depiction of materials to be used, and the quantity, size, methods, and species of plantings.
- (11) Percent of building lot coverage and percentage of paved (impervious) area used for parking, loading, and access within the property. For the purposes of this calculation, any areas that are designated for regular vehicle traffic or parking shall be counted as impervious regardless of how the surface is finished.
- (12) Existing and proposed topographical lines at two-foot contour intervals on the tract and within 50 feet thereof. Where an applicant cannot gain access to adjacent property in order to satisfy this requirement, topography can be provided based on USGS quadrangles.
- (13) The location and a description of proposed open space or recreation areas.
- (14) Existing and proposed street, parking, drainage, and utility systems.
- (15) Information regarding all measures proposed to prevent pollution of surface water or groundwater, soil erosion, increased runoff, and flooding.
- (16) A complete list of chemicals, pesticides, herbicides, fertilizers, fuels and other potentially toxic or hazardous materials to be used or stored on the premises in quantities greater than those associated with normal household use, accompanied by a description of measures proposed to protect all storage containers/fertilizers from vandalism, corrosion and leakage, and to provide for control of spills (during and after construction).
- (17) A description of potentially toxic or hazardous wastes to be generated, indicating storage and disposal methods (during and after construction).
- (18) Evidence of application to the Massachusetts Department of Environmental Protection (DEP) for a groundwater discharge permit associated with any industrial waste treatment or disposal system and/or wastewater treatment system (during and after construction).
- (19) Projections of downgradient concentrations of nitrogen, phosphorus, and other relevant chemicals to be disposed of on site, at property boundaries and at other locations deemed pertinent by the Board, prepared by a hydrogeologist or registered professional engineer possessing experience and education in water supply protection and hydrology.
- (20) A narrative summary of the vital statistics of the project. Such statistics shall include: Total gross and net square footage, number of parking spaces, and estimated amounts of water consumption and sewer discharge.

- (21) Direction of groundwater flow and the distance to all public water supply wells within the Zone 2.
- (22) Any additional information which the Board may require in order to determine compliance with the applicable standards of the Zoning Bylaw.

§ 417-5. Nitrogen loading regulation.

- A. Findings and purposes. The Town of Marshfield requires industrial, commercial, community facilities, and residential uses (except existing one-family detached dwellings) to provide documentation that demonstrates that the concentration of nitrate-nitrogen in groundwater resulting from these uses shall not exceed five parts per million (ppm) at the downgradient property boundary. These requirements are based on the following findings:
- (1) Whereas the Town of Marshfield does not have a sewer system to treat wastewater from development within its Water Resource Protection District, the disposal of this wastewater through septic systems within the district poses a threat to the drinking water quality of the public supply wells the district is designed to protect. The primary contaminant of concern coming from the septic systems is nitrogen.
 - (2) Once nitrogen released from septic systems reaches groundwater, it is not attenuated, but it is diluted with recharge from precipitation, road and roof runoff, and lawn irrigation. These dilution waters also transport some nitrogen, though not as concentrated as septic system wastewater. Wastewater contributes between 70% and 80% of the nitrogen in groundwater in developed areas.
 - (3) Excessive nitrogen in drinking water has been linked to serious health effects. Consumption of excessive nitrate-nitrogen by infants has been linked to methemoglobinemia (blue baby syndrome); nitrate occupies the hemoglobin site on red blood cells limiting the transport of oxygen through the blood. There is also a concern that excessive nitrogen in drinking water can be converted to excessive nitrosamines (carcinogenic nitrogen forms) in stomach acid. Excessive nitrogen in groundwater has also been linked to excessive levels of other contaminants.
 - (4) Due to these health concerns, the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP) have adopted maximum contaminant levels in drinking water. If these levels are exceeded in a drinking water supply well, utilization of the well must cease and an alternative supply must be found. Treatment technology to remove excessive nitrogen from drinking water prior to its use is currently prohibitively expensive.
 - (5) Since the Town of Marshfield has invested significant public funds in the development of its current drinking water supply and wishes to avoid the expense and potential health and economic concerns that excessive nitrogen in its drinking water would cause, the Town of Marshfield has adopted a nitrogen loading assessment requirement in its Zoning Bylaw for development in its Water Resource Protection District.

B. Applicability. The following projects which require a special permit in accordance with the Table of Uses in the Marshfield Zoning Bylaw¹ shall be subject to the provisions of this regulation:

- (1) New commercial and industrial development;
- (2) New community facilities;
- (3) New residential uses, including residential subdivisions of five or more new lots; and
- (4) Existing commercial, industrial, or community facilities where a change of use is proposed that will increase the concentration of nitrogen on the site.

C. Nitrogen loading assumptions and calculations.

- (1) Nitrogen loading. For the purposes of this regulation, nitrogen loading shall be calculated using the attached form titled "Town of Marshfield - Planning Board Nitrogen Loading Calculation Form."²
- (2) Nonresidential wastewater flow. Although Title 5 wastewater flows will be used conventionally in the calculation of nitrogen loading, commercial and industrial development and community facilities may use measured water use flows to calculate nitrogen loads from wastewater. In order to use measured water use flows, an applicant must present annual water bills or equivalent information to support the use of these flows. It is recommended that measured water use information from at least three comparable developments or three years worth of water records be provided. The Town of Marshfield Planning Board shall determine the validity of supporting information and may reject or modify the use of wastewater flows other than Title 5 wastewater flows.
- (3) Residential wastewater flow. Residential developments may use a wastewater flow that is the mean of standard Title 5 wastewater flows and modified Title 5 flows based on occupancy data. Modified Title 5 flows shall be calculated by multiplying actual Title 5 flows by the fraction represented by dividing the average single-family residence occupancy in the Town by two times the number of proposed bedrooms. Average occupancy shall equal total Town population divided by occupied housing units (both values from the most recent U.S. census) unless the Planning Board determines that alternative values should be used.

Sample Calculation for a three-bedroom home:

Base Statistics

Number of bedrooms = 3

Standard Title 5 flow = 330 gpd

Average occupancy = 2.5 people¹

1. Editor's Note: See § 305-5.04.

2. Editor's Note: The form is available at the Planning Board office.

Sample Calculation for a three-bedroom home:**Step One: Calculate Modifying Fraction**

Average occupancy divided by 2 times number of bedrooms:

$$2.5/(2 * 3) = 0.42$$

Step Two: Calculate Modified Title 5 Flow

Modifying fraction times Title 5 flow:

$$0.42 * 330 = 138.6 \text{ gpd}$$

Step Three: Calculate Mean Estimated Flow

Mean of standard Title 5 flow and modified Title 5 flow:

$$(138.6 + 330)/2 = 234.3 \text{ gpd}$$

¹

For illustration purposes only. Does not necessarily represent the actual average occupancy rate in the Town of Marshfield.

- (4) Nitrogen concentrations. Nutrient concentrations applied to nitrogen loading calculations shall follow the following schedule:

Source of Nitrogen	Concentration of Nitrogen (milligrams per liter)
Wastewater effluent from a standard on-site system	35
Wastewater effluent from a DEP approved denitrification system	19
Wastewater effluent from a centralized wastewater treatment facility	10
Runoff from roadways and driveways	1.5
Runoff from rooftops	0.75
Rainfall (runoff on natural surfaces)	0.05

- (5) Nutrient loading from turf fertilization.

- (a) To calculate the loading of nitrogen from turf areas, the applicant shall first multiply the area of turf by the estimated application rate of 3.0 pounds of nitrogen per 1,000 square feet of turf. The applicant shall then multiply this value by 0.25 assuming a 25% leaching rate to groundwater.
- (b) The area of turf associated with a residential development shall be equal to 50% of the lot area. The Planning Board may allow for a reduction in this value based upon area calculations performed from an engineered site plan. Where landscaped areas are proposed to be unfertilized on a site plan, the burden of proof will be on the applicant to provide assurance that the area will not be fertilized in the foreseeable future based on plant selection and landscape design.

- (6) Recharge rates. Recharge rates assigned to the site shall be based on preexisting hydrologic soils groups in accordance with the following table:

NRCS Hydrologic Soils Group	Recharge Rate (inches per year)
A Soils	24
B Soils	18
C Soils	10
D Soils	3
Wetlands and surface waters	0

- (7) Nutrient loading from impervious surfaces. Nitrogen loading from impervious surfaces will be calculated by multiplying the appropriate nitrogen loading coefficient by the recharge rate associated with the soil that will be covered by the impervious surface. This approach is based on the assumption that post-development recharge volumes shall approximate pre-development recharge rates pursuant to the Massachusetts Stormwater Standards. Where an alternative approach is used specifically for redevelopment pursuant to the Massachusetts Stormwater Standards, the Planning Board may accept annual recharge volume calculations associated with impervious cover that are provided and stamped by the applicant's engineer.
- (8) The final average concentration of nitrogen. The final average concentration of nitrogen in groundwater shall be calculated by dividing the total annual mass load of nitrogen by the total annual volume of recharge and shall be expressed as milligrams per liter (mg/l).
- D. Aggregate concentration calculations. For those applicants who require a special permit pursuant to § 305-13.03E(4)(d) of the Zoning Bylaw, an aggregate concentration calculation shall be developed to demonstrate that the concentration of nitrogen in groundwater shall not exceed five mg/l at the boundary of the Zone I for the public water supply.
- (1) Description of calculation. The aggregate concentration calculation is used to examine the aggregate effect of adding larger individual wastewater systems to the district. These analyses determine the area that the wastewater effluent will occupy on its way to the Zone I boundary, and the extent to which the flow is or is not diluted by overlying land use activity. Similar to on-site nitrogen loading calculations, the aggregate concentration calculations will use a mass balance approach, dividing the total load of nitrogen from overlying land uses by the annual volume of recharge to determine an average downgradient concentration.
- (2) Area of impact (AOI). The nitrogen aggregation calculation shall first determine the AOI created by the plume from the leach field of the on-site wastewater treatment system. The applicant shall develop a flow net analysis that includes a groundwater mounding analysis to delineate the wastewater plume as it travels from the leach field to the edge of the Zone I.

- (3) Calculating nitrogen concentration. The concentration of nitrogen at the Zone I boundary shall be calculated using the same assumptions as those provided in § 417-4B of these regulations. To estimate the different land use categories for areas within the AOI that are off site, the applicant shall use best available information from readily available GIS databases. Interpretation of aerial photography to estimate the coverage of different land features may be allowed along with any vector files that represent impervious cover. The Planning Board shall make the final determination as to which data is the best suited for the analysis.

§ 417-6. Fees.

All applications shall be accompanied by two certified checks made payable to the order of the Town of Marshfield. One check shall be for administrative fees and the second check shall establish an individual special account. Any additional payments required shall be made within 30 days of the billing date.

- A. Administrative fees. The filing fee shall be as provided in Chapter 420, Fee Schedule, for a special permit application. **[Amended 7-24-2017]**
- B. Consultant review fee/special account.
 - (1) Every special permit application shall be required to file the minimum review fee to establish an individual special account. If, in addition, this minimum amount is not sufficient to cover the entire cost of the review, the Board shall adjust said special account. The minimum fee and the adjustment schedule are as provided in Chapter 420, Fee Schedule. **[Amended 7-24-2017]**
 - (2) Where specific conditions arising from the land or the nature of the proposal necessitate the assistance of a planning, engineering, traffic, soils, hydrologic or other consultant(s), the Planning Board may engage such consultant services to assist the Board in analyzing the project to ensure compliance with all relevant laws, bylaws, regulations, good design principles and state of the art technology. The Board may require that applicants pay a review fee consisting of the reasonable costs to be projected to be incurred by the Board for the employment of consultants engaged by the Board to assist in the review of the application.
 - (3) Funds received by the Board pursuant to this section shall be deposited with the Town Treasurer/Collector who shall establish a special individual account for this purpose. Expenditures from this special account may be made at the direction of the Board, without further appropriation. Expenditures from this special account shall be made only in connection with the review of a specific project or projects for which a review fee has been or will be collected from the applicant. Failure of an applicant to pay all review fees shall be grounds for denial of the application or permit. **[Amended 7-24-2017]**
 - (4) Review fees may only be spent for services rendered in connection with the specific project for which they were collected. Accrued interest may also be spent for this purpose. At the completion of the Board's review of a project, any excess

amount in the account, including any interest, attributable to a specific project shall be repaid to the applicant or the applicant's successor in interest. The applicant must submit a written request for these funds. A final report for said account shall be made available to the applicant, upon request, or the applicant's successor in interest. For the purpose of this regulation, any person or entity claiming to be an applicant's successor in interest shall provide the Board with the documentation establishing such succession in interest.

- (5) Any applicant may take an administrative appeal from the selection of the outside consultant to the Board of Selectmen, provided that such appeal is taken within 14 days of notification of the Board's appointment of the consultant. The grounds for such an appeal shall be limited to claims that the consultant selected has a conflict of interest or does not possess the minimum required qualifications as may be set by the Board. The minimum qualifications shall consist either of a four-year college level educational degree in, or one related to, the field of knowledge at issue or three or more years of practice in the field at issue or a closely related field. Minimum qualifications may be increased at the Board's discretion depending upon the complexity and importance of the proposed project. The required time limit for action upon an application by the Board shall be extended by the duration of the administrative appeal. In the event that no decision is made by the Board of Selectmen within one month following the filing of the appeal, the selection made by the Board shall stand.
- C. Other costs and expenses. The Planning Board shall write the public hearing notice and furnish the notice to the applicant. The applicant is responsible for paying the cost of the legal advertisement in the newspaper. The notice of public hearing shall be mailed certified delivery by the applicant to all parties in interest not less than 10 days before the date of the public hearing. The applicant is responsible for the costs associated with mailing the notice to abutters and any parties in interest by certified mail, return receipt requested. Return receipts are to be addressed to the Planning Board for further verification.
- D. Modification. The administrative fee to modify an existing special permit is established in Chapter 420, Fee Schedule. The applicant shall submit a check made out to the Town of Marshfield at the time of the request to modify the WRPD special permit. **[Amended 7-24-2017]**
- E. Fee waiver. Fees can be waived for applications from the Town of Marshfield and religious and nonprofit organizations, at the discretion of the Planning Board, on a case-by-case basis. **[Amended 7-24-2017]**

§ 417-7. Planning Board review.

- A. Review by other Town agencies. Prior to its formal review, the Planning Board shall distribute copies of the plans and supporting documents and information (within five business days of the receipt of the complete application) to the following Town departments: Conservation Commission, Department of Public Works, Board of Health, and Police and Fire Departments. These departments shall have 35 days to review and

submit written comments to the Board. Failure of the various boards and commission to make comments within the thirty-five-day time frame shall be deemed lack of opposition thereto.

- B. Report on special permit decision. If a special permit decision does not incorporate the suggestions and/or requirements of any properly filed report(s) from other Town departments or boards, or from other entities commissioned by the Planning Board, or is issued contrary to advisory reports, the Planning Board shall issue a written decision stating the reasons for not following the recommendations or requirements of said report(s).
- C. Procedural report.
 - (1) The Board, acting as the special permit granting authority, shall follow all procedural requirements of MGL c. 40A, § 9. All applicants are advised to review this chapter in order to understand the special permit granting process.
 - (2) Public hearing. The Planning Board shall schedule a public hearing within 65 days of receipt of an application. Notice of said hearing shall be advertised in newspapers of general circulation in the Town of Marshfield and mailed to parties of interest as required.
 - (3) Action by the Board. Within 90 days of the close of the public hearing, the Planning Board shall file a decision with the Town Clerk, indicating approval, conditional approval, or denial of the special permit. When a petition or application has been voted upon and the meeting adjourned, there shall be no reconsideration of a decision for that application by the Board.

§ 417-8. Disposition of application.

- A. Withdrawal of application. An application may be withdrawn without prejudice by an applicant by notice in writing to the Planning Board, which notice the applicant shall also deliver to the Town Clerk, at any time prior to the first publication of the notice of the public hearing. After such notice, withdrawal of an application shall be permitted only by Board vote, which shall consist of a majority present and voting.
- B. Reconsideration. No vote on an application may be reconsidered after the meeting has adjourned.
- C. Appeals. Any person aggrieved by a decision of the Board as special permit granting authority may appeal such decision as provided in MGL c. 40A, § 17, within 20 days after such decision has been filed in the office of the Town Clerk.
- D. Reapplication. No application which has been unfavorably and finally acted upon by the Board shall be reconsidered for a special permit within two years after the date of the said final unfavorable action, unless the Board finds, by vote of four members, specific and material changes in the condition upon which the previous unfavorable action was based and such changes are described in the record of the Board's proceedings, and after notice is hereby given to parties in interest of the time and place of the proceedings to reconsider in the same manner as provided for in § 417-6C of these rules and regulations.

- E. Lapse of special permit. No special permit shall be authorized by the Board without the express condition that it will lapse if substantial use under the permit is not commenced within two years from the date of final action by the Board, except for good cause, or the final determination of an appeal.
- F. Extension of special permit. Approval in all cases is granted for a two-year period from the date of the filing of such approval with the Town Clerk. If a development is not completed in its entirety in that time, the applicant must again petition the Planning Board for an extension of time to complete the project. The applicant shall apply for the extension 30 days prior to the lapse of the special permit. In the event that the project has not been completed within two years of approval and the Planning Board has not granted an extension of the time to complete the project, the special permit approval will have expired. If the special permit has expired, the applicant will be required to request a reinstatement of the special permit approval. The process for reinstatement of the special permit is the same as the process required for a new special permit as specified in these rules and regulations, in § 305-13.03 of the Zoning Bylaw and as required in MGL c. 40A, § 9. All applications under this section must comply with the bylaw and its rules and regulations in force at the time of application. **[Amended 7-24-2017]**
- G. Recording. No special permit shall take effect until a copy of the decision, bearing the certification of the Town Clerk that 20 days have elapsed after the filing of the decision and no appeal has been filed, is recorded in the Registry of Deeds and is indexed under the name of the record owner of the land. Proof of recording at the Registry of Deeds or in Land Court as applicable shall be provided to the Planning Board.

§ 417-9. Severability.

The provisions of these rules and regulations are severable. If any provision of these rules and regulations is held invalid, the other provisions shall not be affected thereby. If the application of these rules and regulations or any of their provisions to any person or circumstances is held invalid, the application of these rules and regulations and their provisions to other persons and circumstances shall not be affected thereby.

§ 417-10. Waiver of full compliance.

Full compliance with these rules and regulations may be waived by the Planning Board, provided such waivers are deemed to serve the public interest and are not conflicting with MGL c. 40A. Requested waivers shall be submitted in writing at the time of the application. Waivers may only be granted through a majority vote of the Planning Board.

§ 417-11. Notice of violation. [Amended 7-24-2017]

Written notice of any violation of these rules and regulations shall be provided by the Building Commissioner to the owner of the premises, specifying the nature of the violations and a schedule of compliance, including cleanup of any spilled materials. This compliance schedule must be reasonable in relation to the public health hazard involved and the difficulty of compliance. In no event shall more than 30 days be allowed for either compliance or

modification of a plan for longer-term compliance. In the enforcement of these rules and regulations, the Building Commissioner shall notify the Health Inspector of any violations and seek the Health Inspector's and/or Agent's assistance.