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## **ENVIRONMENTAL PROTECTION**

### **LAND USE MANAGEMENT**

#### **LAND USE REGULATION PROGRAM**

##### **Highlands Water Protection and Planning Act Rules**

###### **Definitions; Septic System Density Standards**

**Proposed Amendments:** N.J.A.C. 7:38-1.4 and 3.4(b)

Authorized By: Bob Martin, Commissioner, Department of Environmental Protection.

Authority: N.J.S.A. 13:1B-15.128 et seq., 13:1D-1 et seq., 13:9B-1 et seq., 13:20-1 et seq., 23:2A-1 et seq., 58:1A-1 et seq., 58:10A-1 et seq., 58:11-23 et seq., 58:11A-1 et seq., 58:12A-1 et seq., and 58:16A-50 et seq.

Calendar Reference: See Summary below for explanation of exception to calendar requirement.

DEP Docket Number: 02-16-04

Proposal Number:

A **public hearing** concerning this proposal will be held on Wednesday, June 1, 2016, at 6:00 P.M. until close of comments at:

NJ Highlands Council Office

100 North Road

Chester, New Jersey

Directions to the Highlands Council Office may be found at <http://www.nj.gov/njhighlands/about/contact/index.html>. Written comments may also be

submitted at the public hearing. It is requested (but not required) that anyone providing

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testimony at the public hearing submit a copy of any prepared text to the stenographer at the hearing.

Submit comments by (*Insert Date*) electronically at <http://www.nj.gov/dep/rules/comments>.

The Department of Environmental Protection (Department or DEP) encourages electronic submittal of comments. In the alternative, comments may be submitted on paper to:

G. Colin Emerle, Esq.

Attn.: DEP Docket No.

Department of Environmental Protection

Office of Legal Affairs

Mail Code 401-04L;

PO Box 402

401 East State Street, 7th Floor

Trenton, NJ 08625-0402

This rule proposal may be viewed or downloaded from the Department's web site at <http://www.nj.gov/dep/rules>.

The agency proposal follows:

## Summary

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As the Department is providing a 60-day comment period on this notice of proposal, this proposal is excepted from the rulemaking calendar requirements, pursuant to N.J.A.C. 1:30-3.3(a) 5.

The Department is proposing amendments to the septic system density standards in the Highlands Water Protection and Planning Act Rules (Highlands Rules) at N.J.A.C. 7:38-3.4(b). The Highlands Rules apply only in the preservation area of the Highlands Region, and establish a permit program and environmental standards for development in the preservation area as required by the Highlands Water Protection and Planning Act (Highlands Act), N.J.S.A. 13:20-1 et seq. Where development is not otherwise authorized pursuant to a Highlands Act exemption or waiver, the septic system density standards are applied through Highlands permits (the Highlands Preservation Area Approvals or HPAAAs) in order limit the amount of septic effluent that may be discharged into the ground water in a particular area for purposes of preventing degradation of water quality in that area.

Under existing N.J.A.C. 7:38-3.4(b) there are two septic system density standards. If a lot in the preservation area contains all forest, no more than one individual subsurface sewage disposal system (informally referred to as a septic system) is permitted for each 88 acres of the lot. If a lot does not contain forest, no more than one individual subsurface sewage disposal system is permitted for each 25 acres of the lot. The rule also explains how to determine the septic system density standard for a lot containing both forested and non-forested areas, and for aggregated non-contiguous lots.

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As explained in more detail below, the Department is proposing amendments to N.J.A.C. 7:38-3.4(b) that relate the septic system density standards to the three land use capability (LUC) zones (Protection, Conservation, and Existing Community) established by the Highlands Water Protection and Planning Council (Highlands Council) in the Highlands Regional Master Plan (RMP), and that are based on a significantly expanded ground water nitrate data set.

As proposed to be amended, N.J.A.C. 7:38-3.4(b) includes three septic system density standards. On a lot in the preservation area located in the Protection LUC Zone, no more than one individual subsurface sewage disposal system is permitted for each 23 acres of the lot. On a lot located in the Conservation LUC Zone, no more than one individual subsurface sewage disposal system is permitted for each 12 acres of the lot. Finally, on a lot in the Existing Community LUC Zone, no more than one individual subsurface sewage disposal system is permitted for each 11 acres of the lot.

### Background

The existing septic system density standards at N.J.A.C. 7:38-3.4(b) were promulgated as part of the new Highlands Rules effective May 9, 2005 (see 37 N.J.R. 2050 (a)), and were readopted effective December 4, 2006 (see 37 N.J.R. 4767(a) and 38 N.J.R. 5011(a)). The New Jersey Farm Bureau challenged the standards in the Appellate Division. In re Highlands Water Protection and Planning Act Rules, N.J.A.C. 7:38-1 et seq., 401 N.J. Super. 587 (App. Div. 2008). The Farm Bureau argued that the standards lacked any scientific foundation and therefore were arbitrary and capricious because the Department: (1) used the drought of record rather than

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the annual average recharge rate in determining that the amount of water available for nitrate dilution in the Highlands Region is 9.8 inches per year; (2) arbitrarily assumed the average number of persons per household in the Highlands Region is four rather than the actual average of 2.7; and (3) arbitrarily selected low ambient nitrate levels for both forested and non-forested areas.

The Court found that the Farm Bureau raised substantial questions regarding the reasonableness of the Department's methodology requiring supplementation of the record, and remanded the case to the Department to afford the Farm Bureau an evidentiary hearing before the Office of Administrative Law (OAL) to determine if the Department had reasonably implemented the section of the Highlands Act requiring the adoption of a septic system density standard. The Court retained jurisdiction over the case.

The OAL hearing was held on January 13 through 16, 2009. In an Initial Decision dated March 24, 2009, the Administrative Law Judge (ALJ) concluded that the rule at N.J.A.C. 7:38-3.4 establishing the septic system density standards was based upon substantial credible evidence in the record and was a valid exercise of the agency's discretion. In his Final Decision dated July 13, 2009, the Commissioner of the Department adopted and supplemented the Initial Decision, finding there was substantial, credible evidence in the record to conclude the Department had a rational, scientific basis for establishing the septic system density standards, and that the Farm Bureau did not meet its burden of proving the Department's methodology was arbitrary or capricious. In re Highlands Water Protection and Planning Act Rules, N.J.A.C. 7:38-

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1 et seq., OAL Dkt No. ELU6353-08, 2009 N.J. AGEN 175, Initial Decision (March 24, 2009), 2009 N.J. AGEN 119, Final Decision (July 13, 2009).

The Farm Bureau and the Department filed additional briefs with the Appellate Division and oral argument was scheduled for March 9, 2010. At the request of the Department, and with the consent of the Farm Bureau, the Court entered an order dated March 5, 2010, removing the appeal from its calendar and staying it until September 9, 2010. With the consent of the Farm Bureau, the Department requested, and the Appellate Division granted, additional stays of the appeal until December 28, 2011. Before the expiration of the stay, the Department moved for a remand so that it could develop and propose appropriate amendments to the septic system density standards. The Court granted the motion and dismissed the appeal without prejudice on January 25, 2012.

#### Development of the proposed amended septic system density standards

##### *The nitrate dilution model and equation*

The Highlands Act at N.J.S.A. 13:20-32e required the Department to establish “a septic density standard established at a level to prevent degradation of water quality, or to require the restoration of water quality, and to protect ecological uses from individual, secondary, and cumulative impacts, in consideration of deep aquifer recharge available for dilution.” As noted previously, the Department’s methodology for developing the existing septic system density standards was found appropriate through the fact-finding hearing at the OAL. The methodology employs a nitrate dilution model to estimate the average land area required per septic system to

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generate enough recharge (precipitation that percolates into the ground to recharge the aquifer) to dilute the amount of nitrate discharged in the effluent of that system to a particular target concentration. The model was explained in the summary of the proposal to readopt the Highlands Rules (see 37 N.J.R. 4767(a), pp. 4779-4781; Dec. 19, 2005) and in the Basis and Background document referenced in that proposal and made available at the time (see <http://www.state.nj.us/dep/highlands/docs/septicdensity.pdf>). The Department also responded to comments regarding the model in the notice of adoption (see 38 N.J.R. 5011(a); Dec. 4, 2006).

The nitrate dilution model equation is:

$$A_{97\%} = 4.56 \frac{PN}{RT}$$

Where:

$A_{97\%}$  = size of lot in acres

P = number of persons per household

N= nitrate loading rate (pounds per person, per year)

R = recharge rate (inches per year)

T = target ground water nitrate concentration (milligrams per liter)

4.56 = factor to convert the result to acres and account for the assumption that 97 percent of the lot is available to generate recharge because of the Highlands Act's prohibition of impervious surfaces on more than three percent of the land area. (See N.J.S.A. 13:20-32(h), and N.J.A.C. 7:38-3.5.)

To obtain the existing septic system density standards, there were two target ground water nitrate concentrations used in the equation, reflecting two land use scenarios in the preservation area: non-forested (that is, areas of mixed land use, where there is development and/or agricultural uses) and forested (that is, pristine areas), recognizing that the presence or absence of human activity impacts the ground water quality. For the reasons explained in

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summary of the 2005 proposal and the Basis and Background document, the following values were employed in the equation:

P = 4 persons household

N = 10 pounds per person, per year

R = 9.8 inches/year

T = 0.76 mg/L (in non-forested areas) or 0.21 mg/L (in forested areas)

For nonforested parts of the preservation area, the equation yielded a result of 24.5 acres, which was rounded up to 25 acres. For forested parts of the preservation area, the equation yielded a result of 88.4 acres, which was rounded down to 88 acres. Thus, the septic system density standard for a lot that does not contain forest was established as one septic system per 25 acres. On a lot that does contain forest, the standard was established as one septic system per 88 acres.

#### *2011 Science Advisory Board report on nitrate dilution model*

In October 2010, during the pendency of the Farm Bureau's appeal, the Department referred a series of questions regarding the nitrate dilution model to the Water Quality and Quantity Committee of the Science Advisory Board (SAB). The Department established the SAB in May 2009 (see <http://www.state.nj.us/dep/sab/sab-ao.pdf>) to provide independent peer review and advice to the Commissioner, as requested by the Commissioner, on scientific and technical issues relevant to the Department's mission. On March 14, 2011, the SAB issued a report concluding that the nitrate dilution model is an appropriate tool for estimating, on a



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regional basis, the impacts to ground water from nitrate in septic system effluent. See Nitrate Dilution Model Summary Report – May 2011, available on the SAB’s website at <http://www.state.nj.us/dep/sab/>.

*Highlands RMP land use capability zones*

Pursuant to the Highlands Act, the Highlands Council was charged with adopting a regional master plan for the entire Highlands region, N.J.S.A. 13:20-8, which includes both the planning area and the preservation area. The legislature established certain mandatory provisions of the RMP, including a resource assessment and a smart growth component. N.J.S.A. 13:30-11. The resource assessment was to “determine the amount and type of human development and activity which the ecosystem of the Highlands region can sustain while still maintaining the overall ecological values thereof,” with special reference to certain considerations affecting the ecological integrity of the Highlands region, including ground water quality. N.J.S.A. 13:20-11(a)(1). The smart growth component was to include an assessment, of “opportunities for appropriate development, redevelopment, and economic growth, and a transfer of development rights program . . . .” based on the resource assessment and other factors. N.J.S.A. 13:20-11(a)(6). As part of the smart growth component, the Highlands Council was directed to prepare a land use capability map. N.J.S.A. 13:20-12 further directed that, with regard to the preservation area, the RMP must include a land use capability map and a statement of policies for planning and managing the development and use of land in the preservation area.

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Since the Department was required under the Highlands Act to promulgate its rules by May 7, 2005 (270 days after the August 10, 2004, enactment of the Act; N.J.S.A. 13:20-33), its determination to use a regional approach reflecting forested (pristine) and non-forested (mixed land use) areas in the preservation area for purposes of the septic system density standards predated the work of the Highlands Council in developing the RMP, which was adopted in 2008. Consequently, the Department did not have the benefit of the Highlands Council's creation of the Land Use Capability (LUC) Zone Map, which is one of the series of Land Use Capability Maps in the RMP (see Chapter 3, Part 6, Subpart D). (See the RMP technical report, [http://www.highlands.state.nj.us/njhighlands/master/tr\\_land\\_use\\_capability\\_zone\\_map.pdf](http://www.highlands.state.nj.us/njhighlands/master/tr_land_use_capability_zone_map.pdf).)

The RMP defines three overlay LUC zones for the entire Highlands Region (both planning and preservation areas): the Protection Zone, the Conservation Zone, and the Existing Community Zone. The Protection Zone consists of "high natural resource value lands that are important to maintaining water quality, water quantity, and sensitive ecological resources and processes." The Conservation Zone consists of "areas with significant agricultural lands and interspersed with associated woodlands and environmental features that should be preserved when possible." The Existing Community Zone consists of "areas with regionally significant concentrated development signifying existing communities" that "tend to have limited environmental constraints . . . and may have existing infrastructure that can support development and redevelopment." (RMP Chapter 3, Part 6, Subpart D, pp. 111-112). Of the approximately 414,900 acres in the preservation area of the Highlands Region, 327,449 acres are in the

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Protection Zone; 54,555 acres are in the Conservation Zone; and 32,896 acres are in the Existing Community Zone.

Among the water quality protective measures the Highlands Council incorporated into the RMP are “allowable septic system densities” for municipalities in the planning area of the Highlands Region, based on nitrate target concentrations that reflect the predominant land use in the respective LUC zones. (See RMP Chapter 3, Part 2, Subpart F, pp. 89-91; see also Water Resource Assessment Technical Report, Vol. 1. -Watersheds and Water Quality, 2008, p. 172; [http://www.highlands.state.nj.us/njhighlands/master/tr\\_water\\_res\\_vol\\_1.pdf](http://www.highlands.state.nj.us/njhighlands/master/tr_water_res_vol_1.pdf).) Having determined that the LUC zones appropriately group like land uses, land cover types, and resources, the Department is proposing amended septic system density standards applicable in the preservation area of the Highlands Region that are similarly based on nitrate target concentrations reflective of the land uses in the LUC zones. This enhances consistency between the Highlands Rules and the RMP with respect to standards for development and water quality protection in the preservation and planning areas.

*Revised ground water nitrate target concentrations and use in the nitrate dilution model*

When the Department promulgated the existing septic system density standards in 2005, the Department used Highlands Region-specific data in the USGS’s NWIS (National Water Information System) database to establish the target ground water nitrate concentrations for the forested and nonforested areas of the preservation area. In developing the target ground water nitrate concentrations for the LUC Zones for purposes of the proposed amended standards, the

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Department used additional nitrate data reported pursuant to the New Jersey Private Well Testing Act (PWTA), N.J.S.A. 58:12A-26 et seq., and a logistic-regression model developed by USGS to correlate the nitrate data with Highlands Region land use characteristics. See Median Nitrate Concentrations in Groundwater in the New Jersey Highlands Region Estimated Using Regression Models and Land-Surface Characteristics, by Baker et al. (2015) (<http://pubs.er.usgs.gov/publication/sir20155075>). The logistic-regression model was reviewed by the SAB, which concluded that it is an appropriate approach to estimating region-wide, in this case, LUC Zone-wide, median nitrate concentrations. See Response to Charge Question - Assessment of the Median Nitrate Concentration Model for the New Jersey Highlands in Subwatersheds and Land Use Capability Zones - August 2014, available on the SAB's website at <http://www.state.nj.us/dep/sab/>.

The PWTA requires testing of the water from private potable water supply wells as a condition of sale of the real property that the well serves. N.J.S.A. 58:12A-27. The PWTA also requires lessors of real property served by a private water supply well to test the water at least once every five years. N.J.S.A. 58:12A-32. Under the PWTA, the water must be tested for nitrate, among other parameters. The water testing results are reported by the certified laboratories that conduct the analyses to the persons who request the testing and to the Department. The PWTA prohibits the release of the property-specific water test results to the public. However, the Act does require the Department to compile the test data in a manner useful to government entities for the purposes of studying groundwater supplies or contamination in the State. N.J.S.A. 58:12A-30.

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The Department reviewed the PWTA dataset for the period September 2002 through January 2011, and provided USGS with the results of 19,371 nitrate analyses from private potable water supply wells in the Highlands Region. Because the PWTA prohibits the release to the public of specific sample locations, the Department had to devise a method that obscures the specific location of the samples without undercutting the usefulness of the data. This method involves creating a grid of 9,745 2,000 by 2,000 foot cells superimposed on the Highlands Region. The Department provided USGS with nitrate sample data identified by cell, not specific location.

There were 5,228 cells without nitrate data. The 4,517 cells with nitrate data were not evenly distributed across the Highlands Region. Since some cells lacked data and the rest of the cells were not evenly distributed, it was necessary to employ a logistic-regression model to estimate median nitrate concentrations across all cells. To develop the logistic-regression model, both a median nitrate value had to be calculated for each cell with one or more samples and the land use characteristics for the cells had to be identified. The five land use characteristics selected by USGS were percent urban land use, percent agricultural land use, density of existing septic systems, total length of streams, and number of known contaminated sites. The USGS estimated a median nitrate concentration in each of the cells using the logistic-regression model. The centroid of each cell was assigned to either the Highlands planning area or preservation area and also to one of the overlay LUC Zones established in the RMP discussed previously (Conservation Zone, Existing Community Zone, or Protection Zone). The median of all the median nitrate concentrations in the cells of a Zone became the target median nitrate

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concentration used in the nitrate-dilution model to establish the septic density standard for each Zone.

Of 19,371 samples in the PWTA data set, 4,471, or approximately 23 percent, are reported as non-detect (ND). ND samples were those that did not contain nitrate in concentrations above the method detection level (MDL). To calculate the median nitrate concentration in any cell with one or more NDs, a method to substitute a value for NDs was necessary. The USGS investigated how several common approaches for analysis of data containing ND values would affect the logistic-regression model's estimates of median nitrate concentration. The USGS looked at four different substitutions for the ND value:

- Replace each ND value with a value of 0.0 mg/L
- Replace each ND value with a value equal to one-half of the MDL associated with the specific analysis technique used for the particular sample.
- Replace each ND value with a value based on a Kaplan-Meier analysis of the distribution of observed nitrate in each cell. (A Kaplan-Meier analysis is a statistical approach for analyzing data sets with ND values.)
- Replace each ND value with the MDL associated with the specific analysis technique used for the particular sample.

The USGS estimated a median nitrate concentration in each of the cells using each of these four ND substitutions. The estimated median nitrate concentration for each of the LUC

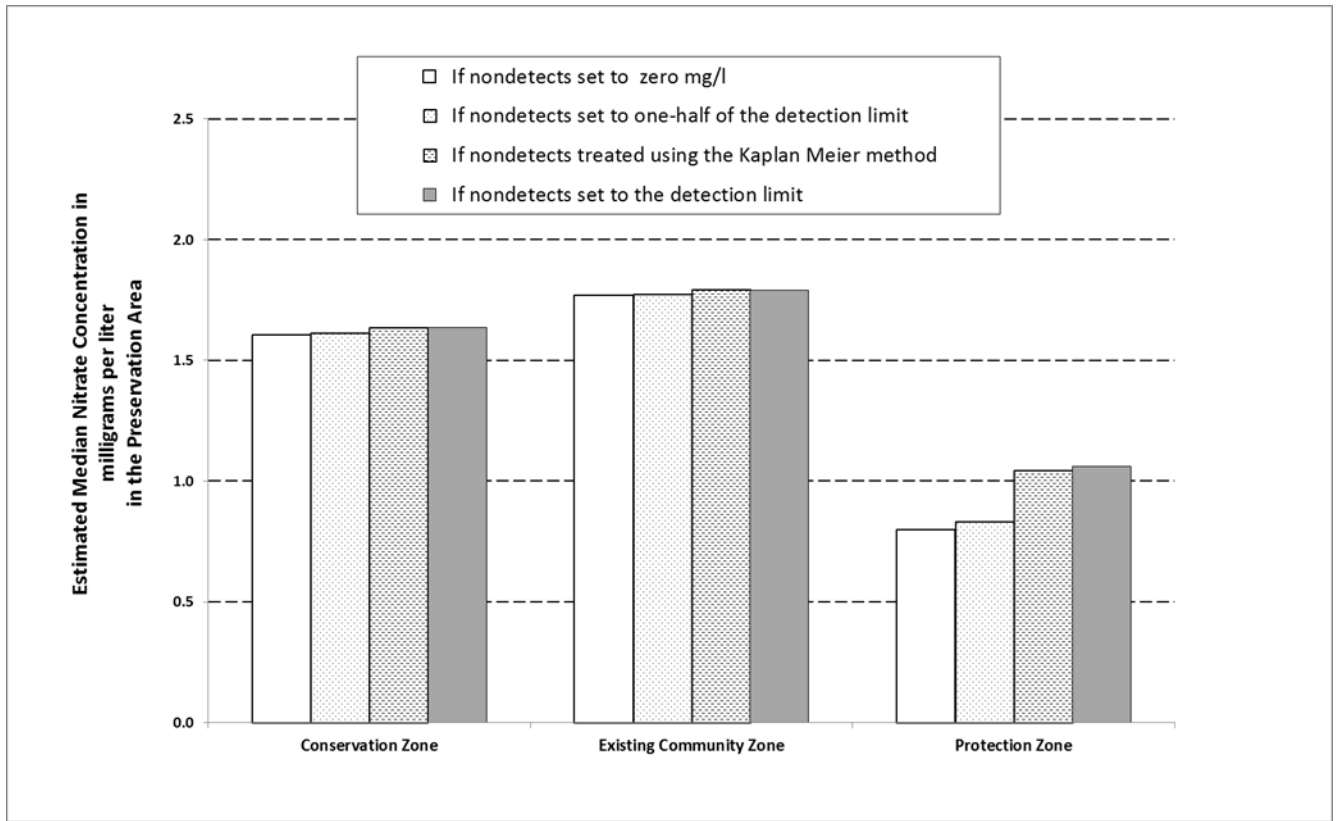
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Zones in the Highlands preservation area, using each of the four approaches described above, is shown in the Table below and in the bar graph that follows.

<b>Estimated median nitrate concentration (mg/L) from logistic-regression model in the Highlands preservation area by LUC Zone, using different substitutions for non-detect values.</b>				
	Non-detect (ND) value substituted with:			
	Zero	0.5 DL	Kaplan-Meier	DL
Conservation zone	1.60	1.61	1.64	1.63
Existing community zone	1.77	1.77	1.79	1.79
Protection zone	0.80	0.83	1.05	1.06

Note: All values from Table 10 of Baker et al. (2015).

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The four substitutions for ND values give essentially the same results within each LUC Zone, except within the Protection Zone. In the Protection Zone in the preservation area, substituting either 0.0 mg/L or 50 percent of the MDL for the ND value gives an estimated median nitrate concentration of 0.80 mg/L and 0.83 mg/L, respectively. Substituting either a value based on a Kaplan-Meier distribution analysis or the MDL for the ND value gives a result of 1.05 mg/L and 1.06 mg/L, respectively.

In determining the appropriate approach for substitution of the ND values, the Department considered the mandate under the Act to establish the septic density standards at



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levels that will prevent degradation of water quality, or require the restoration of water quality, and protect ecological uses from individual, secondary, and cumulative impacts, in consideration of deep aquifer recharge available for dilution. Of the four approaches, substituting zero for all ND values provides the lowest estimate of median nitrate concentration, which when used in the nitrate-dilution model yields the most protective septic system density standards.

This approach results in estimated median nitrate values in the Protection, Conservation, and Existing Community Zones in the preservation area of 0.80 mg/L, 1.60 mg/L, and 1.77 mg/L, respectively. Using the nitrate dilution model equation with these median nitrate values, a recharge value of 9.8 inches per year, a nitrate loading of 10 pounds per person per year, and a household occupation rate of 4 people per household, the calculated acres per septic system for the Protection, Conservation, and Existing Community Zones in the preservation area are 23.3, 11.6, and 10.5, respectively. Those values were rounded to the nearest whole acre to arrive at the proposed septic system density standards of 23, 12, and 11 in the Protection, Conservation, and Existing Community Zones, respectively.

Proposed septic density standards and potential additional septic systems in the preservation area

To estimate the amount of additional development on septic systems that might be possible under the proposed standards as compared to the existing standards, the Department conducted a parcel analysis. There are approximately 414,900 acres in the preservation area of the Highlands Region. Approximately 345,850 acres of the preservation area have already been developed or are permanently preserved. The balance of approximately 69,050 acres is spread

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among 9,378 individual lots. For the already preserved lands, the Department used geographic information system (GIS) data that the Highlands Council makes available on its website (see [http://www.nj.gov/njhighlands/gis/downloads/gis\\_data/Preserved\\_Lands.zip](http://www.nj.gov/njhighlands/gis/downloads/gis_data/Preserved_Lands.zip)). For the developed areas, the Department used its land use/land cover GIS data (see <http://www.nj.gov/dep/gis/listall.html>). For the lots, the Department used the parcel data available from the New Jersey Geospatial Data Clearinghouse (NJGIN) at <https://njgin.state.nj.us/>.

The Department applied the existing septic system densities of one septic system per 25 acres of nonforested land and one septic system per 88 acres of forested land at the lot level. The number of septic systems that could be built was estimated using the approach in the existing rule at N.J.A.C. 7:38-3.4(b)4, that is, calculating the number of acres on the lot that are forest and dividing that number by 88 and calculating the number of acres on the lot that are nonforest and dividing that number by 25, summing the results, and rounding down to the nearest whole number. Where the calculation indicated no septic system could be built under the standards, the Department assumed one system could be built through an applicable Highlands Act exemption (N.J.S.A. 13:20-28 and N.J.A.C. 7:38-2.3). The result of adding together the potentially allowable septic systems per lot calculated under the existing standards and those that could be built through exemption is 9,565 septic systems. The total number of potentially allowable septic systems could be less than 9,565 because of site-specific environmental constraints, as well as applicable local zoning and building restrictions, and whether a Highlands exemption applies.

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Using the same method, the Department applied the proposed septic system densities of one septic system per 23 acres in the Protection Zone, 12 acres in the Conservation Zone, and 11 acres in the Existing Community Zone at the lot level. The number of septic systems that could be built was estimated using the approach in the proposed amended rule at N.J.A.C. 7:38-3.4(b)4, that is, calculating the number of acres on the lot that are in each Zone and dividing that number, as applicable, by 23, 12, or 11, summing the results, and rounding down to the nearest whole number. Where the calculation indicated no septic system could be built under the standards, the Department assumed one system could be built through a Highlands Act exemption. The result of adding together the potentially allowable septic systems calculated under the proposed standards and those that could be built through exemption per lot is 10,710 septic systems. The total number of potentially allowable septic systems could be less than 10,710 because of site-specific environmental constraints, as well as applicable local zoning and building restrictions, and whether a Highlands exemption (N.J.S.A. 13:20-28 and N.J.A.C. 7:38-2.3) applies.

The parcel analysis indicates that the proposed amendments to the septic system density standards could result in up to 1,145 additional septic systems, or about 12 percent more individual septic systems than under the existing rule.

Proposed amendments to N.J.A.C. 7:38-1.4 Definitions and N.J.A.C. 7:38-3.4 NJPDES permitted discharges and wastewater facilities

As explained above, the determination of how much development on septic systems can be constructed on a given lot in the Highlands preservation area under the proposed amended

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septic system density standards at N.J.A.C. 7:38-3.4(b) depends on the LUC Zone(s) in which the lot is located. As mandated by the Highlands Act, the LUC Zones were established by the Highlands Council in the Highlands RMP. Accordingly, the Department is proposing definitions at N.J.A.C. 7:38-1.5 for the three LUC Zones – “Conservation Zone,” “Existing Community Zone,” and “Protection Zone” – that are the definitions for the LUC Zones as set forth in the Glossary of the RMP. Each LUC Zone is defined in terms of specific areas identified on the Land Use Capability Zone Map of the RMP. The RMP is incorporated in the Highlands Rules at N.J.A.C. 7:38-1.1(l).

At N.J.A.C. 7:38-3.4(b), for purposes of calculating the number of septic systems that can be permitted on a given lot, the Department is proposing to replace the determination of whether the lot contains forest or does not contain forest with the determination of whether a lot is located in the Protection Zone, the Conservation Zone, and/or the Existing Community Zone. As explained previously, the septic system density standard that applies to a lot entirely located in the Protection Zone is one septic system (or equivalent disposal unit) for each 23 acres of the lot. The septic system density standard that applies to a lot entirely located in the Conservation Zone is one system for each 12 acres of the lot. For a lot entirely located in the Existing Community Zone, the standard is one system for each 11 acres of the lot.

To ascertain the LUC Zone in which a lot is located, the applicant will refer to the GIS dataset that constitutes the Highlands Council’s Land Use Capability Zone Map, which is available on the Highlands Council’s website. The metadata describing the Land Use Capability Zones GIS dataset is also available from the Council’s website.

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As under the existing rule for lots that contain both forest and nonforest areas, the proposed amendments establish the method for determining the number of permitted septic systems on a lot that has land located in more than one of the LUC Zones. The method is essentially the same as under the existing rule: Calculate the number of acres of the lot in each of the respective Zones, divide the acreage in the Protection Zone by 23, the acreage in the Conservation Zone by 12, and the acreage in the Existing Community Zone by 11. The resulting sum is the number of septic units that can be permitted. If the sum is a fraction, the number is rounded down to the nearest whole number.

### **Social Impact**

The proposed amendments will have a positive social impact by continuing to preserve the ability of a landowner to develop property without degrading water quality. While the proposed amendments potentially allow for some increase in development on septic systems in the preservation area, the septic system density standards will continue to protect water quality in view of the legislative mandate to “accommodate local and regional growth and economic development in an orderly way while protecting the Highlands environment from the individual and cumulative adverse impacts thereof.” (N.J.S.A. 13:20-2)

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### **Economic Impact**

The Department does not anticipate the proposed changes will have a significant impact on the overall economy of the State of New Jersey, or any particular sector of the State's economy. The largest expected economic impact is the increased value of land for lots that will have the potential for additional development as a result of the proposed amendments, as described in the parcel analysis in the summary above. An increase in land value may translate to greater tax revenues for municipalities where these lots are located, and higher collateral value for land owners wishing to secure loans based upon property value. The potential for a modest amount of additional development represents the potential for a modest amount of short-term construction employment and additional tax revenue if improvements are made upon the land.

### **Federal Standards Analysis**

Executive Order No. 27 (1994) and N.J.S.A. 52:14B-1 et seq. (P.L. 1995, c.65) require State agencies that adopt, readopt, or amend State regulations that exceed any Federal standards or requirements to include in the rulemaking document a comparison with Federal law. The Department's authority for adopting a septic density standard for the preservation area comes solely from State statute, specifically N.J.S.A. 13:20-32e. The Highlands rules (N.J.A.C. 7:38) are not promulgated under the authority of, or in order to implement, comply with, or participate in any program established under Federal law or under a State statute that incorporates or refers to Federal laws, Federal standards or Federal requirements. Therefore, establishing limits on

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septic density is consistent with Federal requirements since there are no specific Federal standards of this type available for comparison.

### **Environmental Impact**

The Department anticipates that the proposed amended septic system density standards will maintain existing water quality in the preservation area and continue to protect it. The Department developed the proposed amended standards using the nitrate dilution model without eliminating or revising any of the input parameters except the target nitrate concentrations. As described in the summary above, the target nitrate concentrations better reflect background nitrate ground water concentrations because of the use of the expanded nitrate data set and better account for the influence of land uses on nitrate concentrations because of the use of the LUC Zones.

### **Jobs Impact**

The Department anticipates the proposed amendments will not have a significant impact on long-term employment in the State. However, as noted in the Economic Impact above, there may be short-term construction opportunities related to any additional development on septic systems attributable to the amended septic system density standards.

### **Agriculture Industry Impact**

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Pursuant to N.J.S.A. 52:14B-4, the Department has evaluated this rulemaking to determine the nature and extent of the impact of the proposed amendments on the agriculture industry. The proposed amended septic system density standards may increase agricultural property values in the preservation area because of increased development potential that will provide farmers with additional collateral, which they may use to obtain operating and capital loans. Access to additional capital could help preserve the agriculture industry in the region, which, according to the Highlands Act, is a “vital component of the economy, welfare, and cultural landscape of the Garden State” (N.J.S.A. 13:20-2).

### **Regulatory Flexibility Analysis**

In accordance with the New Jersey Regulatory Flexibility Act, N.J.S.A. 52:14B-16 et seq., the Department has determined that some of those that may be affected by the proposed amendments may be “small businesses” as defined in the Act. The Department does not have an estimate of the number of small businesses that own property in the preservation area that will be affected by the proposed amendments. The proposed amendments will not impose additional compliance, reporting, or recordkeeping requirements on small businesses, and will have the same impact on a small business as on any other person or entity seeking to undertake development on septic systems in the preservation area.

### **Housing Affordability Analysis**



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In accordance with N.J.S.A. 52:14B-4 as amended effective July 17, 2008, by P.L. 2008.c.46, the Department has evaluated this rulemaking to determine the impact, if any, on the affordability of housing. While the proposed amendments potentially allow for some increase in development on septic systems in the preservation area, as described above in the summary, the Department believes that it is extremely unlikely that the additional development would evoke a change in the average costs associated with housing.

### **Smart Growth Development Impact Analysis**

In accordance with N.J.S.A. 52:14B-4, as amended effective July 17, 2008, by P.L. 2008, c.46, the Department has evaluated the proposed amendments to determine the impact, if any, on housing production in Planning Areas 1 or 2, or within designated centers, under the State Development and Redevelopment Plan (State Plan). While the proposed amendments potentially allow for some increase in development on septic systems in the preservation area, as described above in the summary, the Department believes there is an extreme unlikelihood that the rule would evoke a change in housing production in Planning Areas 1 or 2 or in designated centers.

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**Full text** of the proposed amendments follows (additions shown in boldface **thus**; deletions indicated in brackets [thus]):

## **SUBCHAPTER 1. GENERAL INFORMATION**

### **7:38-1.4 Definitions**

The following words and terms, when used in this chapter, shall have the following meanings unless the context clearly indicates otherwise:

. . .

"Conservation restriction" means a restriction, easement, covenant, or condition, in any deed, will or other legally binding instrument, other than a lease, that is executed by or on behalf of the owner of the land, that is appropriate to retaining land or water areas predominantly in their natural, scenic or open or wooded conditions for purposes of conservation of soil or wildlife; for outdoor recreation or park use; or for creation or maintenance of suitable habitat for fish or wildlife; that grants the Department and the Highlands Council and their staff access to the property for the purpose of determining compliance with the Highlands Act and/or the terms of any HPAA, HRAD, order, decision, agreement or settlement entered pursuant to the Highlands Act, and that forbids or limits on that land any or all:

1. – 7. (No change.)

**“Conservation Zone” means those areas identified on the Land Use Capability Zone Map of the regional master plan consisting of significant agricultural lands and limited**

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**low-density development interspersed with environmental features that should be preserved whenever possible.**

. . .

"Environmental land use or water permit" means a permit, approval, or other authorization issued by the Department of Environmental Protection pursuant to the Freshwater Wetlands Protection Act, N.J.S.A. 13:9B-1 et seq., the Water Supply Management Act, N.J.S.A. 58:1A-1 et seq., the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq., The Realty Improvement Sewerage and Facilities Act (1954), N.J.S.A. 58:11-23 et seq., the Water Quality Planning Act, N.J.S.A. 58:11A-1 et seq., the Safe Drinking Water Act, N.J.S.A. 58:12A-1 et seq., or the Flood Hazard Area Control Act, N.J.S.A. 58:16A-50 et seq.

**“Existing Community Zone” means those areas identified on the Land Use Capability Zone Map of the regional master plan consisting of extensive and intensive existing development which may have capacity to support additional human development without adversely affecting the ecological value of the Highlands Region.**

. . .

"Property as a whole" means all lots assembled as one investment or to further one development plan. The property as a whole may include more than one municipal tax block or lot. The property as a whole may also include blocks or lots that were previously sold or

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developed, if those blocks or lots and the remaining unsold or undeveloped blocks or lots were part of one.

**“Protection Zone” means those areas identified on the Land Use Capability Zone Map of the regional master plan consisting primarily of high resource value lands in terms of forest resources, critical habitat, water quality and quantity, and ecological function, and having limited or no capacity to support human development without adversely affecting overall ecological function of the Highlands Region.**

### **SUBCHAPTER 3. PRESERVATION AREA STANDARDS**

#### **7:38-3.4 NJPDES permitted discharges and wastewater facilities**

(a) (No change.)

(b) A new individual subsurface disposal system or aggregate of equivalent disposal units where the sanitary wastewater design flow is 2,000 gallons per day or less is permitted within the preservation area as set forth at (b)1 through [4]6 below. [Forest under this subsection shall be identified and calculated in accordance with N.J.A.C. 7:38-3.9.] For the purposes of this subsection, "equivalent disposal unit" means: for residential development, one system serving one single-family home sized in accordance with the Standards for Individual Subsurface Sewage Disposal Systems, Volume of sanitary sewage, at N.J.A.C. 7:9A-7.4; or for non-residential development or residential development comprising structures other than single-

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family homes, 500 gallons of wastewater per day generated for the development type, as determined in accordance with N.J.A.C. 7:9A-7.4:

1. On a lot that [contains all forest] **is entirely located in the Protection Zone**, the applicant proposes no more than one individual subsurface disposal system or equivalent disposal unit for each [88] **23** acres of the lot[;].

2. On a lot that [does not contain forest] **is entirely located in the Conservation Zone**, the applicant proposes no more than one individual subsurface disposal system or equivalent disposal unit for each [25] **12** acres of the lot[;].

3. **On a lot that is located entirely in the Existing Community Zone, the applicant proposes no more than one individual subsurface disposal system or equivalent disposal unit for each 11 acres of the lot.**

4. **To determine if a lot is located in the Protection Zone, Conservation Zone, and/or Existing Community Zone, the applicant shall refer to the Land Use Capability Zones GIS dataset constituting the Land Use Capability Zone Map, available from the Highlands Council website at <http://www.highlands.state.nj.us/njhighlands/gis/downloads/index.html> (see also the metadata for the Highlands Council's Land Use Capability Zones dataset, at [http://www.nj.gov/njhighlands/gis/downloads/gis\\_data/LUCZ.html](http://www.nj.gov/njhighlands/gis/downloads/gis_data/LUCZ.html)).**

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[3.] **5.** For the purposes of this subsection, the acreage of a lot shall be the total area of the lot(s) on which the proposed development is located as described by deed(s) or subdivision plat(s) on file with the municipal or county clerk.

[4.] **6.** For a lot [containing both forest and nonforest areas] **that has land located in more than one of the Zones identified at (b)1, 2, and 3 above**, the total number of allowable individual subsurface disposal systems or equivalent disposal units permitted on the lot shall be determined by calculating the number of acres of the lot that are [forest (as determined in accordance with the method at N.J.A.C. 7:38-3.9)] **in each of the respective Zones**, and dividing [that number by 88; calculating the remaining number of acres of the lot that are not forest and dividing that number by 25] **the acreage in the Protection Zone by 23, the acreage in the Conservation Zone by 12, and the acreage in the Existing Community Zone by 11**; and then summing the results. If the sum results in a fraction, the number shall be rounded down to the nearest whole number in order to determine the number of permitted individual subsurface disposal systems or equivalent disposal units.

Recodify existing 5. as **7.** (No change in text.)

(c) (No change.)